imc
part of Scheer

imc Learning Suite 14.22

Functions in Detail

im-c.com

Content

1	**The imc Learning Suite**	**5**
1.1	Preface	5
1.2	The imc Learning Suite at a Glance	6
1.3	Core System	7
1.4	Basic Modules	8
1.5	Add-On Modules (License needed)	11
2	**Learning**	**16**
2.1	The imc Learning Suite Frontend	16
2.2	Catalogue	21
2.3	My Content	21
2.4	Course Room	22
2.5	Ratings	26
2.6	Recommendations	26
2.7	Learning Apps iOS & Android	28
3	**Course Instruction**	**29**
3.1	Attendance Tracking	30
4	**Employee Administration**	**31**
4.1	Supervisor Dashboard	31
4.2	Booking Requests	31
4.3	Employee Overview	32
4.4	Individual Syllabus	35
4.5	Seat Allocation	36
5	**Organisational Administration**	**37**
5.1	Mapping the Organisational Structure	37
5.2	Rights Management	38
5.3	User Management	38
6	**Content Management**	**40**
6.1	Import of Content	40
6.2	Versioning of Content	42
6.3	Structuring of Content	43

6.4	Provision of Content	43
6.5	Courses	48
6.6	Learning Paths	50
6.7	Manage Equivalences	52
6.8	Time Zone Management	53
6.9	Certificates	53
6.10	On-the-Job Training (License needed)	53
6.11	Virtual Classrooms (License needed)	55
6.12	Testing and Evaluation	56
6.13	Feedback	57
7	**Reporting**	**59**
7.1	Reporting Dashboard	59
7.2	Dashboard Reports	60
7.3	Frontend Reports	61
7.4	Consideration of Personal Access Rights	61
8	**Learning Analytics (License needed)**	**62**
8.1	Learning Analytics Dashboard	63
8.2	Learning Analytics Reports	63
8.3	Consideration of Personal Access Rights	64
9	**Scenarios**	**65**
9.1	Extended Enterprise Training	65
9.2	Simplified Course Creation	65
9.3	Compliance	66
9.4	Gamification (License needed)	69
9.5	Skills & Competencies (License needed)	71
9.6	Certification Management (License needed)	73
9.7	Resources & Capacity Management (License needed)	75
9.8	System Validation	76
10	**System Framework**	**77**
10.1	Languages	77
10.2	Individualisation	78
10.3	Architecture and Interfaces	79
10.4	Data Protection (GDPR)	82
10.5	Security Measures	82

10.6 Security Standards 84
10.7 Information and Support Management 85

11 Warranty/Liability 86

1 The imc Learning Suite

1.1 Preface

With the following document, we would like to provide you with a comprehensive overview of the imc Learning Suite, the Learning Management System (LMS) of imc. This document will describe all the essential components, functions, and processes of the Learning Suite, so that you can get an idea of how you can master your learning management challenges with this system.

The imc Learning Suite is an extremely flexible, modular LMS that has proven itself in daily use for over 25 years in a wide variety of applications across all industries and learning scenarios. Since inception, we have enhanced it by understanding our customers and their daily challenges. With the imc Learning Suite, you will be safe, whether it is for compliance training, compliance with data protection regulations or ongoing certification requirements in a validated learning environment. You can trust imc and our Learning Suite 100%.

If you are interested in more in-depth technical details, e.g., on hosting or security, we would be pleased to provide you with our corresponding white papers.

The continuous further development of the Learning Suite is based on a lively exchange with you. We are looking forward to hearing from you about how imc Learning Suite will be used in your company.

Yours sincerely,

Marion Sander-Feld
Head of Product Management
imc Learning Suite

Michael Schlothauer
Vice President
Learning Solutions

imc
information multimedia communication AG
Headquarter Saarbrücken
Scheer Tower, Uni-Campus Nord
D-66123 Saarbrücken
T. +49 681 9476-0 | Fax -530
info@im-c.com
im-c.com

1.2 The imc Learning Suite at a Glance

After more than 25 years of development along the needs of the market, the imc Learning Suite offers an optimal learning and administration environment with various individually integrable components to be able to map any educational scenario.

Our configurable component architecture includes core functions, basic modules, and additional licensable extension modules. The components are listed below.

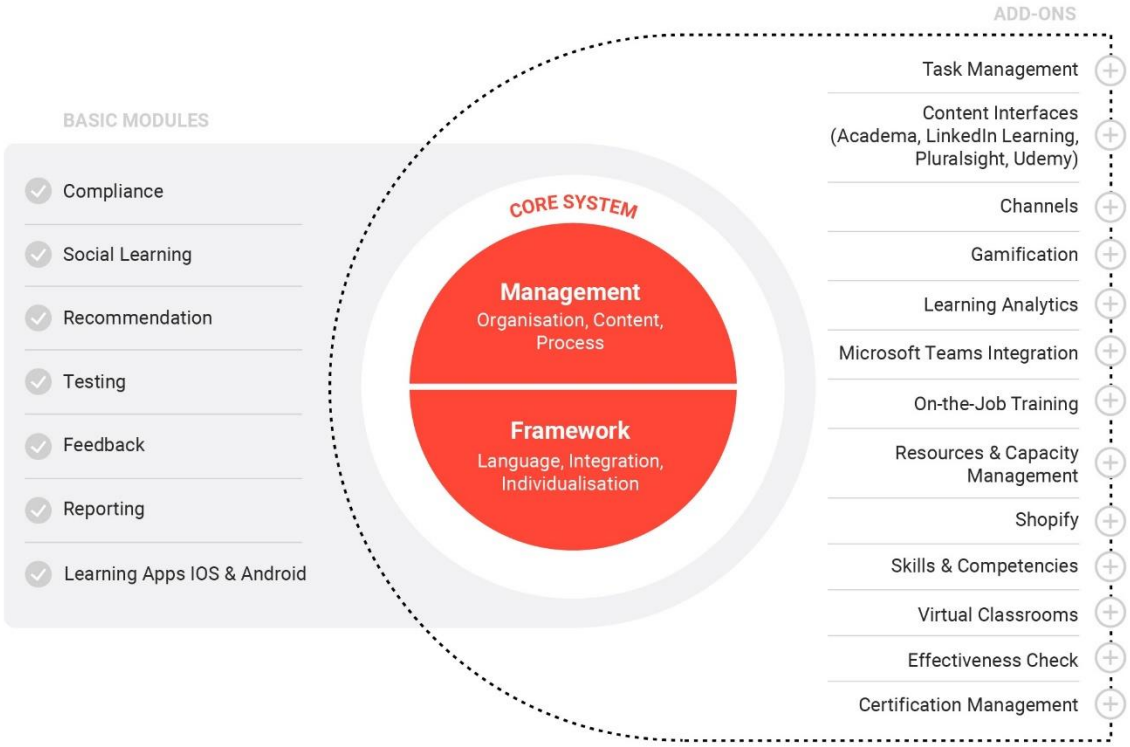


Fig. 1.1: Overview of the functional components of the imc Learning Suite

1.3 Core System

1.3.1 Organisational Management

Complex organisational structures can be mapped with the Learning Suite. With multi-client, group, and role management, Organisational Management enables you to structure the recipients of learning content according to the Organisation. User administration is based on a mature and flexible authorisation system and enables Organisational instances, user groups or individuals to assign detailed rights to system functions and learning objects.

1.3.2 Content Management

Learning content can be offered as individual files or bundled in courses or learning paths. International standards such as SCORM, xAPI, LTI and QTI are supported. Also, all processes of learning content import, versioning and learning content releases can be mapped in education catalogues or portals. Content is always created based on templates. This allows them to be managed as standardised as possible and as flexible, as necessary.

1.3.3 Process Management

Educational programmes, courses and curricula can be designed according to individual standards. The administrator can flexibly design catalogues, course structures, and learning logic as well as configure registration and course booking processes. Tutors are also supported by an overview of the status of all training participants and their progress.

1.3.4 Language Framework

The base platform of the imc Learning Suite is available in more than 44 languages. Learning content can be integrated into the system in almost 200 languages. The system also allows the creation of content in multiple languages. This multi-language functionality facilitates content management especially in an inter-national environment. Learners can choose the language in which the content objects are to be presented.

1.3.5 Individualisation Framework

With the help of this framework, training-relevant workflows such as registration, booking, approval and cancellation processes can be set up as well as individualised e-mail notifications. The customisable configuration of the imc Learning Suite eliminates the need for customer-specific programming adjustments and allows you to configure the system to your individual requirements during operation.

1.3.6 Integration Framework

Integration with other application systems results in a wide range of potential benefits: For example, an integrated database or automated workflows across system boundaries enable learning processes to be meaningfully linked with business processes.

1.4 Basic Modules

1.4.1 Compliance

imc Learning Suite enables you to conduct system-based training to ensure compliance with internal and external regulations. The imc Learning Suite makes it possible to automatically define and book target groups for training courses using a wide range of attributes. The progress is continuously documented from the time of booking and the learner can be reminded via automatic messages to complete these courses within the required period. An automated refresher training mechanism ensures that the training is regularly repeated as required by the regulators. This means that the employee always meets his or her compliance requirements. All status changes are stored throughout the entire process and ensure comprehensive traceability and control of all compliance-relevant activities.

Benefits:

- Time saving and error reduction due to automation of the processes.
- Fast creation of target groups through rule-based assignment.
- Automatically remind learners who have not yet completed their courses or whose required completion date is approaching or has passed.
- Good overview of the compliance status of your team for supervisors and managers.
- Reduce pressure on compliance managers through automation of processes.

1.4.2 Social Learning

Modern social learning enables informal learning processes, even beyond formal courses and learning pathways.

Learners can share their knowledge and experiences in course-specific **forums**. Courses can also be set up as pure communities, e.g., for alumni, to enable the exchange of materials and discussions.

A **star rating** allows learners to rate courses and filter the catalogue according to these course ratings. Ratings can be differentiated into categories as desired. Rating quickly identifies suitable courses and recommends them to other learners, as well as gathering valuable feedback on course quality.

A **sharing function** on the course description page makes it easy to recommend exciting courses to colleagues and learning partners.

Benefits:

- Synchronous and asynchronous communication.
- Social learning as part of a formal curriculum.
- Course assessments.
- Easy sharing of courses.

1.4.3 Recommendations

The recommendation engine automatically recommends learning materials to learners. Recommendations are generated based on current or completed courses, among others. Recommended learning content is displayed on the personal dashboard in the Learning Portal.

Benefits:

- Learning recommendations tailored to the learner.
- Automatic recommendations without manual intervention.

1.4.4 Testing

Monitoring learning success and checking the level of knowledge are central aspects of holistic education management. Therefore, the test module is particularly well thought out and equipped with many functions, so that it is superior to even dedicated independent test software offers. The test module facilitates the execution and evaluation of certification-relevant tests.

Benefits:

- Simple wizard-based test question creation or import of test questions via Excel or IMS QTI Standard.
- Creation and publishing of simple to complex test scenarios.
- Automatic generation of tests from a question pool to provide learners with a different question set in case of test repetition.
- Automatic but controlled updating of test questions in the test to which the questions are assigned.
- Automatic generation of test certificates.

1.4.5 Feedback

The feedback module allows for the effectiveness of courses to be continuously monitored. Automatic evaluations of anonymous learner feedback provide a quick overview of the results. The quality and popularity of your training offer can be tracked in a flexible and reliable manner.

Benefits:

- Quality control for your educational measures.
- Using the results of the surveys, the programme can be further improved.
- Receiving relevant data for your communication upper-level management.

1.4.6 Reporting

Planning, control, analysis, and evaluation of educational processes require direct and fast access to extensive data. The information requirements vary and may change from time to time: From the utilisation of training resources to the average processing time of a provided learning measure to the learning success of employees. The imc Learning Suite therefore provides a variety of role-specific standard reports. On a customisable Analytics Dashboard, over 60 reports can be subscribed to, favourited, aggregated, grouped, and analysed in various display formats in the back end. Detailed information on all reporting options is available on request in the document **imc Learning Suite Report Overview**.

Benefits:

- Create your list-based individual reports easily with the integrated report designer.
- Provide executives with automated reports about their employees.
- Simplify further processing through export to Microsoft Excel.

1.4.7 Learning Apps iOS & Android

With the app, learners can learn everywhere, even at home or on their way to work. Automatic synchronisation with the imc Learning Suite ensures that all learning content is always up to date. Even without Wi-Fi or when abroad, the app can be operated in offline mode and makes use of the most recently available information. The app is available for iPhone and Android and is optimised for tablets. Detailed information on the imc Learning Suite Mobile Apps is available on request in the document **imc Learning Suite Mobile Apps – Functions in Detail**.

Benefits:

- Contemporary learning.
- Flexible learning for an agile workforce.
- Using Micro-Learning on the go to deepen understanding.

1.5 Add-On Modules (License needed)

1.5.1 Task Management

The organization and execution of a training course may require a certain number of tasks to be managed and completed before such a course can start.

The task lists support you in all activities necessary to set up blended learning and face-to-face courses within the imc Learning Suite. Task lists collect multiple tasks for a specific scenario, e.g., for a face-to-face training where a tutor, training rooms and hotel rooms need to be booked.

The task list can be assigned to course templates and courses. You can add additional tasks or edit existing ones to perfectly fit with the course needs. Sorting by the due date will let you know which tasks need to be tackled first. You see the tasks assigned to you and prioritised according to their due date on the dashboard and can edit them directly and mark them as completed.

Benefits:

- Support organizational activities necessary for setting up training courses, especially blended learning, and face-to-face courses.
- Provide one centralized place to keep tasks on track inside the imc Learning suite courses.
- Presentation of the tasks at hand to complete them.

1.5.2 Content Interfaces (Academa, LinkedIn Learning, Pluralsight, Udemy)

The imc Learning Suite offers the possibility to integrate 3rd party content via connectors, e.g. Academa, LinkedIn Learning, Pluralsight and Udemy, to utilise the advantages of both worlds within one platform. Customised connectors are available on request.

Benefits:

- **External content**: Make imported content, such as media, available in catalogues and courses.
- **Content curation**: Search and import selected courses by keyword or alternatively import the entire catalogue.
- **Course search**: Easily find content in the catalogue, courses and channels using the special media type 3rd party content".
- **Learning**: Learners can easily consume external content and view their learning status within the imc Learning Suite,
- **Reporting**: View the processing status of learners in the imc Learning Suite via xAPI reporting and evaluate reports via course & catalogue assignment
- **User authentication**: Seamless user experience via single sign-on with a central identity provider or the imc Learning Suite as an Open ID Connect identity provider.

1.5.3 Channels

Channels are topic-based containers that contain learning nuggets on the respective topics. Learners can subscribe to topics and are always kept up to date with new content via email notifications.

Benefits:

- Learners can access content at the moment of need.
- Learning nuggets can be easily created in-house.
- Learners know what content they need for their work.

1.5.4 Gamification

The imc Learning Suite offers a full gamification engine that can gamify all learning activities across the platform. When learners reach a new experience level or a next higher professional development level, this is immediately visualised through experience points and/or badges. These rewards learning success and encourages learner motivation.

The Learning Suite offers several possibilities to gamify learning: For example, it is possible to activate point systems, rankings based on individuals or teams, and the option of acquiring badges.

Benefits:

- Make learners' successes and commitment visible.
- Increase the commitment of your learners.
- Encourage playful competition between people and teams.

1.5.5 Learning Analytics

Learning Analytics is embedded in Microsoft Power BI and aims to enable dashboard-based, faster, and more accurate business process decisions based on trends, comparisons, and root cause analyses.

Benefits:

- Greater flexibility and quick start with out-of-the-box dashboards and reports that can be extended/customised.
- Agility through filtering and drill-down to the detail of individual courses or individual learners
- Predictive trend analyses
- Transparency on training needs and employee learning development to ensure continuity of services.

1.5.6 Microsoft Teams Integration

The imc Learning Suite integrates with Microsoft Teams to bring learners closer to learning content in their work environment and to enable interactions between learners. Administrators can configure courses so that the system automatically creates a course-related team in Microsoft Teams, to which all course participants are automatically added and in which the course room is accessible via the main team channel. This allows course participants to learn without leaving

the Microsoft Teams environment and to discuss with other course participants and tutors in the chat area.

Benefits:

- Support collaborative learning for course participants.
- Ensure learning content can be accessed directly in Microsoft Teams to be available at the workplace at any time without being supposed to enter imc Learning Suite.
- Enhance the team in Microsoft Teams with additional functions like file upload etc.

1.5.7 On-the-Job Training

With the On-the-Job Training module, the imc Learning Suite offers comprehensive functions for training and further education in 1:1 training situation. An experienced employee (e.g., the foreman/mentor) is responsible for the training and further education of an employee (e.g., the trainee). On-the-job Training includes mentor instruction and task demonstration, mentee observation and practice, and mentor evaluation of task performance.

Benefits:

- Simple creation of tasks for the mentee, which the mentor checks and evaluates.
- Upload photos, videos, and other documents directly from multiple devices to document your work.
- Simple reporting and feedback to show progress.

1.5.8 Resources & Capacity Management

imc Learning Suite brings digital and analogue together: With this module, you can make optimal use of your teaching and training resources for classroom events; you can use them to plan and control your trainers, equipment, rooms, and services (e.g., catering).

Benefits:

- Optimise the time of trainers.
- Ensure professional flow of workshops and lectures.
- Control e-learning and classroom courses from a single system.

1.5.9 Shopify

The imc Shopify Connector (www.shopify.com) provides an interface between the imc Learning Suite and Shopify to allow learners to add courses and learning paths to their basket via the LMS catalogue and checkout via Shopify.

The imc Shopify Connector as part of the imc Learning Suite:

- intermediates the communication between the imc LMS and Shopify, handling the creation and update of the product catalogue automatically in Shopify with courses from the LMS catalogue,
- allows learners to add courses and learning paths to the shopping cart, based on the price applicable to the learner (preferential prices based on group membership can be defined via the LMS),

- performs enrolment checks such as prerequisite fulfilment and presents learners with an enrolment form where additional data for the enrolment can be collected.
- allows learners to remove items from their shopping cart,
- allows learners to proceed to checkout with the items in their cart,
- processes the enrolments based on the order payment notifications received from Shopify.

Benefits

- Full integration with one the most popular and powerful ecommerce tools.
- Carrying out the purchase process without further intervention of an imc Learning Suite administrator.
- Usage of discount codes for predefined courses and periods.

1.5.10 Skills & Competencies

This module offers extensive functions for a more effective and holistic skills and competence management. For example, employee skills can be documented and managed in a cross-organisational competence database. The module also creates transparency in career planning by clearly listing the job profiles and competencies assigned to the employee and the acquired competence status for both employees and their superiors at all times. Through an analysis of competence gaps, employees can find out for themselves directly in the catalogue which training programmes will increase their competence level. Employees also can preview other future job profiles to see what skills are needed to take up a new position and what training is needed to fill any skill gaps.

Benefits:

- Increase your competitiveness with a targeted competence-based employee development program.
- Reduce costs by training only the people who really need it.
- Motivate employees to strive for their next level as part of their career development.
- Find at any time the people who have the best skills profile required for the task at hand.

1.5.11 Virtual Classrooms

The imc Learning Suite supports virtual classrooms from different providers with a specially developed interface for each. This allows you to create your classroom sessions directly from the imc Learning Suite and integrate them into courses. Special interfaces are offered for Adobe Connect Meeting, GoToMeeting, GoToWebinar, Microsoft Teams, Vitero and WebEx Meeting. Regarding the detailed functionalities of the virtual classrooms, the provider themselves offer extensive information.

Benefits:

- Establish end-to-end workflows.
- Add another method to your training portfolio.
- Make group work across multiple locations possible.

1.5.12 Effectiveness Check

Effectiveness check enables the controlled provision of course-related feedback to assess the transfer of learning to its application in the workplace. For this purpose, feedback forms can be defined to follow a predefined workflow between a specific learner and the associated supervisor.

The feedback forms are made available via a dedicated dashboard panel and both learners, and the supervisor can submit the assessment for a specific course and compare them with each other.

Tutors and administrators have access to additional reports where they can analyse the results.

Benefits:

- Enables evaluation of the effectiveness of the training and its impact on daily work.
- Define actions required to achieve the intended learning objectives and application in the workplace.
- Use the results for future training to improve agenda, didactic approach, or content if necessary.

1.5.13 Certification Management

Certification management offers the possibility to ensure that employees have completed a certain amount of training in a certain amount of time. For this purpose, certifications can be set up and assigned to learners. Learners assigned to such a certification receive information on how many hours or points they need to accumulate by attending courses. Tutors can also be assigned hours or points for completing a course. For certifications, repetition intervals can be defined for a certain period, e.g., once a year.

Examples are the Insurance Distribution Directive (IDD), the Markets in Financial Instruments Directive (MiFID), the Swiss Association for Quality (SAQ), CICERO, Continuing Medical Education (CPD/CME), Continuing Education and Knowledge for Nursing (CNE).

Individual certifications can be combined into so-called certification sets. This offers the possibility of quickly obtaining an overall view of the certification progress. The progress display is calculated from the progress of the individual certifications assigned to the set.

Benefits

- Ensure that your learners are always meeting certification requirements in accordance with legislative requirements.
- Monitor the trend towards successful completion of certification by checking the status as well as the status when all courses planned will have been completed for a specific learner.

2 Learning

The imc Learning Suite offers the possibility to create and disseminate tailor-made and innovative educational programmes. Different types such as e-learning, in-person or blended learning solutions can be combined and easily implemented. The focus is always on the learner.

2.1 The imc Learning Suite Frontend

The frontend is available for all learner- and supervisor-related tasks. The imc Learning Suite offers the possibility to create and distribute tailor-made and innovative educational offers. Different types such as e-learning, presence or blended learning offers can be combined as desired and easily realised. The focus is always on the learners.

2.1.1 External Portal Page

The portal page, which is displayed after entering the URL of the system, can be designed in many ways in terms of layout, even target group specific.

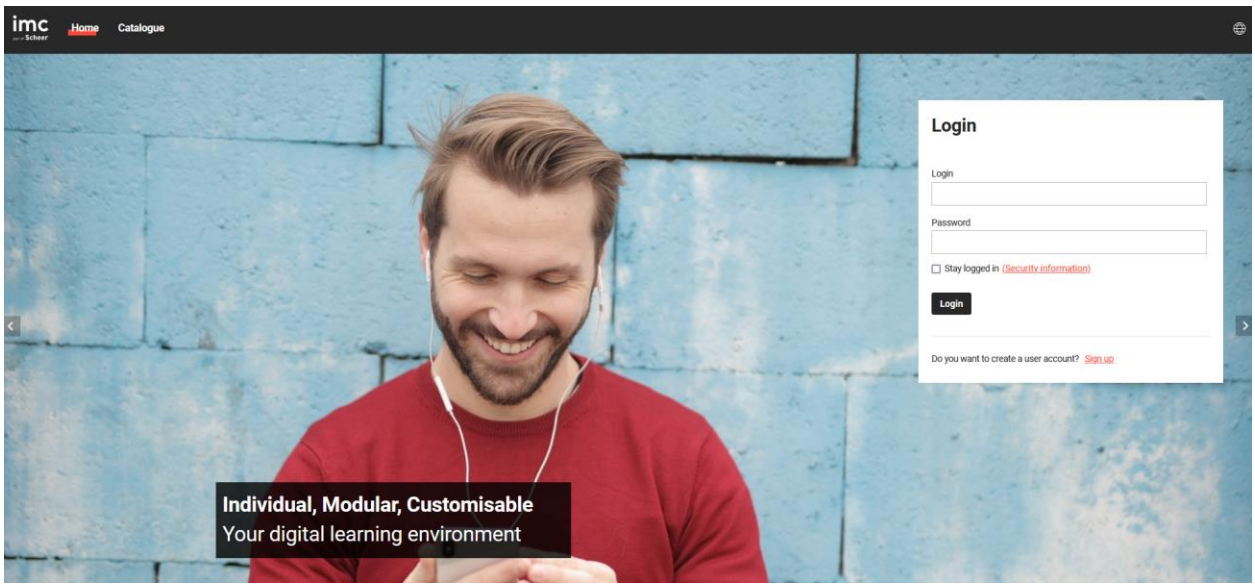


Fig. 2.1: Portal page of the imc Learning Suite

2.1.2 Internal Portal Page

After logging in to the personal learning environment, direct access to all relevant information, educational measures and communication services is made possible. Which navigation points are available can also be set flexibly. This enables users to orientate themselves quickly and find exactly what they need.

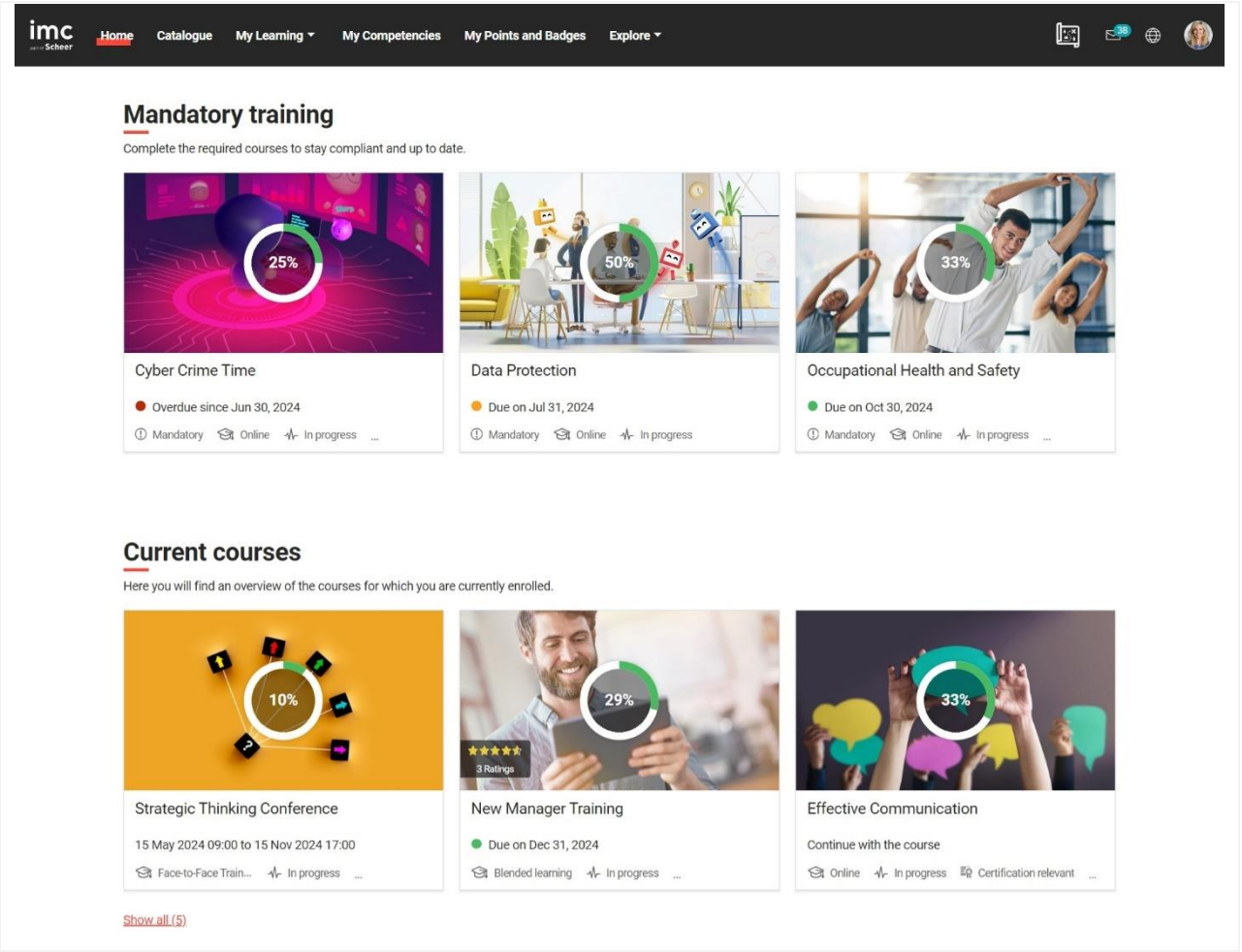


Fig. 2.2: Learner's view: internal portal page

The presentation of the group-specific portal pages can be structured and prioritised into different areas by using panels. Various panel types are available for this purpose:

- Course panels of various types, e.g., compulsory / optional courses.
- Predefined catalogue searches (catalogue panel), e.g., online courses, specific competencies, etc.
- Recommendations (recommended by supervisor or automatically generated by the recommendation engine (see chapter 2.6 Recommendations).
- Personal media library, with content marked by the learner (bookmarks).
- Simple text and news panels to keep learners up to date.
- Feature Plugin Panel, where new features can be embedded into the front-end through HTML and Java Script.

The available display options of the panels are:

- One tile per line.
- Carousel with a tile in focus.
- Three tiles per line.

