In collaboration with KARL LANDSTEINER UNIVERSITY OF HEALTH SCIENCES

How Karl-Landsteiner-University of Health Sciences (KL) became Austria's first all-digital university

As a newly established, privately funded university, KL had clear objectives for implementing a Student Information System (SIS): to **achieve maximum cost efficiency** and provide students with a **convenient user experience**. This required reducing the number of IT solutions used across campus to as few as possible, while still achieving a **maximum level of digitalization**. KL's management recognized the challenges many universities were facing - **escalating cost of operation** driven by the implementation of a growing number of applications, while overall **data availability was poor**. In fact, many processes remained outside the universities' core systems.

Before the implementation of OpenCampus, KL also faced difficulties **managing multiple disconnected software systems**. This lack of integration led to **poor transparency**, **inefficient workflows**, and **high total cost of operation.**

By implementing OpenCampus, KL created a campus management solution that unified various fields of operation into **a single platform**. This system covers the **entire student lifecycle** — from admissions through to graduate programs — as well as all ERP and HR-related functions, including facility management, invoicing, and teacher contract management. Additionally, it encompasses research management, supporting tasks like project proposals, budget administration, publication tracking, and even conference management. This extend of integrating of SIS, LMS, ERP, and research management functionalities into one platform **remains unparalleled** among the current competitive landscape.

The Starting Point

Before the implementation of OpenCampus, many processes at KL were **not fully digitalized**. Data collection was often done on paper, and where digital tools were used, information was scattered across MS Excel files, MS Access databases, and MS online forms. The **lack of centralized documented information about the actual business processes** made it difficult to train new staff and monitor service quality.

With the launch of the OpenCampus project, **all business processes** - previously managed by disparate software applications, Excel files, and paper - were **incrementally integrated** into a single platform. The first phase of the rollout targeted the student application and applicant tracking systems, which had relied heavily on basic web forms, MS Excel-based data management and email communication. OpenCampus **transformed this into an end-to-end digital process**. Prospective students could now apply online, receive real-time information on available courses and programs, make online payments for application and tuition fees, and track their application status through a personalized dashboard. **All communication with applicants was handled through the OpenCampus messaging system**, enabling any staff member at KL to gain **instant insight** into each applicant's case. Documents such as admission letters and official forms were automatically generated and shared with applicants through the platform.

OpenCampus's unique ability to manage highly individualized details within business processes extends beyond standard Bachelor's and Master's applications. The system also handles **specific workflows for PhD applications**, including project selection, referee submission of recommendation letters, faculty committee evaluations, and more - tasks that **previously required separate third-party software**.

Similarly, the application process for hiring contract-based teachers, traditionally managed by a separate HR or ERP system, was also integrated into OpenCampus. Teachers could now apply for specific positions posted by HR, follow the application process online, and even **sign employment contracts digitally** - contracts that had been automatically generated by the platform.

Once accepted, applicants could sign their student agreement or decline the offer via a simple **confirmation link in their invitation email**. If an applicant declined, OpenCampus would automatically offer the available seat to the next person on the waiting list. This gave KL a **competitive advantage**, as they could fill open seats in **real time**. Previously, the university relied on deadlines, which increased the risk of losing students on the waiting list to other institutions.

To further incentivize applicants to confirm their enrollment quickly, KL introduced a **dynamic tuition pricing model**. The earlier a student signed their agreement, the higher the discount they would receive. OpenCampus **automatically calculated** the discount for each applicant based on their position in line and applied it to their tuition offer.

Within three years after roll-out the number of applications increased by

64%

Following the success of the application process rollout, KL expanded its use of OpenCampus to manage all workflows across the campus.

The Challenges

As Karl Landsteiner University offers mainly health care education, complex curricular rules and course requirements exist. The curriculum in Human Medicine consists of hundreds of individual course slots ranging from bedside teaching and patient demonstrations to lab rotations, seminars, lectures, and online training. Given the limited resources available at hospitals and labs, scheduling these courses was a **time-consuming process**, with staff spending months on planning for each semester before OpenCampus was introduced.

