

Deliverable D3.2: CYCERONE Platform Governance and Operational Model

Deliverable 3.2

Contractual Date: 28/02/2026

Actual Date: 27/02/2026

Grant Agreement No.: 101189986

Work Package: WP3

Task Item: T3.2

Lead Partner: 28DIGITAL (formerly EIT Digital)

Authors: Aalto EE, 28DIGITAL

Contributors: Aalto EE, Rīgas Tehniskā universitāte (RTU), Tampere University (TAU)

Abstract

This deliverable presents the outcomes of Task 3.2 and defines the governance and operational framework for the CYCERONE portal during the project lifetime. The portal is planned and designed as a lightweight, shared backlink and interface that showcases and enhances the visibility and discoverability of cybersecurity training offerings from project consortium partners. A clearly defined governance and operational model is required to ensure coordinated management and consistent practices across the consortium, in line with CYCERONE's distributed content ownership, delivery model, and its mission and objectives. The governance model described in this document is intentionally proportionate to the project's scope and duration, building on existing project management and educational delivery structures and highlighting both collective coordination and partner-level responsibilities. This deliverable serves as a practical reference for project partners, providing a shared understanding of roles, decision-making processes, and operational principles that support transparent, compliant, and efficient management of the CYCERONE portal.

Versioning and Contribution History

Version	Date	Author/s	Notes
0.1	18/12/2025	Aalto EE	
0.2	30/01/2026	28DIGITAL	
Peer Review	12/02/2026	Aalto EE RTU	
Quality Controls	19/02/2026	TAU	

List of Contents

Versioning and Contribution History	2
List of Figures	3
List of Tables	4
1. Introduction	4
2. Work Package 3	5
3. Deliverable 3.2	6
3.1 Task 3.2	6
3.2 Deliverable Objectives	7
4. Reference Conceptual Model	7
5. Governance Structure	9
5.1 Governance Body and Decision-Making	10
6. Governance Mechanisms	14
7. Governance Scope	16
8. Influencing Factors	18
8.1 Governing External and Internal Influencing Factors	18
9. Governance Outcomes	20
10. Portal Lifecycle and Sustainability	22
10.1 Potential Continuation and Integration Models	23
10.2 Value Creation through Broader Awareness and Alignment	24
11. Conclusion	25
12. References	25

List of Figures

Figure 1. Costabile. Conceptual model of platform ecosystem governance (2024)	8
Figure 2. Governance structure of the CYCERONE portal	12

List of Tables

Table 1 – Roles and Responsibilities

10

1. Introduction

The CYbersecurity aCadEmy foR educatiOn and experieNcE (CYCERONE) is an EU co-funded project that aims at enhancing cybersecurity skills by offering a unified access interface, with a particular focus on SMEs and the private and public sectors. The project seeks to amplify the reach of higher education institutions' provision of training providers in cybersecurity through strategic marketing and dissemination within the EU Cybersecurity Skills Academy [1] initiative's scope, as envisaged at the time this document is being produced and published, and by connecting to existing tools, such as the EU Digital Skills and Jobs Platform [2] and ENISA's CYBERHEAD Database [3]. The initiative will provide cybersecurity courses and training that continually align with and adapt to dynamic market needs to address current skills gaps and foster a culture of innovation and an ethical approach to technological advancement.

This deliverable presents the outcomes of Task 3.2 and defines the governance and operational framework for the CYCERONE unified access interface - a portal - to be utilised during the project lifetime.

To better reflect this intended purpose, the consortium has decided to use the term CYCERONE "portal" instead of "platform," as referred to in the Grant Agreement. In section 2, it is still defined as "platform" solely to maintain formal consistency with the original plan. The term "portal" more accurately conveys the system's informational and navigational functions, distinguishing it from content-hosting or learning management solutions.

The CYCERONE portal is designed as a lightweight, shared backlink and interface that showcases and enhances the visibility and discoverability of cybersecurity training offerings from consortium partners. A clearly defined governance and operational model is required to ensure coordinated management, clarity of responsibilities, and consistent practices across the consortium, in line with the consortium's distributed model of content ownership and delivery and with CYCERONE's mission and objectives.

The governance model described in this document is intentionally proportionate to the project's scope and duration, building on existing project management structures and highlighting both collective coordination and partner-level responsibilities. This deliverable serves as a practical reference for project partners, providing a shared understanding of roles, decision-making processes, and operational principles that support transparent, compliant, and efficient management of the CYCERONE portal while also meeting the portal's intrinsic governance requirements.

To support the development of the governance and operational model for the portal, all partner organisations were invited to provide input through a targeted survey conducted in late 2025, complemented by discussions during regular T3.2 task meetings. The survey collected insights from 14

out of 15 partners. The results and input confirmed a strong preference for a lightweight, transparent governance approach with a clear definition of roles, pragmatic decision-making processes, shared quality standards, and a realistic and flexible approach to project sustainability. This feedback has been incorporated throughout the deliverable and will continue to guide the refinement of the governance model throughout the project's lifetime.

In addition to the partner survey, a dedicated online workshop on the CYCERONE portal governance and operational model was held on 16 December 2025. The workshop for all partners was used to present and discuss the proposed governance structure, roles, and operational principles, and to validate their clarity and feasibility. Partner feedback and improvement suggestions collected during the workshop were reviewed and, where relevant, incorporated into the final governance and operational model presented in this deliverable.

2. Work Package 3

This document is produced as part of the CYCERONE project's Work Package 3 (WP3), "Platform Design and Set-Up". While the term 'Platform' is used in the following Grant Agreement-based definitions, the consortium decided, at the implementation level, that a portal will support the CYCERONE digital infrastructure.

The objectives of WP3 are the following:

- To design excellent education programmes addressing Europe's skills in cybersecurity by engaging academia, research, and innovative businesses.
- To set up the platform governance and operations model.
- To ensure the platform connects to the EU cybersecurity ecosystem and aligns with projects funded under the Activity 2 [4].
- To create synergies between the project and corporations, SMEs, and public sector.
- To finalise the development of the digital platform.
- To define the platform business model to ensure the long-term vision and sustainability.

