# Description of product and solution

# A general learning platform for:

1.  Communication and co-operation
2.  Administration, reporting and evaluation during the course of learning
3.  Production, publication and management of courses and learning resources

# List of contents

# 1. **it's:learning**

## *1.1.   Introduction*

it's:learning is a comprehensive and educational tool developed for use in courses and educational environments, both as support for conventional education, but also for use in distance education. it's:learning consists of a number of communication options, a strong production tool and new possibilities for administration, reporting, overview and control of each user's course of learning.

The solution allows for use of the Internet under a more controllable environment, and helps the ordinary course leader to master the Internet as a learning arena.

it's:learning has not been developed to be a general groupware tool; it is a learning arena with focus on educational use, and is a tool that facilitates learning activity on the Internet.

In our view, a comprehensive learning platform shall cover the three following areas;
1. Communication and co-operation
2. Administration, reporting and evaluation of the course of learning
3. Production, publication and management of learning resources/content

If the various systems are assessed on the basis of these three function areas, you will often find that a system is usually strong in one or perhaps two areas, but rarely covers all three areas adequately.

Development of this tool has been based on a few principles:

1. User friendly (This is its biggest advantage!)
2. Standardisation (e-learning standards, standardisation of technology and interface)
3. Integration (between platform and other systems – or between platform and content)
4. Scalability (a stable service and technology that can handle large user volumes)
5. Customisation and influence possibilities (Closeness between users and our development environment – gives strong user-managed development)

## *1.2.   it's:learning's key function areas*

It is important to note that the list below gives a few "pointers" in order to give an understanding of the tool's potential. However, it is the method you choose and the processes you manage to create that give results in the form of learning activity, not just the technological aids.

### 1.2.1. Communication and co-operation

The application has a number of built-in communication tools. it's:learning can easily be set-up so that all or parts of these options are available to the users. This is an arena where the participants work together – both asynchronously and synchronously. Communication and co-operation tools available, include, among other things:

- Internal message system (can be replaced by eMail, or be installed in addition to internal eMail)
  - A very fast professional message system that enables you to send messages to the users from different parts of the system. This means that you do not have to go via a mailbox to send a message, and can respond immediately to other users and, for example, send a message to a whole class/group.
- eMail
  - We can supply a strong Internet-based email service in it's:learning. This means that the users use their current email account. The service also allows each user to link his/her private eMail accounts – with full functionality as regards filing, forwarding – handling attachments, etc.
- Discussion groups with knowledge-building
  - Discussion groups can be established at all levels. This means that these can be linked to a topic, created in connection with an assignment, or placed at executive level – as a communication tool at course leader level, regardless of subject, etc.
- Bulletin boards/News service at group level
  - Gives the possibility to give different groups information. The bulletin board can contain text, images, links, etc.
  - Integrated internal news service gives the possibility to give compulsory news to all course leaders and delegates, or only to one of these two groups. The news may be given to everyone in the organisation - or at a lower group level, e.g., "all employees" in a department.
  - Voluntary news group is an information service to which the user can subscribe. It is possible to create a "menu" of news from which to choose. This means that you can create group structures freely across established groups in the system, and give these a flow of information. Examples of this may be "a presentation course for course leaders", "information from the management", "information from personnel and training", "union news", etc. The administrator delegates editorial and publishing responsibility.
- Who is logged on with a direct message
  - Shows the people who are logged on at any given time. This gives a feeling of simultaneity, which means that the user does not feel alone. The possibility to send immediate messages makes this almost a synchronous tool, which turns the learning arena into a social arena.
- Chat
  - it's:learning contains a synchronous Chat tool. This has a number of options for creating open and closed rooms and creating password-protected rooms, and allows the leader to throw out participants, etc.
- Video conference, Whiteboard and application sharing

- it's:learning has MS Netmeeting integrated in the courses created by the course leader. This means that it is possible to hold a synchronous videoconference, write and draw on the whiteboard simultaneously – and also use the built-in options for writing in the same document – such as Word.
- Multi-calendar/ individual timetable with information from course leaders
  - The timetable is often used as a communication tool for course leaders. Information issued in a course appears in the course delegate's personal calendars. Among other things, the calendar is linked to the assignment module and the survey and evaluation tool and thus gives the possibility to set deadlines with pertinent notice, follow-up, etc. The calendar may be linked to other calendar tools according to a further defined integration project.
- Notification via SMS
  - Notification via SMS has been launched recently. This means that a course delegate can activate the SMS alarm. The receiver pays for the SMS he/she receives, and can limit what he/she wants to be notified about – and a maximum number of alarms per day, e.g., a course delegate may decide that he/she is notified immediately when an assignment has been corrected (with the result).
- Project room for sharing resources and communication
  - All users can create separate areas, into which others can be invited. This is regardless of subject/course/topics – and gives the possibility of communication and co-operation with selected delegates. Most of it's:learning's production, communication and management tools are also available to the course delegates here.

