STARS EU

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STARS EU Digital Co-Creation Campus

Deliverable 5.3

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Introduction

Deliverable 5.3 is situated within the broader development of the STARS EU Co-Creation Campus under Work Package 5. Its purpose is to build on the analytical, organizational, and strategic groundwork established in earlier WP5 milestones and deliverables and to translate these inputs into the digital dimension of the alliance campus.

The first key input was Milestone 11, *Inventory and analysis of needs for STARS EU Campus*, which established the empirical basis for later campus development. It mapped the physical and digital infrastructures of all partner universities, identified differences in technical readiness, digital learning environments, hybrid teaching capacities, and user needs across the alliance, and highlighted the heterogeneity that characterizes the current starting point of STARS EU. At the same time, it confirmed a common need for more coherent digital access, better support for cross-institutional interaction, and stronger alignment of digital environments with alliance activities.

The second important input was Milestone 12, *Campus Management System*, which addressed the organizational and administrative dimension of campus development. It formulated principles and conditions for cooperation on development, management, and operation of the campus and clarified that key processes in education, mobility, research, and campus operations need to be progressively aligned and documented if the alliance is to support more seamless cross-border activity.

A broader normative and strategic framework was then provided by the STARS EU Campus Charter. The Charter defines the digital campus as a core element of the alliance's vision of a borderless and inclusive European university and commits the partners to developing interoperable, user-friendly, and accessible digital environments. It also places this work in the wider context of European values, inclusivity, and the need for shared yet flexible alliance structures.

In parallel, Milestone 13, *Digital Campus Tender*, marked an important implementation-related step by enabling the procurement of a shared digital service supporting Open Science and research collaboration. Through this process, the alliance moved from preparatory and conceptual work towards a more concrete phase of digital campus development.

Against this background, Deliverable 5.3 should be understood as the next step in a cumulative WP5 process. It draws together the needs analysis from MS11, the management and process perspective from MS12, the strategic orientation of the Campus Charter, and the implementation impulse created through MS13. In doing so, it provides a structured framework for the further development of the digital campus within the staged implementation logic foreseen in the project application.

1 Strategic context and design principles

The STARS EU Digital Campus is being developed in response to a clear alliance need: to create a shared digital environment that supports cooperation across nine partner universities while respecting the diversity of their local systems, infrastructures, and institutional frameworks. Earlier WP5 work showed that the alliance starts from heterogeneous conditions. Partner universities use different learning management systems, video-conferencing solutions, administrative routines, and levels of digital-campus maturity. At the same time, the needs analysis confirmed a common expectation among students, teachers, and staff for easier access to shared resources, more consistent digital user journeys, and better support for cross-institutional learning, mobility, and collaboration.

For this reason, the STARS EU Digital Campus is not conceived as a single centralized platform replacing local university systems. Instead, it follows a federated and complementary approach. The alliance creates a shared layer of access, coordination, and common services that connects existing local systems and enables participation across institutional borders.

This logic is consistent with the principles established in the STARS EU Campus Charter and the campus management system work, both of which emphasize interoperability, accessibility, and gradual alignment rather than standardization for its own sake.

The design of the digital campus is guided by four core principles:

- open source over proprietary solutions,
- preference for tools already used by other European alliances,
- ease of use requiring minimal user support,
- complementarity with partners' existing digital campuses instead of replacement.

Together, these principles provide the strategic framework for selecting systems, defining governance, and designing pilots. They also ensure that the digital campus remains realistic, scalable, and aligned with the broader STARS EU ambition to create a borderless, inclusive, and user-oriented European university environment.

2 System and technology architecture

The STARS EU Digital Campus is designed as a federated architecture composed of a small number of shared alliance-level components connected to partner universities' existing local systems (Figure 1). Rather than building a single centralized platform, the architecture combines common access, shared services, and a common user-experience layer with local institutional infrastructures. This allows the alliance to support cross-institutional activities while preserving and respecting local autonomy over each partner's digital infrastructure and avoiding unnecessary duplication.