Per the terms of the Grant Agreement, WP3 is structured around the following tasks:

- T3.1 Design of the education programmes, modules and units' format.
- T3.2 Create a platform governance and operations model.
- T3.3 Enhancement of additional solutions, projects, cybersecurity development skills, and connection of the platform to the EU cybersecurity ecosystem.
- T3.4 Creation of architecture and deployment of courses on the digital platform.
- T3.5 Long-term integration of Platform business model within the EU Cyber Skills Academy.

3. Deliverable 3.2

This report constitutes CYCERONE Deliverable D3.2 – Platform Governance and Operational Model - and presents the outcomes of Task 3.2, the *set-up of the platform's governance framework and operational model*. The deliverable outlines the framework and operational structures designed to ensure the effective management, coordination, and sustainability of the CYCERONE portal.

3.1 Task 3.2

Task T3.2 establishes the governance and operational foundations of the CYCERONE portal to ensure its sustainability and efficient management. Led by Aalto EE in close collaboration with all project partners, the task has defined the portal's governance model, organisational structure, and operational procedures.

The project is funded under EC Activity 2, call topic DIGITAL-2023- SKILLS-05-SPECIAL-PROGEDU [4], and aims to support the strategic coordination of cybersecurity skills initiatives across Europe.

AKADIMOS' role in supporting the Cybersecurity Skills Academy (CSA)

The governance and operational support for the CSA initiative project (acronym: AKADIMOS) [5] aims at creating, and operating as, a single point of entry that establishes synergies for cybersecurity training initiatives, in alignment with funding opportunities, fostering the development of cybersecurity skills and thus contributing towards closing the skills gap of cybersecurity professionals across the EU.

AKADIMOS is a horizontal project, spread across several areas of intervention, which has been working towards the support and evolution of important instruments and outcomes envisioned by all pillars of the CSA, including the coordinated cooperation and involvement of all relevant stakeholders - EC, ENISA, ECCC, relevant EC-funded projects, cybersecurity training companies and industry, public entities, and SMEs.

The goal is to avoid scattered, redundant efforts, enabling scaling up and making a noticeable impact in closing the cybersecurity professionals' gap. The project will enhance the European Cybersecurity Skills Framework (ECSF) by ENISA and create tools to improve and effectively monitor the impact of existing and future initiatives. It will create a unified information system summoning European cybersecurity curricula that will contain all course materials, their metadata, the registry of trainers, and provide services to various entities for scale-up, and services for updating the Digital Skills and Jobs Platform [2] and for validating content towards a solid and realistic plan for the sustainability of the Academy.

CYCERONE contributes to the same overarching goal by developing a lightweight catalogue that improves the visibility and accessibility of training opportunities, aiming at integration with other similar initiatives provided by European cybersecurity agencies and related organisations. For all these

reasons, along with other similar projects, CYCERONE is part of the AKADIMOS cluster, or select group, as a relevant EC-funded project and is in scope for this initiative.

Since June 2025, when the AKADIMOS project kicked off, CYCERONE has been engaged, sharing information and responding to a detailed questionnaire (November 2025) on status and progress at that time, and joining in January 2026 an AKADIMOS-hosted technical meeting where the concept of a single aggregator was introduced. CYCERONE remains open to information-sharing or informal exchanges that may arise during the dissemination of activities or European-level stakeholder events. Continuous alignment with the projects funded under Activity 2 in the same call is in place, to maximise synergies and value creation.

As outlined, Task T3.2 is closely interconnected with several other activities within the CYCERONE's broad nature and scope. The governance and architectural frameworks defined in this task provide the strategic and operational foundation for subsequent developments. Building on the governance and operational principles defined in T3.2, Task 3.4 will provide the technical implementation needed to support the CYCERONE portal and the structured presentation of training courses. Furthermore, the governance and organisational models established in T3.2 will serve as the basis for Task T3.5, which focuses on securing the economic resources required to sustain the portal's continuous quality management and sustainability.

3.2 Deliverable Objectives

The main objectives of the deliverable are to:

- Define the governance model for the CYCERONE portal, establishing clear decision-making structures, responsibilities, and coordination mechanisms among partners.
- Develop an organisational framework to ensure efficient portal administration, operational effectiveness, and sustainability.
- Set out operational procedures that support the portal's implementation, maintenance, and continuous improvement.
- Align the portal's governance and operations in line with CYCERONE's overall objectives and activities, particularly Tasks 3.4 and 3.5.

4. Reference Conceptual Model

This deliverable provides a written summary of Task 3.2 outcomes. It serves as a guide for project partners on the design, setup, and day-to-day operation of the adopted digital CYCERONE portal. It is also inspired by the conceptual model by Dr C. Costabile [6], which frames digital platform governance through three interlinked dimensions: Value, Governance, and Design (Figure 1). This framework guides the analysis of responsibilities, decision-making, operational processes, and sustainability considerations throughout the document.

