instinctools

Custom LMS Development For an Energy Corporation

How implementing a custom LMS helped an oil and gas enterprise automate **84%** of training management tasks while increasing employee engagement by **45%** and saving **41%** of the education budget by moving online.

nostrum Learning system

Industry:
Education, Oil and Gas

UX AND DESIGN | WEB DEVELOPMENT | ENTERPRISE SOFTWARE DEVELOPMENT | SOFTWARE PRODUCT DEVELOPMENT

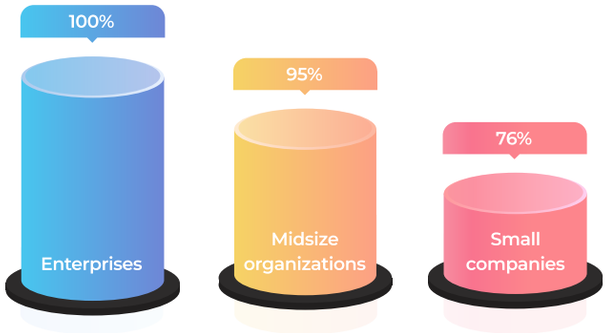
Business challenge

An efficient learning culture within an organization is one of the key ingredients that drive business forward. Statistic unveils that in 2022, 100% of enterprises, 95% of midsize organizations, and 76% of small companies used LMS software to deliver training.

It's also worth saying that for some industries, continuous staff training is not a nice-to-have option but a requirement that has to be met unequivocally. Just as it was for our client — a **UK-headquartered oil and gas company with a production and operations center in the Middle East**, which needed an LMS for internal usage.

Before reaching out to us as an LMS development company, the **client used to have only offline training programs**.

What percentage of companies bank on LMS?



Source: Training magazine, Training Industry Report 2022

What **problems** did such an approach bring?

No single point
for gathering and storing learning materials

As courses were scattered across HRs' devices, notes, etc., it was impossible to efficiently organize and reuse them to save time on curriculum preparation. The absence of well-established and consistent management of learning materials was also deteriorating learner engagement and led to employee resistance to education.

Hardships
with controlling timely staff certification

The client's HR team was having a bumpy ride with managing employee certification, which is vital in the oil and gas industry. Therefore, HRs had to manually track each worker certificates' due dates to set required training so it was on the dot.

Manual performance
of mundane, repetitive tasks

As the client's production center was based in the Middle East, they had to regularly submit a report on the staff certification to the local Ministry of Oil and Gas. The data for it was also gathered manually, which ate a sizable chunk of

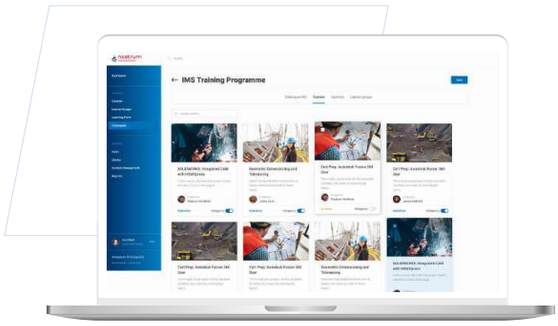
Inflexible
educational process

The training was available only at the corporate training centers and, therefore, required time commuting for the staff who worked on oil and gas production sites or from home.

the HRs' working hours.

Lack of transparency
in training

Teachers and learners didn't have tools to track real learning progress, and, thus, measure it.



As the company kept growing, the problems were snowballing. At some point, it became clear that the situation had to be fixed urgently. The Head of the HR department proposed switching from in-face education to e-learning. This idea implied **LMS development to go from training management turmoil to a single point for storing and organizing educational materials as well as tracking the learning process**.

LMS can empower the client's business with a **list of benefits**

Automation

By automating repetitive tasks, such as grouping, adding, and deactivating users, handling group enrollments, etc., the client can lighten the burden for HRs. Moreover, LMS software allows for creating PDF certificates for employees when they finish a course.