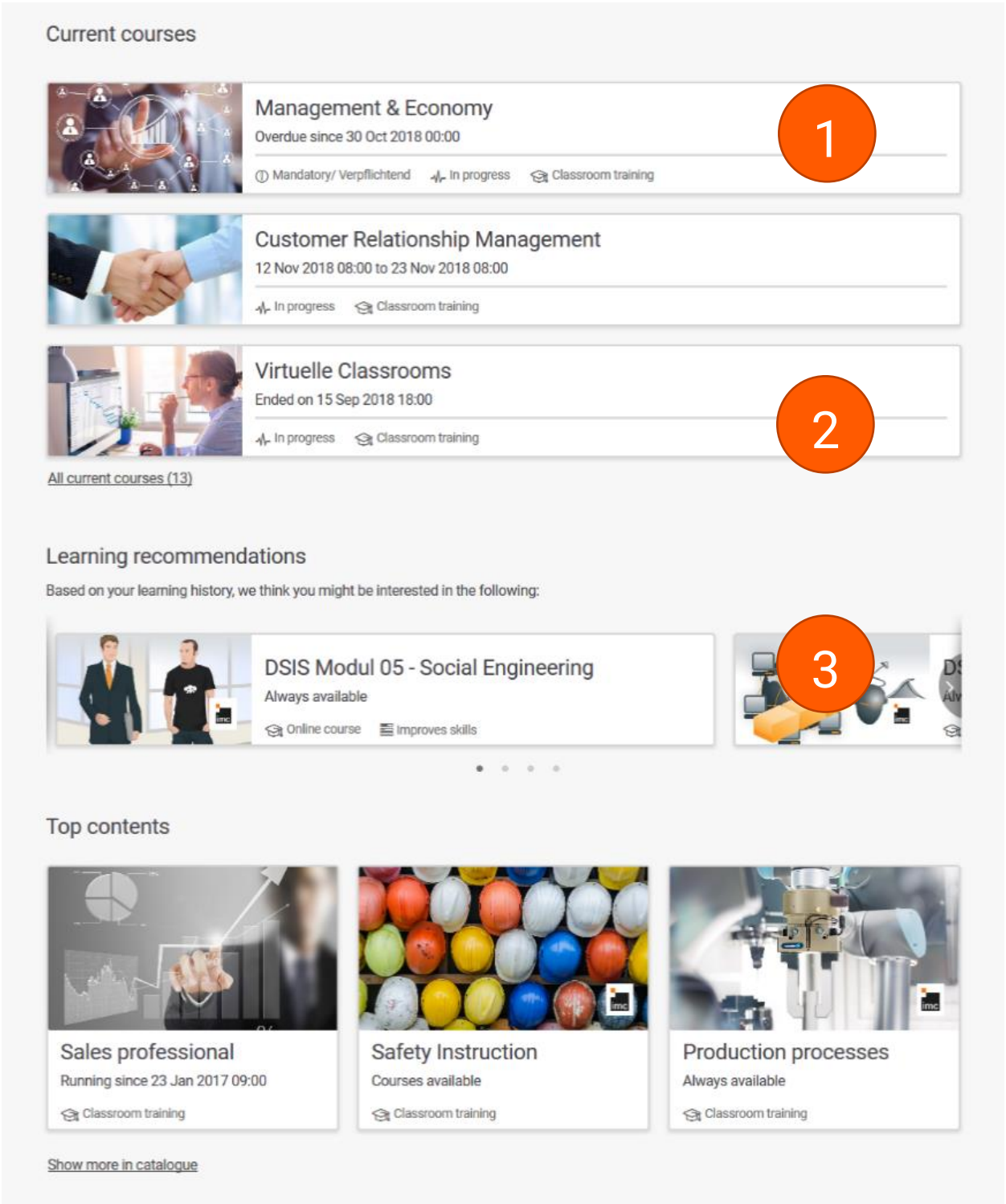


Fig. 2.3: Learner's view internal dashboard panel types

2.1.3 News

Interesting content or the latest developments can be communicated via the News panel. Tile images and HTML can be used to make the news visually appealing, and the content can be supported by attachments. A footer navigation allows an easy viewing of different news. The layout of the news tiles can be defined for each news panel:

- Several tiles per row.
- List view.
- Carousel.

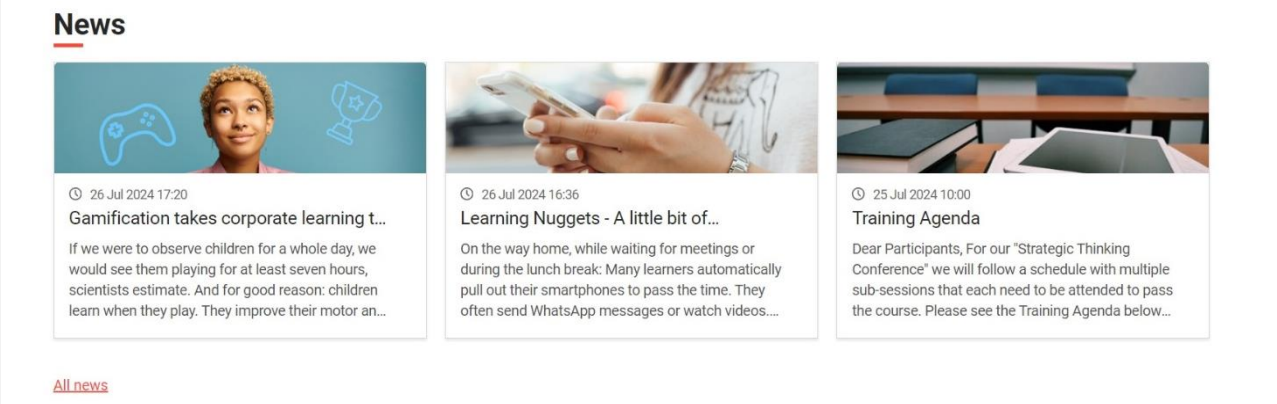


Fig. 2.4: News panel

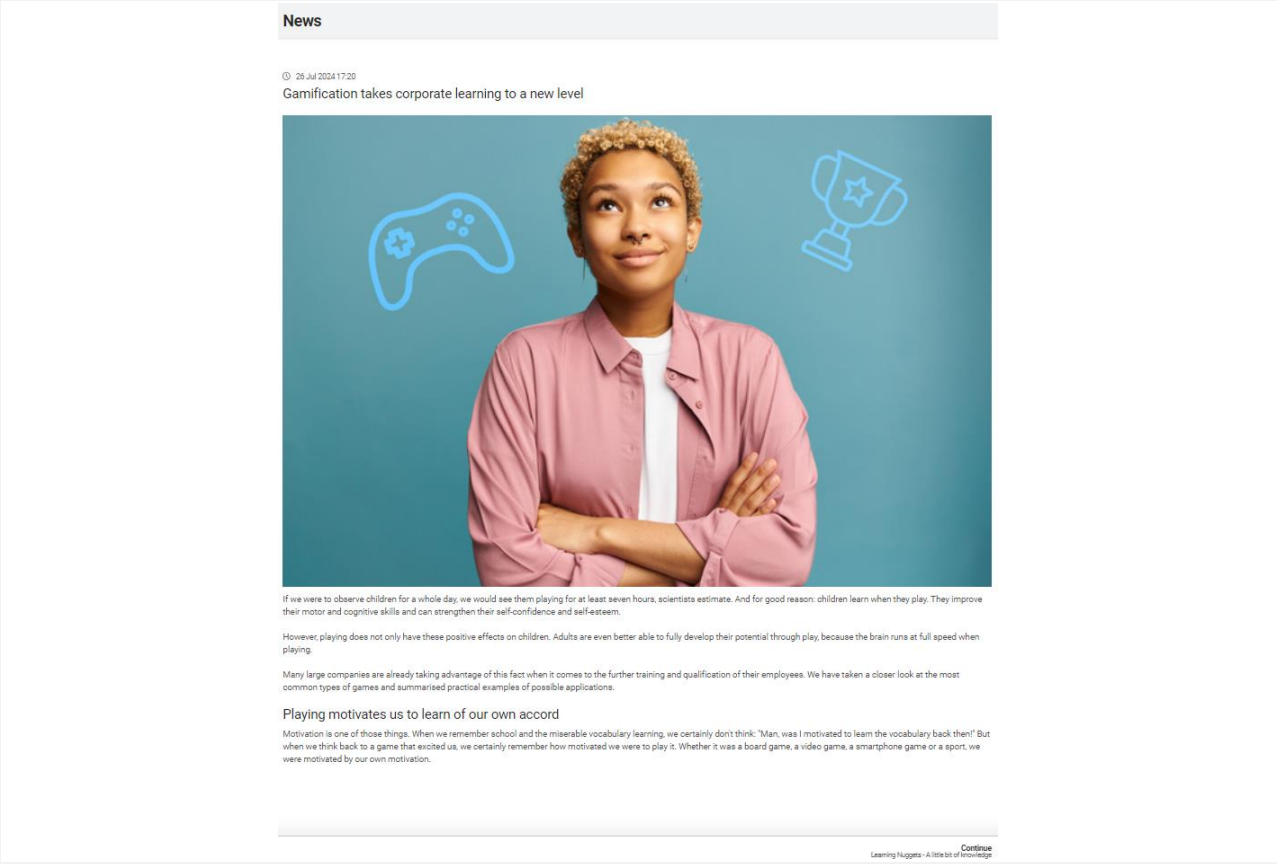


Fig. 2.5: News in detail view

2.1.4 My Inbox

To allow easy access to system messages without an additional email account, there is a personal inbox in the learner view where all system messages can be read, searched for, and deleted.

2.1.5 My Calendar

Learners have a personal calendar in which their assigned courses, learning paths etc. assigned to them are displayed in calendar form. There are Various filters and views are available.

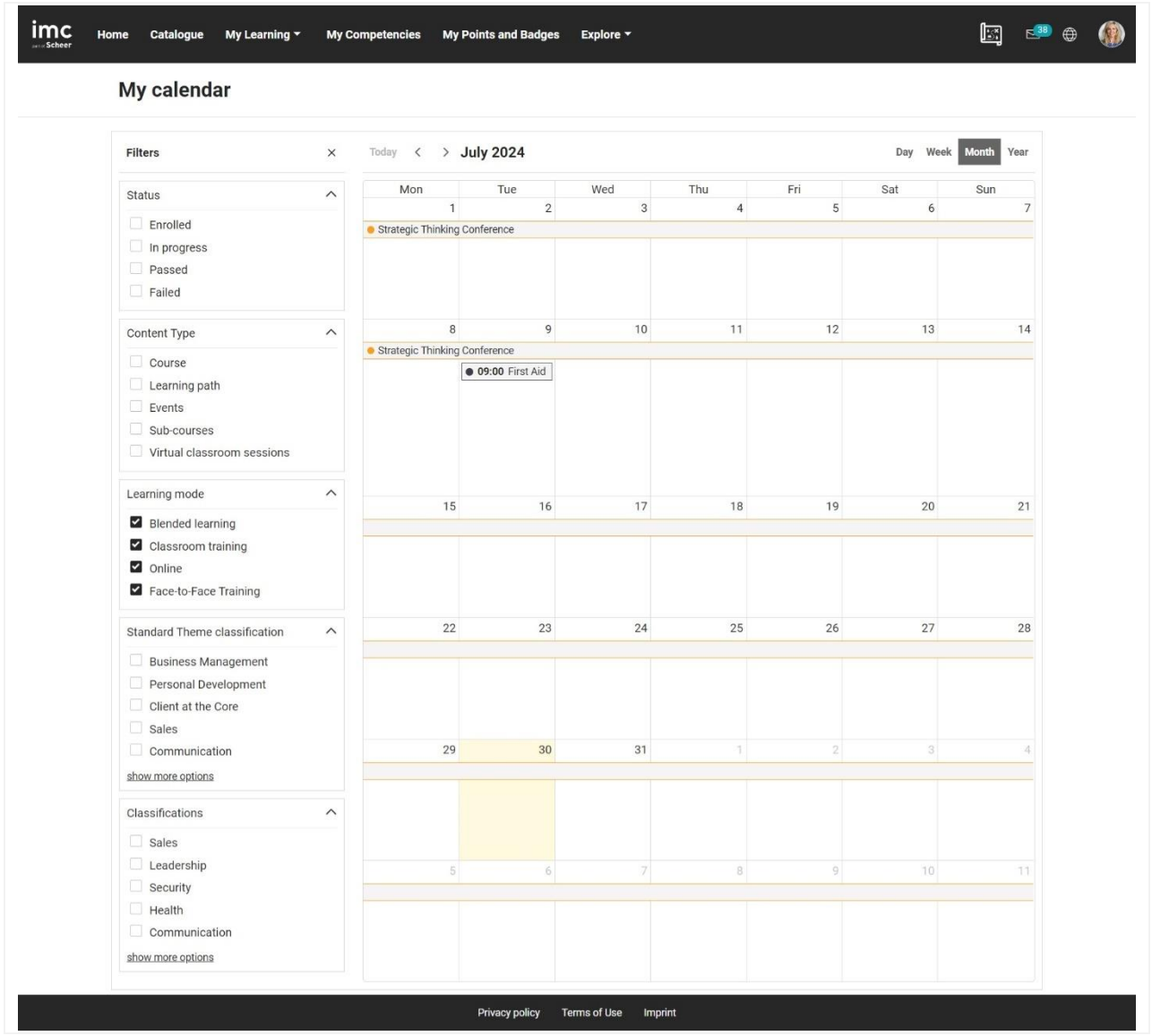


Fig. 2.6: Learner view: My calendar

2.2 Catalogue

One way of making learning content available is the catalogue. The learner starts his search for a specific term, supported by search suggestions. The results of the query are displayed in the results area.

Using a sidebar, the search can be further filtered according to certain criteria, e.g. content type, course mode, classification, or courses with free places. Criteria can be configured individually.

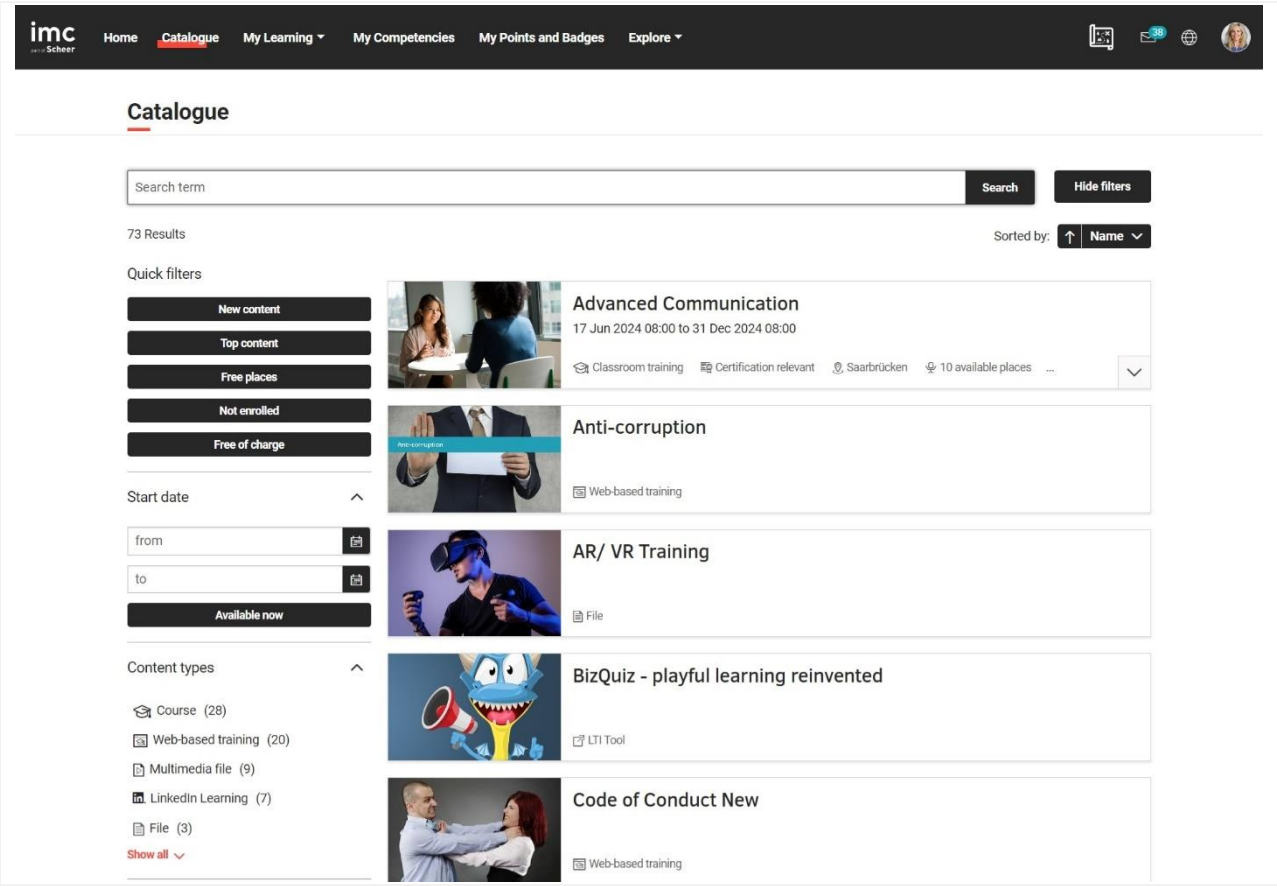


Fig. 2.7: Catalogue

With the help of a QR code printed by a tutor, learners can also directly access a given course and quickly enrol.

2.3 My Content

The My content area provides a central overview of all learning content (e.g. courses, WBTs) so that learners can always see clearly what they are currently working on, and which educational measures have already been successfully completed. The special feature here is that it is possible to individually configure which categories are displayed. From this area, learners can also open specific and even completed learning content directly at any time if this is authorised by the course administrator.

Similar to the catalogue, the My content area also offers a search option and filters.

Available filters are:

- Status: Booked/Started.

- Start date.
- End date (due date).
- Type: Course, Learning Path, Learning Content.
- Course mode: Blended Learning, Online, Presence Course.
- Certification.

With the export function, the search results can be exported as a PDF. This allows learners to print out an overview of completed courses at any time.

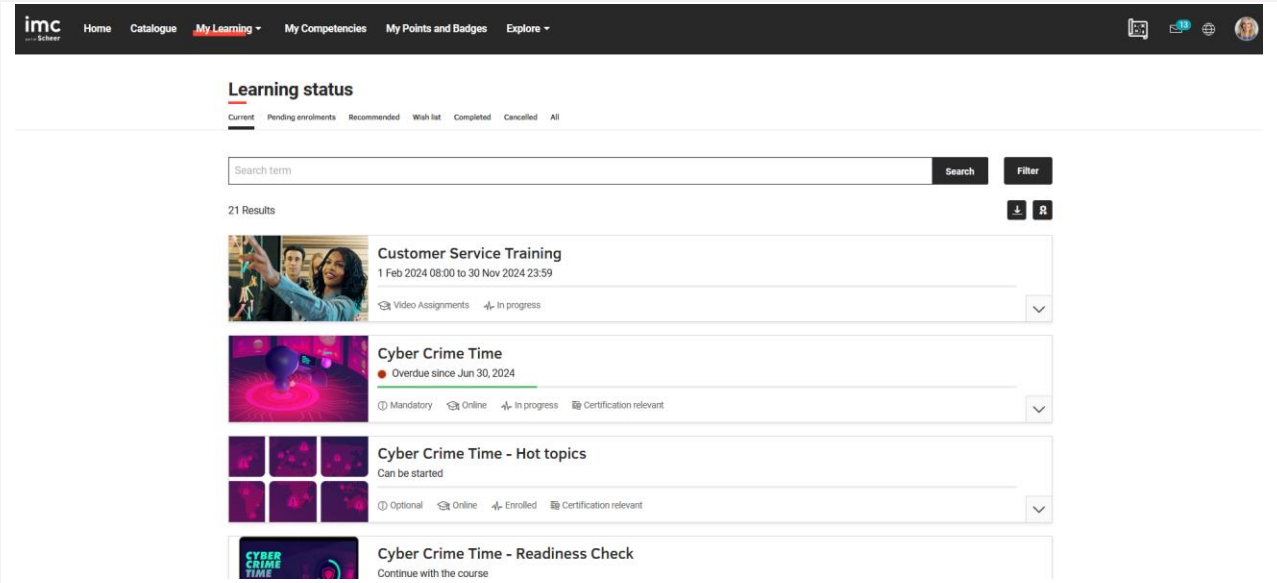


Fig. 2.8: Learner's view front-end: search and filter in `My Content`

2.4 Course Room

Learners can see open courses clearly. Depending on the course settings, there is great flexibility in the design. Information can be structured using different types of boxes. For example, information on the course administrator, participant list, assessment functions, schedule overview or information on competencies is available. The course room layout and functions can be flexibly adapted to different requirements of different course types (e.g., online or classroom courses). All materials that are important for a course are presented in the form of an attractive overview, the curriculum. A coloured progress indicator shows learners quickly which materials have already been worked on and which components still need to be completed.

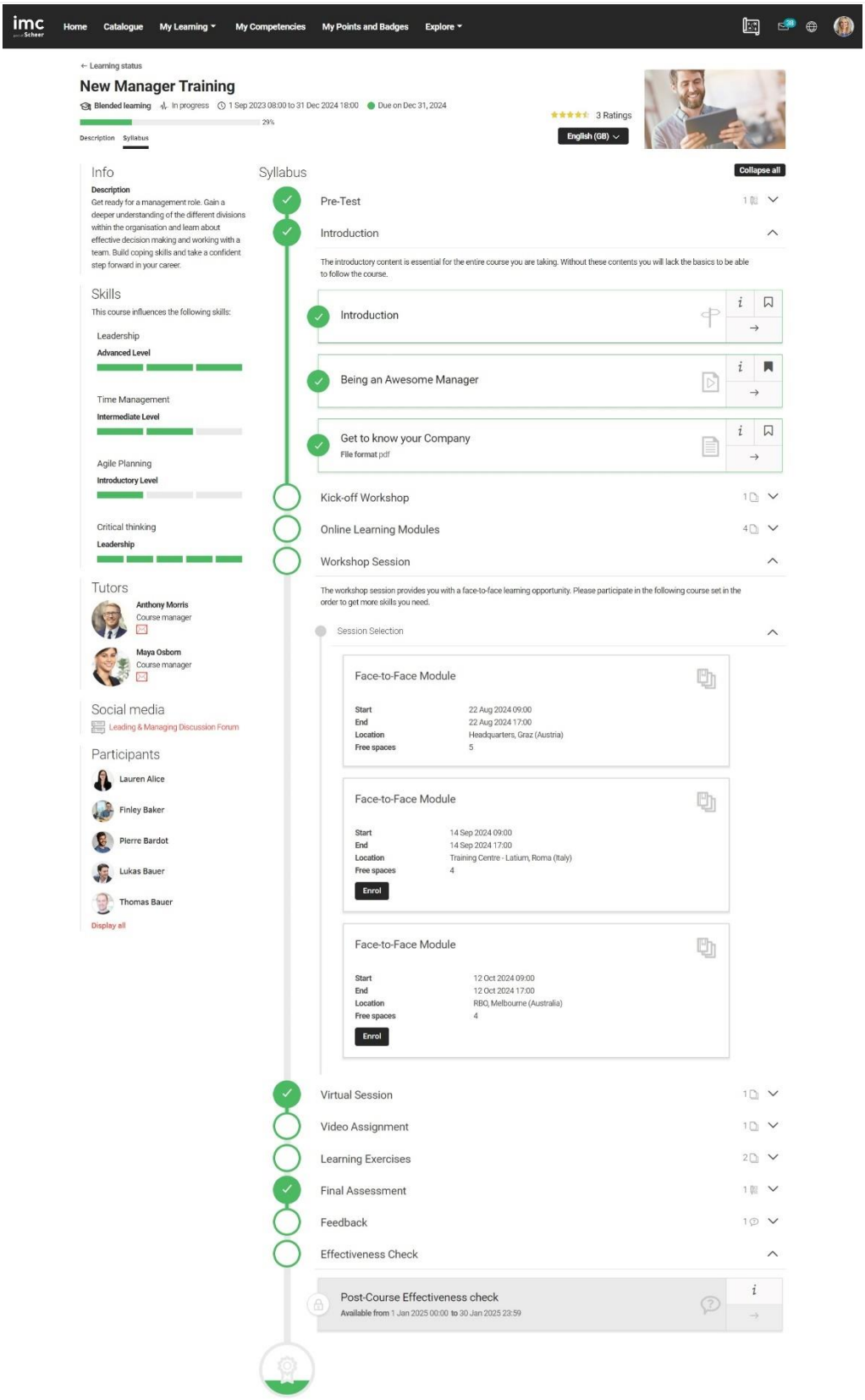


Fig. 2.9: Learner's view: course room

2.4.1 Learning Content

The imc Learning Suite enables the integration of many different formats. This enables uncomplicated access to PDFs, Microsoft Office documents, WBT, animations or videos at any time. To ensure that the learner always has quick access to the most important learning content, there are several access options. For example, learning content can be offered within the course room where a WBT can be accessed directly as part of a curriculum. In addition, the media library allows learners to directly access learning resources such as videos, documents, and external links – as well as other media types. The user can, for example, mark learning content as part of a learning path, course or catalogue as a favourite and add it to his media library (further details regarding the media library are explained in chapter 6.4.2 Media Library).

The syllabus content can also be password protected by configuration to ensure an additional security level for contents that should not be made available outside of the organization or other to fulfil other use cases where additional security is needed, such as taking an exam.

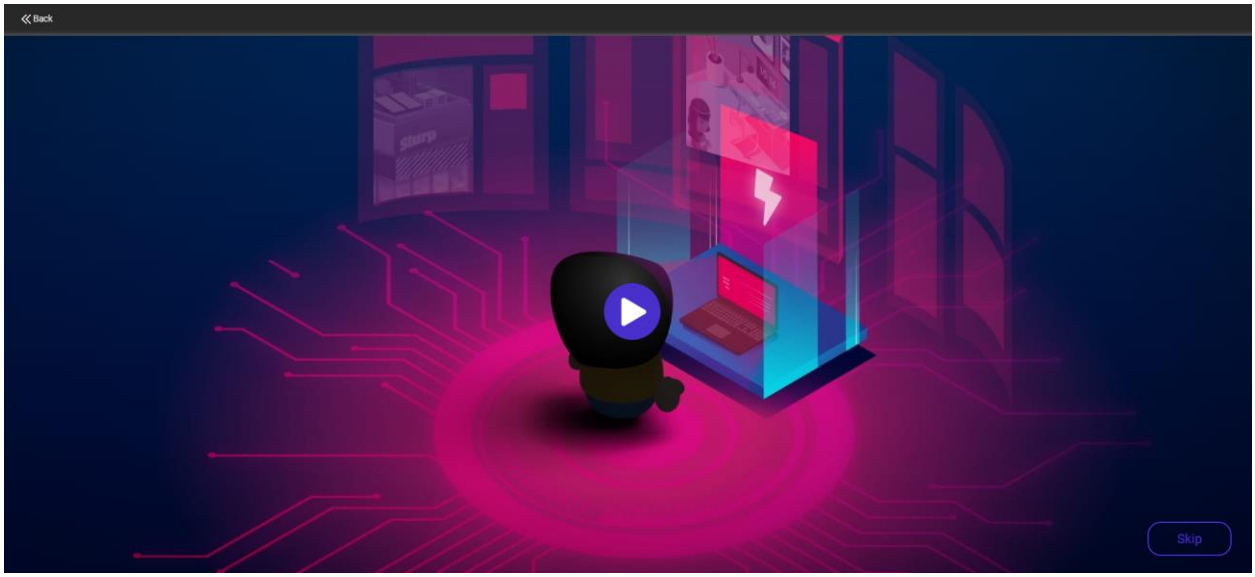


Fig. 2.10: Content view of a WBT within the learner portal

In addition, learning content can also be made available in the catalogue. The learning content can be found quickly and is available to many users.

2.4.2 Progress Confirmation

Learners should be able to see their progress at any time and to take further action.

One's personal progress can be seen at the level of a specific course but can also be seen (across courses) in competencies and certifications sections (license needed).

In the My Competencies section (as shown in Fig. 2.9: Learner's view: course room), learners can see the development of their competencies clearly and search directly for courses that close their competence gaps. Further details on the competencies can be found in chapter 9.5 Skills & Competencies (License needed).

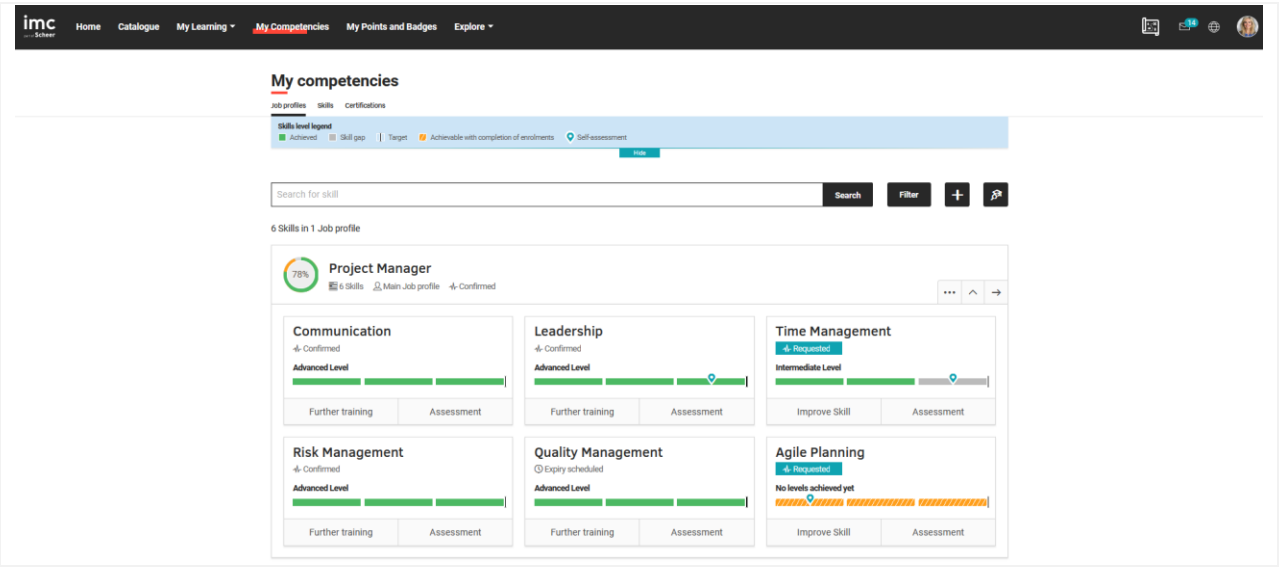


Fig. 2.11: Learner's view skill gap

Learners can also quickly see the status of their certification (license needed) so that they can tailor their learning activities to their needs and monitor their progress. In the Overview area, learners are motivated to complete further required courses and always keep an eye on the final goal and deadlines.