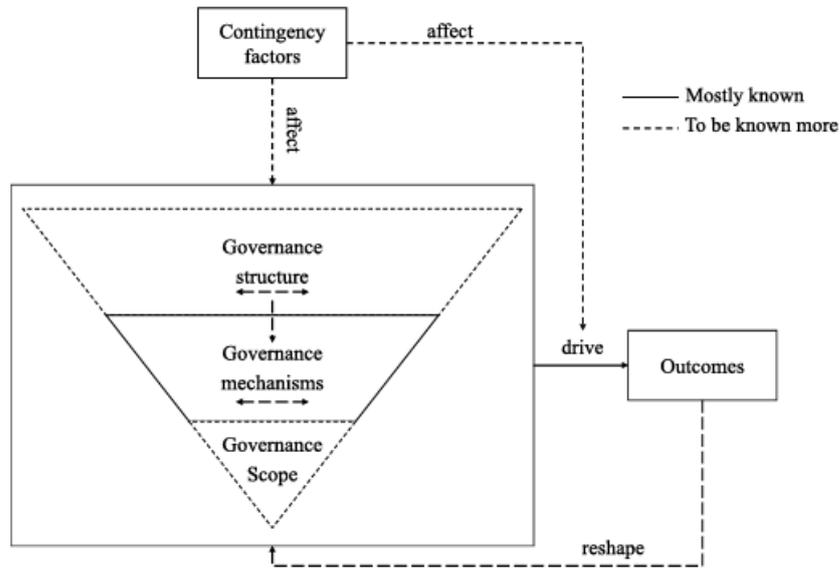


Figure 1. C. Costabile. *Conceptual model for platform ecosystem governance (2024)*

Within Work Package 3 (WP3), as stated in earlier sections, it has been agreed that the CYCERONE portal will not operate as a Learning Management System (LMS) but rather as a central repository designed to increase the visibility, discoverability, and accessibility of the training. All learners interested in a specific training will be redirected from the portal to the respective partner’s website or learning environment, for registration and participation in educational activities.

This agreed functional definition forms the basis for developing the governance and operational model in Task 3.2. The operating model is thus designed to ensure coordinated management, integrated collaboration, and sustainability of the portal as a shared entry point for the consortium’s training menu.

The conceptual model for the governance framework of the CYCERONE portal also draws on specific elements in the work of C. Costabile (2024) [6], who identifies five core components of digital system governance: structure, mechanisms, scope, contingency factors, and outcomes. These dimensions provide a useful lens through which the CYCERONE portal's governance and operational design have been examined. The framework illustrates key aspects of portal governance, even though the model refers to a platform, and in this project, a portal has been adopted within the project scope.

Governance structure refers to the overall arrangement of roles, responsibilities, and decision-making authority within the digital ecosystem. It outlines how power and coordination are distributed among different actors to ensure transparency, accountability, and effective management. Within CYCERONE, this concept supports the definition of relationships of the portal owner (the project consortium), contributing partners, and users.

Governance mechanisms relate to the instruments and processes that support governance in practice — including rules, standards, policies, and technological interfaces. These mechanisms guide partner and user behaviour, safeguard data integrity, and maintain trust in the portal. Within CYCERONE, such mechanisms are applied to ensure coordinated collaboration and interoperability across partners through a set of underlying systems and solutions.

Governance scope defines the areas and degree of control exercised over different aspects. This includes decisions on data management, registration rights, content integration, and quality assurance. For CYCERONE, the framework helps delineate which aspects are centrally governed and which ones remain with partners, retaining flexibility and autonomy.

Contingency factors acknowledge that governance must adapt to contextual conditions, including, but not limited to, the digital ecosystem's maturity, stakeholder diversity, and regulatory requirements. CYCERONE's governance model, therefore, allows flexibility and scalability as the ecosystem evolves.

Governance outcomes reflect the effects of governance design—including trust, efficiency, innovation, and sustainability. Within CYCERONE, effective governance aims at enabling outstanding collaboration, continuous improvement, and the development of a trusted ecosystem for cybersecurity skills.

Overall, the CYCERONE portal framework does not directly replicate any existing model; instead, it uses the conceptual components identified by C. Costabile as a reference to shape a tailored governance and operational approach that aligns with the specific objectives and context of the CYCERONE portal.

5. Governance Structure

The governance structure of the CYCERONE portal ensures coordination, shared ownership, and transparent decision-making throughout the project's pillars. It defines who governs the portal, how authority is distributed, and how responsibilities are covered among consortium partners. The governance approach is intentionally light and pragmatic, reflecting the project's adaptability for scale and collaborative nature.

The governance structure is designed as a lightweight, streamlined, and parsimonious model that avoids unnecessary committees or administrative layers. It relies on the existing PEC (Project Executive Committee) and WP3 coordination structures to ensure clarity, continuity, and efficient oversight throughout the project lifecycle.

Ownership and Coordination

During the project phases, the CYCERONE portal will be jointly owned by all consortium partners as a shared asset. This collective ownership reflects the partners' joint contributions to the portal's content, visibility, and functionality.

Overall coordination of the portal's design and implementation is led by 28DIGITAL, which also appoints the organisation that oversees the system's technical development, administration, and compliance. Overall technical coordination and operation of the portal are entrusted to a solution development organisation selected by the consortium partners via an internal bidding process, inclusive of structured proposal evaluations that include evaluation of key criteria, such as quality, comprehensiveness in proposal, professional reputation, and the ability to carry out the required work statement in a timely and high-quality manner.

The assigned portal developer, also acting as the portal administrator during project execution, has the mandate to ensure portal's technical development, deployment, maintenance, and compliance, including stability, security, accessibility, and interoperability. This task involves the coordination and adaptation of individual digital platforms and web pages of all partners belonging to the CYCERONE consortium.

The portal is implemented with the aim of integrating with the CYCERONE project consortium partner websites and information platforms, ensuring coherence with the project's overall communication and dissemination activities in Work Package 2 (WP2). For the portal implementation management, it has been agreed that the previously referenced "platform manager", as in the Grant Agreement, is being replaced by the more appropriate term "portal administrator", as a primarily technical support role for IT performance management and troubleshooting.

The solution development partner has been working closely with the Project Coordinator, with work package leaders, and with the Quality Manager, to ensure that technical implementation aligns with governance decisions, content workflows, and project objectives. Simultaneously, the governance framework and scope fully align with, and fully support, the portal's core objectives. All consortium partners who develop and/or deliver training remain responsible for providing and maintaining accurate, up-to-date information about their respective training.

Arrangements for the portal management, hosting, and administration after project end are not in scope and might be defined separately. The framework, scope, and initiatives when the project is complete are therefore not included in this deliverable.