Time optimization

Thanks to storing all the learning programs and materials in one place, teachers can efficiently reuse them. For instance, before creating a new course from scratch, they can check the LMS's repository for data on the same topic, combine old courses, or just finetune them.

Regulation compliance

A powerful learning management system provides an opportunity to make keeping all staff aligned with the industry regulations a breeze. You have a centralized way to deliver the same information to all of your employees.

Security

With an LMS limited to internal usage, the client can assure the inaccessibility of the company's sensitive data from the outside.

Cost reduction

Putting a premium on automation and a time-saving approach decreases the cost of training in the long run.

Flexibility

After switching to digital learning, employees can attend courses anywhere, anytime.

Transparency

Both teachers and learners can track training progress. In a nutshell, LMS offers a competency matrix for each employee in the corporation.

Higher employee retention

3 out of 4 employees are more likely to stay with a company that offers continuous training and a rich learning experience.

Source: Society for Human Resources Management, The State of L&D in 2022

Also, the client considered that they would need a software solution adjustable to the **specifics of the oil and gas industry and their enterprise-scale multinational company**, including:

Opportunity
to create, gather, and store learning materials and courses on a plethora of topics

The flexibility of the LMS solution regarding the diversity of topics to cover — from technically specific courses to programs on finance management.

High resilience
of the system

The LMS software was supposed to accommodate a simultaneous workload of 1,000+ users during standard working hours.

Ability
to generate custom reports

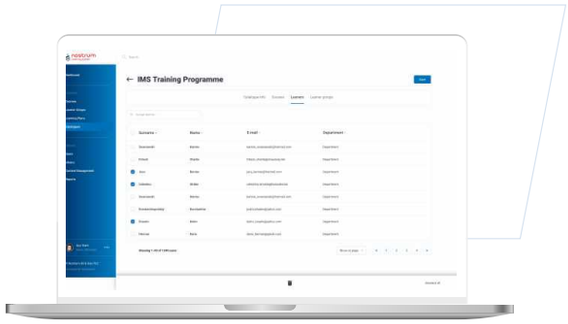
Localization
options

As mentioned, the client had to provide a specific report to the Ministry of Oil and Gas. This task also had to be automated.

For the multinational corporation, the possibility to provide training in many languages (including Arabic) was an essential feature. Where the top management could study in English, but rank-and-file employees needed materials and the LMS's interface in localized languages.

The off-the-shelf LMS platforms won't cover these requirements. Therefore, it was decided to **develop a custom LMS software**. This option also suited the client better from the business perspective as they had an in-house IT department, and **maintaining their own system was more cost-effective** than constantly investing in a ready-made software license.

Our business analysts clarified what devices should be used for the learning process. As the customer planned to provide access to the learning system only on the desktop, we ended up with the idea of a **web application hosted in the client's cloud**.

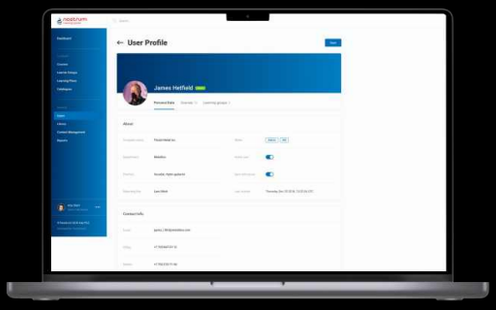


Solution

At the product ideation stage it became clear that the c**lient didn't have a clear understanding of custom learning management system capabilities and what LMS features they needed**. The only well-defined requirement was related to the LMS's visual design — the platform had to match the company's corporate colors.