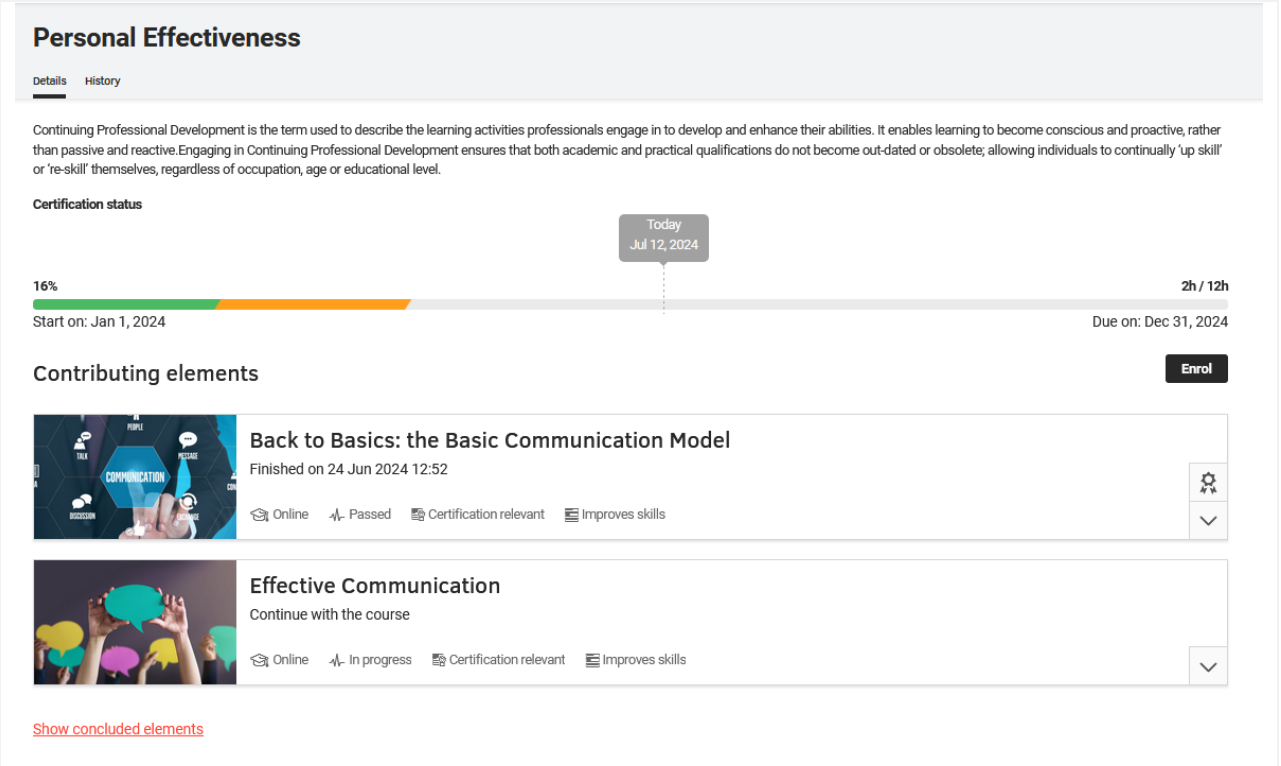


Fig. 2.12: Learner's view certification progress

2.5 Ratings

Ratings in the form of stars are visible in the catalogue or in a course room as an overall rating. But details can also be viewed. Learners can make ratings either with or without using detailed rating categories. If the course uses rating categories, these categories are displayed in the learner's rating entry. In addition, it is also possible to enter comments.

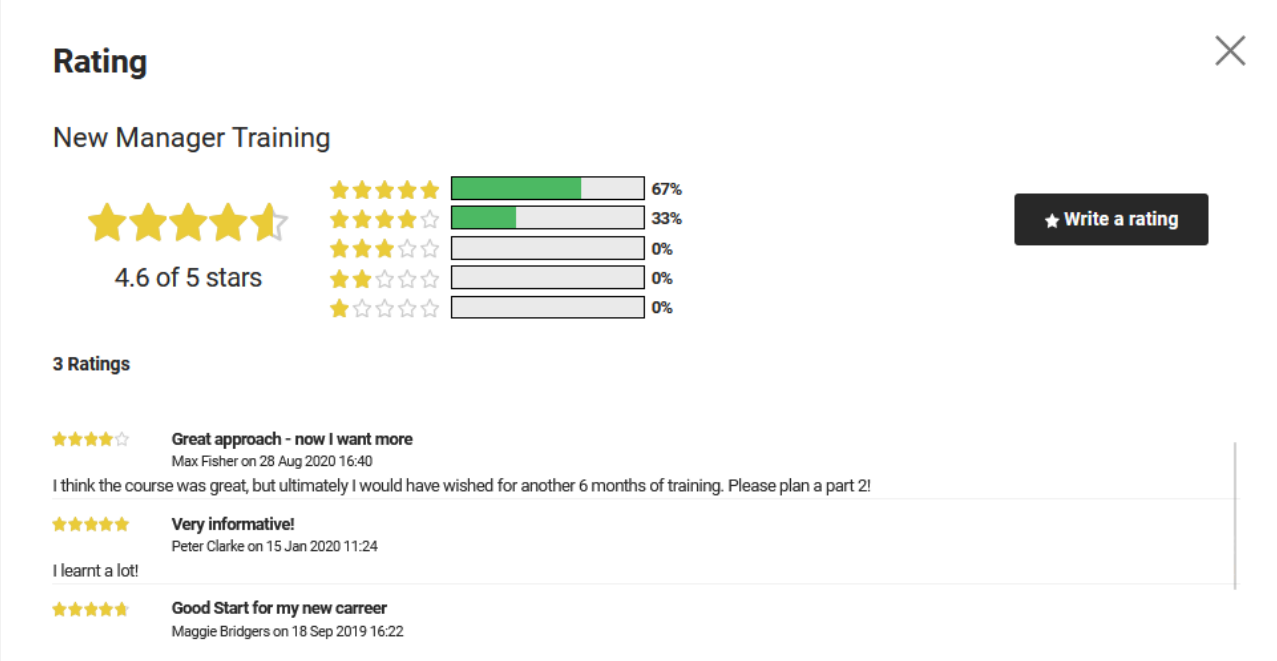


Fig. 2.13: Detail view: Ratings

The catalogue can be filtered by ratings, with the course tiles showing the results of the average rating and the number of ratings considered for the overall calculation. Assessments can be made according to one or more of the following categories, for example:

- Comprehensibility of the content.
- Difficulty of the content.
- Extent of the content.
- Structuring of the content.
- Tutor evaluation.

In this way, learners quickly recognise which learning opportunities provide a particularly positive learning experience.

2.6 Recommendations

A recommendation engine ensures that personally relevant learning content is automatically displayed prominently on the start page for learners without the intervention of an administrator to encourage further learning. For this purpose, a corresponding panel can be configured that takes different parameters into account and recommends courses based on them.

In addition, learners have the possibility to select interests in their own profile. The recommendation mechanism then recommends courses classified with the selected interests with higher priority.

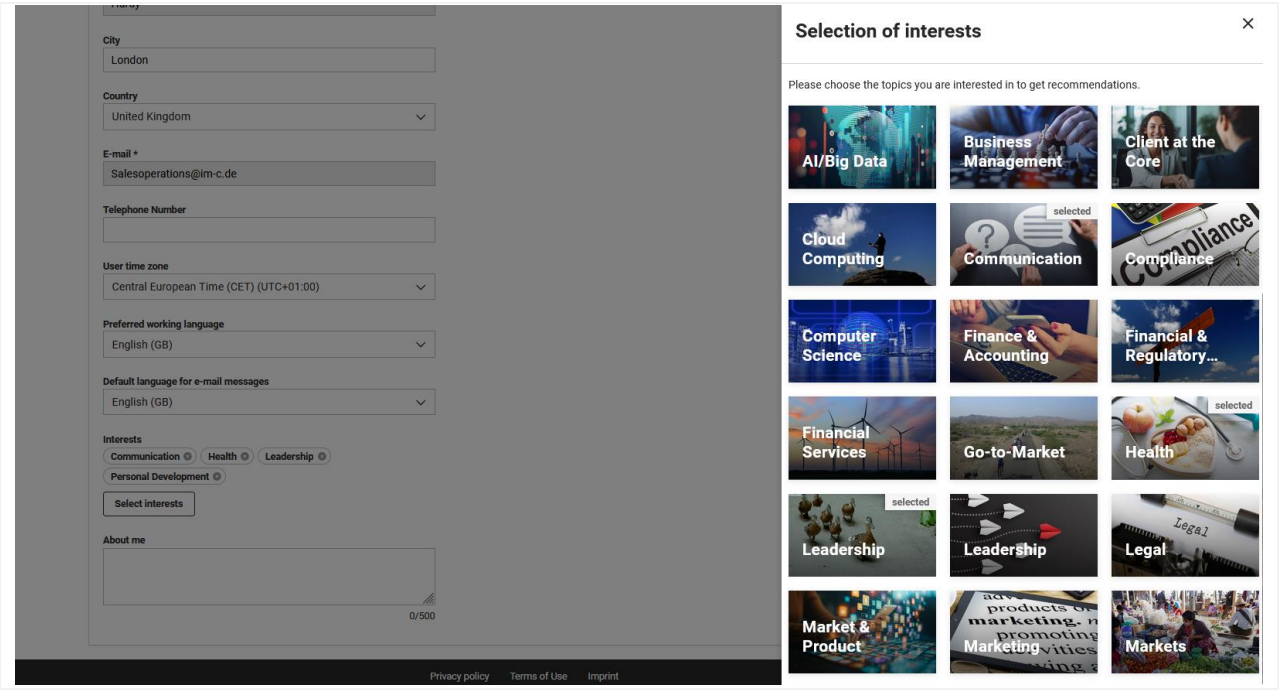


Fig. 2.14: Selection of interests in the user profile

The system also remembers which courses have already been started, passed, or failed by the learner and recommends similar courses by comparing course titles, course descriptions and keywords with other course offerings.

In addition, courses are offered according to popularity if none of the cases described above apply. Accordingly, courses are displayed that have been frequently accessed or whose resources have frequently been bookmarked.

These recommendations therefore consider three strategies:

- Which courses has the learner booked and passed/failed so far?
- Which interests are stored in the personal profile?
- Which courses are popular with learners with a similar profile?

Depending on the preference, only one parameter or several parameters with weighting can be configured.

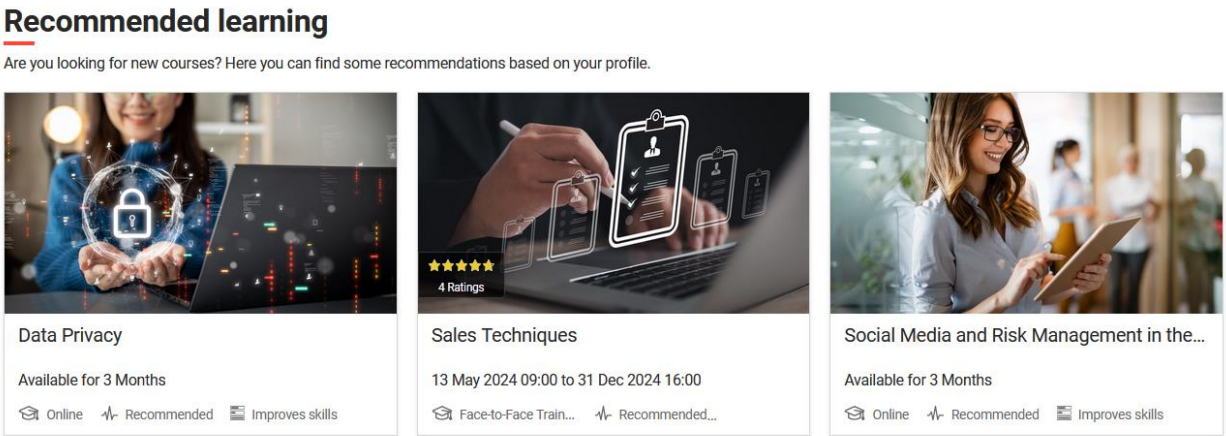


Fig. 2.15: Recommendation panel by recommendation engine

2.7 Learning Apps iOS & Android

Mobile Learning enables access to the LMS while on the move with and without an Internet connection.

Support location-independent learning with features such as catalogue access, course management, feedback, curriculum management and news. Automatic synchronisation with the LMS ensures that all learning content is always up to date. The application can also be operated in offline mode, where the last available information is always used. In addition, there is a deposit of the catalogue in the configuration of the app. Direct self-booking of courses is possible without a booking form. The app is available for iPhone and Android and is optimised for tablets.

Fig. 2.16: The mobile app for iOS & Android

The document **imc Learning Suite Mobile Apps - Functions in Detail** describes the functionalities of the Mobile Learning App in detail.

3 Course Instruction

Course supervision takes place in the tutoring centre, which supports important control functions in the learning process so that those responsible for education can overview, accompany, and report on the status of the qualification measures at any time.

The tutor centre offers:

- Overview of current, planned, and past training courses and programmes.
- Participant lists with progress indicator.
- Progress display (per course module).
- Options to communication with course participants directly.
- Grading of course participants.
- Review and marking of quizzes and tests (free text answers).
- Evaluation reports for course feedback and pass rates.

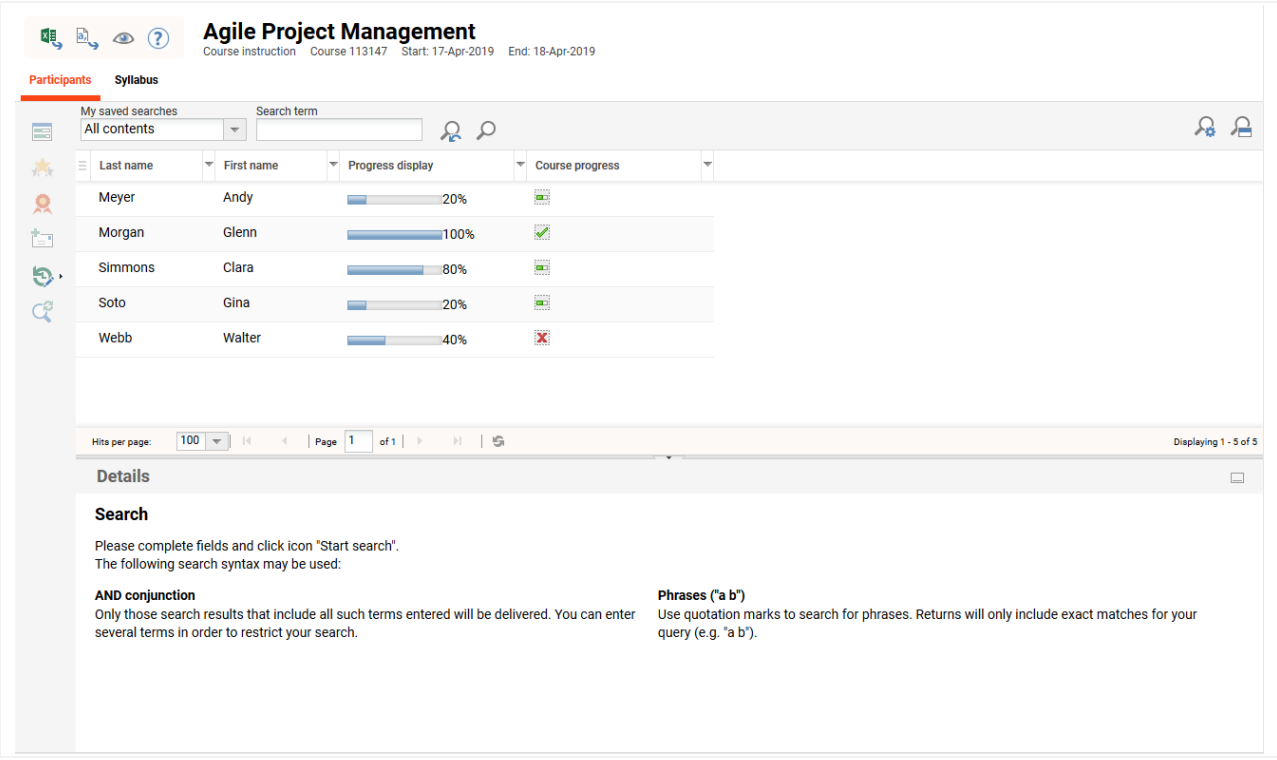


Fig. 3.1: Tutor view: Course instruction

If tutors are assigned to courses, they only have access to these courses (not to other courses). In addition, tutors have upload options to store course-specific materials for course participants.

Different tutors can be assigned different roles in the Tutor Center. For example, a fully responsible tutor can change the curriculum while the external trainer cannot.

3.1 Attendance Tracking

Tutors and administrators can track and update course attendance in Attendance Control for courses and course components through an easy-to-use flexible workflow. In doing so, the status change can be changed for each participant or component individually as well as for all participants of the entire group.

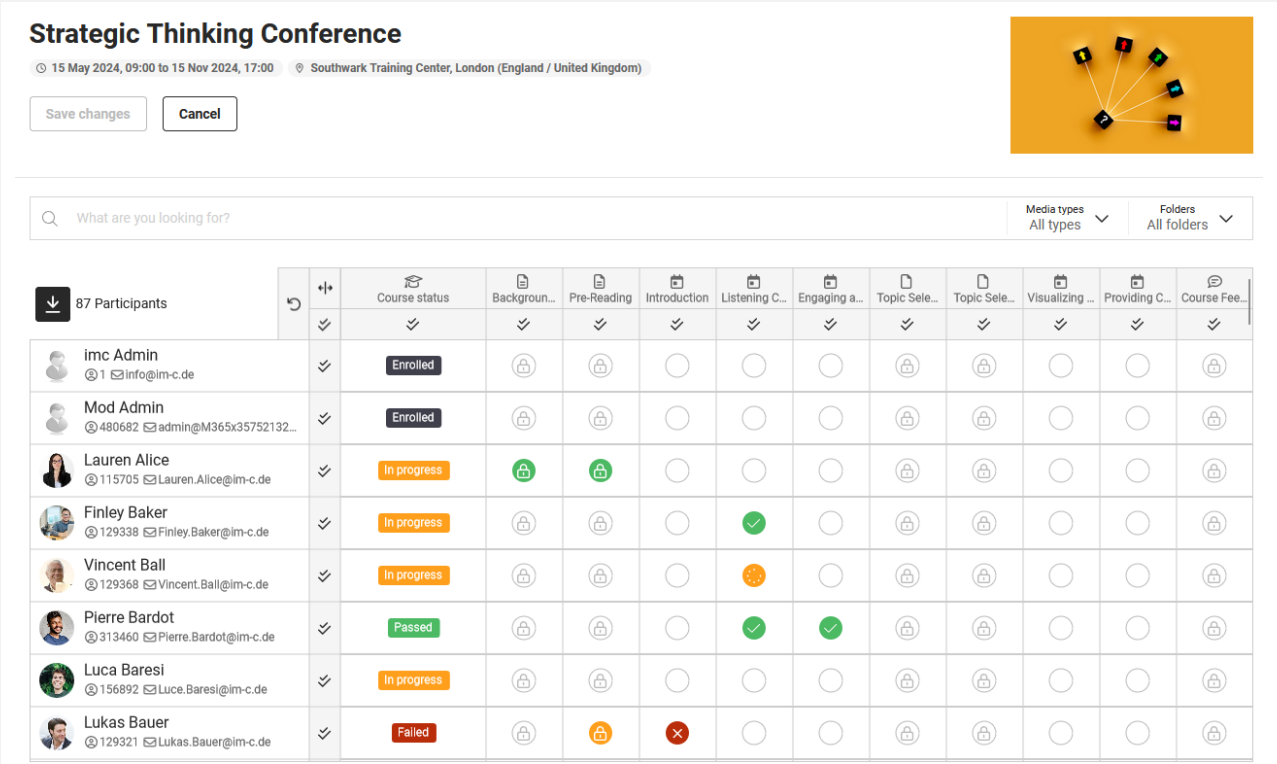


Fig. 3.2: Tutor view: Attendance tracking for a course

The course components available for labelling can be activated individually. The following are possible,

- Activity
- Event
- External Content
- Feedback
- File
- Forum
- Link
- LinkedIn Learning (license required)
- LTI
- Multimedia File
- On-the-Job Training (license required)
- Virtual classrooms (license required)
- WBT (SCORM, AICC, xAPI/Tin Can)

With the help of filters based on media type and folders, tutors are enabled to easily locate the concrete medium they need to perform the attendance tracking for.

Tutors can track and update course attendance via a QR code that every person gets in their training invitation with their learner data and the course data. This code can be used to mark learners' attendance, at the start of the training. If the Trainer scans the code learner's code via a QR Code Scanner at an event, that learner's status changes in the attendance control. Due to its simple process, it is a great advantage, for big events with many learners. The attendance process goes a lot faster.

4 Employee Administration

4.1 Supervisor Dashboard

Supervisors, HR managers, and heads of organisational units can display an overview page (a dashboard) that offers you a variety of possible actions. For example, one can view booking request confirmations as well as learning status.

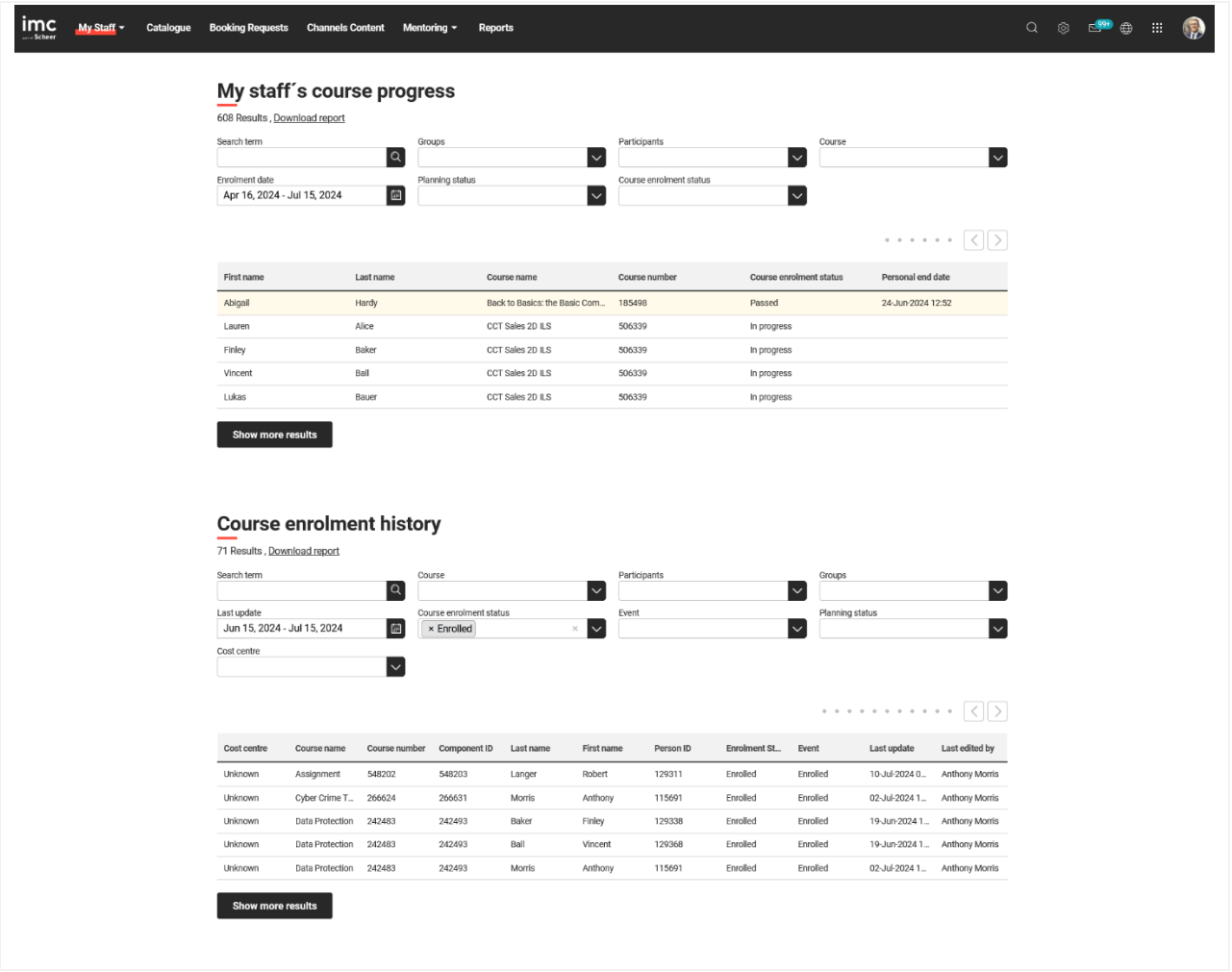


Fig. 4.1: Supervisor view: Dashboard management tasks

4.2 Booking Requests

In some course registrations, it can be set such that the consent of another person is required. Supervisors, course administrators and HR managers can easily access all booking requests via a dashboard panel. This gives the responsible persons a quick and comprehensive overview of booking requests. These can be directly approved or rejected on the basis of course and user information. A filter option identifies the tasks for which a manager is directly responsible for.

Based on the access rights of a dedicated management dashboard, navigation in the mobile apps automatically adapts. Learner functions are hidden by default for authorised users but can be switched on by the user in the profile settings if desired.

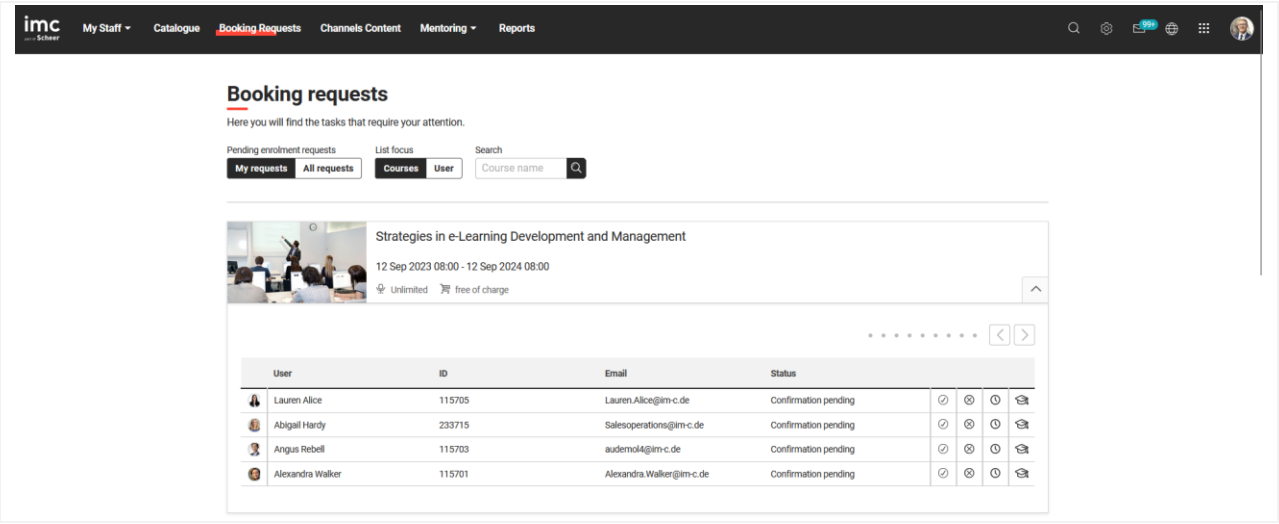


Fig. 4.2: Supervisor view: Booking requests for a course.

4.3 Employee Overview

In addition to the manager dashboard, supervisors are also provided with a list of employees, which serves as an introduction to various management options for each employee.

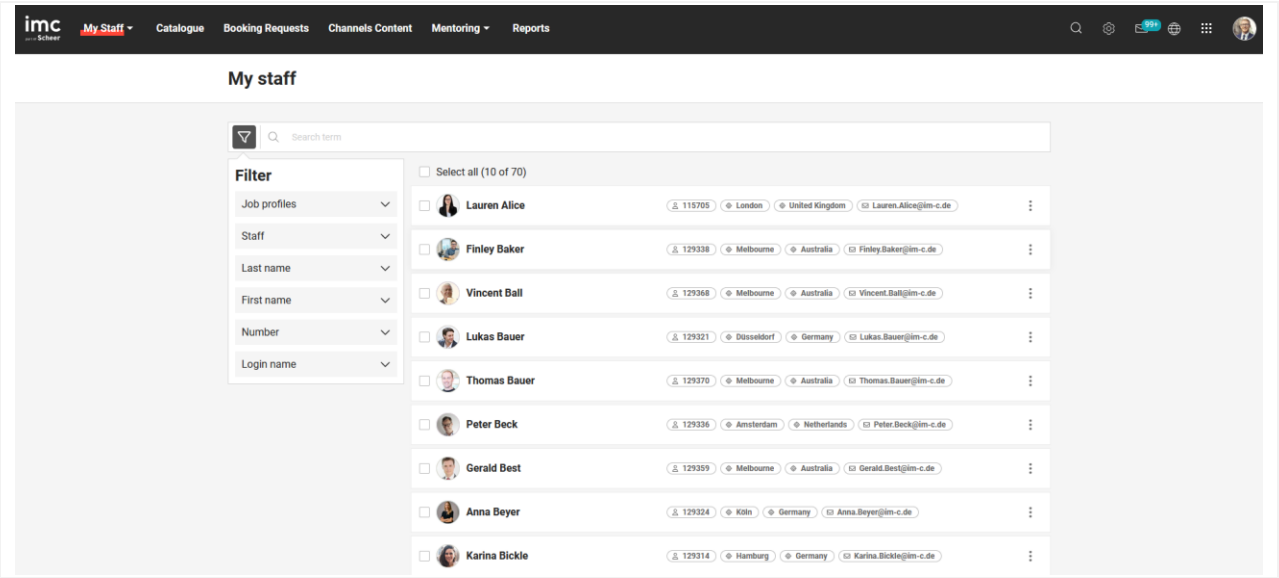


Fig. 4.3: Supervisor view: Employee overview

4.3.1 Personal Profile

The supervisor can view the employee's personal profile and if provided the right access, can update the employee profile.