5.1 Governance Body and Decision-Making

The following structure describes the governance and decision-making in action:

Project Executive Committee (PEC)

The portal governance operates entirely within the existing Project Executive Committee (PEC) structure of the CYCERONE project. The PEC provides both strategic and operational oversight, ensuring that portal-related decisions remain consistent with the project's overall management and

reporting framework. The role and functioning of the PEC have been explicitly reflected in the governance structure of the CYCERONE portal.

The PEC serves as the primary strategic oversight and decision-making body for the portal, responsible for approving significant changes, resolving challenging issues, and ensuring continued alignment with the overall project objectives. Decision-making within the PEC follows a qualified majority rule, requiring a two-thirds (2/3) majority of the votes. The PEC meets every month and is chaired by 28DIGITAL, the project coordinator. This arrangement ensures efficient governance, clear accountability, and consistency between portal-related decisions and the wider project management framework.

Portal Working Group (PWG)

Under the authority of the PEC, a Portal Working Group (PWG) has been informally established to support the development and operational management of the CYCERONE portal. The PWG brings together the defined portal governance roles (including technical, content, quality, communication, and partner-level coordination). It can serve, as needed, as the primary coordination forum for operational and implementation matters. The PWG does not require the creation of a new formal meeting body, as its activities are integrated into the existing WP3 meetings or, where appropriate, into the meetings of its specific tasks. The task of the PWG is consultative in nature to the PEC.

Each role within the PWG operates with defined responsibilities. Within their respective scope, the designated work package role (WP) leader has the authority to determine how agreed tasks are implemented, ensuring efficiency and continuity across development and operations.

In cases where a consortium partner disagrees with an implementation decision made by a role leader (specific WP), and if the issue cannot be resolved at the PWG level, the matter may be brought to the PEC. The PEC serves as the final decision-making body, ensuring consistency with the project's overall objectives and governance framework.

This structure enables effective delegation of operational responsibility while maintaining strategic oversight and accountability at the project level.

Technical Subgroup (TS)

Where required, such as in cases involving IT coordination across multiple, or all, consortium partners, a dedicated Technical Subgroup (TS) may be established under the PWG domain. The TS focuses on technical solutions, interfaces, and data flows to maximise the efficiency and integration of technical processes and minimise the need for manual work or manual data collection by partners. This includes, where feasible, recommending automated data exchange, metadata updates, monitoring, and reporting processes, as in the portal solution development design phase underway.

The TS would, if operative, act within the governance framework defined by the PEC and report its recommendations and outcomes to the PWG. Any issues that cannot be resolved at the working-group

or subgroup level, including disagreements regarding technical implementation or resource implications, would be escalated to the PWG and, as required, further brought to the PEC.

This governance arrangement ensures efficient technical coordination, reduces the administrative burden on partners, and supports the scalable, sustainable operation of the CYCERONEportal.

Roles and Responsibilities

Within the PWG framework, the following is a summary of key roles and responsibilities (Table 1):

Role	Primary Focus	Key Responsibilities
Project Coordinator (project-level)	Project-level governance alignment &	Ensures alignment between portal governance and the overall project objectives, facilitates decision-making at PEC and WP level, and coordinates strategic and crosscutting issues between partners.
Content Curator	Content coordination lifecycle management &	Manages the lifecycle of the curator’s platform content (submission/onboarding, review and preparation, approval, publication, maintenance and updates, and periodic quality review); coordinates content submissions; ensures coherence and data and metadata consistency; prepares course approval proposals. This role does not individually perform any formal quality assurance checks or make final approval decisions.
Partner Course Curator	Partner-level course ownership and coordination	Acts as the primary contact point within each partner organisation for the courses they provide to the portal. Responsible for creating and maintaining metadata for their organisation’s courses, ensuring that course information is accurate, up to date, and aligned with the project’s objectives and scope. Handles course-specific learner communication before and during the course and coordinates with the WP4 Leader and other relevant roles as needed.
Portal Working Group	Portal governance body	Acts as the main operational governance body for the portal. Follows portal-related matters such as content with the content creation and delivery team, liaises with the Quality Manager for overall compliance with quality-related processes, is engaged in portal-related communication alignment, and coordinates the implementation of governance decisions within the agreed framework.

Portal Administrator	Technical operation & continuity	Holds primary responsibility for administration of the technical operation of the portal, including portal stability, maintenance, bug fixing, security, performance, backups, integrations, and technical configurations. The portal administrator team will include a portal quality manager/supervisor that engages with the PWG for quality matters as required.
WP2 Leader partner and work package task leads	Marketing and Dissemination	Leads project and website-related communication and dissemination, ensuring consistent messaging, visual continuity, and alignment with the project communication strategy. Interacts with the Portal Working Group for any required project and portal-to-website integrations.
WP4 Leader partner and work package task leads	Course content creation and delivery	Leads project related training content creation and delivery, ensuring adherence to project objectives and alignment with WP2 and WP3 strategy. Interacts with the Portal Working Group regularly to align portal and content.

Alignment and Collaboration

Portal-related coordination and follow-up occur through regular WP3 and PEC meetings, ensuring alignment with WP4 content development and with visibility and impact activities in WP2. This structure supports efficient collaboration and avoids unnecessary administrative complexity.

Future Alignment with EU-Level Governance

The governance model is designed to be compatible with future European-level cybersecurity skills initiatives. Its “plug-in” model enables the CYCERONE portal to integrate into larger EU ecosystems without redesign, ensuring continuous relevance and sustainability.