Since the rollout of OpenCampus, the time required to plan courses for each study program has been drastically reduced. Available resources are now entered directly into the system from the point of care or service. Additionally, the system retrieves each student's individual requirements — such as completed courses, those that need to be repeated, and suggested courses for the term. OpenCampus **automatically calculates the scheduling of courses**, determining when and where each class will be held, which teacher will conduct it, and what facilities will be needed.

The result is a **highly efficient use of teaching resources** (including teachers, hospital wards, labs, and materials), along with **personalized timetables for both students and teachers**. The system acknowledges each student's unique pathway, even optimizing travel time between campuses and hospitals. This has led to a **significant increase in both student and teacher satisfaction** and has even allowed students to **complete their curriculum more quickly**, thanks to individualized scheduling solutions that consider each student's needs and availability.

Each student receives a **real-time schedule**, reflecting their specific lessons for each day and week. Particularly in healthcare education, these schedules are **truly dynamic**, as courses may need to be rescheduled or reorganized due to changes in doctors' shift plans, the introduction of additional patients, or other factors. OpenCampus **automatically updates the student's schedule in real time and notifies them of any changes**.

Additionally, OpenCampus supports course administrators by managing schedule changes, alerting them to potential conflicts, and suggesting **optimized planning solutions**. The online schedule does more than just provide information about lecture times, locations, and instructors - it also gives students access to **teaching content** such as e-books, files, quizzes, and more. **Integration with third-party tools** like Microsoft Teams, Moodle, and other learning management applications is seamless, allowing students to access everything they need through the same interface.

During the COVID-19 pandemic, KL transitioned heavily to online teaching and had to reorganize lectures by dividing students into alternating online and in-person groups to reduce class sizes. OpenCampus simplified this process by managing the split courses, updating schedules in real time for all users, and providing direct access to the necessary online tools. By simply clicking on a calendar event, users were redirected to the relevant third-party application and automatically signed in.

Normally, connecting to third-party software would require extensive work on building APIs, but with OpenCampus's **API endpoint designer**, APIs can be created in minutes rather than weeks, streamlining the integration process.

The Reward

With detailed information on each course, lecture, attendee, and teacher, KL was able to **generate precise reports** on teaching hours by teacher, subject, and learning targets. These reports provided a foundation for creating billing statements for teachers and assessing the effort dedicated to different learning objectives. KL can now accurately measure how many hours are spent on each learning target and in which format, a critical metric for enhancing education through curriculum mapping.

By connecting assessment data, which is also stored in OpenCampus, institutions can gain valuable insights into their educational processes. The system links all exam questions to their respective learning targets, and each student's results are tied to these targets. This allows institutions to identify which learning objectives need more attention or whether certain teaching methods should be adjusted. One of the first features KL developed using OpenCampus's **no-code technology** was an exam question database. After each lecture, teachers received invitations to submit exam questions, outlining the learning targets they should have covered and specifying the required number of questions. Submitted questions then entered a review process managed by the exam committee, all within the OpenCampus system. KL has since enhanced this process by **incorporating artificial intelligence to review and optimize both exam questions and lecture content**. Plugins for the seamless integration of various AI providers are easily accessible through OpenCampus's workflow engine.

Exam results, grades, and course attendance are all reflected in the student record, providing an overview of the curriculum, requirements, and each student's progress. However, in healthcare education - especially in programs like Human Medicine that involve extensive on-site training, clinical rotations, and specialized assessments - **traditional grade overviews are insufficient** for tracking and displaying student progress.

Integrating artificial intelligence systematically reduced the overall process workload up to

98%

Healthcare programs like Human Medicine require student records and tracking systems that can **manage a wide range of data**, whether it's entrusted clinical skills - assessments that

describe a student's ability to perform specific tasks, rated by supervisors - or Objective Structured Clinical Examinations (OSCEs). In many cases, this critical information is still collected on paper or dispersed across various tools and apps, which makes it difficult for both the student and the university to get a clear and complete picture of the student's **overall progress and specific needs**.

OpenCampus's entity-based student record, which can accommodate any type of progress-related data, enabled KL to deliver the first **end-to-end medical student record**. This system consolidates all information related to a student's medical education into a single interface, providing a comprehensive view of their academic journey and progress.