Figure 1: The Architecture of the STARS EU Digital Campus

At the core of the architecture is the identity and access layer. Through STARS EU Single Sign-On, users authenticate with their home-institution credentials and gain access to shared alliance services as well as, where appropriate, partner-hosted resources. The model also allows controlled identity switching in cases where a partner institution requires local roles, licensing conditions, or other specific access rules. In this way, the architecture supports digital mobility while remaining compatible with institutional governance and lifecycle management of accounts.

The research and open science layer is represented by OpenAIRE, which functions as a shared discovery and aggregation service for publications, datasets, and other research outputs. Its role is to improve visibility, metadata exchange, and re-use of research outputs across the alliance while allowing each partner to retain its own

repository and curation practices. This makes OpenAIRE a suitable common component for the STARS EU digital campus and a concrete implementation step following the digital campus tender.

The social and learning community layer is represented by Agora. As a platform already used by other European university alliances, it offers STARS EU a shared environment for thematic communities, student engagement, academic networking, and cross-institutional exchange. In combination with federated access, it can support joint courses, mobility-related communities, and other alliance-wide interaction formats.

The collaboration and productivity layer is currently framed around Nextcloud as a candidate shared workspace solution. Its value lies in enabling file sharing, collaborative editing, project workspaces, and controlled access across institutions without requiring partners to abandon their own local collaboration environments. In the architecture, this layer supports joint project work and day-to-day cooperation, while remaining complementary to institutional systems.

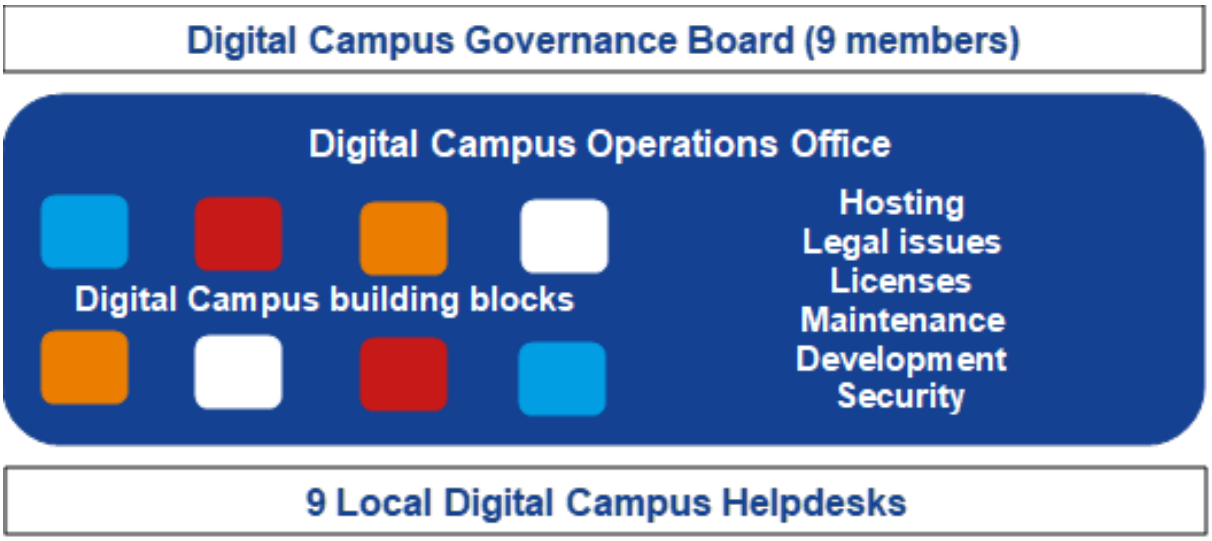
Finally, the web and user-experience layer is provided through the STARS EU website on WordPress. This serves as the main entry point to the digital campus: a neutral communication and navigation layer that provides information, service entry points, guidance, and links to authenticated resources. In this way, the website ties the ecosystem together and presents the digital campus as a coherent user journey even though the underlying services remain distributed.