The following summarises the high-level portal governance structure (Figure 2):

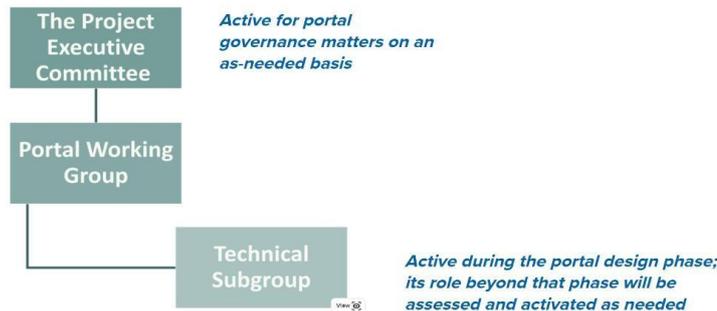


Figure 2. Governance Structure of the CYCERONE portal

6. Governance Mechanisms

The governance mechanisms of the CYCERONE portal define how the governance structure is implemented and monitored. The mechanisms establish the operational rules, technical controls, and compliance procedures that ensure effective management, legal conformity, and continuous improvement throughout the portal’s project lifecycle.

Operational Rules and Procedures

Portal governance is implemented through straightforward, well-documented operational procedures integrated into the project’s existing management processes. The PEC validates key decisions related to portal functionality, content updates, and direction. Routine operations are managed through WP3 coordination, which ensures alignment with the technical work led by 28DIGITAL and with partners' content contributions.

Partners are responsible for submitting and maintaining accurate course information, including titles, duration, topics, and user registration links. Updates follow a defined workflow led by the WP4, coordinated by the PWG, and supported by the portal administrator to ensure consistency in layout, metadata standards, and terminology.

Technical and Procedural Tools

Governance in action relies on a set of technical and procedural instruments designed to ensure operational integrity:

- **Moderation Protocols:** managed through the PWG. The WP4 leader and team will oversee the publication of new or updated course entries to ensure quality, clarity, and alignment with the project guidelines and CYCERONE objectives.

- **Access Control:** Editing rights are limited to designated partner representatives to ensure accuracy and accountability. Administrative access is planned to be restricted to WP3 leadership and the portal administrator based on roles and needs.
- **Documentation and Decision-Making:** All governance-related decisions (e.g., functional changes, updates to metadata standards, or content moderation rules) are recorded in the project's central documentation repository (SharePoint). In practice, routine operational decisions (e.g., course entry updates, metadata adjustments, minor interface changes) are handled within WP3, also in coordination with WP4 for course entry updates during regular coordination meetings or via agreed online procedures. Changes and recommendations with strategic implications and functional impact are brought to the PEC for validation. This segregation of responsibilities ensures efficient, predictable, transparent, and balanced decision-making across the consortium.

Legal and Ethical Compliance Mechanisms

The CYCERONE portal operates under a robust framework that complies with the EU Digital Europe Programme [8] that aligns with current and emerging European regulatory standards:

- **GDPR:** The CYCERONE portal implements a lightweight account-creation process to support the effective management of participant training records, as required by the project. Personal data processing is limited to what is strictly necessary for this purpose and follows well-established EU project-wide GDPR practices, including data minimisation, purpose limitation, and secure data handling. All users who create an account will be informed about how their personal data is collected, stored, processed, and retained through transparent privacy notices made available at the point of registration. Participants will be informed of their rights under the GDPR, including the rights of access, rectification, and deletion. Technical and organisational measures will be applied to ensure data security and confidentiality, and the responsibilities between the portal and partner systems are clearly defined in line with the specific, limited standard project's data protection framework.
- **DSA and Data Act:** The portal adheres to the transparency and data accessibility principles set out in the Digital Services Act (DSA) [9] and the EU Data Act [10], ensuring that publicly available information (training data) remains accurate, traceable, and interoperable.
- **AI Act (where applicable) [11]:** While the portal itself does not implement AI-based functionalities, its design principles support future compliance with the EU standards for trustworthy digital services, with transparent and accountable processes.
- **Accessibility and Ethics:** The portal's design adheres to EU accessibility standards (WCAG 2.1) [12] and promotes equitable access to training opportunities across member states.

Feedback Loops and Continuous Improvement

To ensure ongoing relevance and quality, an Agile mindset-driven [7] feedback and improvement mechanism is in place. Partners can provide feedback on usability, data accuracy, or content needs via WP3 coordination meetings. Periodic reviews will be conducted by WP3 and/or the PWG with the portal administrator to evaluate performance using established performance indicators (e.g., number of visits, clicks, and partner updates) and assess the need for any required improvements.

Lessons learned arising from these reviews will be integrated into subsequent updates, ensuring continuous optimisation of portal functionality, visibility, and user experience.

Course Approval

The initial creation and definition of training courses to be featured on the CYCERONE portal are coordinated under Work Package 4 (WP4), which is responsible for developing education programmes, modules, and learning units in line with the project objectives and agreed quality principles.

Once the CYCERONE portal is operational, the approval of new courses and updates to existing courses is managed through interactions between WP4 and the PWG. Within this framework, clearly defined roles are responsible for coordinating learner registration quality review and approval processes in accordance with the portal's governance and operational model. Quality-related checks focus on compliance with agreed criteria, metadata standards, and overall compliance requirements. At the same time, responsibility for pedagogical input to content and course delivery remains with the respective curator responsible for curriculum development at the partner institution.

Decisions on course approvals are made in accordance with established workflows during interactions between WP4 and the PWG representatives. Where necessary, or in cases of disagreement, course approval matters may be brought to the PEC for review and decision.

7. Governance Scope

The governance scope of the CYCERONE portal specifies which aspects of the system are collectively governed within the project and which remain the responsibility of individual partners. It ensures a clear division between shared coordination functions and partner-level ownership, while setting boundaries for the project's temporal and operational reach.

Content and Quality Governance

The CYCERONE portal serves as a central catalogue showcasing training offers from consortium partners. The quality and accuracy of content displayed on the portal are governed by the WP4-driven shared standards, with the portal administrator setting the format and managing metadata and entry visibility.