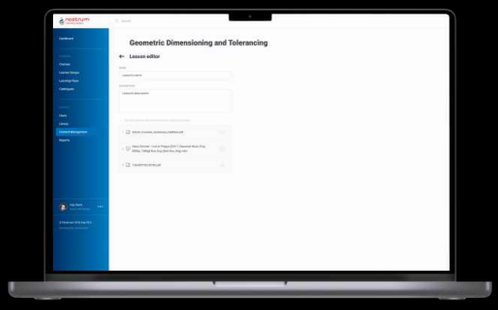
However, our extensive expertise in bespoke software product development allowed us to sprint ahead without getting stuck at the starting line. **Instinctools' business analysts took the initiative during the collection and elaboration of requirements.**

After finishing this stage in three weeks, we outlined the vision of the roles within the LMS, its architecture, components, functionality, and management.



01 LMS functionality

As a custom LMS development company, we aimed to provide the client with a feature-reach and user-friendly software product. Therefore, our dedicated team devoted special attention to crafting an easy-to-use materials repository, clear course structure, simple course management, detailed progress tracking, diverse testing programs, and in-depth reporting.



Roles

After analyzing the structure of the client's training process, we suggested the following roles within the learning management system:

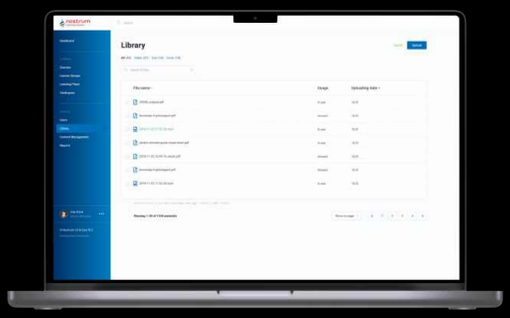
- **Admin** for their in-house IT department
- **Teacher** for HRs
- **Learner** for employees

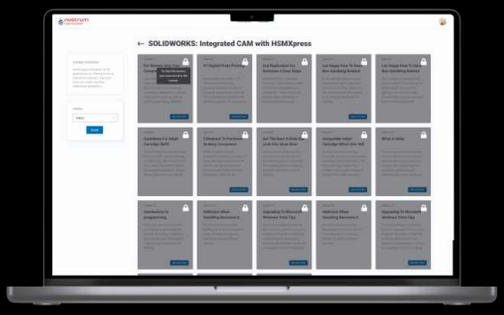
Content Library

Storage for courses and educational materials is a basic component of any LMS. Speaking of the client's Content Library, they planned to use it to collect both their in-house courses and learning programs they acquire from other training centers.

Considering the requirements of the oil and gas industry, all the data can be sorted out in various ways. For instance, general or industry-specific, by topics, available language, etc.

Content formats also vary. In the era of offline training, the client offered employees only text and illustrations. Our BAs proposed adding videos to increase learner engagement and enhance educational outcomes by diversifying learning activities.





Course structure and management

Learners can't choose a course by themselves; training is always assigned by the Teacher or Admin to an employee or a group of employees. Also, **educational materials are categorized according to the staff's specialization and their level within the corporation**. For instance, materials for rank-and-file workers and top managers will be in different categories, as well as courses on specific topics, such as risk management in finance and safety in oil production.

Progress tracking and analytics

The success of training programs is measured by their influence on the staff. To estimate this impact, we visualized students' progress with data analytics tools.

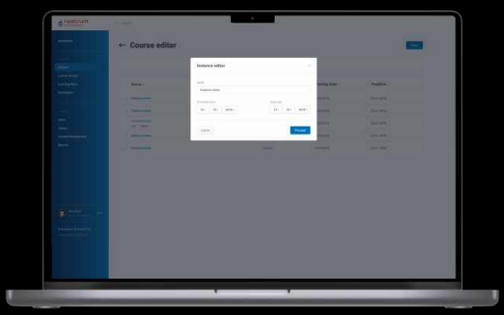
Custom LMS development implied offering dashboards on both sides:

Admin/Teacher's

functionality includes tracking percentage of Learners completed a group course. Furthermore, as they can set a deadline for a course or test, there is a statistic on how many employees managed to meet the deadline. Teachers and Admins can also look for detailed analytics for each employee – what percentage of assigned courses and tests they have already passed, the number of failed tests, if there are any, etc.