Taken together, these layers form a practical and scalable architecture: shared where common solutions add value, local where institutional diversity must be respected. This is also consistent with the project application, which foresees the digital campus as an inter-university co-creation environment developed through pilots, shared services, and progressive integration with partner systems.

3 Governance and management of the digital campus

To ensure that the STARS EU Digital Campus is developed in a coordinated, transparent, and sustainable way, its governance should combine alliance-level strategic steering with distributed local support (Figure 2). This is particularly important in a federated model, where shared alliance services must remain interoperable with diverse partner systems and institutional responsibilities.

Figure 2: Organisational structure of the STARS EU Digital Campus



At the strategic level, the Digital Campus should be overseen by a Digital Campus Governance Board composed of one representative from each partner institution with decision-making mandate. The Board should be responsible for maintaining the shared vision and strategic goals of the digital campus, defining relevant KPIs, deciding and monitoring the budget, agreeing the development roadmap, and ensuring consistency with the overall alliance strategy. It should also provide the framework for cross-border data management and decide on common attribute profiles needed for compatibility between shared systems and local platforms.

At the operational level, the Digital Campus Operations Office (DCOO) should function as the alliance-level coordination and service unit for the shared digital campus. Its responsibilities should include day-to-day maintenance and support of shared systems, coordination of interoperability with local platforms, monitoring of GDPR, security, and accessibility requirements, implementation of the agreed development roadmap, and reporting on KPIs. The DCOO should also act as the main Tier 2 support structure, while liaising with partner-level Tier 1 support and external Tier 3 providers where relevant.

In practical terms, this governance model should be complemented by local digital campus helpdesks or support functions at each partner university. As reflected in the midterm presentation, the combination of a Digital Campus Board, alliance-level operations, and nine local helpdesks provides a workable model for managing hosting, legal issues, licenses, maintenance, development, and user support across the alliance. This makes the governance structure consistent with the broader STARS EU approach of combining a common alliance layer with local institutional ownership.

This governance and management model also supports the pilot-based implementation logic of the digital campus. As pilots move from design to implementation and later scaling, clear roles are needed for decision-making, operations, onboarding, escalation, and service monitoring. For that reason, governance should not be treated as a separate administrative layer, but as an enabling structure for interoperability, predictable support, and long-term sustainability of the digital campus.

From a long-term perspective, this model also provides the basis for a sustainable post-project operating structure. The strategic note already outlines an indicative annual operating budget from 2028 for one alliance-level coordination function and core shared services. Even if the exact figures are refined later, this perspective underlines that the digital campus is being developed not only as a project output, but as a durable alliance structure.

4 Functional description of the digital campus

The STARS EU Digital Campus is intended to support the main alliance missions through a coherent set of user-oriented functions rather than through a single monolithic platform.
Its value lies in enabling users to move more easily across institutional borders while accessing services, participating in joint activities, and collaborating in shared digital environments.
In this sense, the digital campus should be understood as a functional ecosystem that supports education, mobility, research, and cross-institutional project work through a common layer of access, shared services, and coordinated user guidance.

4.1 Seamless cross-institution access

A core function of the digital campus is to make access to alliance services and selected partner resources as simple and predictable as possible. The federated identity model allows students and staff to log in using their home-institution accounts and then access shared STARS EU services without the need for separate credentials. Where institutional requirements demand it, the model also allows controlled identity switching so that users can interact with partner-hosted systems under locally appropriate roles and permissions. This makes the digital campus both user-friendly and compatible with institutional policies, licensing arrangements, and account lifecycle management.

From the user perspective, this function is essential because it reduces friction at the very first step of the digital journey. Instead of confronting a fragmented landscape of disconnected systems, the user encounters a more coherent entry structure in which authentication, access rights, and service navigation are progressively aligned. This directly addresses one of the challenges identified in earlier WP5 work: that partner institutions operate with diverse digital ecosystems and levels of technical readiness, making simple and consistent access a basic precondition for any meaningful alliance-wide participation.