Each partner, in its role as content curator, remains responsible for the quality, accuracy, and relevance of their individual training information, including course descriptions, registration links, and updates. The project governance process does not govern or validate the pedagogical quality of training offers – this remains entirely within each partner’s institutional academic remit. The CYCERONE portal and its governing body ensure that the presentation and availability of all listed courses meet consistent, effective criteria. The PWG includes liaison with and engagement of the project quality manager for overall compliance with the agreed quality standards.

User Access and Participation

The CYCERONE portal’s governance scope regarding user access and participation remains intentionally limited. Users can browse and explore available training without registering. In addition, a lightweight login mechanism is designed at the portal level to enable aggregation of high-level participation data, including the number of users engaging with courses and aggregated course completion information, for project monitoring and reporting as established.

Registration for individual courses, learner management, course participation, and certification (if in scope) will continue to occur within the respective partner organisations’ systems.

At the portal level, only the minimum sets of data necessary for aggregated monitoring and reporting are processed, in accordance with the project’s established data protection framework. The portal administrator will implement and operate the portal-level login mechanism, including user authentication and security, and contribute to the secure tracking of aggregated learner participation and completion data, in accordance with the project’s data protection and security framework.

Data and Metadata Management

Data and metadata management within the CYCERONE portal is designed to balance central coordination with partner-level responsibility, while minimising administrative burden through automation wherever feasible.

Each consortium partner involved in content delivery and management will remain responsible for the management, accuracy, and protection of personal data generated within their own systems, including learner registration, course participation, assessment, and, where applicable and in scope, certification. Partners retain full responsibility for GDPR compliance and user support for their proprietary learning environments. The metadata model used by the CYCERONE portal - covering course categories, topics, levels, formats, and language information - is collectively defined and maintained by the consortium through the PWG. The model may be refined during the project to improve consistency, usability, and interoperability with European-level platforms and any underlying initiatives.

To reduce manual effort and improve data quality, the governance model promotes automating data sharing wherever technically and organisationally viable. This includes, where possible, automated exchange of metadata, usage indicators, and aggregated participation data between partner systems

and the portal, using established formats and interfaces. Any automated data flows are implemented under the coordination of the portal administrator organisation and validated through the project's governance structures.

Technical Infrastructure Governance

The portal's technical infrastructure is governed by the portal administrator, who ensures stability, accessibility, cybersecurity, and alignment with standards. Decisions concerning technical updates, maintenance, or interface adjustments are validated through WP3 coordination and, when necessary, approved by the PWG, unless the decisions require upward engagement by the PEC. All involved partners contribute by providing feedback and maintaining frequent communication with the WP3 leadership and the PWG to ensure continued compatibility among the consortium partners' reciprocally connected systems and the portal.

Boundaries of Governance: Internal vs. External Control

Governance within the CYCERONE portal remains internal to the consortium throughout the project lifetime. No external actors or service providers participate in decision-making or operational management.

However, the governance model is designed to allow future external alignment, for example, with the European Cybersecurity Skills Academy or other EU-level initiatives, should the portal be integrated into a broader ecosystem during and/or after the project's completion.

Temporal Scope

The governance model described in this deliverable applies to both to the portal planning phase (M1-M18) and the project's operational phase (M18-M36), during which the portal is collectively owned and managed by the consortium via a selected administrator. Governance arrangements at the end of the project may be addressed separately.

8. Influencing Factors

This deliverable includes a brief review of the key influencing factors that may impact the project's integrity and coherence, aiming at describing the CYCERONE project strategy to govern them. While in earlier section 4 contingency factors were illustrated as part of literature reference, and this section covers influencing factors, both constitute important elements that support and complete this governance framework.

8.1 Governing External and Internal Influencing Factors

The CYCERONE portal's governance model is designed to remain flexible and adaptable to internal and external factors that may affect its functioning during the project. These factors include changes in EU

policy and regulation, technological developments, stakeholder dynamics, and resource availability. By anticipating these factors and having high-level contingency plans to mitigate their impacts, the governance framework ensures resilience, continuity, and the ability to evolve in line with broader European political, economic, social, technological, legal, and environmental trends.

External - EU Policy and Regulatory Changes

As the CYCERONE portal operates within the European cybersecurity and digital skills landscape, it is directly influenced by ongoing EU policy developments. Legislative frameworks such as the Digital Services Act (DSA), the Data Act, and the AI Act introduce evolving requirements for transparency, data governance, and ethical, effective, and compliant use of digital tools.

The governance model anticipates these changes by maintaining a compliance-by-design approach, enabling new requirements to be integrated without a substantial redesign. Continuous monitoring of EU-level developments, particularly those coordinated by ENISA and the European Commission, facilitates the timely adaptation of procedures and requirements.

External - Technological Developments

Rapid technological evolution in web architectures, interoperability standards, and cybersecurity tools can affect how the portal operates and connects with all stakeholders. To address this, the portal is built using approved, widely adopted interoperability standards and a modular component architecture, allowing future upgrades and/or integrations without disrupting the existing system design.

The governance framework includes provisions for periodic technical reviews, coordinated by the PWG, to assess compatibility, security, and scalability. This approach ensures the portal remains functional, secure, and relevant in a dynamic digital environment.

Internal - Stakeholder Dynamics

The consortium consists of multiple academic and digital innovation industry partners, each with its own institutional processes, systems, and priorities. Changes in partner engagement, staffing, or institutional direction can impact the portal's management and content.

To mitigate these adjustments, as already outlined in the project's contractual and consortium agreements and reflected in the project risk mitigation plan, governance relies on clear role definitions, shared documentation, and robust decision-making processes, ultimately within the consortium partners' domain. This structure ensures that institutional changes or partner rotations do not compromise the portal's continuous operations.

Internal - Resource Availability

As the portal's management depends on project resources and partner contributions, fluctuations in budget, personnel, or technical capacity may influence operational stability. The governance model incorporates a resource management approach to mitigate risks, ensuring that essential maintenance and updates remain feasible even during temporary capacity reductions.