Learner's

functionality is not that extensive, but each employee can check their training performance and monitor deadlines to make it on time. All reports can be downloaded as Excel, CSV, or PDF files.



Communication within the LMS

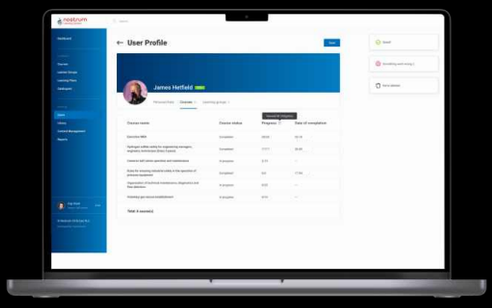
Having a single point of communication is also significant in ensuring personalized learning experience and high-quality training. Learners can leave comments on the courses, tag their Teachers or other participants if there is a group training, and Admins if they can't sort out some technical issues.

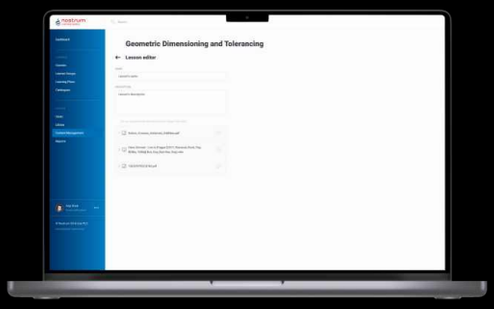
The same goes for Teachers. For example, they can tag Learners in the courses where the deadline is around the corner.

Notifications

Communication goes hand in hand with automated notifications to simplify time management for both Teachers and Learners. Within the custom LMS development, we recommended and implemented **email notifications with ready-made templates** for five cases:

- A Teacher assigned a course to the employee
- The Learner was tagged by a Teacher, Admin, or other Learner from a group
- A course has a deadline, and the Learner receives auto reminders ten, five, and two days before
- The Learner missed the deadline for a mandatory course
- Admin also receives a message about the readiness of auto-generated reports for the Ministry of Oil and Gas





Tests

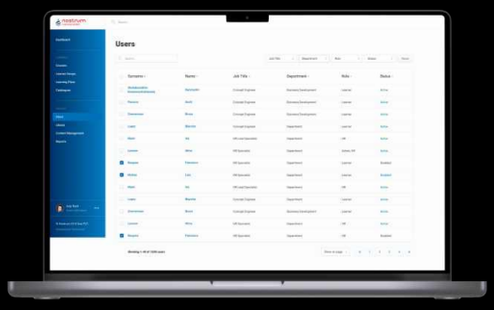
This feature became a **new helpful add-on in the certification process** to ensure a high level of expertise across the company. Now, employees can only be certified after passing tests following the course.

Here are some features of the testing process we suggested and implemented during the custom LMS development:

- Tests can include open, single-answer, and multiple-answer questions
- There may be text, illustrations, and videos in the tests
- New hires have to complete an initial test to assess what skills they may lack for their specialty or position. Based on the results, Teachers can create fully personalized learning for these employees
- Teachers and Admins can set a deadline for the course.
- Teachers and Admins can set a course's completion as a prerequisite for access to the next one

Reporting

As we've mentioned, the **automated report preparation for the Ministry of Oil and Gas** was one of the reasons that tipped the scales in favor of the custom LMS development services. We relieved people from a manual collection of data on employees' courses completion, putting that data together in a list, and entering it into the report template.



All these operations were automated. The **LMS generated an Excel file with all the necessary information according to the Ministry of Oil and Gas template**. HRs had only to download it and send the document to the ministry.

Since the project scope was quite substantial, we divided the work into two parts — MVP and post MVP. The MVP incorporated the Admin's and Teacher's functionality – Authorization/Login, Course Catalog Management, Course Management, Content Management, and Content Library. It took our LMS developers three months to finish this part.