4.2 Joint education and learning communities

In the field of education, the digital campus is designed to support joint course provision, blended and online learning formats, and cross-institutional academic communities. Earlier needs analysis showed that the alliance operates with different learning management systems, conferencing tools, and hybrid teaching capacities, which makes it unrealistic to impose a single teaching platform in the short term. Instead, the digital campus should enable a common access and coordination layer around local systems, while also providing shared spaces for communication, community building, and student participation.

In this context, Agora plays an important role as a shared community platform. It can support thematic groups, course-related communities, student cohorts, announcements, resource sharing, and informal exchange across institutional borders. Used together with federated access, it allows students and staff to participate in alliance-level learning communities without requiring a full replacement of institutional learning environments. This reflects the broader STARS EU approach of complementing local infrastructures rather than replacing them.

The educational function of the digital campus should therefore not be limited to hosting content. Its broader role is to support joint educational formats by making them more visible, easier to access, and easier to organise. It can serve as a digital entry point for academic offers, a communication layer around joint courses and modules, and a support environment for the communities that emerge from cross-university teaching and learning activities. This also aligns with the campus management system work, which identified the need for aligned administrative routines and clearer annual cycles around educational offers.

4.3Digital mobility and user support

Another central function of the digital campus is to support mobility by making information, processes, and support services easier to access across the alliance. The project application and the campus management system both emphasize that mobility is not only a matter of physical exchange, but also of coordinated digital information, access, and administrative support. In practice, this means that the digital campus should provide users with clear entry points to mobility services, relevant guidance, documentation, and local contacts, while reducing fragmentation in the way mobility-related information is presented and accessed.

This function becomes especially important for incoming and outgoing students and staff, who often encounter different institutional procedures, interfaces, and terminology at different stages of the mobility journey. A well-structured digital campus can reduce this complexity by acting as a navigation layer across distributed systems: explaining what services exist, where users should go next, how access is obtained, and what support is available at alliance and local level. In this way, digital mobility is supported not only through technology, but also through user-oriented service design and clearer guidance.

The local digital campus helpdesks and support structures proposed in the governance model are particularly relevant here. They ensure that alliance-level services are complemented by partner-level assistance and that users can move between shared systems and local institutional processes with predictable support. This makes the digital campus more than a technical environment; it also becomes an operational support structure for the alliance's mobility ambitions.

4.4 Research collaboration and open science

In the research dimension, the digital campus is intended to strengthen visibility, discovery, and collaboration across institutional borders while respecting the fact that research infrastructures and repositories remain locally governed. The selected model therefore combines shared alliance-level services with continued institutional ownership of repositories, data platforms, and curation processes. This makes it possible to improve interoperability and visibility without centralizing research management itself.

OpenAIRE is the key component in this layer. It enables the aggregation and discovery of research outputs such as publications and datasets, supports metadata harvesting and linking, and strengthens the visibility of alliance research in a broader European open-science context. As a result of the digital campus tender, OpenAIRE is not only a conceptual option but a concrete implementation step for the digital campus. Its inclusion gives D5.3 a stronger operational dimension, as it connects the architecture described in this deliverable to a procured and deployable service supporting open science and research dissemination.

At the same time, the research function of the digital campus should not be limited to dissemination. In combination with shared collaboration spaces and common access structures, it also supports the day-to-day cooperation needed for alliance research activities: partner search, exchange of drafts, coordination of project work, and the development of shared communities around themes and initiatives. This makes the digital campus relevant not only for showcasing research outputs, but also for enabling the working relationships behind them.

4.5 Cross-institutional collaboration and project work

The digital campus also has a broader cross-cutting function as a collaboration environment for alliance work packages, joint initiatives, and project-based cooperation. This includes spaces for document sharing, collaborative editing, role-based workspaces, communication, and coordination across institutions. Such functionality is particularly important for the internal working life of the alliance, where staff, project teams, thematic groups, and support structures need reliable digital environments for sustained cooperation.