As mentioned earlier, KL not only fully digitalized the student life cycle in a centralized manner but also integrated **research and conference management** into their platform. The implementation of these additional features was **carried out by KL staff, without external support from the OpenCampus team**, using the platform's no-code technology. This enabled KL full control to map their specific workflows into the software while also allowing them to **avoid costly third-party conference and research management software solutions**.

All research projects are now centrally managed within the platform, covering staff, budgets, partner organizations, progress tracking, and more, providing the institution with **real-time data** on research activities, spending, and risk assessments. Even the onboarding process for researchers, including **health and safety protocols and lab and ethics briefings**, is managed through OpenCampus, along with the tracking of publications and scientific achievement records for participating researchers.

When planning and managing research conferences, various OpenCampus functions seamlessly work together to plan event sessions, handle participant registration and billing, distribute digital content, issue certificates, manage abstract submissions, and generate abstract brochures.

KL continues to expand the platform's functionality, replacing third-party software solutions, digitalizing legacy processes, and speeding up organizational workflows by integrating artificial intelligence into their processes. The workflow configurations created by KL can also be shared with other institutions, offering them **ready-to-use digital best practices** to support their digital transformation efforts. This network effect is increasingly influencing the decision-making process for institutions choosing OpenCampus, as the growing availability of highly specialized functionalities **reduces implementation times and minimizes staff efforts**.

Technical Background Information

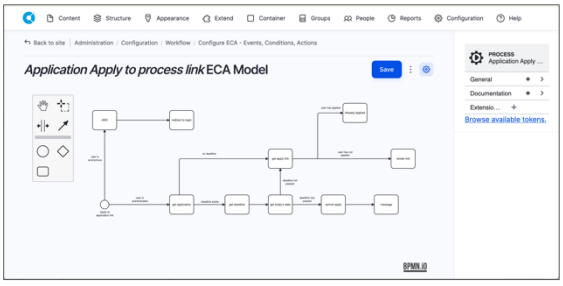
With over a decade of experience in student information systems (SIS), learning management systems (LMS), and enterprise resource planning (ERP) - often referred to collectively as campus management systems - OpenCampus proposes to use **proven platform technologies** to meet campus digitalization goals, rather than developing new systems from the ground up.

Since 2011, OpenCampus has successfully implemented campus management systems across Europe, the UK and Japan, using the **same underlying technology** to achieve various different requirements in terms of curricular design, learning pathways, course and credit management, assessment creation, reporting, business intelligence and many more.

The foundation of this approach is the use of DRUPAL as the underlying platform technology, which has proven to be a **modern, secure, and versatile environment, particularly well-suited for education**. (https://www.drupal.org/industries/education#stories).

DRUPAL offers a wide range of built-in features that make it ideal for use as a student information system (SIS) or learning management system (LMS). These include fully web-based technology, **built-in configurable APIs**, support for multi-language interfaces, and an **extendable, module-based architecture**. Its entity-based data storage model makes it more adaptable to managing individualized content than any other LMS platform on the market.

OpenCampus and its partners have developed a highly configurable workflow and process engine, released as the **Drupal module ECA** (https://www.drupal.org/project/eca). This tool, combined with DRUPAL's powerful architecture, enables an **unparalleled extent of automation in workflow management** and simplifies configuration through an intuitive graphical interface based on Business Process Model and Notation (BPMN) standards.



This technology allows OpenCampus to seamlessly **adapt to any curricular requirements across different verticals in education**, from K-12 to graduate education and in **various countries**, all without the need to modify or extend the underlying software code. By storing all functional features and specifications as system configurations, the platform remains robust, secure, and highly efficient. This approach eliminates the need for custom code maintenance, significantly reducing operational costs and maximizing long-term value.

As an open-source platform, DRUPAL benefits from the contributions **of over 120,000 developers** who continuously enhance its capabilities, resulting in a **rapidly growing set of modules and unmatched system security** - surpassing what most closed-source projects can achieve. This makes DRUPAL the platform of choice for government-run sites like the **White House Intranet**, the **House Intelligence Committee** and numerous other government websites.

With over 20 years of market presence and powering more than 14% of the top 10,000 websites, DRUPAL has proven to be one of the **most reliable and scalable web technologies globally**. Its extensive use in education is further strengthened by the ease with which technology and solution providers integrate their tools with DRUPAL. This includes popular learning and assessment tools like H5P allowing institutions to **leverage state-of-the-art features without the need for custom development**, significantly reducing the cost of operation while benefiting from the collective experience of a **global educational technology community**.