4.3.2 Learning Status

The supervisor can display the My Content area of his employee and sees it like the employee himself. He can view the current courses the employee is working on as well as other learning history, overall status, and progress status of each course component. The supervisor has the possibility to filter his view and export the filter result. He also has access to the employee's certificates and can have them sent to him as a zip file with the certificates contained in PDF format.

4.3.3 Competence Profile

The supervisor has full access to the employee's competence profile consisting of the employee's job profiles and competencies as well as the certification status (Licences Skills & Competencies, Certification Management required).

4.3.4 Multi Enrolment

Using the employee overview, the supervisor can easily select one or more employees and search for them via the catalogue for courses and book them on these.

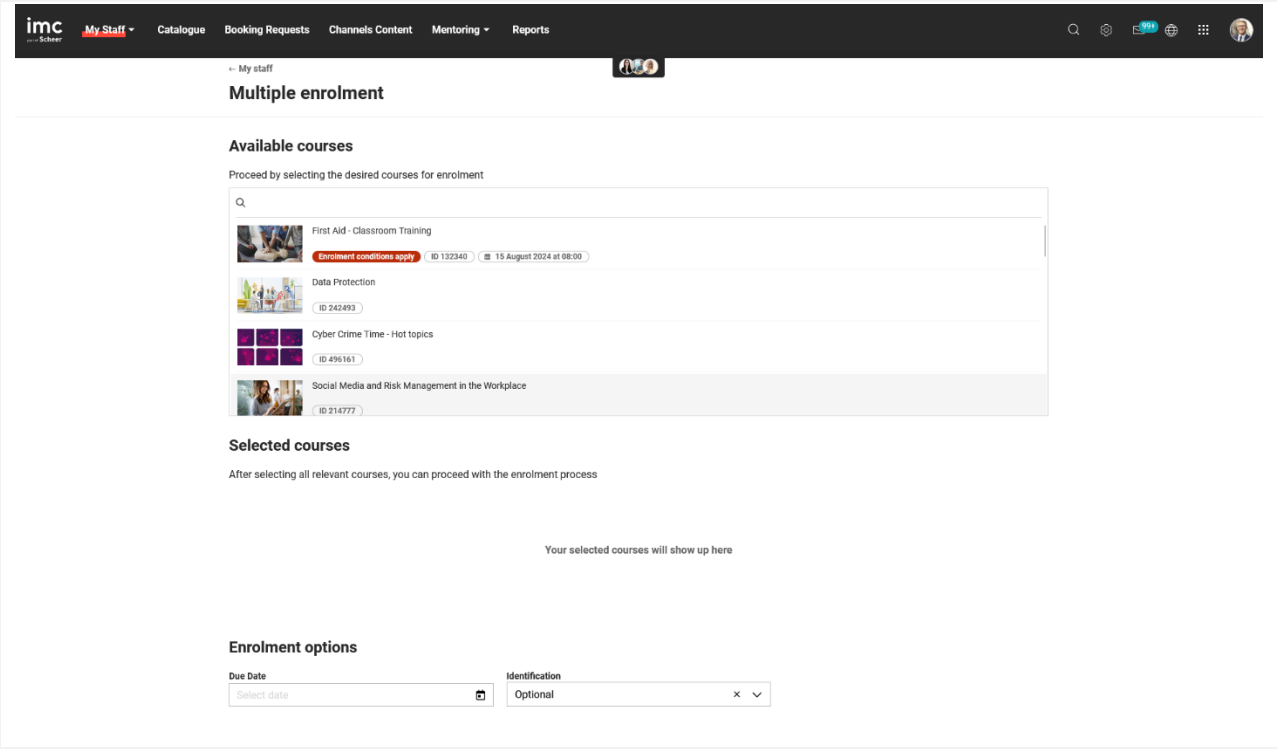


Fig. 4.4: Supervisor view: Enrolment of multiple employees to multiple courses

4.3.5 Rebook and Replace

Supervisors have the option of rebooking or replacing participants based on the approvals in the course if they are unable to attend the course.

Rebooking is possible to another instance of the same course template.

When replacing an employee, supervisors have the option of selecting an employee who has not yet been booked to fill the replaced employee's place.

4.3.6 Employee Calendar

Supervisors are provided with a calendar that displays all upcoming courses, learning paths, etc. for the assigned employees. The following views are available:

- Course-related view: Lists learning paths and courses for planned training with the name and type of training. It is possible to jump to the progress report of a training course.
- User-based view: Shows the learners and their training plan for requested, confirmed, waiting list, enrolled, ongoing or completed training courses.

Various filters are available for both views.

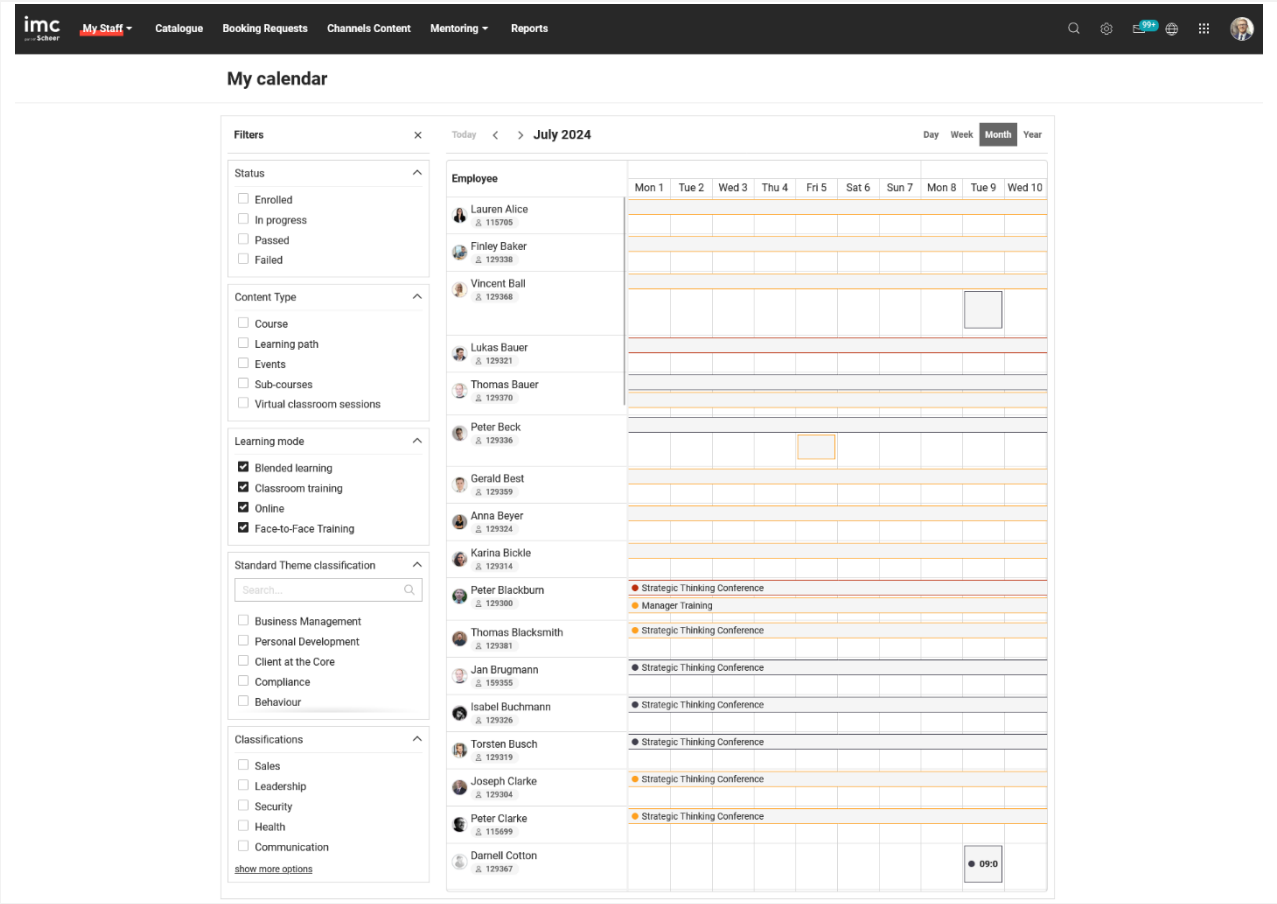


Fig. 4.5: Supervisor view: Employee calendar

4.4 Individual Syllabus

Employees will vary in terms of learning background. Therefore, each piece of learning content can have varying importance to the progress of an employee. If desired, the supervisor can decide which learning content of a particular course must be processed for the individual employee, either mandatory or optional. In addition, the learning plan can also be supplemented with HTML media content directly in the frontend according to the learner's needs.

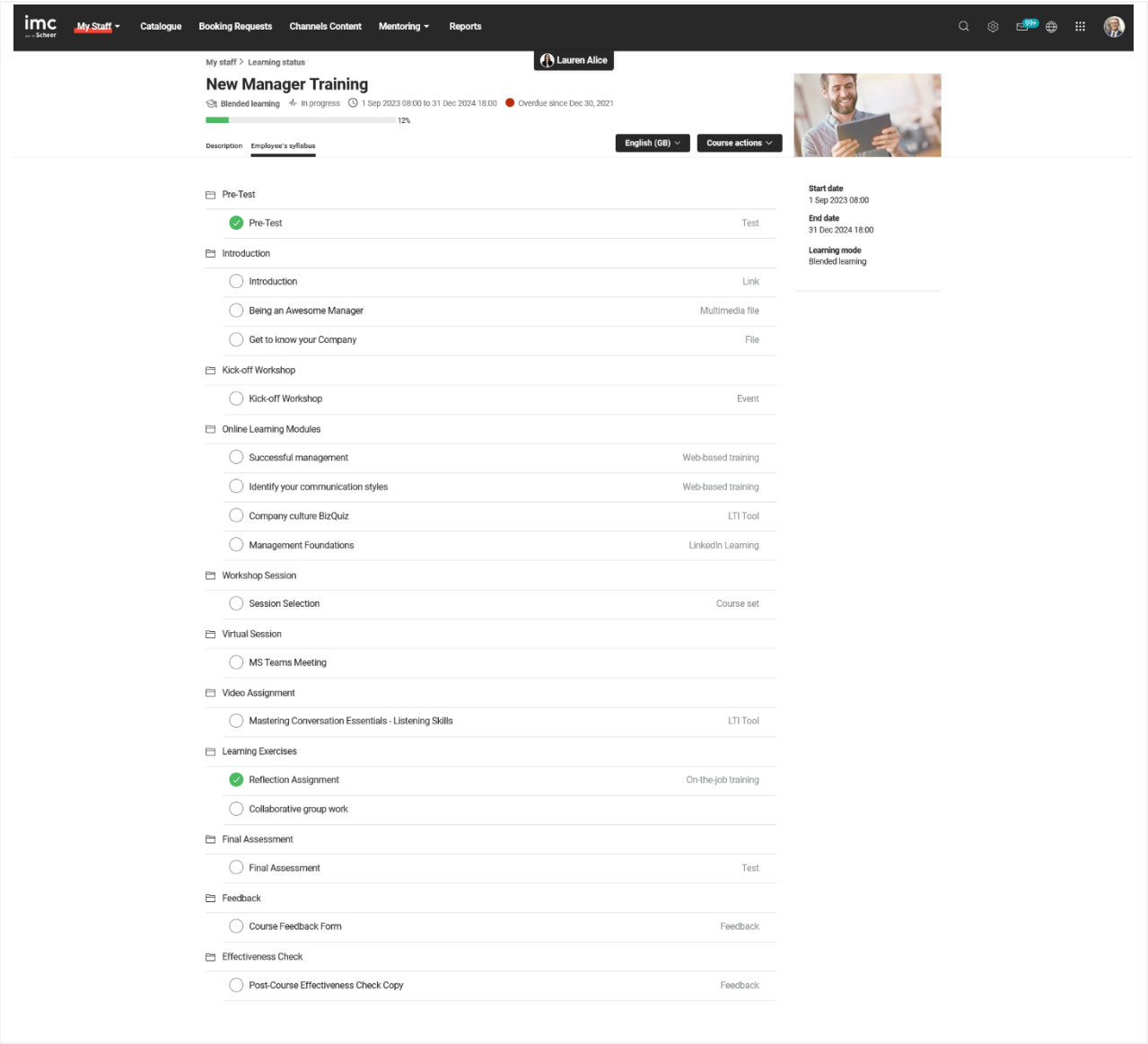


Fig. 4.6: Supervisor view: Individual curriculum

4.5 Seat Allocation

The seat allocation functionality allows organizational units to create long-term course planning with seat reservation for their employees. Using seat assignment is a powerful tool for reserving seats within a planned offer for a particular organisational unit. This enables a smooth course management process and allows a check of the available capacity on an annual, quarterly, or monthly basis.

For example, an offer may have 20 total seats, but five of these are reserved for sales. As soon as 15 seats are occupied, the remaining five can only be occupied by students in sales.

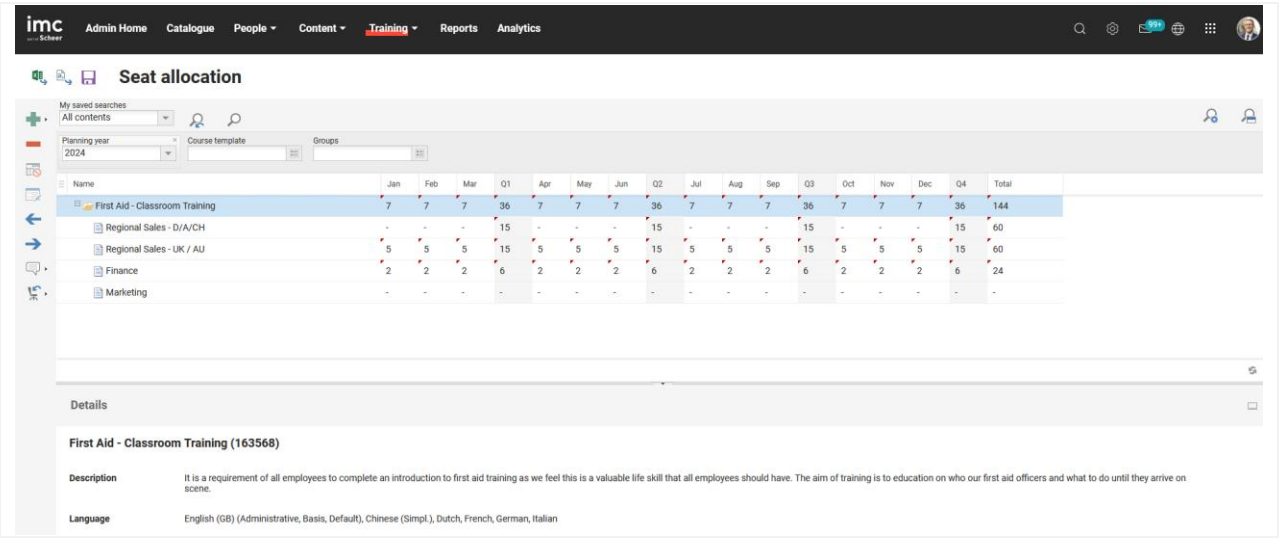


Fig. 4.7: Supervisor view: Seat allocation in the annual overview

5 Organisational Administration

The Organisation Administration offers various possibilities to map the structure of your Organisation. Here you define company-specific roles, create user groups, and provide them with usage rights. In short: In the Organisational Management area is where one determines who is allowed to use which content and functionalities, and how they are used.

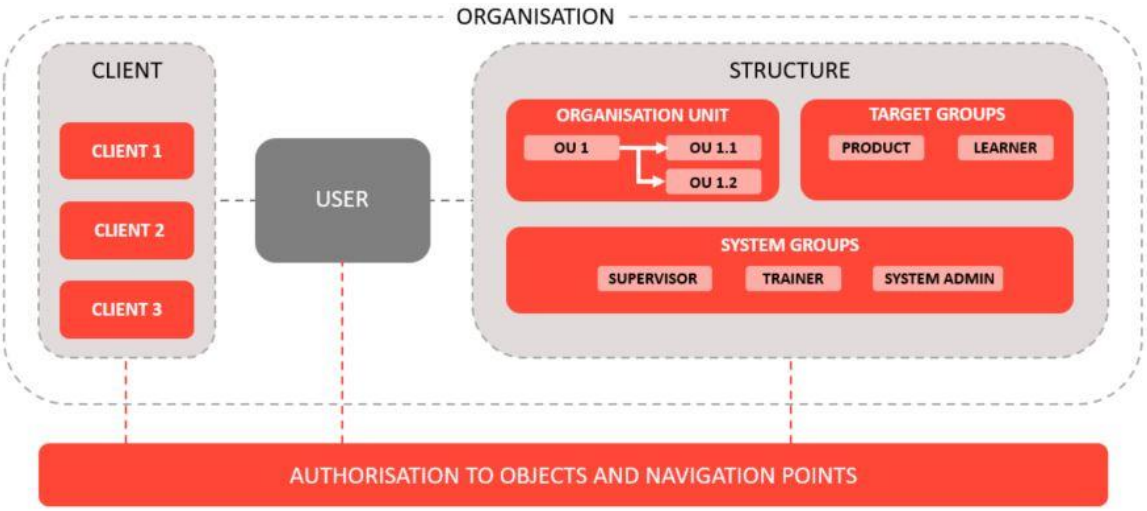


Fig. 5.1: Overview of the organisational structure

List of Functions:

- Mapping of multi-client, group, and role management.
- User administration with flexible authorisation concept.

5.1 Mapping the Organisational Structure

With its multi-client, group, and role management, imc Learning Suite enables you to structure the users of your learning offerings according to their organisation. You can create as many clients, groups, or roles as you want to fully map your Organisational structure.

5.1.1 Clients

Operate different learner frontends and landing pages with the help of clients and thus realise a target group-specific approach to very different areas of the company. The clients can differ both in the structure, the processes, and the design, which is set-up by client-specific stylesheets. Clients often represent different countries that manage themselves independently.

5.1.2 Groups

Setting up user groups simplifies the administration of your learning platform. Divide your users into e.g., learners, administrators, trainers, or externals and provide each group with the optimal range of functions and processes. The number and the characteristics of the groups can be defined separately.

5.1.3 Job Profiles

Map the roles and career levels of your Organisation and define exactly who has access rights to whom and what access options each user has.

5.2 Rights Management

The following rights variants exist for each navigation element or action available in the Learning Management System:

- Execute.
- Process.
- Versioning.
- Delete.
- Release.

5.2.1 Access Control List (ACL)

The rights for handling objects of all kinds (persons, groups, catalogues, learning content, etc.) in the system are precisely controlled by the release for each individual object and recorded in the Access Control List. In this way, users and group-specific access rights can be assigned in detail and independently of each other. Rights can either be assigned directly to individual users or combined in rights clusters for entire user groups or clients. The ACL allows you to provide a tailor-made range of functions for each user group in the system.

5.2.2 Navigation Structure

The same applies to the navigation structure. A menu is only displayed in the navigation if the user concerned is authorised to use content or functions in this menu. To make it easier for users, the admin can structure navigation into categories. Both the categories and their menus are freely configurable.

5.3 User Management

All users of the system are centrally managed in the user administration. The view rights can be limited to one client or – with appropriate authorisation – also the users of several clients or the entire system. The view can be switched between clients. The user profile data can be displayed globally – as valid for each user in the system - as well as client-specifically – with special personal description attributes for each client.

Depending on the individual settings, users can be easily created manually or automatically in this area. It is also possible to merge two user accounts, e.g., to take over learning history data from one legacy account of the user to the up-to-date account of the same user. Quickly and clearly, you can see to which client(s) a user is assigned, which courses has been assigned, which system groups he is a member to and which contents he currently has in his media library. Everyone who has access to the user administration can easily customise the columns and the search filters available.

Of course, the user administration also takes system access rights into account. This means, for example, that the HR department of a certain country can only see the employees of the corresponding country.

5.3.1 User Import

The user import can be carried out in different ways, and includes the direct assignment from users to groups in the same work step:

- Transfer from LDAP directories (on-premises only).
- Import via CSV file.
- Import via the SCIM interface.
- Manual creation of users.
- Self-registration of users via the public learner front end.

When importing users, you can define your own user attribute mappings and import rules for each client.

5.3.2 User Profiles

For each user, a profile can be saved. User profiles can be individually parameterised and can be provided with any number of attributes and filled automatically. The user can view his personal user data and update it as necessary. In addition, it is also easy to set which profile attributes the learner or the administration can see and/or change from the backend. The supervisor relationship can be mapped via user profiles or the Organisational structure.

5.3.3 User Qualifications

For the first-time set-up of competence management, information regarding user qualification that is already available in third-party systems can be used. User qualifications can be competencies, competency levels or expiration dates. This data can be uploaded via a CSV file, for example.

5.3.4 Rule-Based Assignment of Job Profiles

Job profiles that are defined in the Skills & Competences add-on module (licence required) can be assigned to users via import rules. In this way, further training for a specific job can be enabled completely automatically.

These import rules apply to:

- Skills,
- job profiles, and
- certifications.

6 Content Management

Every education programme should have motivated content at its core. A mature content management and the consideration of international standards allows content administrators to configure most different learning scenarios. In addition, all necessary processes for content management and the associated forms of offer in education catalogues and learner frontends are supported.

Content can be stored in catalogues and the media library. Catalogues can contain learning paths, which in turn can consist of several courses. Within the courses, learning content, feedback and tests can be structured and scheduled on a learning plan.

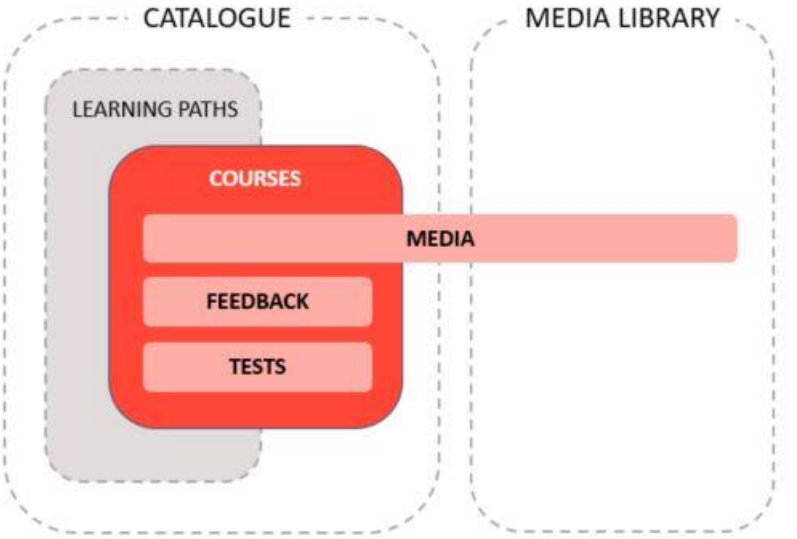


Fig. 6:1: The content management of the imc Learning Suite

List of Functions:

- Development, versioning, and release of learning content.
- Identification, search of specific content.
- Multilingual management and editing of learning paths, course templates, courses, learning content, tests, feedback.

6.1 Import of Content

Importing content in various formats is done in just a few steps. PDFs, MS Office documents, WBT, animations or videos can be provided with any description fields. In content management, you define who is authorised to view or edit which object.

6.1.1 SCORM, AICC, xAPI/TinCan

The imc Learning Suite supports the international standards SCORM 1.2, SCORM 1.3/2004, AICC and xAPI/TinCan. For restrictions, please see chapter 10.3 Architecture and Interfaces.

With this function, WBTS which are based on one of these standards can be easily imported into the system and made available to learners. Depending on the performance of the WBTS, all learner interactions are recorded by the LMS, and detailed reports are generated. It is also possible to evaluate the degree of target achievement returned by the WBT in the LMS.

6.1.2 LTI Interface

LTI stands for Learning Tools Interoperability, a specification that enables imc customers to embed external learning applications (tools) into courses offered through the imc Learning Suite.

The term learning applications has a broader scope than traditional standards and specifications based on learning content, such as SCORM or AICC. Learning applications can range from Open Educational Resources (OER) repositories, e-books, interactive assessments, chats and community tools, virtual labs (e.g., for chemistry or physics) to Dropbox and Microsoft Office 365 applications, OneNote and OfficeMix.

6.1.3 Simple Media Upload

The simple media upload is currently available for channels (see chapter 6.4.3 Channels (License needed)) and simplified course creation (see chapter 9.2 Simplified Course Creation). Content can be created for each channel in the navigation point “Channel content”. Files and multimedia files can be added using drag & drop or by searching in your own files. It is also possible to enter a link. The user can then fill in fields such as name, description, preview image etc. and save & publish the content. In the simplified course creation, there is a new button that also takes the user to the simple media upload. Multimedia file, file, link, event, and activity can be created there.

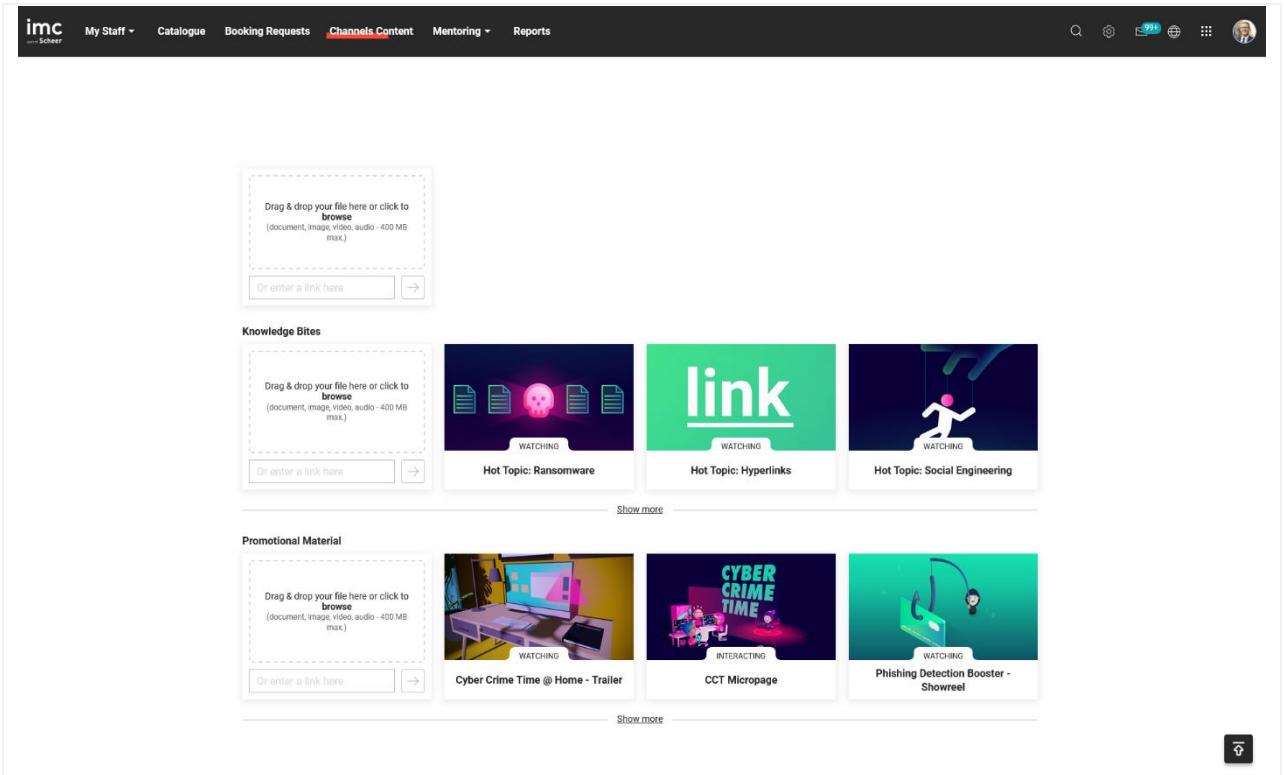


Fig. 6:2: Starting point for the creation of new content

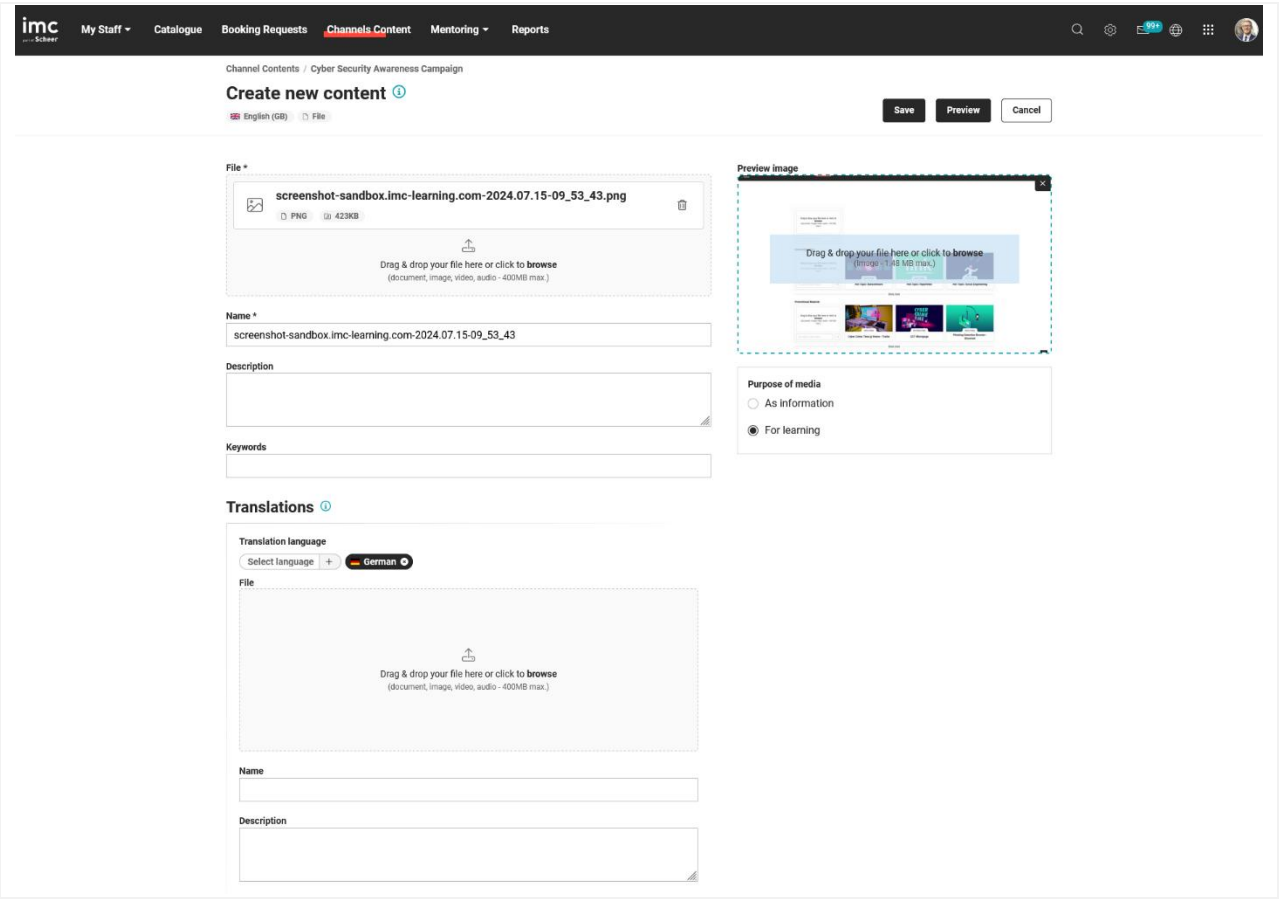


Fig. 6:3: Simple and clear creation mask

6.1.4 Academa, LinkedIn Learning, Pluralsight, Udemy Connector (license needed)

The Academa, LinkedIn Learning, Pluralsight or Udemy Connector offers a simple solution for connecting and configuring Academa, LinkedIn Learning, Pluralsight or Udemy as a third-party provider with the imc Learning Suite.

