

Empowering 23,000+ Romanian Educators with the Open edX® Platform

Prepared in collaboration with Abstract-Technology GmbH

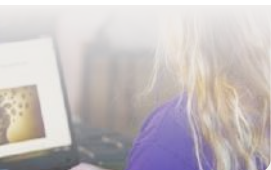
How Abstract-Technology migrated the Predau Viitorul platform from a legacy fork to a modern, multilingual Open edX® environment engineered to scale sustainable digital education across Romania.



The **Organizations** that Made this possible

ASOCIAȚIA
techsoup

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Background

Asociația TechSoup România (ATSRO) is a non-profit organisation dedicated to building the capacity of non-profits, educators, and young people across Romania by providing them with technology resources, digital literacy, and educational methodology. Its flagship educational ecosystem, Predau Viitorul ('I Teach the Future'), runs seasonal, instructor-led courses that train teachers in modern critical frameworks such as AI literacy, digital citizenship and psychopedagogy.

The platform has over 23,000 registered users and offers more than 85 active courses. It experiences heavy traffic spikes of around 2,500 enrolments every spring and autumn.

The Challenge

By late 2024, ATSRO's existing setup had reached its operational limit, presenting several significant challenges.

- **Outdated and forked codebase:** The platform was stuck on the outdated Open edX Lilac release. As the system had been heavily modified by a previous vendor, upgrading posed significant operational risks.
- **Operational fragility:** The system ran on a single AWS instance, with the MongoDB layer alone consuming an unstable 6.2 GiB of RAM. Custom modifications were embedded directly into the core of the platform rather than being isolated via clean plugin boundaries.
- **Rising community demands:** Romanian educators, many of whom were connecting from rural regions on legacy devices during the evening, required a highly responsive, modern interface.
- **Resource constraints:** As a mission-driven NGO, ATSRO lacked the resources to employ a large in-house DevOps team or platform architects. This meant that they required an infrastructure with low maintenance overhead and a predictable total cost of ownership.



Key Information

- **Sector:** Capacity-Building Nonprofit, Teacher Professional Development
- **Engagement:** Full architectural migration, database modernization, custom plugin development, and managed European cloud hosting
- **Timeline:** Late 2024 – Continuous Release Live (Phase 1 in 2025; Phase 2 Ulmo in 2026)
- **Platform:** Open edX Platform (Redwood & Ulmo Releases via Tutor)

The Solution

ATSRO collaborated with Abstract-Technology to transition to a modern Open edX architecture, confirming that an open-source framework aligned with their core mission of providing equitable access to knowledge. The migration strategy was built on three foundational pillars:

- **Infrastructure Modernization:** Moving from a single AWS instance to an elastic Tutor + Hetzner Cloud Kubernetes setup in order to eliminate overprovisioning and reduce infrastructure spending.
- **Standardization via Tutor:** Replacing fragile, ad hoc custom code with the official, community-supported Tutor distribution to make maintenance routine.
- **Strict Component Separation:** All legacy features are being rebuilt exclusively as isolated plugins and micro-frontend (MFE) slots to safeguard against future upgrades breaking the platform.





Few technical partners understand NGOs from the inside. Abstract Technology does. They know that our infrastructure has to serve a mission, and they built our Open edX platform accordingly: open, localized in Romanian, maintainable by a small team, and ready to grow with us.