There are also a number of other communication options in it's:learning. These have all been specially developed to support the learning processes and to improve communication in the ongoing activities.

### 1.2.2. Administration, reporting and evaluation during the course of learning

it's:learning is also a tool where the course leader administrates and follows-up the activities in his topic and receives reports on course delegate activity, assignments handed in and other feedback. The idea behind the platform is that a course leader shall be able to have enough flexibility to choose his/her own method of teaching. Therefore, the course leader does not depend on a senior administrator in order to set up and administrate his/her course delegates and his/her content resources. The course leader can receive collective reports on groups, but also has the possibility to dig deeper into each person's work, with insight into ongoing assignments and activity. A few of the useful functions that the platform gives here are:

STANDARDISED REPORTING
- Standardised content that comes from external producers usually has a built-in communication / reporting function that the platform supports. We support the following international specifications:
  - AICC tracking of standardised courses from external suppliers (HACP)
  - SCORM API tracking (SCORM 1.2)
  - SCORM C&P

EXTENDED REPORTING

- Full overview of each delegate's course of learning and all activity in the subjects. The built-in status function enables this through electronic folder evaluation.
- Administrative overview of handing in assignments
  - Who has handed in, who has not handed in. Possibility to comment and grade assignments. Similarly, it is easy to generate grade statistics for assignments – both general overviews in the course/subject and per delegate.
- Tests given among course delegates, course leaders and others
  - Reports showing the score, what each person has answered correctly and wrongly, how are the answers distributed – overview of what answers a user has given.
- Possibility of internal evaluation and surveys, but also use of the evaluation tool externally.
  - Module for production of surveys. This tool gives the user a simple, but powerful interface for survey production and evaluation that can be anonymous or not anonymous – that shall be distributed internally in it's:learning, sent via e-mail or surveys presented on an external home page.
  - Survey function to link answers to individuals.
  - Presentation of data to Excel is made easy for further processing of data.
- A number of standard reports that the course leader can take out as required:
  - Most active course delegate
  - Most used learning resources
  - Read/not read
  - Who was logged on last week
  - Progression of the delegates
- Absence reporting module
  - it's:learning' absence module gives time and information benefits in the subjects where this may be relevant.

### 1.2.3. Production, publication and management of learning resources

Among other things, it's:learning is a strong tool for production, organisation, update and reuse of courses and learning resources. Internal and external tools may be used for content production. it's:learning handles all types of digital content, both content that you have created yourself and that others have created. We envisage three levels as regards content.