An external content provider is required for the connection which describes the access to the provider.

6.2 Versioning of Content

If new versions of a content are available, they can be automatically updated in all applications and learners can be informed about the change. A complete version history is stored in the system for each document. When managing content, they can access the full range of functions of a content management system. This allows drafts to be created and saved until they are released as a published version for further use. Previous versions are stored in a version history and can be restored at any time. When updating a versioned content and publishing the new version, you can specify that both the corresponding catalogue display and the use of the content on a curriculum are automatically updated.

To prevent this from leading to inconsistencies during running courses, imc Learning Suite prevents updating if a course has already been started or contains a learning plan with learning logic.

6.3 Structuring of Content

Define the most important attributes for future courses with the help of course templates and save valuable time when creating courses. Any number of dates can be created for a course and activated for booking for potential participants in the training catalogue. The content structure can be freely defined and content can be indexed appropriately and efficiently. The comparability and prioritisation options allow courses to be managed quickly and efficiently. Administrators have comprehensive topic and description field management at their disposal.

6.4 Provision of Content

A basic distinction can be made between two types of provision of learning content.

Content Push Services

This summarises all the possibilities for assigning learning content to a learner or group of learners. This can be done by booking a learner to a course or by assigning learning content to a learner's personal media library.

Content Pull Services

As described in the next section, learning content can be made available in freely accessible course or content catalogues. If the learner is interested, all available content is stored in the personal media library. This also applies to learning content included in courses.

6.4.1 Catalogue

Once the content has been created and published, it can be used in all areas of the imc Learning Suite, e.g. integrated into different courses or published in catalogues. With the help of filter and search functions, users can find the desired training programmes, view brief descriptions and book if they are interested, provided they have the appropriate booking rights.

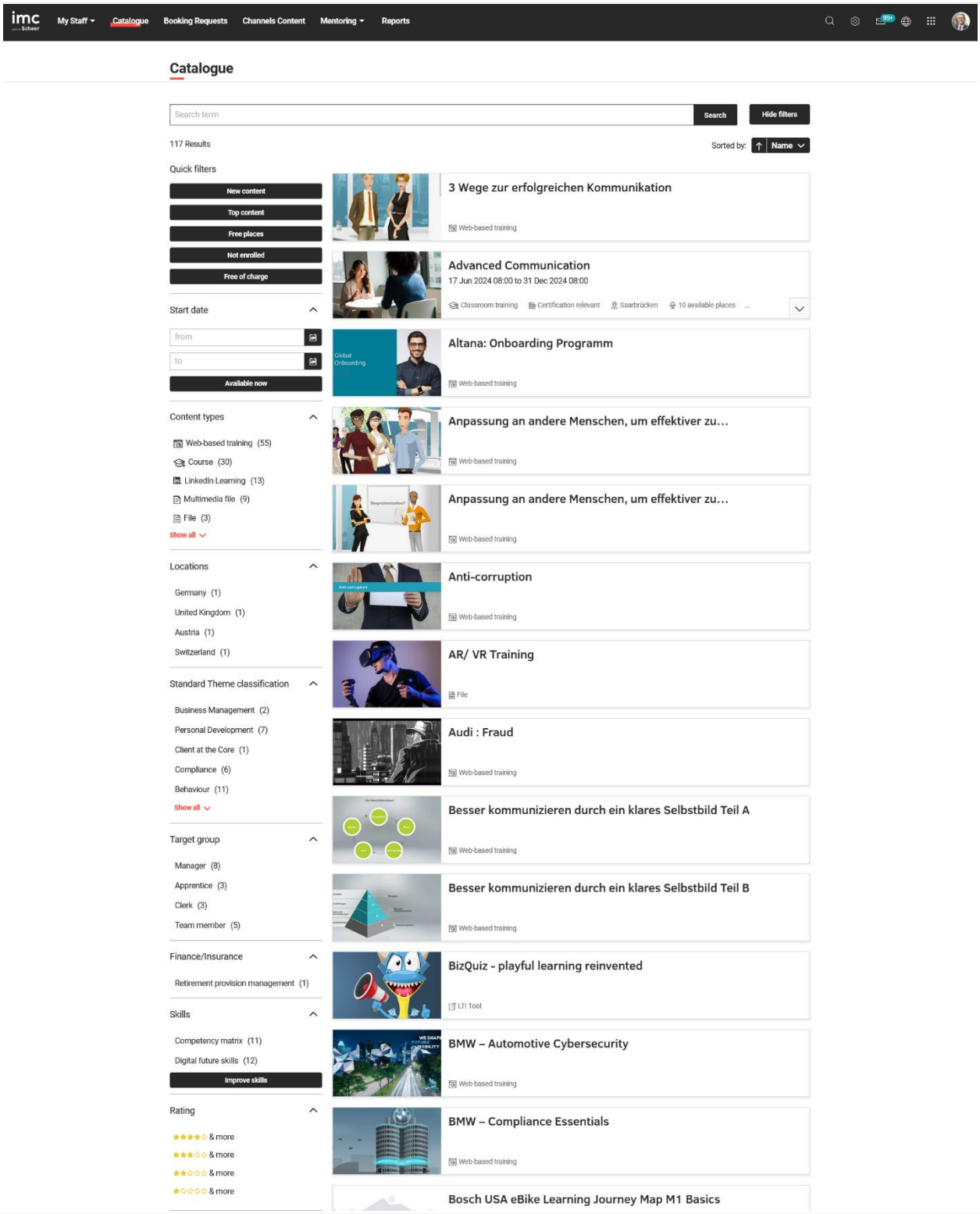


Fig. 6:4: Learner view - Catalogue

Publication in Catalogues

Content can be set as components of courses, but also individually as small learning elements in catalogues. The catalogue structure can be freely defined, with client-, group- or user-specific versions of catalogues possible. Access to catalogue parts can also be restricted to certain groups through usage rights.

Faceted Search in the Catalogue

A variety of filter options allow you to specify your search in the catalogue. The following filters are available:

- Quick filter
- Booking types
- Catalogues
- Certifications
- Content types
- Languages
- Learning forms (online, blended, presence)
- Locations
- Skills
- Start date/ availability.

Filters can be configured for the learner, and no filters whose result value is (0) are displayed.

Intelligent Search

Smart Search functionality enables fast, seamless search with auto-completion. You can search one or all catalogues.

Catalogue sorting

Learners have the option to sort catalogue search results manually by:

- Name
- Start date.
- End Date
- Due Date
- Last Updated

6.4.2 Media Library

The media library represents a central storage location for the learner's desired media. Users can mark learning content that they would like to access as part of a learning path, course or catalogue provided to them as a favourite, and add it to their media library.

After logging in to the system, the media library can be displayed to the user in an explicit media library panel centrally on his personal start page. In this way, the learner has direct access with one click to concentrate on his favourite learning content. A new search in the catalogue or within the syllabus of a course can therefore be omitted.

This panel also allows learners to recommend certain content without assigning it to courses or a catalogue. This assignment can be made for individual learners or for user groups.

6.4.3 Channels (License needed)

Channels are containers that can be filled with learning content – like a YouTube channel. They accelerate and simplify the provision of content and help to structure didactic and informative content according to topics. Furthermore, they allow learners more self-determination and flexibility in learning. A separate license is required to use Channels.

On demand" knowledge library

Target group: Companies that want to enable easy self-directed learning.

Benefits:

- -All materials on a topic are made available in one central location
- Content is accessible at any time.

- Learners decide which topics are relevant to them and subscribe to them.
- Enables browsing and targeted learning on demand.
- Easy to consume thanks to smaller portions and playlist mode.

Marketing content

Target group: Academies or training providers who want to market (paid) content to internal or external target groups.

Benefits:

- Create target group-orientated, clearly structured sales or news portals.
- Simple updating of content
- Automated notification of subscribers
- Arouse interest with learning snacks that serve as appetisers for (paid) linked training courses.

Explore

Learners can explore through subject areas (channels). Channels can contain learning nuggets, informative content and links to suitable training courses and learning paths.

Benefits:

- Build appealing and structured information boards with a mixture of free and paid content for external learners.
- Easily add or update content and notify learners of these updates.
- Generate interest through learn nuggets that serve as appetizers for (paid) linked content.

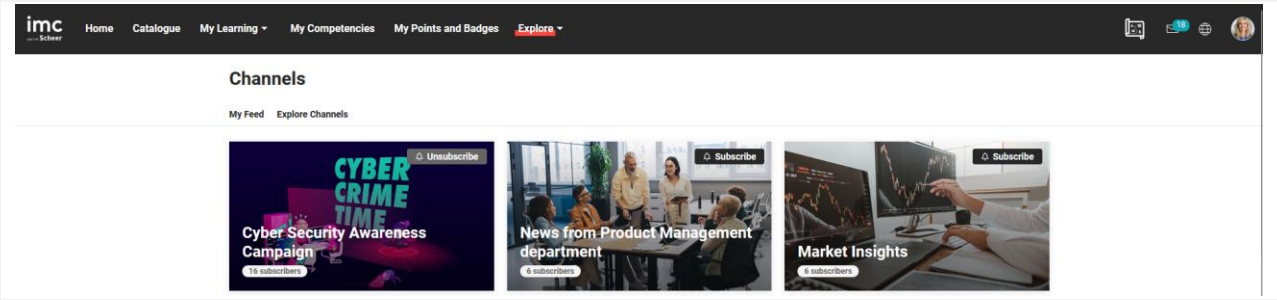


Fig. 6:5: Learner view – Explore Channels

Subscribe

Learners subscribe to channels that they want to keep up to date with. Content from these channels appears directly in the personal feed.

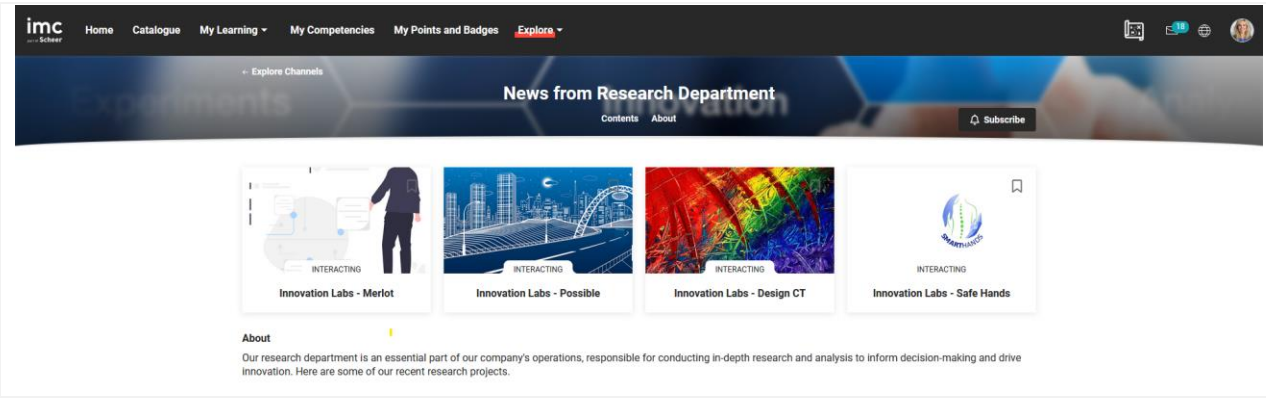


Fig. 6:6: Learner view: After opening a channel

Consume/ Learn

Content can be easily consumed via a playlist mode.

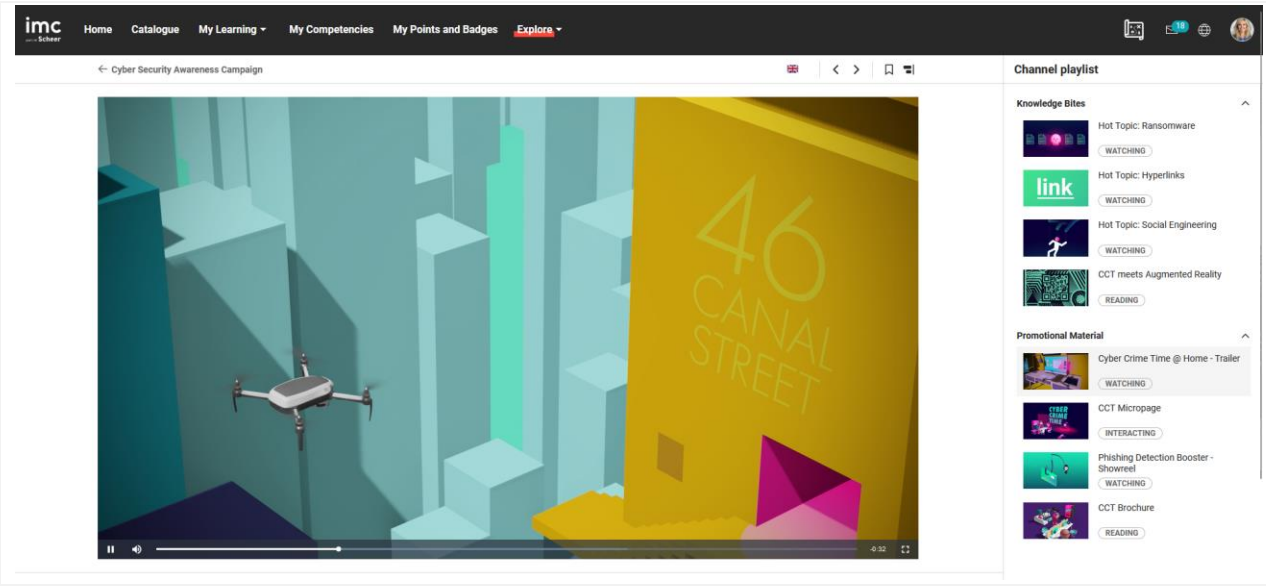


Fig. 6:7: Learner view: Playlist (My Feed)

Personal Feed

Learners receive all new content from the subscribed channels in their own feed. The latest content is labelled new and remains so until the content has been consumed. Learners receive a notification when there are updates in their channels.

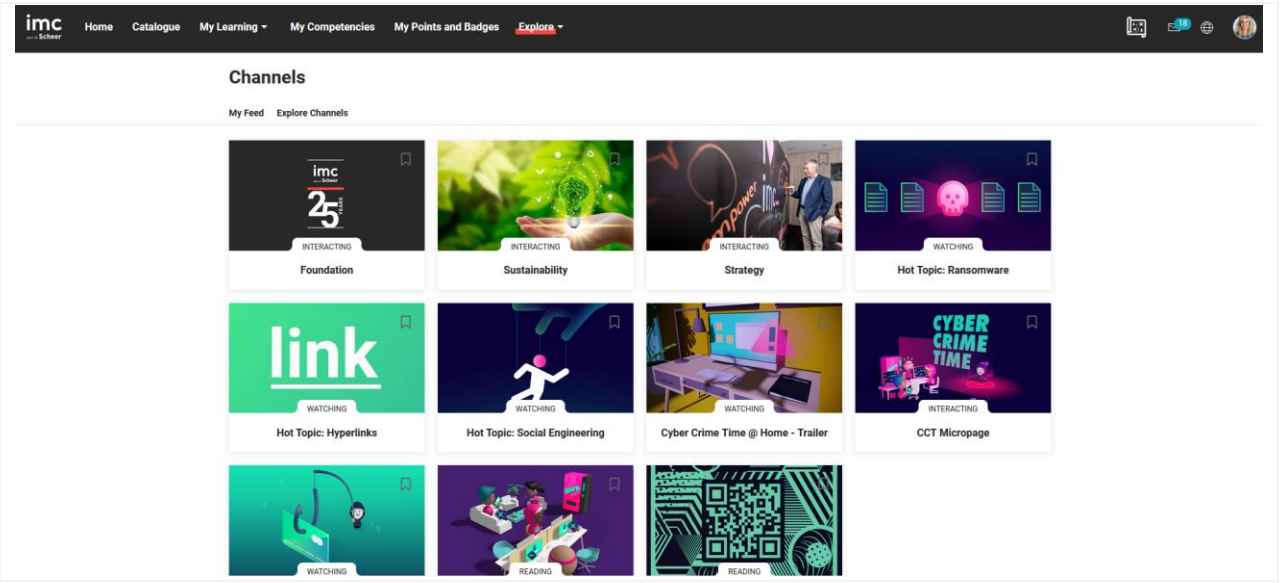


Fig. 6:8: Learner view: My Feed

6.5 Courses

A course is to be understood as a container that can be filled with any number of contents. These can be web-based trainings, PDF documents or a classroom event. This concept allows you to administer all learning formats such as blended learning, pure e-learning offers or classic classroom training.

6.5.1 Course Contents

For the filling of a course, you can access all contents available in the content management. In addition, the system also allows new content to be created during course creation and optionally made available to other users. The structure of courses can be freely defined with the help of folders. Confirmation requests prevent unwanted changes to content or updates to exercises.

6.5.2 Forums

Each training measure can be supplemented by forums in the Learning Suite. These are available to the learners during the entire duration of the measure or only on defined dates.

6.5.3 Learning Logic and Scheduling

With the help of learning logic, access to course modules can be made dependent on pre-defined conditions. For example, a WBT may only be opened after an entry test has been successfully completed. Course modules can also be scheduled, i.e. only activated from a certain point in time. In addition, it is also possible to link the completion or non-completion of a learning object to messages that are sent to Supervisors, for example.

6.5.4 Course Booking and Approval Processes

imc Learning Suite supports a wide range of booking types including waiting list management. Multi-level approval workflows can be realised with the help of personalised e-mail notifications. These multiple approval workflows can be freely configured in a separate manager, and reasons

for denial or approval can be defined for each approval level. All processes can be carried out for individual learners or groups of learners.

Below are the options for course booking for each course:

- Self-registration
- Self-booking with supervisor's information
- Self-booking with the approval of the supervisor
- Self-booking with the approval of the supervisor and the approval of the course administrator
- Booking only by the course administrator
- Recommendation by the course administrator and confirmation by the learner
- Booking only by the supervisor
- Third-party booking
- Third-party booking with the approval of the supervisor
- Multi approval workflow

6.5.5 Booking Forms

When learners book a course, booking forms can be displayed to check, correct, or complete their personal details.

Different sets of booking forms for each available booking type can be further differentiated per training provider. For example, the IT department might request different data for its courses than the sales department does for its courses. Examples of this are a desired hotel or the shoe size, so that shoes can be prepared accordingly for the safety training.

Entered data can be checked and analysed by the course administrator in the participant administration or course management of the course. For example, it can be set whether the data is saved and reused or whether the data is only valid once.

6.5.6 Prerequisites

To support the long-term planning of learning materials and courses, it is possible to define a status that must be adhered to as a prerequisite for course booking. This allows learners to enrol for subsequent courses, for example, depending on their enrolment status (enrolled, in progress, passed/completed). A deadline can be set by which the prerequisite must be fulfilled.

If the learner does not fulfil the prerequisites within a defined period, automatic cancellation can be activated. To prevent a course that is a mandatory prerequisite for another course from being cancelled by the learner, a restriction on cancellation can be configured.

6.5.7 Participant Management

In the participant management of a course, the participant list can be viewed, and the status of participants can be edited:

- Prebook, add, rebook, or cancel attendees.
- Start or end the course manually for individual participants or groups of participants.
- Book resources for participants, such as hotel rooms.

In addition, participants can be contacted quickly and easily via the mail function.

6.5.8 Course Cancellation

In course management, you can define when and to what extent it is possible to cancel a course. Furthermore, one can define whether cancellation costs are incurred. Email notifications for these processes can be defined.

- Self-cancellation.
- Course participant can cancel course himself/herself.
- Cancellation request.
- Course participant can make a cancellation request to the administrator.
- Cancellation by supervisor.
- Course participant cannot cancel course himself/herself.
- Cancellation by admin.
- Neither student nor supervisor can cancel course.

In addition, it is possible to specify until when cancellation of the course is permitted. A due date can either be set with reference to the course start/ end date or as an absolute date, up to which a course can be cancelled. Cancellation fees can be provided at course type level and overwritten at course template or course level.

It is also possible to trigger cancellation using the learning logic. Course participants are automatically cancelled using settings in the learning logic, for example, if they have failed a test three times.

6.5.9 Import of Courses and Learning History

Existing courses with the corresponding learning history can be imported from other systems via CSV files. imc Learning Suite supports numerous data mapping options to import data from a variety of different sources, from different clients into a variety of different environments.

6.6 Learning Paths

Learning paths illustrate long-term training plans that run over several courses. These can consist of a mixture of online courses, blended learning courses and classroom training. For a better organisation, it is possible to create folders in the learning path manager, which describe different phases of the learning path. Dependencies can also be created between the individual courses, like the learning logic in courses. Prerequisites can also be assigned. By using learning logic rules, you can map open learning concepts with a freely selectable processing sequence as well as closed scenarios in which the sequence is defined step-by-step.

Two learning path modes are available: content-oriented and level-based.

A content-oriented learning path is used to provide and track structured content over a longer period, e.g., for a 6-month onboarding programme where a series of courses must be completed.

In a level-based learning path, a sequence of levels can also be defined (e.g., beginner, advanced, expert), which a user can reach if he successfully completes all courses of the corresponding level. The defined levels can be linked to conditions and access restrictions.

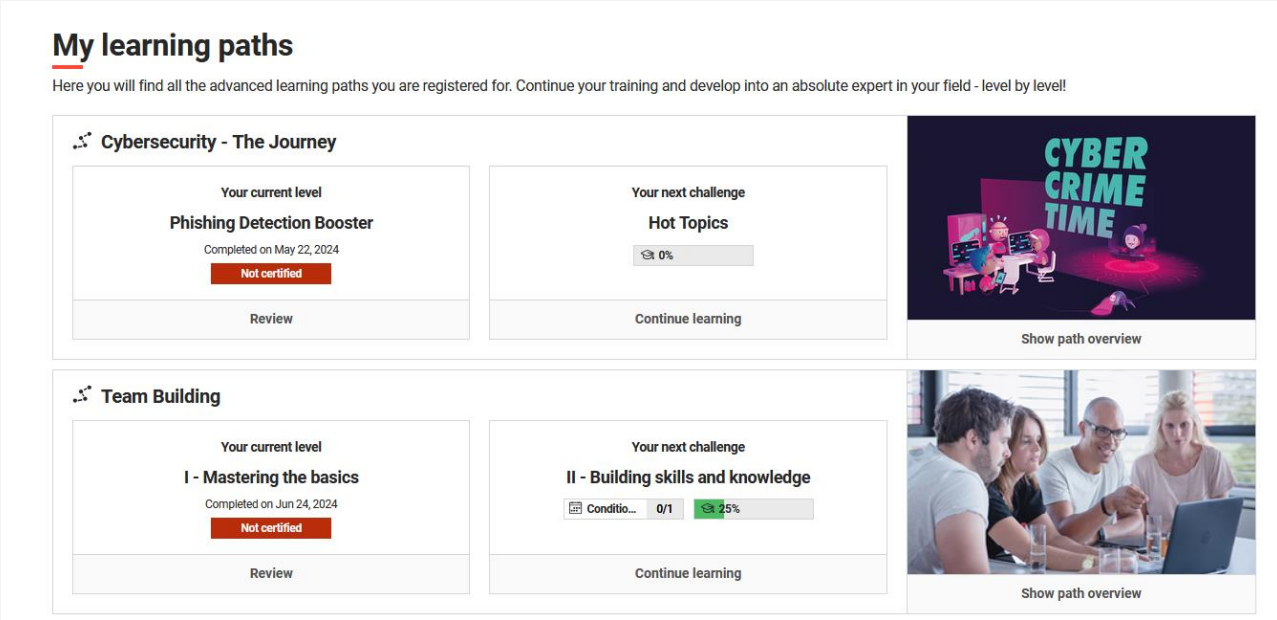


Fig. 6.1: Learner's view: learning path panel

The layout of learning paths was developed together with the course room to ensure a smooth transition between learning path and course.

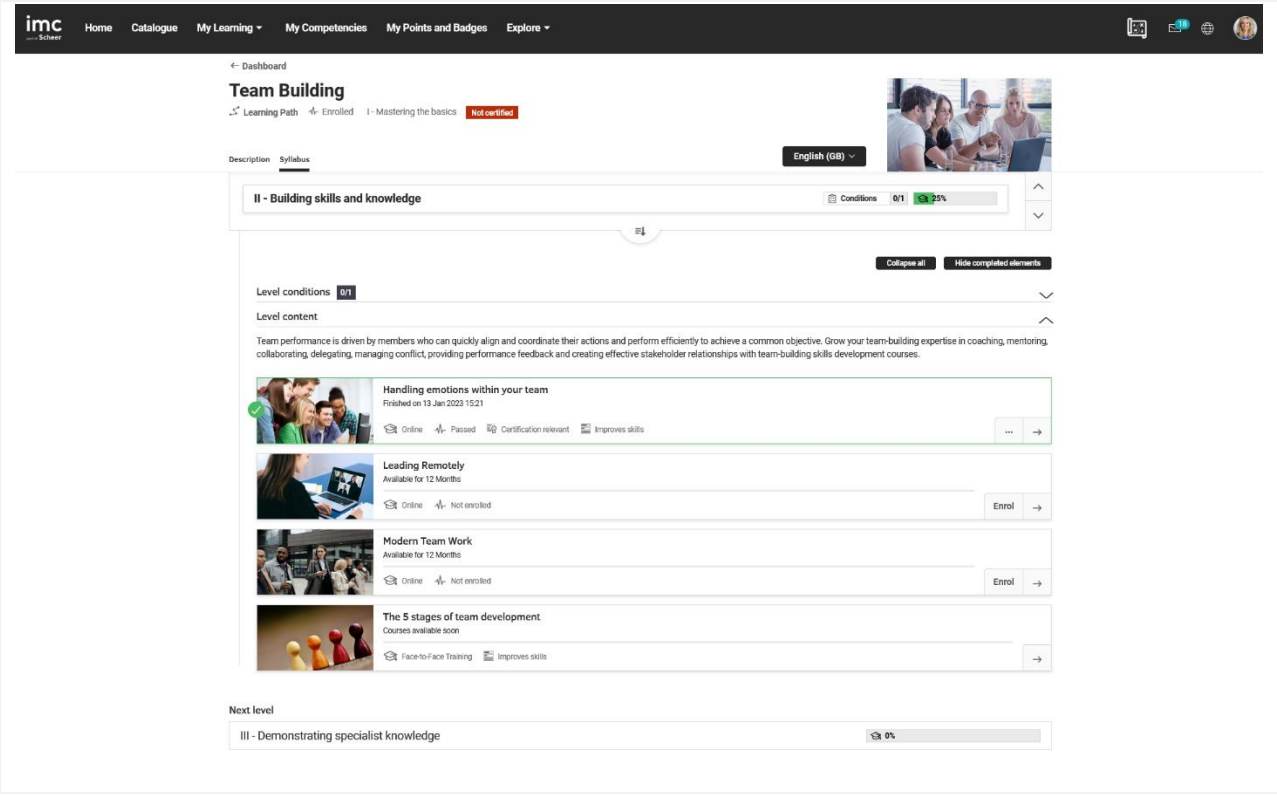


Fig. 6.2: Learner's view: curriculum of a learning path

Learners can obtain, if configured, certificates either on the overall learning path and, for level-based learning paths also on everyone achieved level. Learners can, for example, book learning paths themselves via the catalogue. The information available for a learning path on the detail page can be configured using imc Learning Suite. A preview image also motivates participation in learning paths.

Supervisors also have the option of booking learners directly to courses within a learning path.