Elena Coman | Director of Development, Asociația TechSoup România

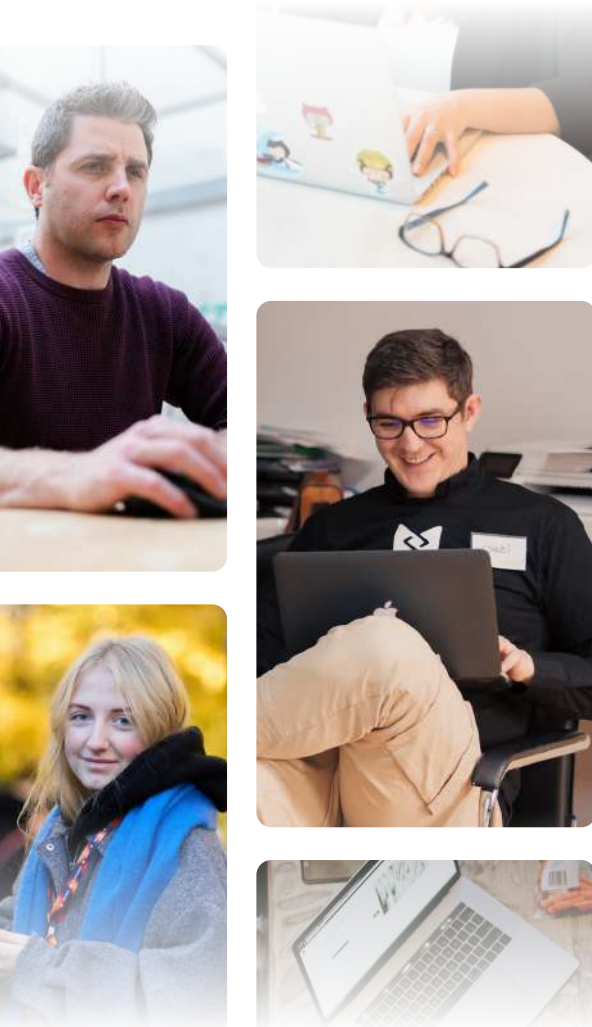
Implementation and Impact

Abstract-Technology successfully executed a multi-phase architectural overhaul, cleanly upgrading the platform across multiple major versions.

- **Two-phase version upgrades:** Data was migrated sequentially from Lilac to Redwood (2025), followed by a transition to Ulmo (2026). This process involved moving the entire historical MySQL and MongoDB datasets, with no loss of teacher data or certification.
- **Adaptive Registration Architectures:** A dynamic, multi-level conditional registration flow was rebuilt using Paragon's FormAutosuggest. Fields adapt automatically in real time, displaying targeted dropdowns for Romanian educational institutions or open text fields for international participants, based on user profile selections.
- **Questionnaire-Gated Access Control:** An automated gating mechanism was configured using the Account MFE. If an educator has not completed their profile questionnaire, the platform restricts course access gracefully with a friendly banner to ensure complete compliance data for donor audits.
- **Custom Extensible Certificate Engine:** A dedicated certificate extension plugin was implemented that maps into the Ulmo MFE plugin architecture. This outputs co-branded, serial-numbered PDF certificates showing course-hour metadata and is natively oriented for A4 download.
- **Advanced Localized Interfaces:** The openedx-translations framework was extended with a custom translation workflow to ensure high-quality Romanian phrasing for learners, while keeping the Studio authoring panel in English at the client's request.
- **Progress-Based Cohort Messaging:** Smart instructor communications have been set up, utilising systemd timers inside the Tutor environment to automatically execute and target bulk email updates to specific cohorts (e.g. those with 0% vs. near graduation progress).
- **Aspects Analytics Transition:** Legacy tracking was replaced with the modern Open edX analytics stack (ClickHouse + Superset). This provides native, real-time dashboards, de-anonymised Open Response Assessment (ORA) reports and customised profile data downloads for partner NGOs.
- **In-app content control:** The edx-info-pages plugin has been integrated to enable ATSRO's non-technical administrative team to edit FAQs, privacy terms and landing pages directly via the Django Admin dashboard.

Insights

- **Learner engagement and programme success:** The system can handle peak seasonal waves of around 2,500 users per semester across more than 85 active courses. Real-time dashboards enable the team to instantly evaluate course quality and user progress without relying on external business intelligence tools.
- **Target audience:** Romanian public school teachers and educators who often have to balance professional workloads with late-night digital development in remote or poorly connected geographic regions.
- **Upstream Architecture Discipline:** Adopting the latest Ulmo front-end features, such as Front-end Plugin Slots and Design Tokens, means that branding updates and custom code can exist separately from the core. Future upgrade cycles will now be calculated in days rather than months.
- **Social Impact Realisation:** ATSRO provides accessible, zero-licensing-fee training to empower teachers with AI literacy and digital citizenship, thereby bridging the tech gap between high-performing urban centres and rural schools.
- **Future Evolution:** The current architecture provides a stable foundation for the introduction of intelligent AI learning chatbots, more personalised instructional pathways and verified Europass-format educational credentials.



Results and Future Directions

The fully updated Ulmo platform is now live at cursuri.predauviitor.ro, providing Romania's digital teaching community with a single source of truth.

- **Zero-Loss Asset Preservation:** Over 23,000 user accounts, verification histories and progress parameters have been successfully transferred to a modern cloud environment.
- **Operational freedom:** A lean NGO team has been relieved of internal DevOps burdens through an optimised, fully automated continuous deployment pipeline.
- **Strategic scalability:** Enabled ATSRO to confidently expand its B2B partnership model by easily hosting specialised training programmes on behalf of other regional NGOs.