1.2.3.1.**Own production** of digital learning aids and resources using the built-in production tool, both for course leaders and delegates. By using the "add" function in it's:learning – you have access to 10 tools / modules enabling you to create your own learning objects and organise these according to subject.
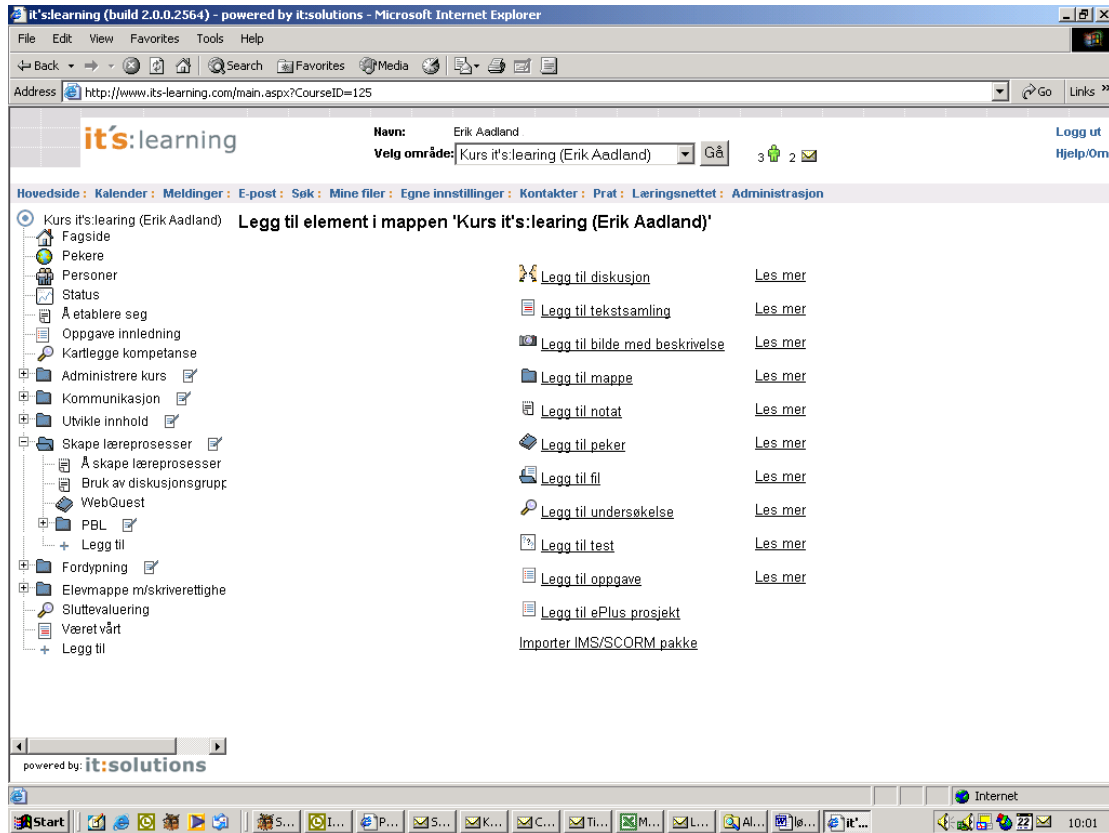
a. Module for creating discussion groups – simple and categorised. Input categorising means that there is greater focus on knowledge-building through educational use of discussion groups. This additional functionality has been specifically developed in co-operation with ILS at UiO

b. Process-oriented writing module – (joint venture project with UiB)

c. Image publishing tool

d. Folder module for organisation of content through creating folders/sub-folders in a course/subject. Access to folders may also be controlled through read and write access to different user groups with different roles.

e. Built-in editor for own production of web-sites/educational material. Strong editing functions for fast and easy production.

f. Test generating module. These are tests for automatic correction, with the possibility to create yes/no answers, multiple choice, find pairs. Possibility to insert images, format text, link up external resources in tests, etc.