Like courses, learning paths also support automatic booking. Via the participant management, learning path creators can define groups and job profiles for which they then define conditions for automatic booking.

In addition, it is also possible to define that courses contained in the path are also automatically booked for the learner when they are booked on the learning path.

Learning paths can also be used in the recertification process. Accurate recertification periods can be specified, with the ability to add different recertification content for each period. The learning path administrator will find separate settings for this in the backend.

If the learning path needs to be cancelled, the cancellation applied on learning path level can be automatically applied to the courses contained in the learning path.

6.7 Manage Equivalences

The equivalence function meets the need to establish relationships between equivalent courses. Therefore, the learner does not need to process several courses with similar content but passes one course and is automatically considered as passed on the related course.

List of equivalency relations which can be defined:

- One course is replaced by another course with updated content and the learners must not be required to re-take the similar content. However, they should still be able to re-take it if they wish. (A = B)
- Some courses are a combination of other courses. In this case, the learner can be required to take either the overall course or the courses from that it is combined but not both. (C = A + B)
- The multiple equivalence relation is possible as well, meaning that taking course A gives the learners credit for course B and C, taking course B gives the learner credit for both A and C, etc.

List of functions:

- An administrator can define the relations in a dedicated manager.
- Search can be performed by Name, Identification code, Object ID, Description.
- Relations can be updated, deleted.
- Import and export of equivalency rules can be performed.
- The relations defined are also contributing to the learning path progress if included in one.

If a course is passed by equivalence is not considered as a course passed directly: it does not appear in the learning history, but it can still be started and completed by the learner (but it is optionally and never required). Therefore, Learners can take synergy effect of former done course in future learning and avoid redoing similar training just for the sake of completion.

6.7.1 Access Control List (ACL)

Only the courses for which the user has at least Execute ACL will be visible in the manager. The rules can be edited and deleted though the user does not have access to all components. User will not see the courses for which he had no ACL in the manager, nor in the export file.

6.7.2 Prerequisite handling

When courses/clusters or course templates are available as prerequisites for other courses or learning paths, the prerequisite object will be considered fulfilled if the user has this object covered.

There is no visual distinction on the prerequisite overlay screen indicating that the object is only covered and not fully completed. The prerequisite which is covered will be displayed as fulfilled.

6.8 Time Zone Management

imc Learning Suite provides comprehensive global time zone management. For each medium, each course or each learning path with start and end date it can be specified in which time zone the object is displayed to the administrator and in which time zone it is displayed to the learner. This makes it possible to display such programmes, which do not take place any time but at a specific time defined worldwide, to the learners who may be at another location in their correct local time. This ensures that the learner logs in as expected for a session in the virtual classroom, for example, or arrives at a classroom training session in a time zone other than the learner's own in such a way that the local training times at the real training location are adhered to.

6.9 Certificates

Certificates can be adapted to your corporate identity and automatically made available in PDF format after successful participation. The certificates can be templated with the help of a content editor, or by using a Word template which can be uploaded into the system and used for generating the certificate.

6.10 On-the-Job Training (License needed)

With the On-the-Job Training module in the imc Learning Suite, we offer you advanced functions to support training and further education in your company. Here we concentrate on one-to-one training situations in which an experienced employee, the mentor, instructs an employee, e.g., the trainee. On-the-Job Training includes mentor guidance and task demonstration, student observation and practice, and mentor evaluation of task performance.

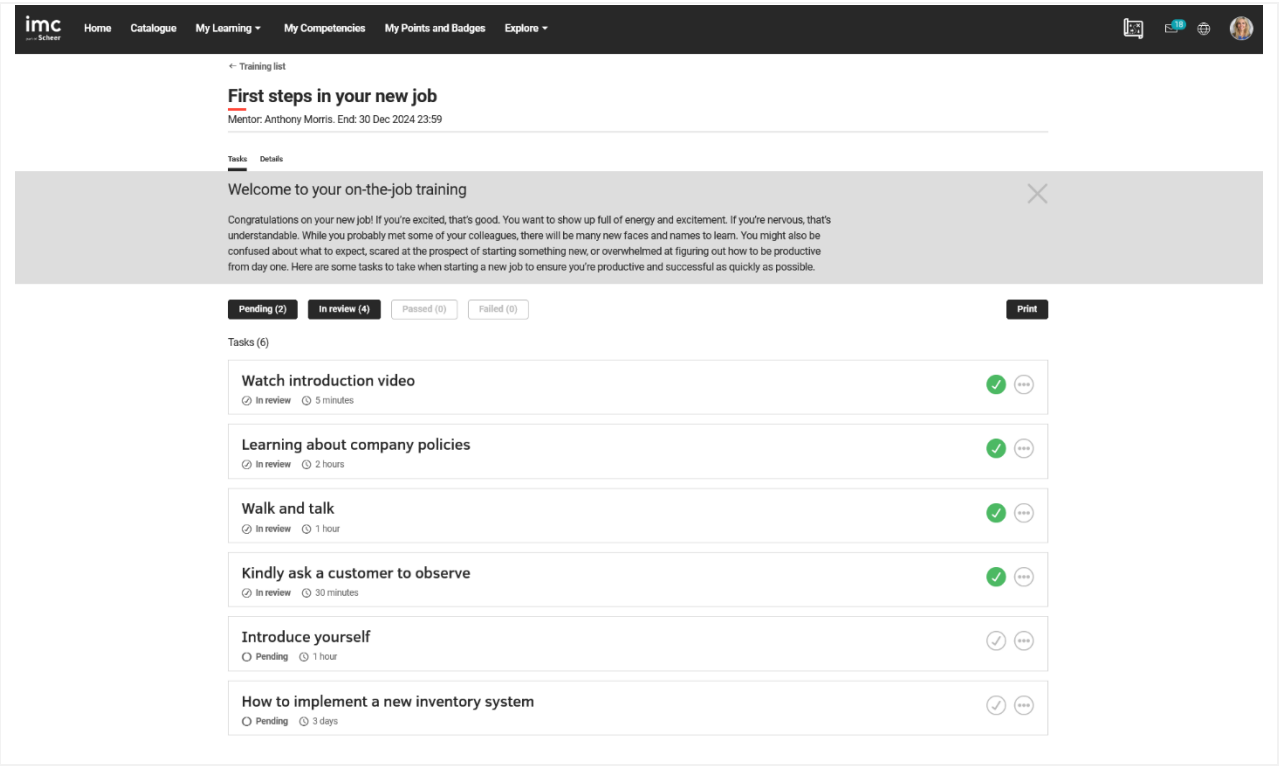


Fig. 6.3: Learner's view: On-the-Job Training task list

Benefits

- Individualisation of on-the-job training with the option of adding additional tasks during assignment by the supervisor.
- Management of all work processes between mentor and trainee.
- Create notifications to all user roles involved in the process.
- Information on the status of training and progress for trainees as well as supervisors and HR personnel. (Reporting and Task List/To Do).
- On-the-job training can also be included as content components in the course curriculum.
- Feedback (direct field input) and sharing attachments with Mentor/Mentee.

It can also be defined whether the mentee himself may mark the task as completed or whether the mentor assesses the task as passed/failed. It is also possible to enter a percentage value.

6.10.1 Collaborative Group Work

The functionality is provided within the On-the-Job Training module, and it enables the creation of tasks for collaborative group work within a course to promote social learning. Employees can be assigned to groups working together on one task. Sharing feedback and uploading documents as well as notification behave equally to one-to-one trainings.

Additional functionalities:

- Creation of collaborative group work media using a learners On-the-Job training template within a course.
- Creation of groups to assign users from the course to a particular group work task.
- One-click evaluation option for all assigned participants of a group by tutors.

- Messaging functionality within the group task for communication between group members and/or tutors.
- Clear visual marking of group work tasks on titles for both learners and tutors.

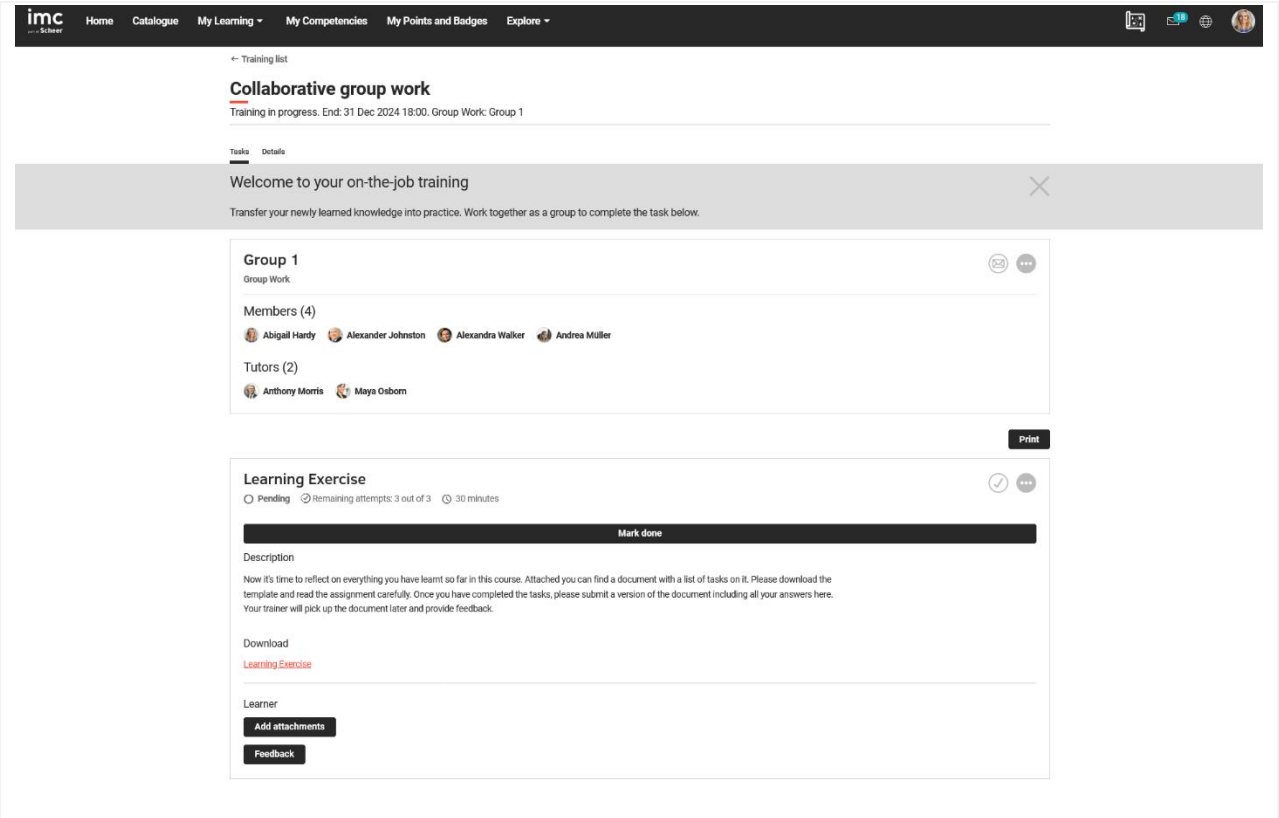


Fig. 6.4: On-the-job Training 'Collaborative Group Work'

6.11 Virtual Classrooms (License needed)

Create and coordinate virtual meeting rooms for your virtual classroom trainings. The view of a meeting room can be configured according to different needs. If interactivity plays a key role in your virtual meeting, you can integrate a chat or live poll, for example. If, however, it is more important for the participants to follow a lecture, these functions can be hidden. All content in the meeting room is displayed in panels (windows that can be freely moved and flexibly arranged on the screen), whose view can be easily configured and saved as a template. In addition, meeting recordings can be used as objects in the media library.

The imc Learning Suite offers seamless integration for the following successfully established virtual classrooms (add-on modules needed):

- Adobe Connect Meeting
- GoToMeeting
- GoToWebinar
- Microsoft Teams
- Vitero
- WebEx Meeting

6.12 Testing and Evaluation

With the test module, we offer you a solution that comprehensively supports the creation, administration, execution, and evaluation of tests within the framework of various learning arrangements.

List of Functions:

- Integration of tests in the curriculum of a course, for example as a placement or final test or to control admission to further modules within courses.
- Realisation of compliance-relevant tests for the proof of training programmes.
- Wizard-driven creation of a variety of test questions without programming knowledge.
- As a fully integrated test module, the planning, creation, and evaluation of complex tests is possible without system breakage.
- Support of the IMS Question Test Interoperability (QTI) standard allows import of QTI-compliant test questions and use of questions created in the Learning Suite in third-party systems.
- Easy export of all relevant data to MS Excel.
- Automatic creation of test certificates.
- Import of test questions via Excel CSV files is possible.

6.12.1 Creation of Questions

The following question types are available:

- Arrange
- Assignment
- Association
- Free text tasks
- Gap test
- Image section
- Multimedia Drag & Drop Questions
- Multiple Choice
- Single Choice
- Yes / No

In the second step, these questions are compiled into online tests and a suitable test mode is selected depending on the application scenario. A self-test without time limit and with direct evaluation can be created or a final test with restrictions regarding time, feedback or processing sequence of questions can be created. Alternatively, it is also possible to import existing test questions if they are QTI compatible.

6.12.2 Test Creation and Certification

- Content management: for the free structuring of questions (e.g. grouping into question pools or sorting according to topics or difficulty levels).
- Extensive search and sorting mechanisms: for fast and targeted access to the question database when creating tests.
- Random generator: for the automated compilation of questions for tests.
- Automated certificate issuance: for confirmation of successful completion of a test.
- Import of test questions via Excel CSV files is possible.

6.12.3 Evaluation and Reporting

- Manual correction of free text tasks.
- Automated evaluation of results and display in reports (these statistics refer to questions, tests, or entire courses).
- Export of reports as CSV file for further processing in MS Excel.

6.13 Feedback

Reporting and feedback mechanisms help to permanently monitor the effectiveness of courses and evaluate surveys. The flexible and reliable evaluation of valid data on the quality and popularity of your training offers you a wide range of possible applications. Versioning and release rules also support professional editorial work.

List of Functions:

- Anonymous employee surveys
- Quick and easy creation of online questionnaires, or manual surveys in PDF format.
- Improvement of the further training offer by regular questioning of the participants and examination of the effectiveness of courses.

6.13.1 Effectiveness Check (License needed)

With the non-anonymous effectiveness check (license needed) both employee and supervisor can provide feedback on a training activity attended by the employee. It is also possible that only the supervisor can provide feedback, without the employee. After providing their own responses, both the learner and the supervisor can compare their evaluations.

6.13.2 Creation and Publication

A wizard guides you through the process of creating questions. The following question types are available:

- Arrange
- Free text
- Matrix
- Multiple choice.
- Single choice
- Yes/No

All questions are part of a question pool from which questionnaires can be created. Questionnaire templates facilitate this process and guarantee a uniform layout. imc Learning Suite also offers the option of generating questionnaires in PDF format for manual evaluation. Layouts can also be stored and managed here.

6.13.3 Feedback Processes

- Structuring of questions according to freely definable topics.
- Survey scheduling.
- Reminder emails for outstanding questionnaire submissions.

6.13.4 Evaluation and Reporting

- Recording Questionnaires completed manually in the face-to-face seminar.

- Clear graphical representation of the results and simple export to MS Excel for further processing of the data
- Automated evaluation at question or questionnaire level.
- -Statistical analysis of the survey results

7 Reporting

The planning, management, analysis, and evaluation of training processes requires direct and fast access to extensive data, from the utilisation of training resources to the average processing time of a provided learning measure and the learning success of employees. imc Learning Suite provides a wide range of role-specific reporting options.

On a customisable reporting dashboard, reports can be subscribed to, favoured, aggregated, detailed, grouped, and analysed in various display formats. A detailed overview of all reporting options is available on request in the **imc Learning Suite Report Overview** document. This provides and explains a complete overview and detailed information about the available reporting options.

List of Functions:

- Preparation of the data obtained in the logging process (system log, audit log...).
- Bundling of relevant information.
- Which contents are offered and being utilised?
- Which groups of people have which training needs?
- Were the programmes successfully completed?
- Traceability of the implementation of compliance measures.
- Creation of individual reports with variably adjustable parameters.

7.1 Reporting Dashboard

The central reporting dashboard provides direct access to all reports for which the user is authorised.

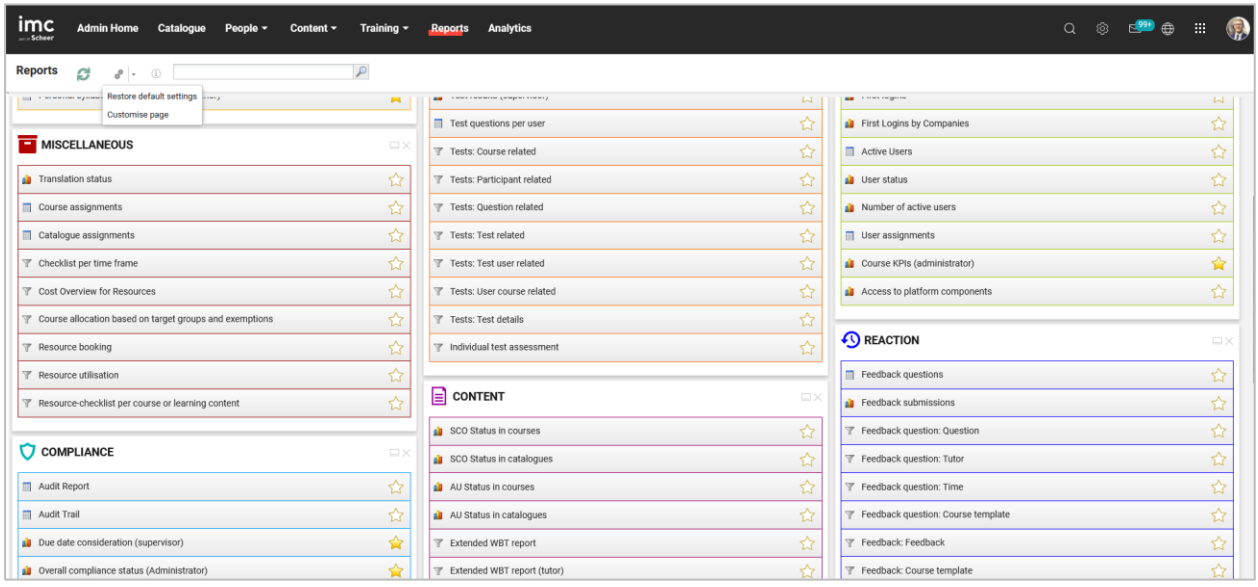


Fig. 7.1: Reporting dashboard in the imc Learning Suite

The following options are offered:

1) The user can define a 1 to 5 column layout for the dashboard and position the panels offered in it by drag & drop.
2) Quick search for direct report access.
3) Reports can be grouped into report categories and displayed as panels on the Reporting Dashboard.
4) By clicking on the star symbol, the report can be marked as a favourite and added to the Favourites panel in the upper left corner.
5) Different report icons represent different report types: Graphical reports, list reports or reports without filter.
6) A dedicated panel for viewing favourite reports.

7.2 Dashboard Reports

imc Learning Suite offers the option of providing role-based dashboard reports in the system. The entire report can be opened for closer inspection with a single click.

The following graphic shows such a detailed view.

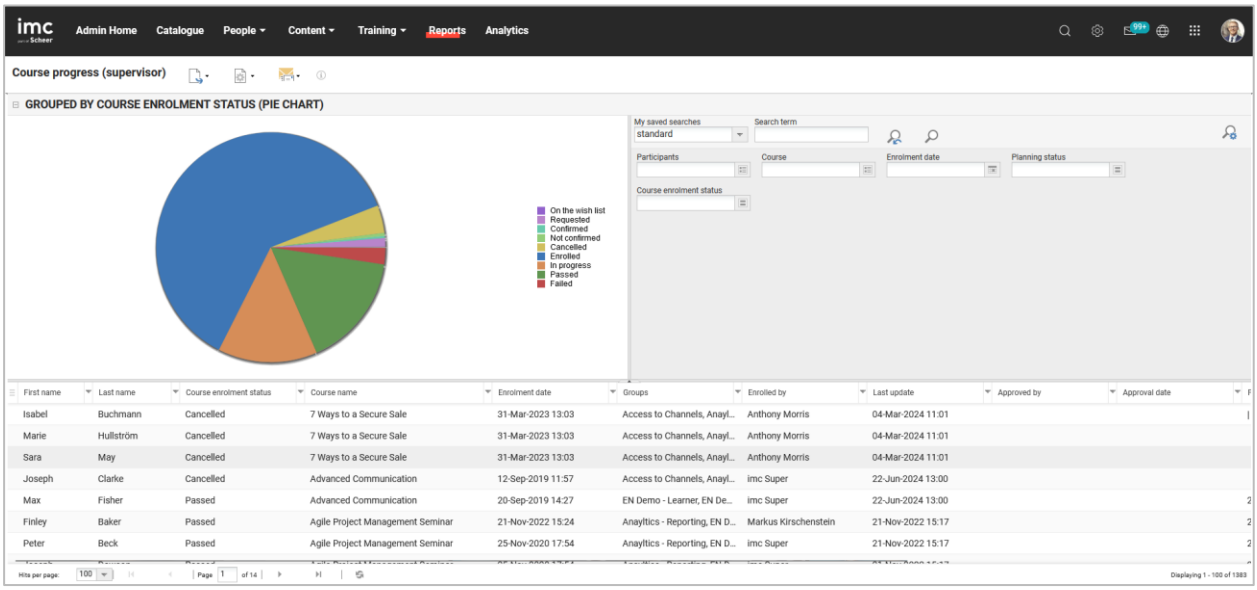


Fig. 7.2: Dashboard report: Detail view

Each dashboard report offers the following options depending on the type in the system:

1) Functions for report export, graphical layout, and subscription.
2) Customisable filter area for course and personal information.
3) Customisable columns, their order and grouping of results.
4) Graphical visualisation of the data.

7.3 Frontend Reports

The responsive imc Learning Suite frontend also provides a range of reports. The following screenshot shows an example of the layout of the course progress report.

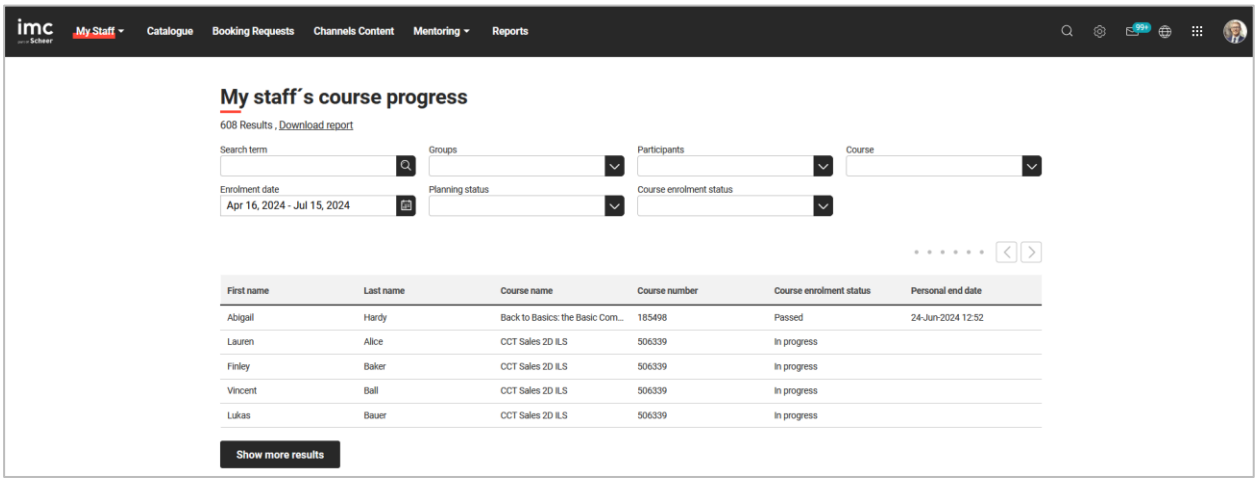


Fig. 7.3: Frontend report view course progress

7.4 Consideration of Personal Access Rights

Each list, list-based report, or dashboard report as well as each report integrated via imc Reporting Server considers the access rights of the person executing the report to persons and content objects in the system at all times.

This ensures that the same report can be made available, and that each caller only receives the data that he or she is authorised to view. In a multiclient system, the authorisations are restricted to the view within a client. However, you can also grant certain persons permission for cross-client reporting at any time. These rights are of course also completely monitored and managed by your system administrator.

8 Learning Analytics (License needed)

For learning development to have a positive impact on your business goals, essential decisions need to be made at multiple levels. With traditional approach, decision making is slowly and inaccurate as decision makers don't have insights into the right data at the right time.

Microsoft PowerBI is embedded in the Learning Analytics add-on module. It aims to enable dashboard-based, faster, and more accurate business process decisions based on trends, comparisons, and root cause analyses.

Benefits:

- Higher flexibility and quick start with out-of-the-box dashboards and reports which can be extended/adapted.
- interactive exploration for root cause analysis
- Decreased manual effort.
- Agility by filtering and drilling-down into greater detail to single courses or single learners
- Foresight with trend analysis and prediction
- Creation of own dashboards and reports (by simple drag & drop)
- Transparency of training needs and learning development of the employees to ensure continuity of services.
- Transparency about course progress, efficiency and outcomes of trainings conducted.
- Authorisations are controlled as usual by the imc Learning Suite

Detailed information on Learning Analytics is available on request in the document **imc Learning Suite Analytics – Functions in Detail**[1].

1 Prerequisite: The Learning Analytics extension module can only be realised in the imc Azure Cloud environment.

8.1 Learning Analytics Dashboard

Learning Analytics offers a set of standard dashboards. The following figure shows an example of compliance dashboard.

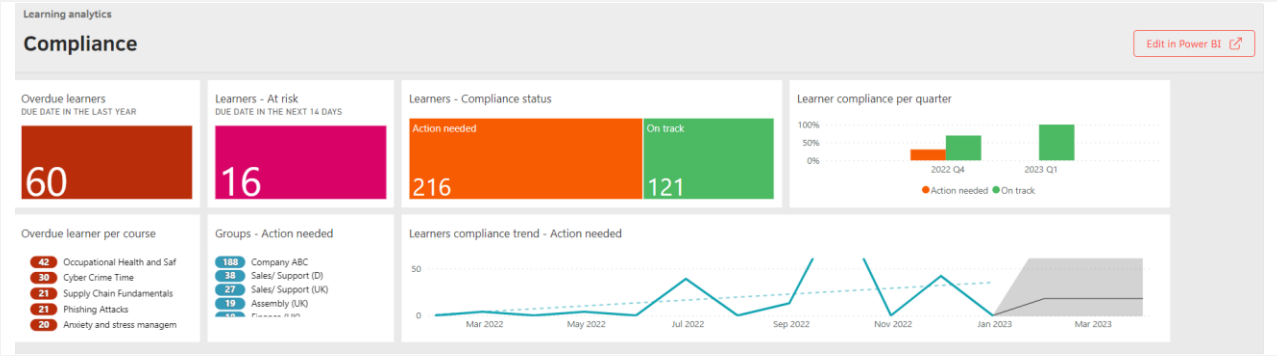


Fig. 8.1: Learning Analytics dashboard

The individual KPIs on the dashboard show graphical evaluations of the report results. By clicking on any of the KPIs, the full report can be opened for closer examination.

Further dashboards can be created in the Power BI service by an administrator having a Power BI account in the workspace connected to the customer system.

8.2 Learning Analytics Reports

Several out-of-the-box standard reports are available for a quick start. The following screenshot shows an example of the layout of the course compliance report.

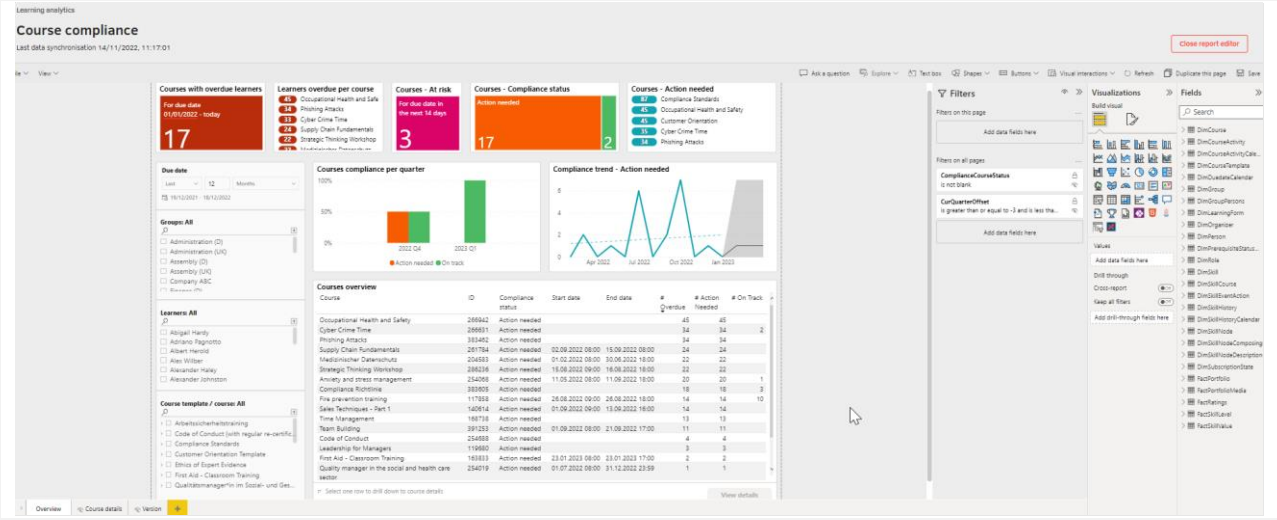


Fig. 8.2: Learning Analytics report

Each report, depending on the permissions, offers the following options in the system:

- Copying of the reports.
- Editing of the reports with full access to the fields of the optimized data model.
- Choose your data fields and visualisation.
- Use filters to specify information.