Risk Management and Mitigation Strategies

Governance risks - including non-compliance, data integrity issues, and operational downtime - are managed through proactive monitoring and contingency planning.

Key mitigation strategies, planned and in place for the whole CYCERONE project scope, include:

- Regular reviews of compliance and technical integrity by the portal administrator;
- Redundancy and backup procedures for portal data;
- Periodic partner communication to ensure content and links remain up to date;
- Documentation of all governance and operational decisions for accountability.

These mechanisms collectively ensure the CYCERONE portal remains stable, secure, and aligned with both project objectives and the evolving European digital policy requirements.

9. Governance Outcomes

The CYCERONE portal's governance model aims at delivering clear, measurable, and sustainable outcomes that strengthen transparency, accountability, and value creation across the consortium. These outcomes reflect both the project's operational goals and its contribution to the broader European digital skills ecosystem.

Transparency and Accountability

The governance framework ensures that decision-making, content management, and operational updates are conducted transparently and traceably through shared documentation and communication channels. All decisions, including updates to governance procedures, content moderation, and technical standards, are recorded in shared project repositories and validated through existing PEC and WP3 coordination structures. This process fosters trust among partners and supports compliance with EU principles of good governance.

Fairness, Inclusiveness and Multilingual Access

The portal's governance is grounded in the principles of equal participation, inclusiveness, and linguistic accessibility, stemming from the project's core objectives. Consortium partners - experienced universities and research centres that have been successfully operating in the same CYCERONE

cybersecurity training environment - have equal opportunities to showcase their training offers, notwithstanding linguistic differences.

To promote inclusiveness and reach a wider audience across Europe, the portal supports the access and availability of course information in multiple EU languages. This multilingual approach aligns with the European Skills Agenda and the Digital Education Action Plan, ensuring equitable access to training opportunities for learners across all member states.

Legal and Ethical Compliance

A core outcome of the governance model is the assurance of continuous legal and ethical compliance. The portal design adheres to EU data protection and accessibility standards (GDPR, DSA, Data Act, AI Act, WCAG 2.1) and promotes ethical use of digital resources.

By design, the portal fully complies with the GDPR minimum requirements for collecting personal data, which significantly reduces privacy and security risks. Each partner involved in course design and delivery maintains individual compliance responsibilities within their systems, ensuring that ethical, compliance, and legal standards are upheld throughout the project.

Operational Efficiency

The lightweight governance model maximises efficiency by leveraging existing project structures and avoiding unnecessary administrative layers. Decision-making is embedded in regular PEC and WP3 meetings, the latter also hosting PWG discussions, enabling rapid issue resolution and continuous coordination across technical and content-related aspects. This pragmatic model allows the portal to operate smoothly within the scope of available resources while ensuring high-quality outputs and sustainable coordination for the project.

Continuous Improvement and Learning

Governance outcomes are regularly reviewed through feedback and iterative improvement. Partners provide input during WP3 coordination meetings and interactions among the PWG partners and the portal administrator. The latter is expected to conduct periodic performance assessments to identify areas for improvement.

This ensures that governance processes evolve in response to practical experience, technological developments, external factors, and the EU ecosystem's stakeholder needs.

Indicators and Metrics for Evaluation

The effectiveness of portal governance is assessed through quantitative and qualitative indicators, such as, but not limited to:

- Usage statistics: Visits, clicks, and course referrals across the defined set of languages;

- Partner engagement: frequency of updates and number of active partners contributing to maintaining effective and adaptive training offers;
- User feedback: Insights from learners and partners on usability, accessibility, and language availability;
- Learning outcomes and visibility impact: Indirect indicators include increased enrolment or engagement across multiple linguistic and regional audiences;
- Satisfying EU strategic goals: Alignment with the European Skills Agenda, EU-driven synergies, and the promotion of diversity within the European Cybersecurity education and training ecosystem.

Value Creation for Cybersecurity Skills

The governance and operational model of the CYCERONE portal is designed to create tangible value for the European cybersecurity skills ecosystem. By providing a unified, trusted entry point to training opportunities for learners supported by higher education institutions, research organisations, and digital transformation and innovation industry partners, the portal enhances the visibility, accessibility, and quality of cybersecurity education and upskilling across Europe.

Value creation occurs through three interrelated mechanisms:

1. Increased visibility and discoverability: The portal aggregates and harmonises information on diverse training programmes, enabling learners, employers, and policymakers to easily identify relevant upskilling and reskilling opportunities.
2. Trust and quality assurance: Shared governance and transparent operational standards ensure that all listed courses adhere to consistent data, accessibility, and compliance principles, thereby enhancing trust in the ecosystem.
3. Synergies and interoperability: By aligning metadata, governance practices, and communication channels with existing and future European academies and platforms, the CYCERONE portal supports cross-sectoral collaboration and facilitates future integration into broader EU frameworks.

Ultimately, the governance model contributes to sustainable value creation by reinforcing collaboration between academia, industry, and the public sector. It ensures that cybersecurity skills development remains responsive to evolving market needs, aligned with European policy objectives, and capable of fostering innovation, inclusiveness, and impact.

10. Portal Lifecycle and Sustainability

The portal lifecycle is structured as follows:

- Design and Development (M1–M18; 1 January 2025–30 June 2026):

- Definition of the governance and operational model, technical architecture, and metadata framework; development and internal testing of the first version of the portal.
- Implementation and Launch (M1–M18; 1 January 2025–30 June 2026):
 - Publication of the first set of training offers from consortium partners and integration into the CYCERONE portal.
- Operation and Continuous Improvement (M18–M36; 30 June 2026–31 December 2027):
 - Regular updates, performance monitoring, and user feedback collection to enhance functionality and visibility.

During this lifecycle, the portal operates under the project’s governance framework and its partnership coordination.