g. ePlus – a strong authoring tool for production of multi-media rich e-learning. The tool has graphic and methodical templates – and gives a standardised output, but involves simple production for course leaders and delegates. Refer to separate item on this later in this document.
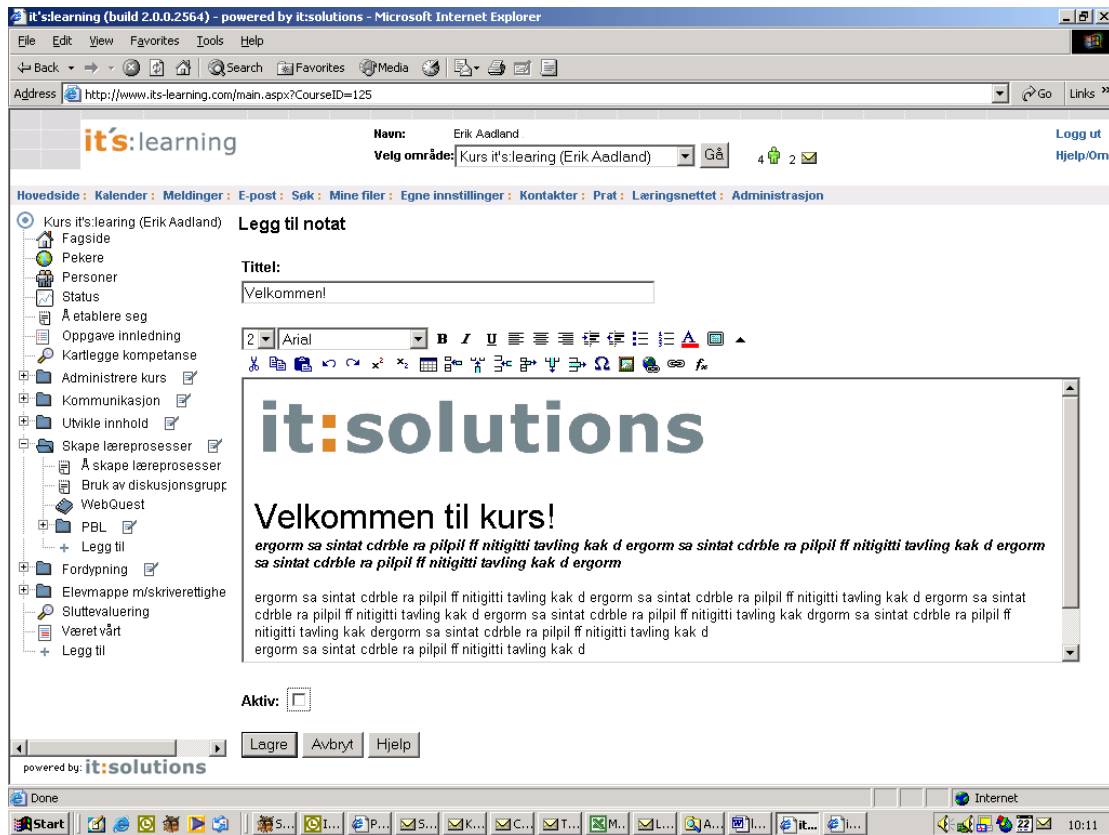
1.2.3.2. It is possible to add **learning resources generated in external word processing tools** (Word, PowerPoint, Flash, etc.). These can either be things you have created yourself, or professional content in the form of digital learning objects. This includes electronic information in the form of documents and links to web resources – or other objects such as sound, image and video. Interactive content such as learning programs, games, simulators are other examples.

   i.   it's:learning has a tool that allows linking to external learning resources and other external material. Under the "Add pointer" function it is also possible to activate standardised communication in the learning objects "AICC communication". In this way, the content reports standardised data to the platform, such as: How long has someone been working with the learning object? What has someone scored in tests that the learning module contains? Has the person completed the task, etc?

  ii.   Module for uploading individual files. it's:learning can distribute and view all types of files. Usually, the user will need the necessary software to view the files, but there is a large built-in "viewer" library. This file viewer support currently covers a number of file formats.

 iii.   "My files" – a separate file area for uploading large file packages and entire external productions. Here you can store, for example, video productions with pertinent PowerPoint folders consisting of related web-documents and productions in external tools such as Lectora, Rapid Builder, Viewlet Builder, etc. The built-in SCORM API in it's:learning registers

communication between the internet-based learning system and the content object – and reports are generated and viewed on the course's "status" page.

1.2.3.3. Installation of entire **Content structures in the form of finished digital course structures in** "standardised" format (IMS/AICC/ SCORM C&P). This means that you can use the content from known Norwegian and foreign content suppliers, such as eBok.no, Nettgymnas.no, elementK.com, Datapower, etc. Import and export takes place via XML structures based on IMS' (SCORM) specifications. This ensures that the content built up has a longer lifetime and may be transferred to other standardised learning platforms. Functionality allowing the user to do this is made available in the interface for those of our customers requiring this (ADL SCORM import/export).

Electronic learning material may be produced, stored, maintained and reused. Everything that is registered becomes objects that may be reused. Different users can subsequently build different courses of learning and combine existing elements with new learning material of their own. Metadata will be linked to isolated learning objects in connection with the media library launched with e:plus. A search may be made for information. It is also possible to limit access rights.

## *1.3.     Administration of subjects and course delegates*

it's:learning is supplied with advanced options to administrate subjects, delegates and advisors/producers. For super-users we recommend that most of the administrative functions be taken care of through integration solutions with other administration systems.

it:solutions has supplied integration solutions for several administration systems, and in connection with integration jobs for NTNU, the Norwegian School of Economics and Business Administration, Stavanger Regional College, has implemented major projects involving dynamic exchange of personal and group data between human resource management systems and LMS. A major integration project for Hordaland county municipality has given good insight into solutions for Active Directory, Extense and the necessary links to Exchange Server (e-mail and calendar). Integration work on NHO's personnel database, Felix, is currently being concluded.