The client used Microsoft Azure as their corporate cloud platform, which influenced the LMS integration they needed and the way we took care of security:

Integration
with Azure Active Directory

All employees already had profiles in the Active Directory. We took advantage of this to avoid creating the staff profiles in the learning management system from scratch.

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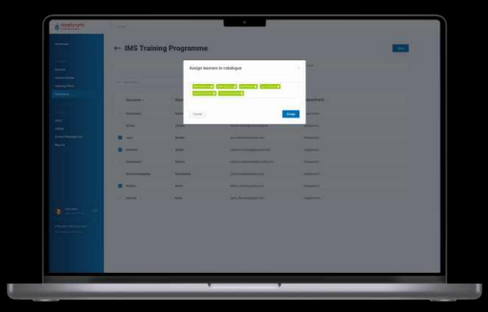
LMS authentication
through Azure OAuth 2

We suggested using this up-to-date standard authentication protocol to allow users to sign in to the LMS through their profile in the Active Directory.

Besides saving personnel's time, such an approach is beneficial from a security standpoint. As you can guess, employees rarely come up with new passwords and use the same one for multiple systems, which increases software vulnerability drastically. A **single point of authentication (SSO)** means fewer scattered logins into various corporate apps and minimizes the possibility of external attacks and data theft.



Within the project, our LMS developers worked only with the API addresses of specific servers provided by the clients for the web app. **The software's maintenance and support** were supposed to be provided by their in-house IT department.

However, we went the extra mile to optimize the task for the client. Our DevOps has **automated the web app's installation and deployment on the server side**. Thus, all the LMS services located in Docker containers were automatically brought up on the server via Docker Compose.

03 Visual design

Good design emphasizes the product's functionality. Our product designer had to **translate custom LMS software's versatile capabilities into a dynamic and feature-filled interface**. As we were strapped for time, there was no wireframing. We went straight to visual design. Our UX/UI designer took the risk and prepared a lot of screens for a future web app at once and reached the client for approval. Thanks to our product-first mindset and battle-tested expertise of the LMS development company, it worked out.

Here are a few examples of our initiatives regarding learning management system design and usability:

Nesting levels

As we were in charge of the solution's architecture, we also proposed the components hierarchy. For example, we suggested creating All, Video, Text, and Cover sections within the Content Library and All, For review, Declined, and Published tabs in the Courses Catalog.

Quick access tab

Learners can be overwhelmed with the number of courses they need to complete. Therefore, we offered to add a "Quick access" menu, where each employee can check assigned materials, which are obligatory, which are in progress, etc.

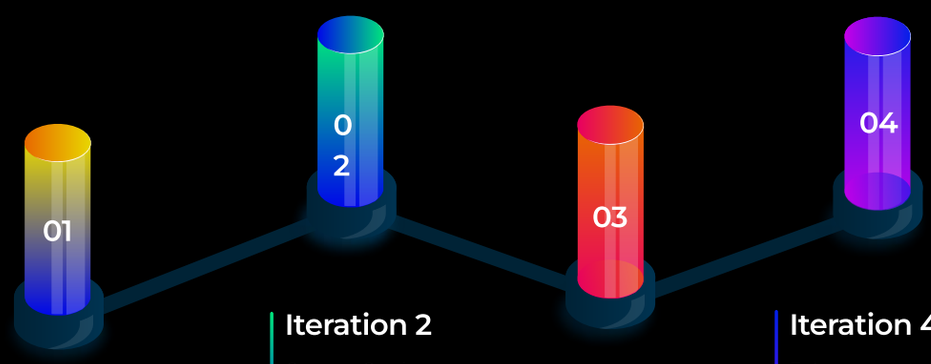
Intuitive and handy file uploading

With the drag-and-drop interface, Admins and Teachers can easily download materials of any type to the Content Library and change their order in the Course Editor.

04 Post-implementation stage

After the LMS rollout, **our business analysts trained HRs** to familiarize them with the system and show them how to take advantage of it to the fullest.