Moving forward, the organisation plans to enhance its operations by:

- **AI integration:** Exploring the use of specialised professor avatars to automatically answer routine learner questions.
- **Granular communication tracking:** Adjusting the progress-based messaging matrix to provide highly segmented email support across complex learning cohorts.



Conclusion

ATSRO's transformation demonstrates the effectiveness of open-source software for large-scale, mission-driven learning when designed without custom core forks.

By combining automated cloud workflows with a clean plugin strategy, Abstract Technology and ATSRO have created a flexible, forward-looking learning hub that will raise the bar for digital training in Romania for years to come.



Raising the bar for digital training
in Romania for years to come.



Key Takeaways:

for NGOs Considering Adopting
the Open edX® Platform:

1. **Build on the platform, not in it.** Never patch custom code directly inside the application core. Using clean plugins and MFE slots exclusively makes long-term system upgrades simple and cost-effective.
2. **Partner with a sector-aware provider.** Choose technical partners who understand the distinct funding, operational and demographic constraints that are typical of international non-profits.
3. **Establish your localisation strategy early.** Use a dedicated localisation workflow layered on top of core open-source translation repositories to retain strict quality control over translations without missing out on updates from the upstream community.
4. **Adopt a zero-fork upgrade mindset.** Plan for regular updates from the outset. A standardised distribution like Tutor transforms platform maintenance from a complex engineering task into a routine operational one.
5. Let Aspects centralise your data. Avoid complex external reporting pipelines. The native Aspects configuration (ClickHouse and Superset) provides all the data visualisation tools an organisation needs straight away.
6. Optimise the registration process: Use conditional profile fields to collect high-fidelity demographic data without overwhelming learners and satisfy donor audit criteria at the point of ingestion.
7. Keep interfaces bilingual by persona: Presenting the learner experience in the local language while keeping the admin and authoring tools in English makes platform management and troubleshooting far more efficient.



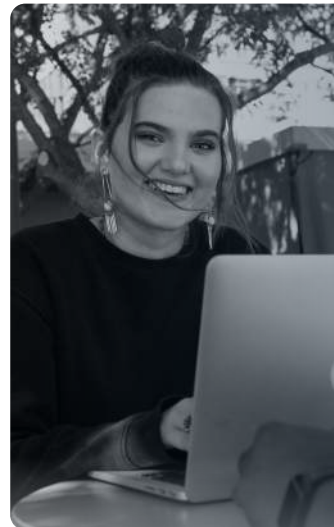
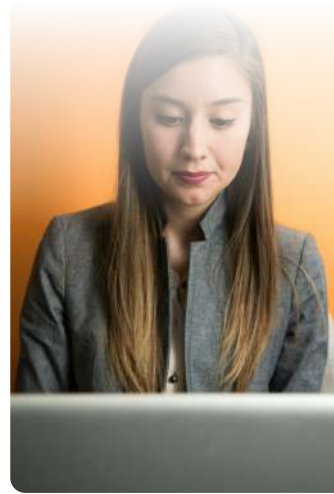
About Abstract Technology GmbH

[Abstract-Technology](#) is a leading European EdTech partner headquartered in Berlin, Germany, bringing together four complementary practices under one roof. The company's core specialism is the Open edX Platform- covering migrations, version upgrades, MFE customization, Tutor plugin development, and managed hosting on European infrastructure. Alongside that sits a CMS development practice that builds and integrates content management systems to work cleanly with learning platforms, including the company's own Payload CMS work. The team also offers EdTech consulting - strategic and operational guidance for organizations choosing, deploying, and scaling learning technology - and provides long-term managed hosting and support for NGOs, universities, government institutions, and corporate training teams.

As an EdTech expert with deep roots in the Open edX community, Abstract Technology has supported organizations across Europe - from NGOs and higher-education institutions to public-sector training programmes - in turning open-source learning technology into mission-fit infrastructure.

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About Asociația TechSoup România

[Asociația TechSoup](#) (ATSRO) is a Romanian nonprofit organization providing technology resources, training, and inspiration to nonprofits, educators, and youth. Their educational platform cursuri.prvviitor.ro serves 23,000+ Romanian teachers under the Predau Viitorul ("I Teach the Future") banner.

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