Based on these beforementioned technical and structural concepts, OpenCampus has developed a **standardized method** to implementing SIS/LMS solutions with **high efficiency** in terms of human resource usage and overall project time – **cutting down the average implementation time** for a campus management solution in Germany from 21 months to 7 months. The OpenCampus approach is based on the **use of 'best practice' templates** for both, the data analysis phase to collect specification information together with the client as well as the functional representation of the requirements in the software product.

With over 600 feature configurations available as customizable templates, SIS/LMS solutions are not built from scratch. Instead, configurations are quickly created by selecting relevant templates and then refining them to meet the client's specific needs. This approach **reduces the overall resource requirements** for both the client and the provider, while also **improving the quality** of the final solution by using **well-established, proven concepts** as the foundation for configuration modeling.

From the client's perspective, a major advantage of this approach is the simplification of the requirements specification phase. Since templates are used, many recommended specifications are already included, reducing the risk of missing important details. This makes the process significantly easier than creating a requirements specification from scratch, easing the burden on the client to provide highly technical personnel and lowering the risk of introducing change requests later in the project.

Since a **'no-code' technology** is used to map client-specific configurations, **the system remains highly robust when integrating changes, even at later stages of the project** or during its operational use. Changes or extensions to existing functionalities and business processes can be quickly implemented by adding configurations in the **ECA process engine**. A built-in consistency check ensures that these changes do not disrupt the existing business process functionality.

To manage the integration of changes and new features, OpenCampus recommends a deployment strategy that involves **three system environments**: a development system, a staging system, and a production system. New features and processes are first created in the development environment. Once finalized, they

are moved to the staging environment. DRUPAL technology allows configurations — containing content definitions, process definitions, and all other necessary details — to be packaged into **YAML files**, which can be installed in the staging system. Since the staging environment mirrors the production system, new configurations can be tested with production data before being deployed live. After successful testing, the same configuration file is integrated into the production system.

This packaging approach makes it easy to track different versions of system features. Configuration files are stored and managed in the associated **GitLab** project, accessible to both OpenCampus and the client. Each configuration package is linked to a specific GitLab release, providing full transparency and simplifying the organization and deployment of documentation and training materials.

OpenCampus will assign a project team that includes a project manager and technical experts to collaborate with the client on gathering specifications, integrating those specifications into the product, providing testing instructions, delivering training and documentation, and managing the deployment processes. This will all be executed using an industry-standard SCRUM-based development and implementation approach. Additionally, OpenCampus will provide members for a **steering committee** — a separate unit within the project that serves as a monitoring and advisory entity. This steering committee has proven effective in mitigating project risks, streamlining decision-making, and ensuring efficient management of project timelines and budgets.

DRUPAL-based SIS/LMS solutions offer a wide range of features and capabilities. These include WCAG 2.0 compliance (Level AA), fully customizable user interfaces, adaptive learning paths, personalized user dashboards, and progress tracking through achievement pages. Users also benefit from a seamless experience across devices, allowing them to "switch devices and resume the course where they left off."

Other key features include Apache Solr integration, multiple authentication methods (LDAP/Active Directory, CAS, OAuth 2, and OpenID), and support for SCORM versions 1.2 and 2004, TinCan (xAPI), H5P, and Certified LRS systems such as Learning Locker and Watershed. These functionalities highlight the flexibility and robustness of DRUPAL-based solutions.

OpenCampus has developed and patented one of the most advanced technologies for managing curriculum design, inter-curriculum mapping, and content annotations. This system allows for infinite-level curriculum designs with complex rules, enabling connections between different curricula, such as a national master curriculum (parent tree) linked to individual school curricula. It also supports the cataloging and mapping of learning resources and objectives to these curricula, enabling the tracking of each user's progress in relation to resources used and learning objectives achieved. Additionally, it includes integrated curriculum mapping to assess the quality of both the curriculum and the learning resources.

The specifics of this technology are detailed in OpenCampus's US patent US 20160170721.

Take the First Step

Contact an OpenCampus Account Manager

Email to info@opencampus.com or visit www.opencampus.com