Next, we moved to working on the post-MVP features and added them in four iterations:



Iteration 1

User Accounts management, Learning groups management.

Iteration 2

Courses, Catalog, Admin/Learner modules architecture.

Iteration 3

Lessons (Learner module), Course listing (User management).

Iteration 4

Enhancements (improve UX), Report (Course completion), Course management (selection material from Library, material sequence).

This part of the custom LMS development took another four months of the full-fledged team work.

Before

- Training materials and courses are scattered across teachers' devices and hand-written notes
- Manual performance of management tasks that could be easily automated
- Lack of personalized learning
- Inability to measure the effectiveness of corporate training materials
- Absence of educational analytics
- Slow delivery of the educational programs
- Difficulties with tracking learners' progress
- Manual preparation of obligatory reports

After

- Transparent measurement of corporate educational programs' success and learner's progress
- Simplified and mostly automated preparation of industry-specific reports
- Speeded up courses delivery
- Automation and facilitation of all the learning management operations
- Centralized learning data storage
- Unlimited ability to personalize the learning experience
- Detailed visualization of each employee's training progress and a bird's eye view of the staff certificates across all company

Key features

Inclusiveness

The biggest gain of custom LMS software is its adaptability to the various staff's specialties and flexibility in providing access to the courses regardless of the employees' time and location.

Resilience

Besides the ability to withstand the simultaneous workload of 1,000+ employees, custom LMS development has become a harbinger of opportunities for the client to ensure stability and consistency of training programs.

Customizability

With a custom LMS solution, the client can uncover the areas of improvement and tailor a curriculum to the company's needs and employees' ambitions.

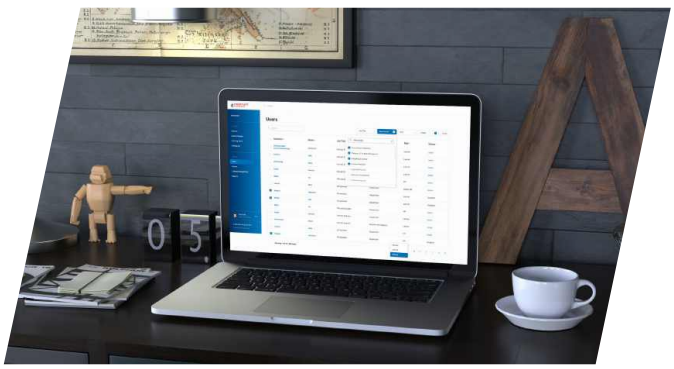
Business value

- Provide a **single point of control** over the training programs to ensure ongoing improvement of employees' knowledge and expertise
- Automate **84% of teachers' tasks** related to managing the educational process
- Save up to **4 hours** of teachers' working time weekly and relocate their efforts to developing personalized curriculums
- Save **41% of the education budget** thanks to moving online
- Speed up new staff onboarding **from 1–3 days to 4–10 hours**, depending on the employee's position
- **45% increase** in employee engagement
- **Securing** the company's education materials with single sign-on (SSO) authentication

Multiplier effect

Any way you slice it, even small companies can no longer afford to put off the question of consistent and centralized employee training until later, not to mention medium-scale companies and enterprises.

The **absence of a robust learning management system can slow the roll of a company in any industry**, from education and healthcare to manufacturing, automotive, and fintech. Creating a powerful LMS can help you rise from a dizzying array of unsorted educational materials and courses and make your employees' progress traceable.



Furthermore, experts in any field are a hot commodity nowadays, given the world-scale talent crunch, and hunting them can cost you a pretty cent. Therefore, you should bank on the LMS software for internal usage and **cultivate experienced professionals within your company**.

Effective training helps companies to fill skill gaps by leveraging staff they already know and trust and foster long-tenured relationships with their employees. Moreover, by putting talent management first, companies of all sizes can **improve organizational performance** and potentially gain a competitive advantage over their peers.

Do you have a similar project idea?

Contact us — and we will estimate your projects costs for free!

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