- Drill-Down to single courses or single learners.
- Printing of the reports.

8.3 Consideration of Personal Access Rights

Each report and dashboard always consider the access rights of the person executing the report to persons and content objects in the system. This ensures that the same report can be made available, and that each caller only receives the data that he or she is authorised to view.

9 Scenarios

The imc Learning Suite aims to provide complete support for your learning processes. This also applies to the administrative processes in the system. For this purpose, system functions from the individual system modules are seamlessly linked.

9.1 Extended Enterprise Training

The expansion of the value chain to generate competitive advantages is increasingly being driven forward by more and more companies. Suppliers or sales channels, for example, are being integrated into their own processes. imc Learning Suite supports the training of these external learners in a special way. For this purpose, individual start pages and learning offers can be provided according to the target group. If required, specific administrative roles are also supported, e.g. if training administration or supervision is to be carried out by external responsible persons.

9.2 Simplified Course Creation

The easy course creation module provides the ability to define different configured course creation workflows to cover different use cases, ranging from simple configuration with course details to more complex use cases that allow content and attendees to be added.

In addition, the workflow usage options allow you to modify the workflow so that it can be used by learners when they enter external courses in which they have participated or want to participate.

By defining specific course creation workflows in the back end, courses can be easily created in the frontend. Three different cases are considered:

- Requests for an external course by the learner.
- Record an external course already attended by the learner (for example for Recognition of Prior Learning).
- Creation of an internal course by the administrator.

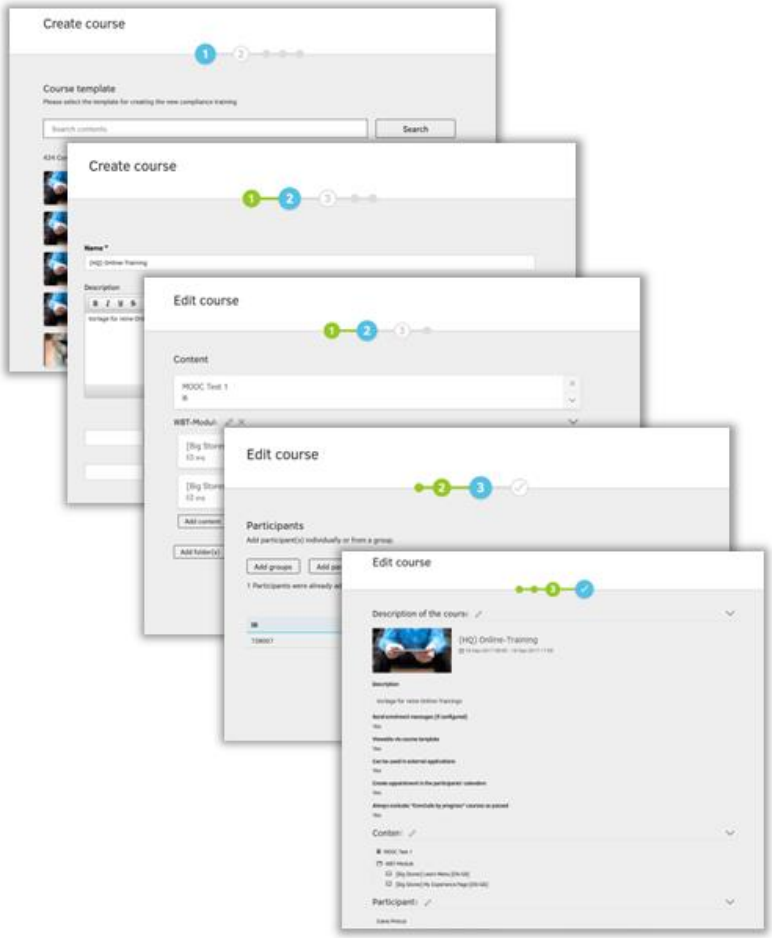


Fig. 9.1:Frontend view: Overview of the individual workflow steps

If the workflow Capture external course by participants is selected, the options Add content and Add participants are greyed out in Workflow steps. Since in this case the learner himself records a course because he has attended outside the LMS. The same applies to the course enquiry.

The manager, on the other hand, can freely define his workflow and edit, supplement, or omit any workflow steps.

Depending on the scenario, a workflow can be created in the imc Learning Suite. The creation process is organised in a step-by-step workflow. The flexibility of the configuration allows you to configure multiple workflows in one system or even for individual users by linking the workflow ID to a navigation entry in the imc Learning Suite frontend.

9.3 Compliance

Since you and your company will need to ensure that internal and external regulations are adhered to, appropriate employee training and certification will need to be conducted. The system supports all compliance-relevant activities, from the nomination of target groups to tracking progress and follow-up on training programmes. All status changes are logged throughout the entire process and ensure comprehensive traceability and control of all compliance-relevant activities. Therefore, your company becomes Compliance ready and reducing risk.

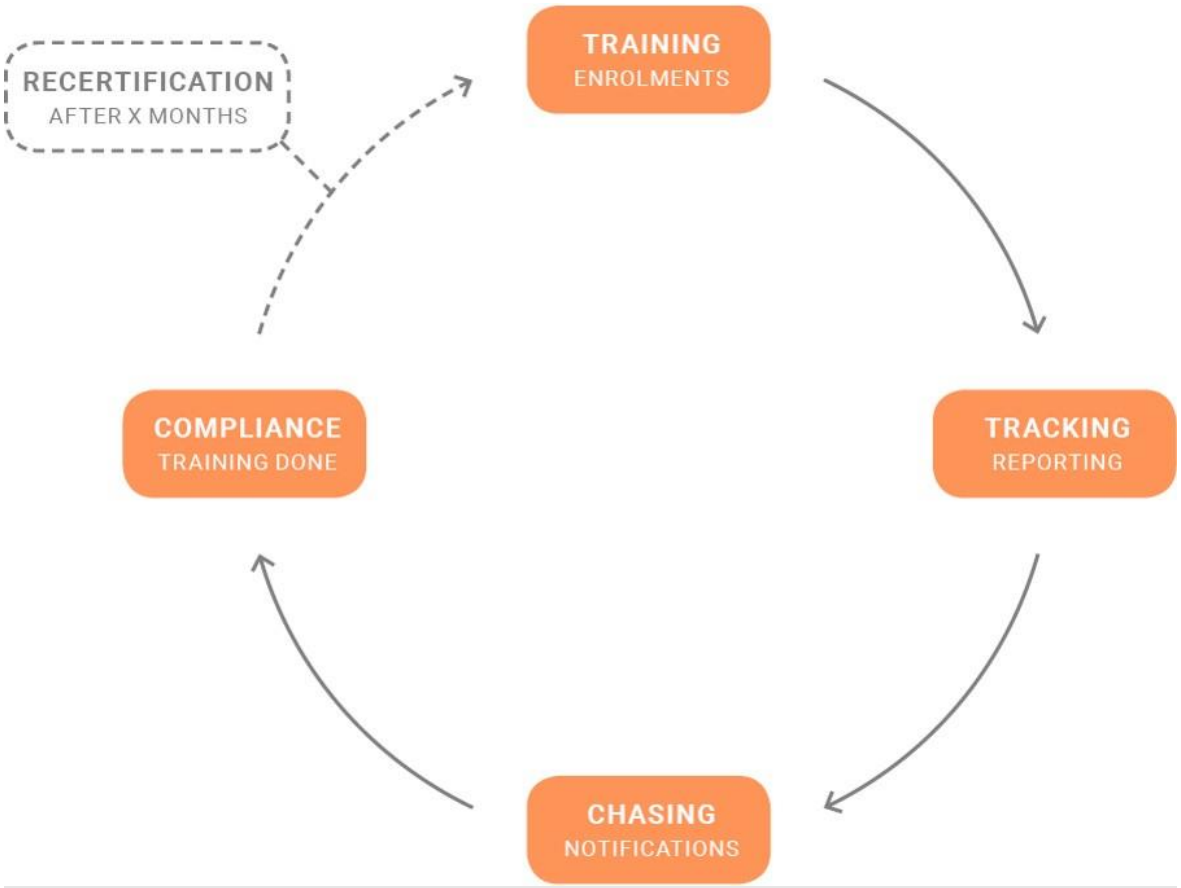


Fig. 9.2:Compliance requirements in learning management

9.3.1 Nomination

The nomination process describes the formation of target groups for defined compliance requirements and the selection of training programmes that must be carried out to meet the requirements.

List of Functions:

- Definition and selection of target groups via inclusive and exclusive rules with a multitude of nomination criteria: courses, user attributes, course types, learning paths, skills, group assignments and job profiles.
- Automatic target group generation via freely configurable scheduled jobs or in real-time after manual start.
- Comparison operators, depending on attribute type.
- Consideration of deadlines.
- Inclusion of status changes.
- Automated training assignment and booking.
- Re-certification workflow based on a dynamically calculated due date.
- Automatic course creation based on the course template on which the recertification workflow is based.
- Optional manual or time-controlled, automatic triggering of re-certification processes.
- Automatic assignment of the most current learning content on re-certification.

- Waiting list management.
- Reset learning progress when training is needed again.

9.3.2 Tracking

The tracking process describes the continuous monitoring of the learning progress of training programmes. This ensure that that those undergoing the training will meet the compliance requirements.

List of Functions:

- Continuous monitoring of the learning progress of training.
- Ensuring the traceability of the status of training.
- Two views: learner and supervisor.
- Progress control via reports, notifications, and progress indicator.

9.3.3 Chasing

Training measures that are mandatory due to legal or internal compliance requirements typically have a fixed period for successful completion. Exceeding this specified period may result in the employees concerned not being able to perform existing or new tasks due to a lack of professional qualifications or not being entitled to perform them due to legal provisions. To support the successful completion of such training programmes, employees are not only informed about the status of their mandatory programmes but are also explicitly requested to complete them within the defined period. In the compliance environment, the term Chasing is commonly used to describe this action.

Compliance officers can easily create compliance training in the Learning Suite user interface and assign predefined and validated content to pre-defined audiences. With just a few clicks, graphically appealing and meaningful compliance status reports can be activated.

In addition to the possibility of monitoring and chasings made available via the user interface, the notification module of the imc Learning Suite can be used to define at which intervals which distribution group is to be informed by e-mail about the compliance status of the employees.

9.3.4 Reporting

The information about the current compliance status can be displayed graphically and offers filter options to narrow down the focus of the reports to specific individuals and measures.

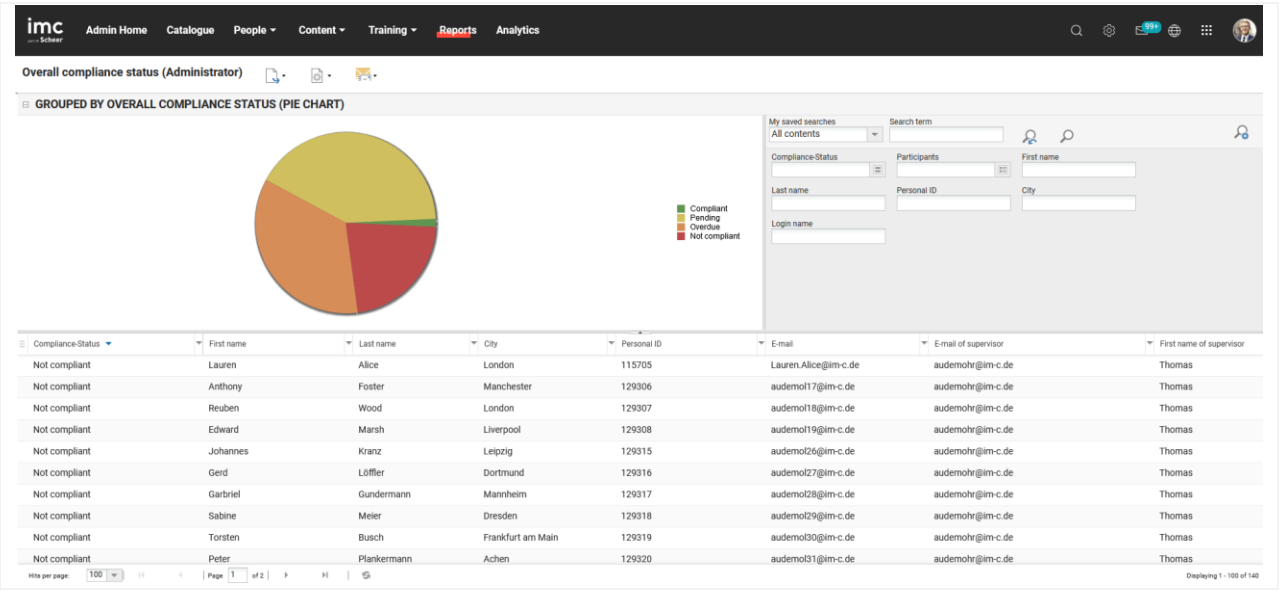


Fig. 9.3: Compliance officer view: Report

9.3.5 Refresher Training

The recertification workflow uses a dynamically calculated due date to monitor compliance with the relevant target groups and triggers recertification processes manually or automatically, when needed. The efficient design of the re-certification process creates a high level of automation to the process, a high level of personalised timing and delivery, relieves compliance officers of manual tasks, reduces sources of error, and creates positive reputation and image effects.

9.4 Gamification (License needed)

Learners can be even more motivated to continue and develop their learning using game elements. To encourage the learner's ambition, playful elements are used in the imc Learning Suite and learners can compete with other learners (gamification). Learners collect experience points and badges, and their success relies on the place in the personal or team ranking. This should also encourage learners to edit more optional content.

The learners can play with several colleagues in teams. For example, this creates a sense of belonging.

9.4.1 Experiences

When creating experience paths, the admin can add points to different learning objects by adding rules. These can be the following objects:

- Learning content of all kinds (WBTs, PDFs, video, etc.).
- Tests.
- Feedback forms.
- Forum contents.
- Courses.

An individual score can be awarded for each object. If the object is completed, the learner receives points, which are credited to him. Depending on the definition, certain levels can then be reached with the points.

In addition, the administrator has the option of activating various ranked lists. There are team and global rankings, as well as an option Average score for teams. If this option is activated, the sum of experience points of all team members is divided by the size of the team. At the same time, their place in the personal or team ranking indicates their own learning success. This should also encourage learners to work on more optional content. The learner also has an overview of the activities with which he has collected points.

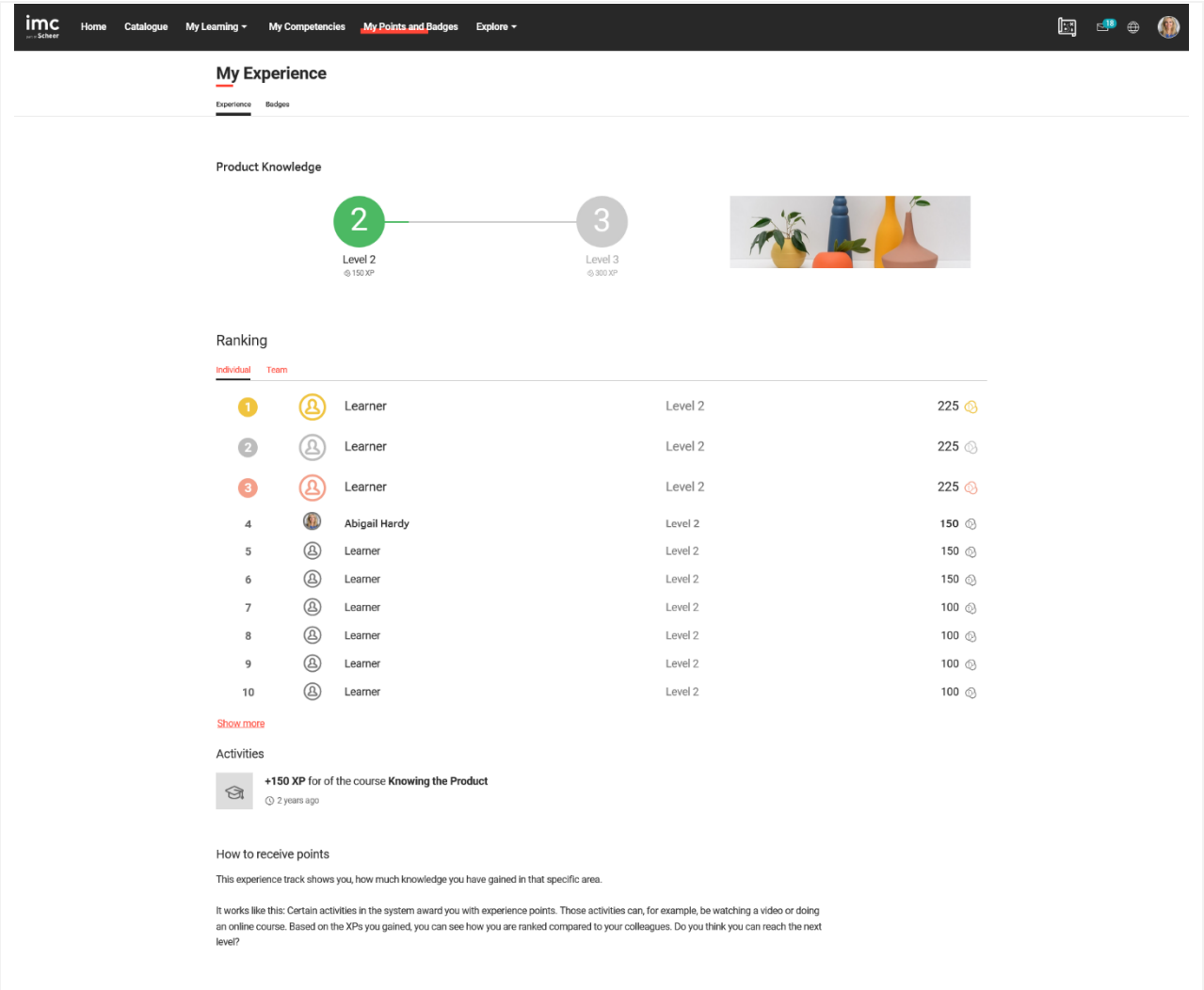


Fig. 9.4: Learner's perspective: for the Continuing vocational training experience path

9.4.2 Badges

Badges can be freely defined in terms of image and activity and are another way of providing new incentives for the learner.

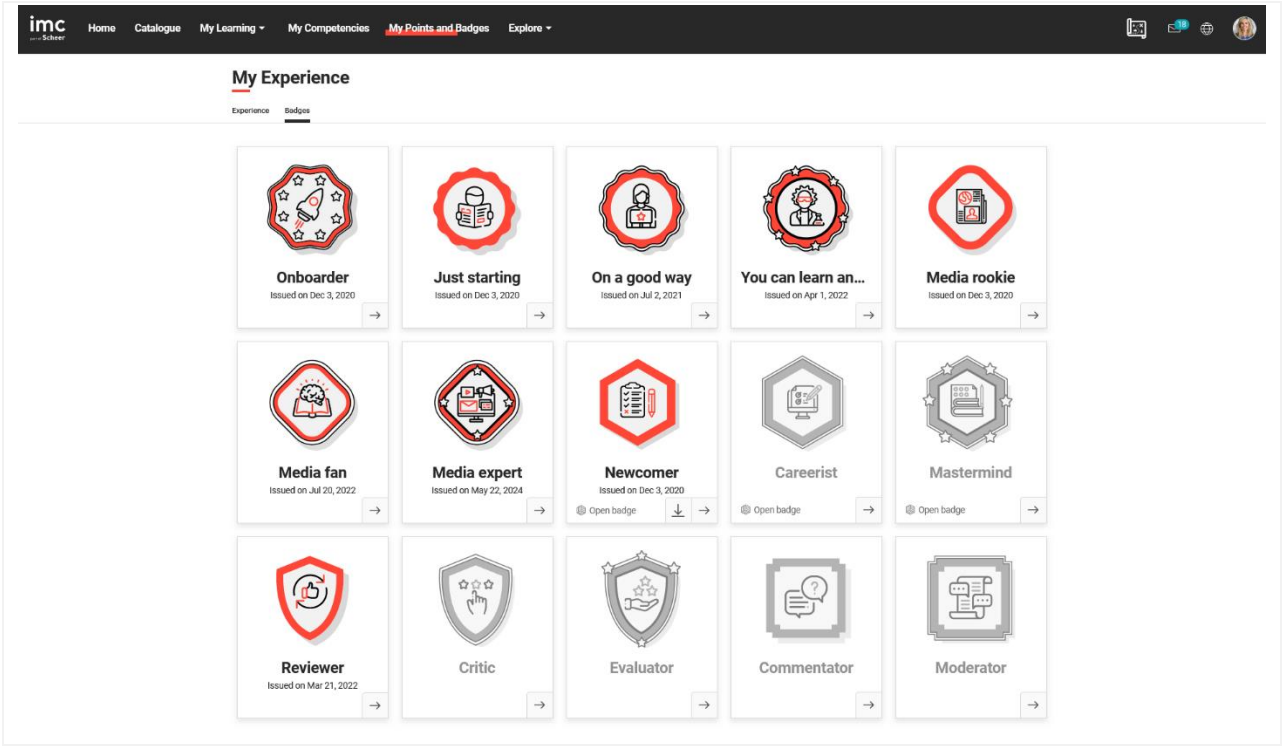


Fig. 9.5: Learner's view: Badges

Grey badges are not yet reached, coloured ones have already been acquired.

Open badges are also supported, allowing the learner to download the badge and share it with an interested third party.

9.5 Skills & Competencies (License needed)

imc Learning Suite front end offers supervisors and learners' various opportunities for competence-based employee development:

Each employee has access to a clear presentation of his or her assigned job profiles and acquired skills. Thus, the learner can see briefly which areas he or she should receive further training. In addition, the Close Skill Gaps option offers the possibility to jump directly into the catalogue to take advantage of corresponding offers.

List of Functions:

- Overview of the competence profile (job profile and competencies).
- Add and Rate.
- Gap analysis supports finding suitable educational offers in the catalogue.
- Self-assessment of skills.
- Proof of skills acquired externally, for example, by uploading an attachment.

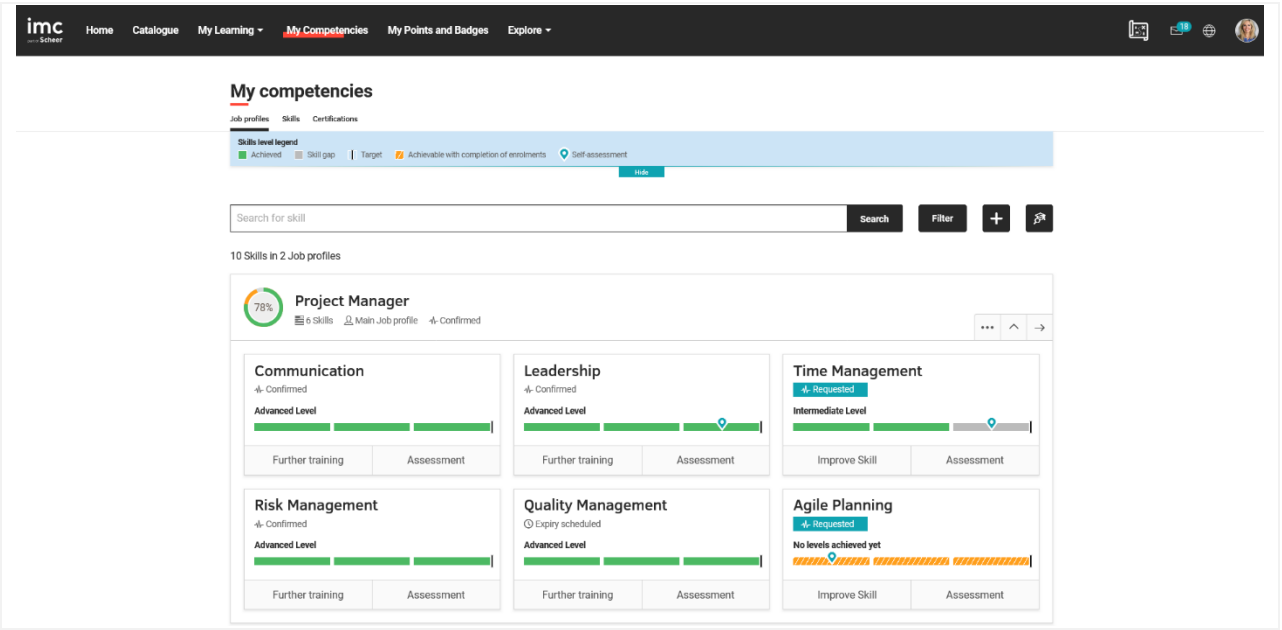


Fig. 9.6: Learner's view: My competencies

The supervisor is always up to date and has the possibility to access the skill profiles of the assigned employees via the skill report on the Management Task Dashboard. The skill profile of the corresponding user can be called up, edited, supplemented, and evaluated.

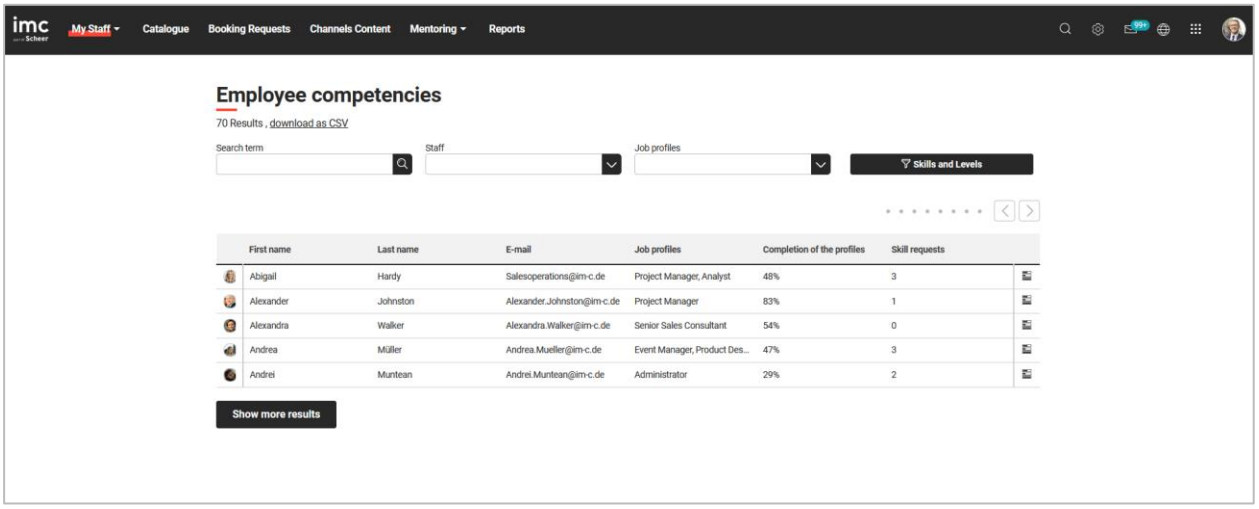


Fig. 9.7: Supervisor view: Employee competencies

9.6 Certification Management (License needed)

Certification processes can be mapped which, within the framework of legal requirements, allows your employees to prove a certain number of learning hours or learning points within certain time intervals. Examples of this are:

- CICERO (Certified Insurance Competence)
- CME (Continuing Medical Education)
- CNE (Certified Nursing Education)
- IDD (Insurance Distributive Directive)
- MiFID (Markets in Financial Instruments Directive)
- SAQ (Swiss Association of Quality)

This helps set up, track, monitor, and renew regulatory training certifications.

The view of courses relevant to certification is possible via the catalogue as well as the My Contents area and can be filtered by certification.

Both learners and supervisors can access a certification detail page to obtain full status and certification history for the current and previous certification period.

This makes it possible to trace exactly what contributed to a certification and whether an employee has been continuously certified for recurring certifications.

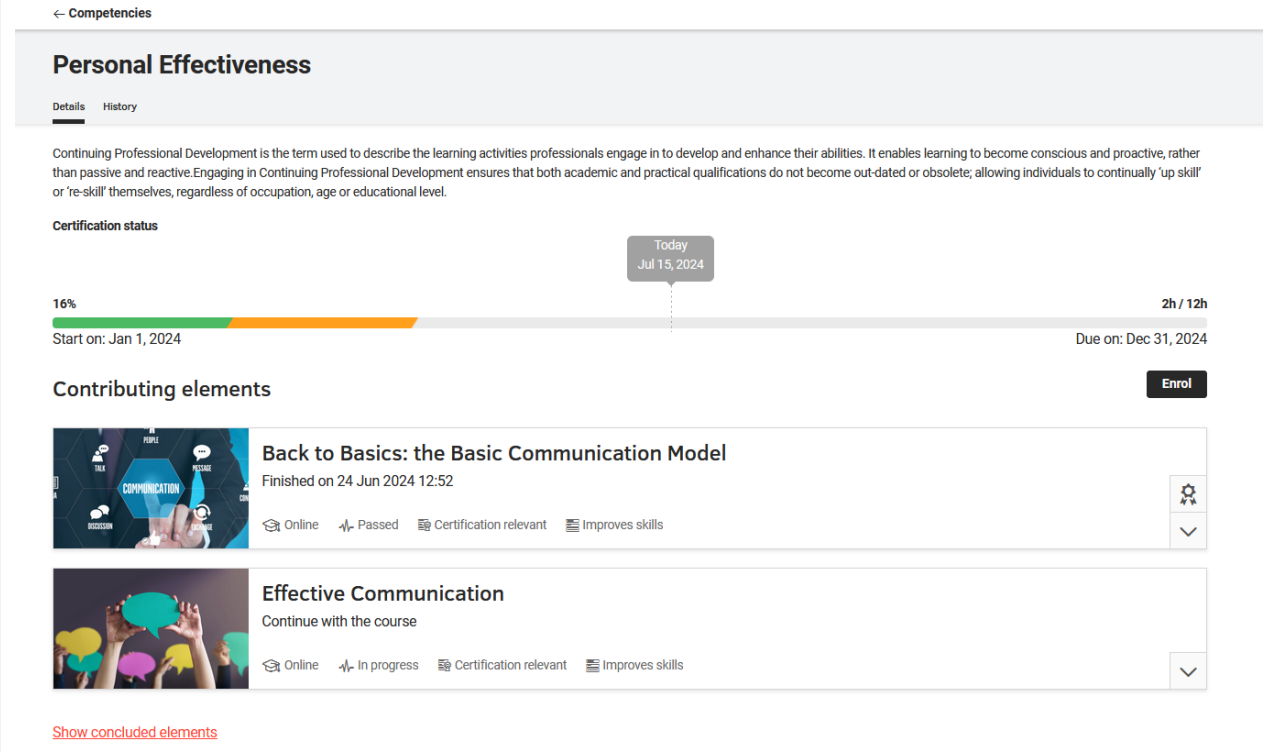


Fig. 9.8:Learner's view: Certification detail view

Supervisors can easily view the certification of the team members for whom they are responsible for and are notified when an employee is in default of certification. You can easily search for courses for a team member and check which courses the employee has already attended.