In the current architecture, this function is associated with a shared collaboration layer represented by Nextcloud as a candidate solution. Its value lies in offering a common workspace for joint work without forcing universities to replace their own established document and collaboration systems. Used in combination with federated access, such a layer can support project workspaces, controlled sharing, shared drafting, and collaborative workflows across institutions. Even if the exact long-term configuration is still being refined, the underlying functional need is already clear: the alliance needs

a lightweight but reliable collaboration layer that complements local ecosystems and supports common work.

This collaborative dimension is also important because it supports other university missions indirectly. Joint education, mobility coordination, challenge-based activities, research cooperation, and regional engagement all depend on stable digital cooperation spaces behind the scenes. The digital campus therefore has to function not only as a user-facing interface, but also as a backbone for alliance-level working processes.

4.6Unified information and user experience

Finally, the digital campus has a crucial user-experience function: it must help users understand the digital ecosystem and move through it without unnecessary confusion. This is where the STARS EU website plays a central role. Built on WordPress, it acts as the main communication and navigation layer of the digital campus, providing a neutral alliance entry point that does not compete with partner websites but instead connects them. It can present services, explain user journeys, point users to support, and guide them from public information to authenticated systems where necessary.

This function is more important than it may first appear. In a federated architecture, technical interoperability alone is not enough; users also need conceptual and navigational clarity. The website therefore ties the digital campus together at the level of user understanding. It helps make a distributed ecosystem appear coherent by structuring information around user needs rather than around institutional boundaries. This is especially important for new users, mobile students, external stakeholders, and others who may not be familiar with the internal organisation of the alliance.

Taken together, these functions show that the STARS EU Digital Campus is not a single tool, but an enabling environment for alliance-wide participation. Its role is to create more coherent user journeys, support cross-institutional cooperation, and connect shared STARS EU ambitions to the institutional realities of the partner universities. By doing so, it translates the alliance's broader vision of a borderless and inclusive European university into a set of practical digital functions that can be developed progressively through pilots, governance, and interoperability work.

5 Pilot design and implementation approach

To operationalise the STARS EU Digital Campus, the alliance will proceed through a pilot-based implementation logic. This reflects both the project application and the practical realities of building a shared digital environment across nine institutions with different technical ecosystems, legal frameworks, and levels of readiness. Rather than attempting full-scale standardisation from the outset, the digital campus will be developed through targeted pilots that test specific user journeys, services, and interoperability needs in real alliance activities.

The pilot approach serves three main purposes. First, it reduces risk by testing selected components and workflows before wider rollout. Second, it allows the alliance to validate whether shared systems are usable and interoperable in practice, not only in principle. Third, it produces reusable models and onboarding pathways that can later be scaled to additional partners, services, and use cases. In this sense, pilots are not side experiments, but the main implementation method for building the digital campus progressively and credibly.

5.1 From alliance need to pilot scope

Each pilot should begin with a clearly defined alliance or work-package need. The starting point is not technology alone, but a concrete user journey or operational challenge: for example, access to a shared research service, support for a joint educational activity, coordination of mobility-related processes, or collaboration in a cross-institutional project team. Based on that need, the pilot scope should define the target user groups, participating institutions, main process steps, and expected added value.

To keep pilots manageable and comparable, each pilot should specify a small number of scope anchors: the primary user journey, the systems involved, key roles and responsibilities, relevant legal or compliance conditions, and basic success criteria. These criteria may include usability, access reliability, supportability, time savings, or quality of the user experience. A clear scope is particularly important in a federated environment, where even small pilots may cross several institutional and technical boundaries.

5.2 Selection of digital campus building blocks

Once the pilot scope is defined, the alliance selects the minimum set of digital campus components needed for that use case. Depending on the pilot, these may include the identity and access layer, the website as entry point, OpenAIRE for research visibility, Agora for community interaction, and a shared collaboration layer for project work. The aim is not to deploy the whole architecture at once, but to combine only those

building blocks required for the selected journey. This keeps pilots focused and makes it easier to assess what works, where friction remains, and what needs refinement.