10.1 Potential Continuation and Integration Models

The extension of the CYCERONE portal’s lifetime depends on the likelihood and potential for sustainable integration options and developments. These are not currently defined. Potential scenarios arising from developments in current collaboration and policy and strategic frameworks remain in scope, particularly in the following areas.

Strategic Collaboration with European Initiatives and Skills Ecosystems

The CYCERONE consortium operates within a broader European policy context, focused on improving cybersecurity and digital skills. Several complementary initiatives, including the Digital Skills and Jobs Platform and coordination within the AKADIMOS project, address similar objectives. The CYCERONE PEC has been monitoring these initiatives and will continue to monitor them to remain informed about their approaches and identify future synergies.

CYCERONE’s contribution to policy strategies and initiatives

The activities carried out in the CYCERONE project remain aligned with the European and national policy strategies and digital skills initiatives listed above. The CYCERONE project will contribute to the long-term policy objectives, policies, and strategies to enhance citizens’ competences and skills for the digital transition, in line with the goals of the:

- *European Skills Agenda*, by contributing to at least 3 actions out of the 12 actions, namely:
 - Action 1: A Pact for Skills, which invites private organisations to join forces and take concrete action to upskill people in Europe,
 - Action 3: EU support for strategic national upskilling action,
 - Action 6: Skills to support the twin transitions,

and the

- *Digital Skills and Jobs Coalition*, by focusing on digital skills, provides learners who complete CYCERONE modules with both theoretical knowledge and practical skills to use strategic digital technologies in Europe.

Potential mission extension pathways include:

- Integration with the European Cybersecurity Skills Academy (ENISA/European Commission): The most realistic long-term scenario is to integrate either the CYCERONE portal or its catalogue with the European Cybersecurity Skills Academy initiative, which is expected to consolidate EU-level cybersecurity training offers. The portal's lightweight design and open metadata structure make such integration technically feasible.
- Linking with the European Digital Skills and Jobs Platform (DSJP): The portal could also be connected to the Digital Skills and Jobs Platform, which aggregates European training opportunities. The CYCERONE catalogue could be expanded to a thematic focus on cybersecurity skills and reskilling programmes.
- Static Archive or Open Repository: the portal's content could be preserved as a static, publicly accessible archive on the project website, ensuring that training offers and outcomes remain visible even without active maintenance.

By focusing on the practical visibility and discoverability of cybersecurity training opportunities, CYCERONE helps raise awareness and strengthen skills in line with EU policy directions.

10.2 Value Creation through Broader Awareness and Alignment

The project's governance model is intentionally modular, enabling adjustments to procedures, responsibilities, and workflows without formal restructuring. If new partners, technologies, or policy priorities emerge, the model can be expanded or simplified accordingly. This adaptability ensures continuity of governance throughout the project and after its completion.

While no formally binding agreements are currently in place, maintaining awareness of related European initiatives provides valuable context for effective CYCERONE portal governance and operations.

This awareness helps ensure that the project's outputs — such as the CYCERONE portal — remain flexible and adaptable, conceptually compatible, and technically interoperable with potential future EU-level ecosystems.

11. Conclusion

The governance and operational model for the CYCERONE portal establishes a solid, forward-looking foundation for delivering meaningful, sustainable impact in Europe’s cybersecurity skills ecosystem. By adopting a lightweight yet robust governance framework, the project successfully balances efficiency with accountability, partner autonomy with shared standards, and innovation with regulatory compliance.

This model ensures that the CYCERONE portal operates as a trusted, efficient, and high-value entry point for cybersecurity training - enhancing visibility, accessibility, and coherence across a diverse landscape of educational providers. Through clearly defined roles, streamlined decision-making structures, and adaptive operational mechanisms, the portal is positioned to remain resilient within evolving technological, policy, and stakeholder dynamics.

Moreover, the governance framework reinforces CYCERONE’s strategic alignment with major European initiatives. By promoting interoperability, multilingual access, inclusiveness, and ethical digital practices, the portal contributes not only to closing the cybersecurity skills gap but also to strengthening trust, collaboration, and long-term value creation across academia, industry, and the public sector.

Ultimately, the CYCERONE governance and operational model demonstrates how pragmatic, scalable, and policy-aligned digital governance can support sustainable innovation, empower partners, and amplify impact at the European level. It positions the portal as both a practical solution for today’s educational challenges and a future-ready asset capable of integration, growth, and continued relevance beyond the project’s lifecycle.

12. References

[CYCERONE] [Cycerone | Home Page](#)

Captions

- [1] <https://digital-skills-jobs.europa.eu/en/cybersecurity-skills-academy>
- [2] <https://digital-skills-jobs.europa.eu/en>
- [3] <https://www.enisa.europa.eu/tools/cyberhead-cybersecurity-higher-education-database>
- [4] European Commission Activity 2, Call topic DIGITAL-2023- SKILLS-05-SPECIAL-PROGEDU, Digital Europe Programme, Specialised Education Programmes in Key Capacity Areas - Advanced digital skills analysis
- [5] AKADIMOS project, ‘DIGITAL-2023-SKILLS-05-CYBERACADEMY’ Call, financed by the EC -Digital Europe Programme, and Government Information Security Office (URSIV) [EU Funding & Tenders Portal](#)
- [6] Costabile, C., ‘Digital platform ecosystem governance of private companies: Building blocks and a research agenda based on a multidisciplinary, systematic literature review’, 2024 (8), Data Information Management

- [7] Project Management Institute (PMI), Agile in Project Management: <https://www.pmi.org/disciplinedagile/agile/whatisagile>
- [8] Digital Europe Programme (DEP), <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>
- [9] Digital Services Act (DSA), <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act>
- [10] EU Data Act, <https://digital-strategy.ec.europa.eu/en/policies/data-act>
- [11] EU AI Act, <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai> [12] EU Accessibility Standards (WCAG 2.1), <https://www.w3.org/TR/WCAG21/>

Glossary

EC	European Commission
GA	Grant Agreement
GDPR	General Data Protection Regulation