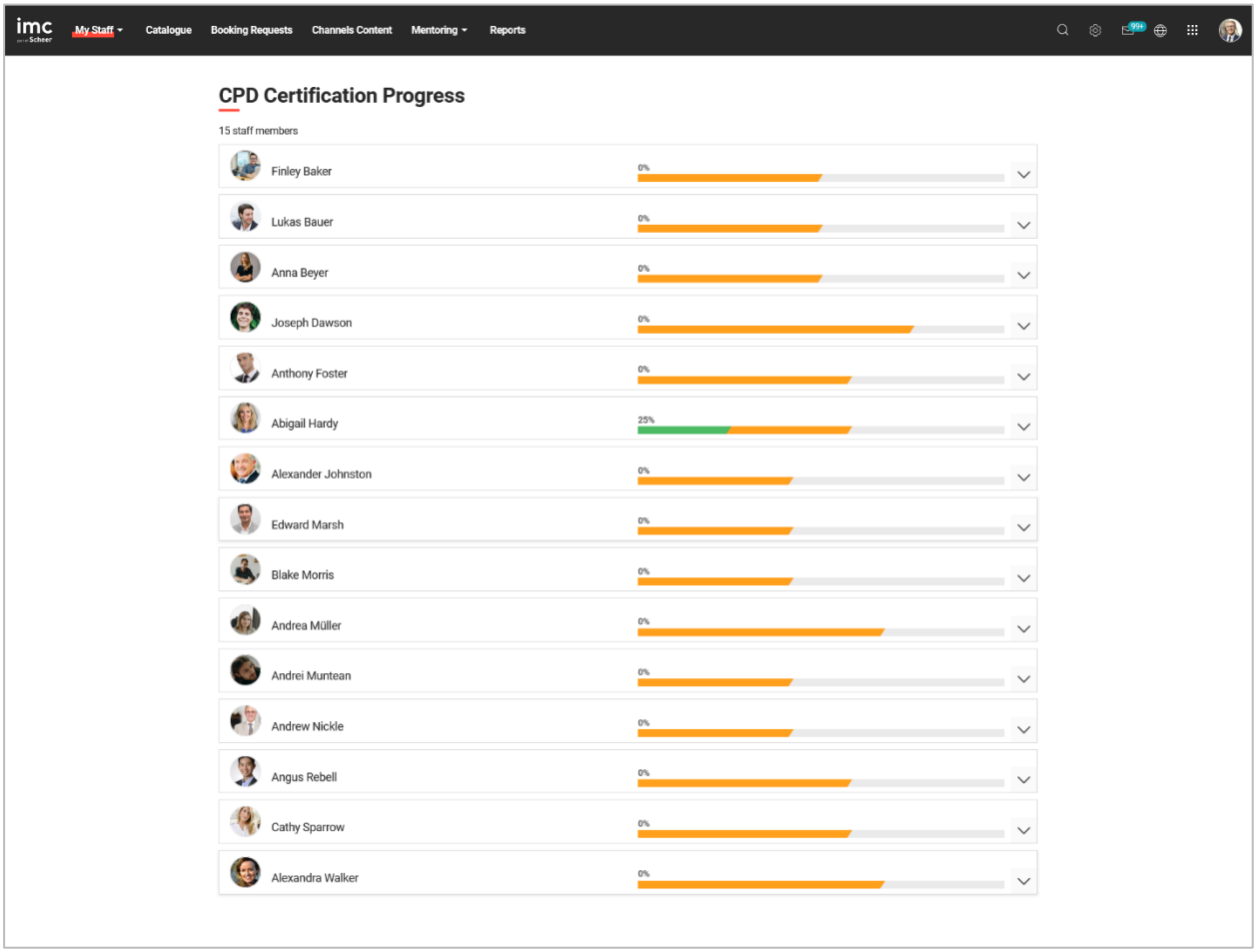


Fig. 9.9: Supervisor view: Employee competencies

9.7 Resources & Capacity Management (License needed)

With the resources & capacity management add-on, you are optimally equipped for the organisation of your teaching and training resources and to be able to have the planning of your classroom events firmly under control. With the help of a single software solution, the daily work steps in educational operations can be carried out efficiently and without system interruptions.

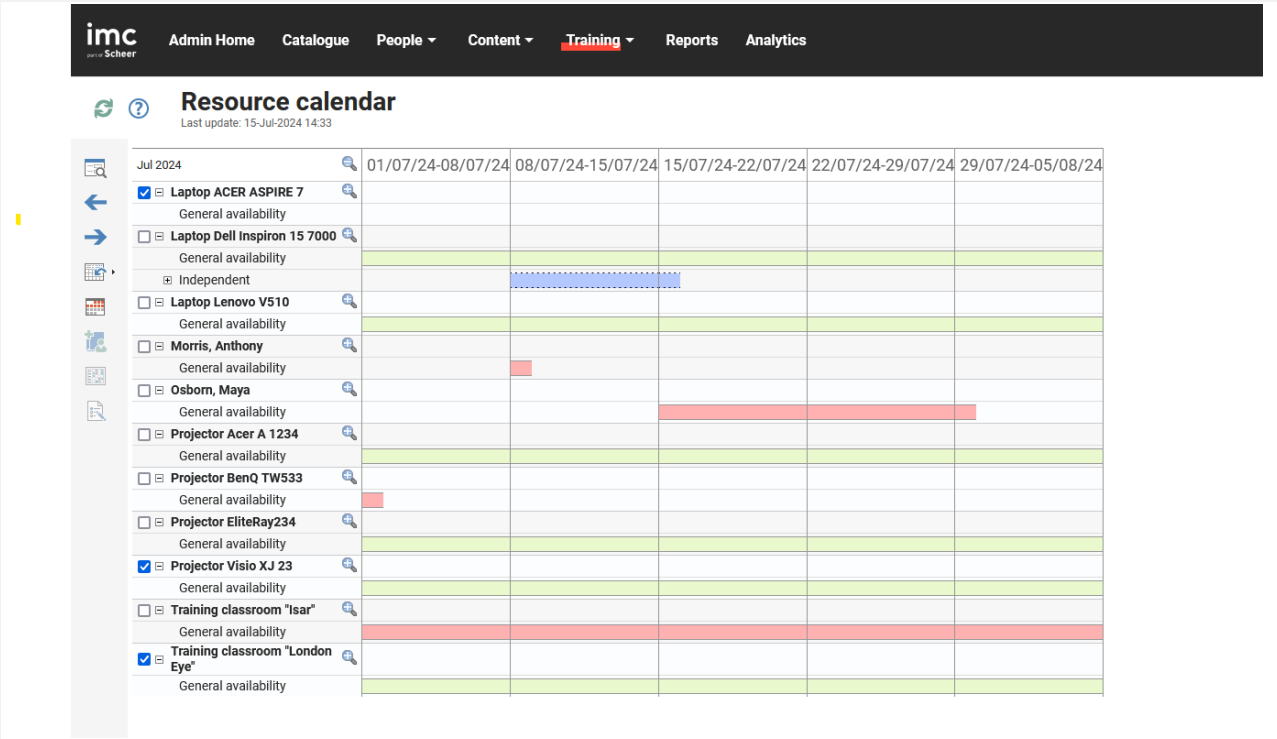


Fig. 9.10: Resource calendar

List of Functions:

- Graphically supported annual resource planning.
- Booking and allocation of rooms, equipment (beamers, flipcharts, PCs, etc.) and services (e.g., catering, room care, vegetarian food, special travel documents).

9.7.1 Resource Management

Resource management is based on the administration of master data for conducting classroom or online events. This is about:

- Localities (e.g., buildings, rooms).
- Personnel (e.g., trainer, technical experts, service personnel).
- Devices (e.g., beamer, PC, presentation case, flipchart).
- Services (e.g., catering, room maintenance, hotel rooms).

These can be recorded, freely structured, and managed consistently and redundancy-free throughout the company. Attributes can be stored for each resource, for example the information that a trainer is only available on certain days.

9.7.2 Resource Booking

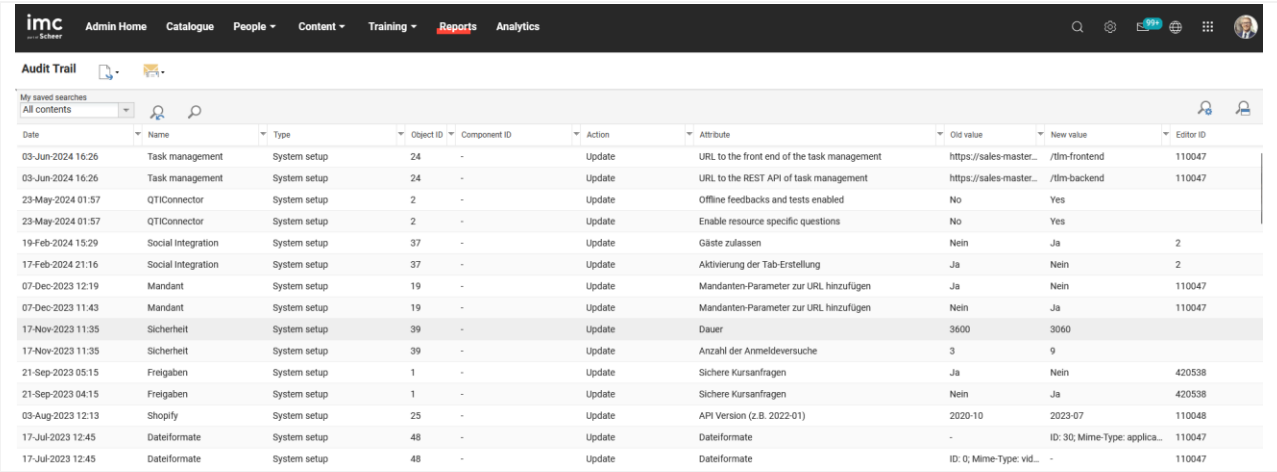
It is very easy to book various resources for courses. Resources can be trainers, classrooms, or presentation tools. A graphical planning wizard can be used to determine the optimal use of these resources and avoid capacity bottlenecks. This makes it easier for trainers to plan their deployment and processes throughout the entire business event administration process.

Individually configurable booking confirmations by e-mail as well as placeholders for additions ensure a targeted flow of information when booking resources. Configuration of the texts, change of the subject lines and determination of the recipients are easily possible. Within the resource calendar, any number of metatags can be displayed via a tooltip. Which metatags are displayed can be determined by setting the resource type.

9.8 System Validation

imc Learning Suite can mark training and certification as validation-relevant if compliance with different regulatory requirements is required. For example, as required by the US Food and Drug Administration (FDA), from the pharmaceutical and chemical industries. Thus, all learning processes that are supported by the LMS for the implementation of audit-relevant learning processes are seamlessly logged. This includes the entire learning management process from the first presentation of the contents, through the allocation and implementation of the training, to the completion of the training and the issuance of the certificate. In this way, the company can be sure that it complies with the law and the regulations.

Since audit-relevant learning management processes can differ from company to company, imc Learning Suite offers the flexible option of marking the relevant objects in the system as audit-relevant for the respective company. To ensure this, an audit trail is created that contains all changes to the objects and access control lists (ACLs) of objects that are also marked as validation relevant. Furthermore, a digital signature must be made for each change to a validation-relevant object. In this way, it can be ensured that all actions that contribute to the certification of a learner can be traced.



Date	Name	Type	Object ID	Component ID	Action	Attribute	Old value	New value	Editor ID
03-Jun-2024 16:26	Task management	System setup	24	-	Update	URL to the front end of the task management	https://sales-master...	/tlm-frontend	110047
03-Jun-2024 16:26	Task management	System setup	24	-	Update	URL to the REST API of task management	https://sales-master...	/tlm-backend	110047
23-May-2024 01:57	QTIConnector	System setup	2	-	Update	Offline feedbacks and tests enabled	No	Yes	
23-May-2024 01:57	QTIConnector	System setup	2	-	Update	Enable resource specific questions	No	Yes	
19-Feb-2024 15:29	Social Integration	System setup	37	-	Update	Gäste zulassen	Nein	Ja	2
17-Feb-2024 21:16	Social Integration	System setup	37	-	Update	Aktivierung der Tab-Erstellung	Ja	Nein	2
07-Dec-2023 12:19	Mandant	System setup	19	-	Update	Mandanten-Parameter zur URL hinzufügen	Ja	Nein	110047
07-Dec-2023 11:43	Mandant	System setup	19	-	Update	Mandanten-Parameter zur URL hinzufügen	Nein	Ja	110047
17-Nov-2023 11:35	Sicherheit	System setup	39	-	Update	Dauer	3600	3060	
17-Nov-2023 11:35	Sicherheit	System setup	39	-	Update	Anzahl der Anmeldeversuche	3	9	
21-Sep-2023 05:15	Freigaben	System setup	1	-	Update	Sichere Kursanfragen	Ja	Nein	420538
21-Sep-2023 04:15	Freigaben	System setup	1	-	Update	Sichere Kursanfragen	Nein	Ja	420538
03-Aug-2023 12:13	Shopify	System setup	25	-	Update	API Version (z.B. 2022-01)	2020-10	2023-07	110048
17-Jul-2023 12:45	Dateiformate	System setup	48	-	Update	Dateiformate	-	ID: 30; Mime-Type: applica...	110047
17-Jul-2023 12:45	Dateiformate	System setup	48	-	Update	Dateiformate	ID: 0; Mime-Type: vid...	-	110047

Fig. 9.11: Audit trail

9.8.1 Electronic Signature

In accordance with the provisions of 21 CFR paragraph 11 (US legislation) and Annex 11 (European Union legislation), imc Learning Suite provides an integrated e-signature. With the help of this electronic signature, learners confirm their identity, e.g., when completing a course by entering their username and password.

10 System Framework

10.1 Languages

The imc Learning Suite is already available in many languages and is constantly being expanded. The following languages are currently available in the frontend:

- Arabic
- Bosnian
- Bulgarian
- Chinese (simplified)
- Chinese (traditional)
- Croatian
- Czech
- Danish
- Dutch
- English (UK)
- English (US)
- Estonian
- Finnish
- French
- French-Canadian
- German
- Greek
- Hindi
- Hungarian
- Icelandic
- Indonesian
- Irish (GA)
- Italian
- Japanese
- Korean
- Latvian
- Lithuanian
- Montenegrin
- Norwegian
- Polish
- Portuguese (BR)
- Portuguese (PT)
- Romanian
- Russian
- Serbian
- Slovak
- Slovenian
- Spanish
- Spanish (MX)
- Swedish
- Thai
- Telugu
- Turkish
- Ukrainian
- Welsh
- Vietnamese

10.2 Individualisation

10.2.1 Design

imc Learning Suite can be adapted to the look and feel of other similar software products in your company. In addition, we would be happy to orient ourselves with your Corporate Identity documented or also based on a web page layout designated by you.

Essentially the logo and the basic colours of the system can be adapted to your wishes. On request, we would be pleased to show you examples, which illustrate the flexibility of the system in this respect.

10.2.2 Custom Adaptations

imc Learning Suite is a highly functional and extensively configurable LMS. It unfolds its full efficiency for you as a customer during the system introduction by being configured individually for each customer by our experienced consultants. This is always done according to the principle as simple as possible, as complex as necessary.

From our more than 25 years of experience, however, we also know that there can be such strong customer-specific requirements for the desired learning management support that we do not yet cover them out-of-the-box. Therefore, we offer you the possibility to extend the imc Learning Suite according to your programming requirements so that all your requirements can be fully met. Our aim is to expand the product standard to be able to offer other customers added value from practice, for practice. Finally, it is also possible to map enhancements that are only relevant for you. This can be done both as part of an in-house solution and as part of a special Software-as-a-Service (SaaS) solution.

10.3 Architecture and Interfaces

The necessary integration of a LMS with other application systems results in a variety of potential benefits: This means that an integrated database or automated workflows across system boundaries enable a meaningful link between learning and business processes.

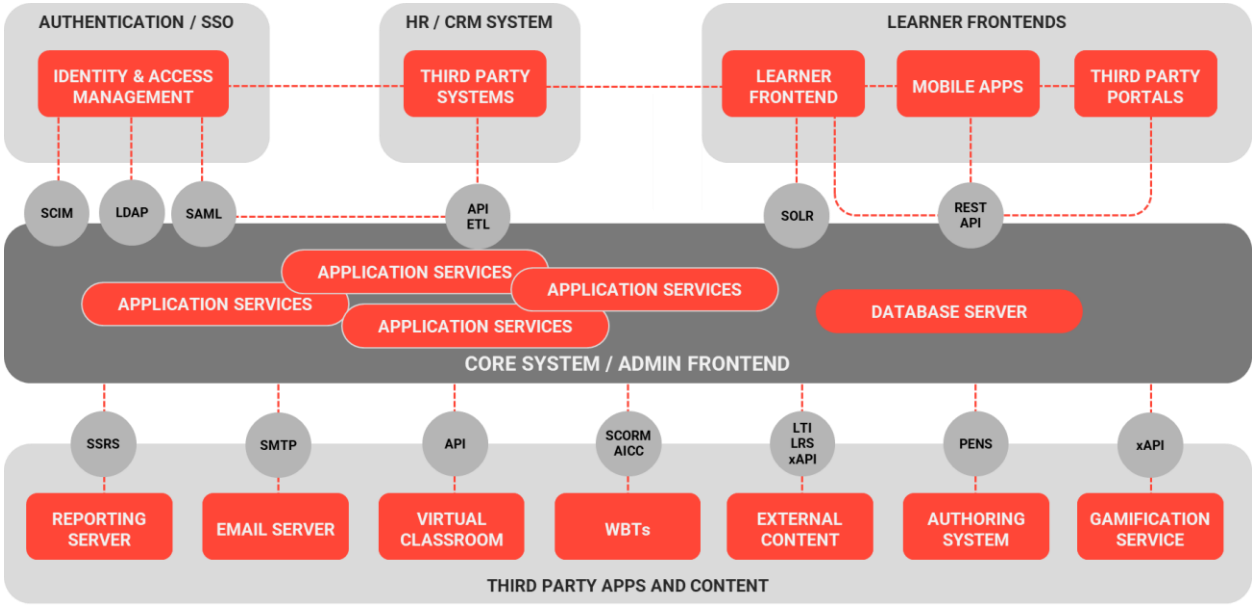


Fig. 10.1: Overview of the integration framework of the imc Learning Suite

It is possible to integrate the imc Learning Suite into the existing IT system landscape and integrate it into standardised, highly configurable interfaces.

The following interfaces and standards are supported:

10.3.1 AICC / SCORM

With AICC and SCORM, imc Learning Suite supports the common international reference models for the simple exchange of web-based learning content:

- SCORM 1.2 Level 32
- SCORM 1.3/2004 3rd Edition3
- AICC Level 1, CMI001 Version 2.2

10.3.2 ICS

imc Learning Suite supports the ICS standard for integration with ICS compatible apps such as Microsoft Outlook. The ICS function contains all important information concerning the course, such as the title, the start and end date and the course description. Additional attributes and meta information can be parameterised individually.

10.3.3 IMS QTI 1.2

The component Test and Evaluation can be used to import questions according to the IMS-Question and Test Interoperability (QTI) standard. It can also be used to create and export questions.

[2] Multiple organisation and sequencing as well as navigation are only supported in the backend.

[3] Multiple organisation and sequencing as well as navigation are only supported in the backend.

They can therefore be used by all test and examination systems that take this standard into account.

10.3.4 LDAP

On the one hand, you import and maintain the user data from your LDAP system via this interface, on the other hand it serves the central authentication of your users.

10.3.5 LTI 1.1[4] & LTI 1.3

LTI stands for Learning Tools Interoperability and supports the integration of external learning content into the imc Learning Suite. These can be open educational resources, but also e-books, interactive tasks, chats, community tools, virtual laboratories or interfaces to Dropbox and Microsoft Office 365. LTIs are created via a URL in the corresponding learning content. Please note that there are both free and paid applications.

10.3.6 OAuth 2.0[5]

The OAuth 2.0 authorisation system allows a third party to gain limited access to an HTTP service. Either on behalf of a resource owner through an approval interaction between the resource owner and the HTTP service, or through the access of the third-party application itself.

10.3.7 PENS 1.0

The **Package Exchange Notification Services** (PENS standard) supports the publication of SCORM 2004 WBTs directly into the imc Learning Suite content management module. After this transfer to imc Learning Suite, the WBT can then be assigned to catalogues or educational offerings. imc Content Studio - imc's authoring software - also supports this standard.

10.3.8 REST API

The imc Learning Suite supports the **Representational State Transfer Standard** with a comprehensive and up-to-date REST interface. This can be used by external services to interact with the imc Learning Suite and exchange data.

10.3.9 SAML 2.0[6]

This connection enables your users to access services without having to authenticate there again (single sign-on) after logging on to the respective master institution once.

10.3.10 SCIM 2.0

The **System for Cross-domain Identity Management** (SCIM) specification was developed to simplify the management of user identities in cloud-based applications and services. The specification suite will build on the experience with existing schemas and implementations, with particular emphasis on ease of development and integration, while applying existing authentication, authorisation, and privacy models. The goal is to reduce the cost and complexity of user management by providing a common user schema and extension model, as well as binding documents, to provide patterns for exchanging this schema across standard protocols.

[4] Configuration/import of LTI tools from a "Common Cartridge" is not yet supported.

[5] Used only for the internal architecture.

[6] Only POST/REDIRECT and "Artifact Binding", no "Assertion Encryption".

10.3.11 Shopify™ (License needed)

Shopify is a powerful eCommerce tool which provides extensive analytics and options to boost sales by providing configurable discount types and gift cards.

The imc LMS interfaces with Shopify to allow learners to purchase courses and learning paths via the LMS catalogue and checkout via Shopify.

10.3.12 SMTP

Via the configurable connection to your internal mailing system, users can, for example, be informed automatically by e-mail with booking confirmations, current news from your courses or other events in your Learning Suite environment.

10.3.13 TLS/SSL

The encryption protocol *Transport Layer Security* (TLS) is a further development of *Secure Sockets Layer* (SSL) protocol and facilitates secure data transmission between two applications (confidentiality and integrity of the communication).

Support of the Secure Sockets Layer standard ensures secure handling of your user and learning data. The SSL interface also supports LDAPS in combination with LDAP.

10.3.14 Interfaces to Virtual Classrooms and Virtual Meetings (license needed)

imc cooperates with the following providers and enables the integration of their services:

- Adobe Connect Meeting
- GoToMeeting
- GoToWebinar
- Microsoft Teams
- Vitero
- WebEx Meeting

10.3.15 xAPI 1.0[7]

The **Experience API** (or xAPI) is a specification for learning technologies that enables data to be collected about a person's diverse experiences (online and offline). This API captures data in a unified format about the activities of a person or group from many technologies. Very different systems can communicate securely by capturing and sharing this stream of activities with the simple vocabulary of xAPI.

[7] Used only for the internal architecture.

10.4 Data Protection (GDPR)

Information security has the highest priority, especially when dealing with sensitive data. imc Learning Suite meets the highest security standards and guarantees confidentiality, integrity, authenticity and availability through authorisation and visibility concepts. imc is constantly working on the optimisation of security concepts and the continuous elimination of security gaps. The following security programmes ensure maximum information security when dealing with the LMS. imc Learning Suite ensures privacy and data protection, high system performance and the documentation and archiving of relevant information.

It goes without saying that imc Learning Suite supports you in fulfilling the legal requirements of the GDPR and maps these. The most important regulatory requirements are briefly described below.

Details can be found in the relevant sections of the **imc Learning Suite within the framework of data protection.**

These include:

- The Right to Be Forgotten.
- Easier Access to Your Own Data.
- The Right to Know When and If Data Has Been Hacked.
- Privacy by Design / Privacy by Default.

10.5 Security Measures

10.5.1 Password Entry and User Attributes

A duplicate password entry is necessary for validation. Adding a user attribute when creating a password facilitates the generation of a new password by the system.

10.5.2 Privacy Footprint

Context-sensitive input fields and data displays can be used to determine exactly which personal data may be entered and which profile data is visible to other users. This means that different levels of confidentiality are supported which are adaptable depending on the context. To protect their personality, employees receive a personal report on all data stored in the system about them at the touch of a button. This includes profile data, self-generated content, or social media activities. The targeted deletion of unneeded and unwanted data is easily possible, such as unfinished file uploads, already archived content or log files.

10.5.3 Organisational Chart

By combining client and group memberships and approval options, it is possible to determine which access rights and functions are available for certain people. Basically, a new user cannot call any functions or see any objects in the system until he or she has been authorised to do so (automatically during import or manually). According to the authorisation, such users then only see the content that is intended for them and can only make changes or access functions if they are authorised to do so. With the organisational model, the confidentiality and integrity of contents is supported.

10.5.4 Passwords

The registration takes place with a unique combination of username and password. To ensure security, the automatic storage (= autocomplete) of the login data in the browser is disabled. A personal salt encryption is added to each password, which ensures that encrypted passwords are never identical, even if the passwords are identical in plain text. This prevents administrators, for example, from drawing conclusions from the comparison of encrypted passwords.

10.5.5 Denial of Service

To stop potential brute-force attacks, the user account is furnished with a login lock with several incorrect entries of the password. The number of logins attempts until locking occurs and the period up to automatic unlocking can be freely configured.

10.5.6 Data Archiving

imc Learning Suite allows the archiving of communication data, histories, or configuration changes. This frees up system capacities and ensures that all changes in condition can be proven in the long term.

10.5.7 Audit Log

Personal data, their use and changes are recorded in the Audit Log. This allows administrators to undo unwanted changes to personal data. The Audit Log allows administrators to ensure data integrity. Any changes will then be tracked continuously,

10.5.8 Penetration Tests

imc has penetration tests (extensive security tests) carried out on a regular basis. The aim of this security test is to reveal weaknesses and errors, to increase security and to confirm IT security by third parties. The results and security updates are automatically delivered to customers in new patches. Thus, long-term security of the system is guaranteed.

10.5.9 Automatic Protection

In addition to the security measures listed, other security measures are integrated that do not require user action. These security measures are strictly confidential and can be provided personally on request.

10.6 Security Standards

The following security standards are met by the Learning Suite:

10.6.1 SSL/TLS

imc Learning Suite offers the possibility to encrypt the communication between client and server with SSL. This allows different encryption algorithms to be implemented and the certification key can be selected according to the security requirement. Extended Validation SSL Certificates (EVSSL) are also supported. For an EV-SSL certification, the client must undergo further inspection by a certification body. Identity and business address of the client are checked amongst other things. Websites with EV-SSL-certification are identified in the browser by green highlighted company name in the address bar. EV certificates are used, for example, in online banking.

10.6.2 SHA256

imc Learning Suite uses the SHA256 process for functions that require one-way encryption. With one-way encryption, a text is simply encrypted but no longer decrypted. In this way, it can be determined whether a user is in possession of a certain text to be encrypted (e.g. password). The password check compares the encrypted hash values of the entered and stored passwords. The procedure is further secured by multiple use of security mechanisms.

10.6.3 Key Vault

In the imc Learning Suite, keys, and secrets such as passwords can be securely stored and managed in a Key Vault. In the case of hosting by imc AG, Microsoft Azure Key Vault is used. For on-premises installations of the system, the software HashiCorp is additionally supported as a Key Vault solution. A Key Vault uses an authorisation concept to control the access and use of keys. With the use of Key Vault, our customers can store their keys themselves without imc being involved in this process or having to transfer the keys in the event of support.

10.6.4 OWASP

The Open Web Application Security Project (OWASP) is a non-commercial Organisation. The aim of OWASP is to improve software security. OWASP draws attention to frequent vulnerabilities and enables these to be combated. Further, OWASP defines standards for secure development and application of software. An important OWASP publication is the Top 10 of the most serious security flaws of web applications. imc considers the OWASP standards in the further development of the Learning Suite. The tools and libraries recommended by OWASP are used to adapt security to the required standards. imc constantly subjects the LMS to new tests, thus ensuring that the security level is maintained throughout all patch and release cycles and increased by additional security measures.

10.7 Information and Support Management

In addition to comprehensive support services, imc Learning Suite also offers sophisticated system-side operating aids and support processes that simplify system handling and enable administrators to fully exploit the functional potential of the imc Learning Suite in the backend.

Short help texts such as comprehensive articles provide users with help directly in the system in the appropriate context.

List of Functions:

- Use of context-specific help without media discontinuity.
- Increased user acceptance through transparent representation of processes.
- Provision of a wide range of help options such as search functions, glossaries, and table of contents as well as articles on the structure and interaction of the functionalities.
- Ensuring optimal system performance through concise support in the system and increasing user acceptance

All documentation can be exported from the system as PDF files.

11 Warranty/Liability

The information contained in this document does not constitute a guarantee or quality specification, but merely serves as a description. Possible promises with regards to the existence of certain properties or a certain purpose always require a special written agreement with imc AG on an individual basis.

Subject to technical modifications (as of November 2024).