This stage should also define the integration pattern of the pilot: which elements are handled centrally, which remain local, what user attributes or permissions are needed, and where support responsibilities lie. In this way, pilots also help clarify the practical meaning of the federated model.

5.3Pilot lifecycle

The implementation of each pilot can follow a simple common lifecycle. First comes intake and prioritisation, where the need is confirmed, pilot owners are identified, and the expected outcomes are agreed. Second comes service and workflow design, where the end-to-end user journey is mapped and the respective roles of shared and local systems are clarified. Third comes technical and operational preparation, including configuration, access setup, documentation, and support arrangements. Fourth comes the live pilot run, where the selected users interact with the service in a controlled real context. Finally, the pilot is evaluated against the agreed criteria and a decision is made on refinement, continuation, scaling, or closure.

This lifecycle is useful because it gives different pilots a common structure while still allowing for different themes and participating actors. It also ensures that technical deployment is always combined with documentation, support, and evaluation.

5.4Pilot lanes within STARS EU

At this stage, three pilot lanes are particularly visible in the WP5 materials and midterm presentation. The first is digital interoperability pilots linked to other work packages and flagship alliance activities. These are intended to test real user journeys involving access, workflows, and support across institutional boundaries, thereby demonstrating whether the federated model works in practice. The second is the Open Science OpenAIRE implementation, which represents a concrete deployment of a procured digital campus service with training, support, and integration into the alliance environment. The third lane consists of broader service and workflow pilots around shared access, coordination, and community-building functions that connect the common layer to alliance activities.

These pilot lanes are complementary. Together, they help test the architecture from different angles: technical interoperability, research service deployment, and functional user support.

5.5 Pilot outputs and scaling logic

Each pilot should produce more than a temporary test result. The intended output is a reusable implementation and onboarding model: a documented user journey, a clarified support structure, a description of the integration pattern, lessons learned, and practical recommendations for extension to other partners or contexts. In this way, pilots generate the evidence and operational knowledge needed for the later scale-up of the digital campus.

This is also consistent with the project application, which foresees the digital campus moving from roadmap and procurement to pilot version, thematic pilots, and later broader launch and scale-up. Chapter 6 therefore provides the operational bridge between the conceptual architecture described above and the later implementation phases of WP5.

Conclusion

The STARS EU Digital Campus is being developed as a federated and user-oriented digital environment that connects the alliance's shared ambitions with the diverse institutional realities of its partner universities. Rather than replacing local systems, it creates a common layer of access, shared services, community spaces, and coordinated user support that enables cross-institutional cooperation in education, mobility, research, and project work. This approach reflects both the needs identified across the alliance and the strategic principles established in previous WP5 outputs.

The deliverable shows that the digital campus should be understood not as a single platform, but as an evolving ecosystem. Its architecture combines federated identity and access, shared research and community services, collaborative workspaces, and a common user-experience layer. Its governance model combines alliance-level strategic steering with operational coordination and local support structures. Together, these elements provide the basis for a digital campus that is both interoperable and realistic in the context of institutional diversity across STARS EU.

At the same time, the digital campus is not only a conceptual model. Through the earlier WP5 milestones and the digital campus tender, its development has already moved into implementation. The selection of OpenAIRE as a shared service for open science and research visibility demonstrates that the alliance is progressing from strategic design towards concrete pilot-based deployment. This confirms the role of D5.3 as part of a staged implementation pathway foreseen in the project application.

In this sense, the STARS EU Digital Campus represents an enabling structure for the alliance. It supports more coherent user journeys, strengthens digital mobility and collaboration, and creates a framework in which shared services can be developed progressively while respecting local autonomy. Its further development will depend on governance, interoperability work, and targeted pilots, but its strategic direction is now clearly defined: to provide STARS EU with a practical, scalable, and sustainable digital environment for a borderless European university.

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