

Bringing Emergency Medicine Training to Frontline Healthcare Workers Across Africa

Prepared in collaboration with Abstract-Technology GmbH

How Abstract-Technology rebuilt the Just-In-Time in Low Resource Settings training platform for Doctors with Africa CUAMM on Open edX® – moving 2,500+ learners off Moodle onto a multilingual, mobile-first learning environment engineered for the realities of the field.



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Background

Doctors with Africa CUAMM is the oldest Italian NGO working in healthcare in Africa. Operating across eight countries in sub-Saharan Africa, they are embedded within national health systems, working alongside local clinicians.

Their flagship online training programme, Just-In-Time in Low Resource Settings (JIT), provides frontline healthcare workers (including doctors, nurses, midwives, community health workers and medical residents) with training in disaster medicine and public health emergency response. Since March 2023, JIT has trained over 2,500 healthcare professionals across the continent.

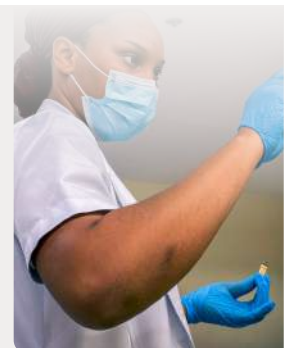
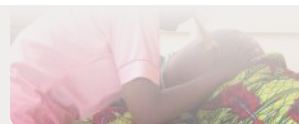
The Challenge

However, running JIT on a legacy Moodle instance has created structural bottlenecks.

- **Built for the Wrong Context:** Moodle was designed for wired campus environments and laptops. It performs poorly on patchy 3G connections and mid-range Android phones.
- **Technical performance failures:** Videos failed to load, pages timed out and the interface scaled down poorly on small mobile screens.
- **Administrative burden:** Clinical educators had to spend their valuable time running a technical support desk instead of delivering critical medical training.

Key Information

- **Sector:** International NGO, Healthcare
- **Engagement:** Full managed deployment, migration, hosting, customization, upstream bug-fixing, and support
- **Timeline:** November 2025 – Live Q1 2026
- **Platform:** Open edX® (Ulmo Release)





The Solution

CUAMM selected the Open edX platform to create a highly scalable, mobile-friendly and fully multilingual digital learning environment designed for large international audiences.

The key decision factors were:

- **Open-source independence:** Software freedom backed by non-profit governance (Axim Collaborative), which removes private equity or commercial licensing pressures from the roadmap.
- **Mobile and low-bandwidth heritage:** The architecture can handle horizontal scaling, responsive micro-learning layouts and native mobile constraints gracefully.
- **Expert Partner Ecosystem:** The ability to offload end-to-end technical complexities to a specialised partner network.



"Empowering healthcare professionals in sub-Saharan Africa has always been at the heart of Doctors with Africa CUAMM's mission... The new platform is a game-changer: intuitive, multilingual, and optimised for smartphone use."

Valentina Isidoris | Project Manager, International Relations · Doctors with Africa CUAMM

Implementation and Impact

Abstract-Technology partnered closely with CUAMM's clinical and project teams to execute an end-to-end deployment:

- **Reproducible cloud infrastructure:** A dedicated Open edX instance was provisioned on Hetzner Cloud using Terraform and Ansible, with full automation via GitLab CI/CD for vertical scalability.
- **Multilingual architecture implementation:** The full interface, content and notifications were configured to switch between English, French, Portuguese and Italian using the openedx-translations ecosystem.
- **Curriculum re-engineering:** The 7-module Moodle curriculum was restructured into native Open edX components by re-encoding lectures, building native assessment types and activating per-module discussion forums.
- **Low-bandwidth video and micro-learning:** Video workloads were offloaded to unlisted YouTube URLs for adaptive bitrate streaming across weak mobile connections, supplemented by automated text transcripts.
- **Custom Data Collection:** Extended the registration schemas with mandatory profile fields (professional role, country, organization, experience) to streamline donor and funding compliance reporting.
- **Co-Branded Verification Workflows:** Built automated, language-specific PDF generation for digital Certificates of Attendance, complete with validation URLs.



Insights

- **Learner engagement and programme success:** The immediate target is to reach 2,000 learners within the first two years, with the aim of scaling up to over 3,000 learners within three to five years. Data mapping enables CUAMM to analyse completion rates by professional profile, ensuring that midwives are reached as effectively as doctors.
- **Target audience:** Frontline clinicians and community health workers in remote, low-resource environments in Sub-Saharan Africa who access materials via older smartphones during short fifteen-minute breaks in their shifts.
- **Upstream contributions:** Enforcing platform health by actively writing fixes and contributing patches to the core Open edX repositories for identified bugs in the certificate module, discussion forums and authentication front ends.
- **Social impact realisation:** Ensuring parity of educational quality by providing nurses in Mozambique (Portuguese), doctors in the DRC (French) and health workers in Uganda (English) with the same high-quality clinical resources on their local networks.
- **Future evolution:** Preparing for future updates to leverage the Verawood capabilities released in June 2026, continuing the rollout of Swahili content and introducing interactive in-video quizzes and automated admin tools.



Results and Future Directions

The platform launched completely on-schedule in early 2026 at training.doctorswithafrica.org.

- **Rapid, Risk-Free Launch:** Delivered a production-ready system matching tight academic enrolment windows without stretching a non-technical client team.
- **Infinite Scalability:** The architecture is entirely prepared for geometric growth; new courses, localized media, and deep interactive features can be deployed on the fly.
- **Data-Driven Alignment:** Custom analytics tools track student demographics precisely, satisfying strict donor auditing metrics.

CUAMM and Abstract-Technology plan to scale operations by:

- **Expanding Language Footprints:** Officially integrating Swahili localization onto the live environment.
- **Advanced Content Formats:** Injecting live learning sessions and interactive simulation blocks into subsequent iterations.



Conclusion

Transitioning from Moodle to a managed Open edX instance demonstrates how selecting infrastructure suited to low-resource settings can transform the effectiveness of international edtech programmes. By combining CUAMM's extensive clinical knowledge with Abstract-Technology's engineering expertise and upstream integration capabilities, the project has created a system that operates seamlessly in the field and not just in a test environment.

Key Takeaways for Other NGOs

1. **Design around bandwidth, not against it.** Use micro-learning chunking, adaptive external streaming and native mobile application offline modes to align with your users' infrastructure.
2. **Multilingualism is architecture, not translation.** Design for multilingual execution across interfaces, content fragments, questions and certificate rendering blocks from the first sprint onwards.
3. **Custom registration fields pay dividends.** Collect critical demographic, operational and employer metrics from the outset to guarantee seamless funder reporting without having to retrofit profiles later.
4. **Choose a partner who commits to upstream.** Ensure your development provider fixes platform bugs directly at the open-source level, rather than creating fragile local workarounds that will break during future upgrades.
5. **Managed hosting is the honest option.** DevOps is a specialised, full-time responsibility. NGOs maximise their societal impact by letting trusted technical partners handle infrastructure compliance, allowing internal teams to focus strictly on instructional content.



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. **Contact:** info@abstract-technology.de | abstract-technology.de



About CUAMM

Doctors with Africa CUAMM is the first NGO in Italy dedicated to healthcare in Africa, and the largest Italian organisation working in the sector. Founded in Padua in 1950, CUAMM operates in eight countries in Sub-Saharan Africa - Angola, Central African Republic, Ethiopia, Mozambique, Sierra Leone, South Sudan, Tanzania, and Uganda - working within national health systems to strengthen maternal and child health, tackle infectious and chronic diseases, and train the frontline healthcare workforce.

doctorswithafrica.org