In other respects, there are many functions in the LMS that are administrated locally using the administration interface in it's:learning. This interface allows it's:learning to be customised to the individual's needs, with the possibility to influence functionality of certain functions down to course leader level.

The philosophy behind development of it's:learning is that administration is located as far down at user level as possible. A course leader administrates access to his subject material, and produces, administrates and organises his learning materials in a

very flexible and simple way. Content organisation is based on the metaphor from Windows explorer, with which most people are familiar, with a folder structure in the form of a "tree menu" and the possibility to add learning objects in a simple way. This has made this very user friendly and means that the average course leader can master the system. It also means that people with limited prior knowledge find that they master the learning platform within a short time.

## 1.4. Typical use of the LMS – possibilities for the course leader and course delegate

A slightly different way of looking at it's:learning than the above-mentioned function areas, is the number of applications the LMS has and the educational possibilities this gives.

To course leaders:

- easier to administrate the work and the processes within a subject
  - The structure the learning platform gives and the administrative tools included – give the course leader control that would be difficult and time-consuming to achieve in a "paper-based" world. List of those who have done assignments and who have not, participation activity reports, lists of results, lists of delegates and a number of automatic activity reports at person and group level – are immediate, visible advantages gained from using the platform.
- better control of the Internet
  - it's:learning gives the users a clear, closed and controllable learning arena. An internal course producer, who does not have the competence to create own home pages, does not master html and has limited knowledge of a PC and the use of the Internet, will now be able to master the technology. Most users can now implement good ICT supported courses without requiring a high level of computer skills. The built-in editor, which gives easy production of web pages, is a "word processor" that most people can master. This means that after a period you can concentrate on the educational aspect and not the technology.
- easy to make learning resources available to the course delegates
  - The learning platform is structured in a way that most people are familiar with from Windows. Using a folder structure and a "tree" not unlike that used in "Windows Explorer", you can easily "add" learning resources such as digital courses, links, files and other content objects that will be available to the delegates. Publishing and electronic distribution of own material is now much easier for most users.
- many educational tools are available
  - The technology gives educational possibilities that would otherwise be difficult to achieve. Course leaders can now use our process-oriented writing module, implement a structured course on problem-based learning using the module for handing in assignments, and achieved knowledge-building through adapted learning discussion groups (categorising input).
- more possibilities to vary the education

- o Research is being carried out to document the learning advantages, but before this is presented, empirical data from use shows that it's:learning creates variation in the education. Variation proves to encourage motivation both in course delegates and specialist personnel.
- better follow-up of each course delegate
  - o the administrative overview it's:learning provides enables the course leaders to detect course delegates that are not managing to keep up with the others. Other communication options that those allowed by the traditional classroom, means that it is possible to give more support to those who need it.

In the case of the course delegates:
- gives easy access to the learning resources
- creates room for co-operation regardless of time and place
- encourages more reflection and independent work
- co-operation with others on assignments and projects
- gives better order and overview
- the course leader is more available to each course delegate.

## 1.5.    A few strengths of it's:learning

### 1.5.1. Simple and intuitive user interface

User friendliness is the decisive factor for successful implementation of a learning platform. In order for there to be a platform in a learning environment, it must be user friendly enough for all course leaders and course delegates to master. Even if such systems seem to have almost the same functions – it is here that the biggest differences are found in practice.

The course leader/producer can organise his/her content freely, e.g., according to topic, time/week or function. it's:learning is not like a few other systems – limited to a functional division of learning resources and other content.

In addition to a platform being able to handle purchased training modules from different 3rd party suppliers and publishers, it must also be easy for the course leader to develop learning content on such a platform. Each course leader eventually has a large volume of self-created material, e.g., in Word and PowerPoint, which they must be allowed to publish on such a platform without depending on "experts".

### 1.5.2. User documentation

it's:learning is supplied with written documentation for administrators and super-users. In addition to this, the built-in online help function is updated continuously with descriptions for course delegates/leaders.

It may be appropriate to prepare own booklets for the employees and course delegates with a mixture of information from the customer and it:solutions. it:solutions can either make parts of our material available for this or prepare all the booklets.

### 1.5.3. Standardisation

it's:learning is a standardised platform that supports coming e-learning standards AICC/IMS/SCORM. it's:learning is a solution developed with the purpose of being a holistic competence arena (content handling, communication and administration), and the solution is currently available in Norwegian and English – and meets national requirements, e.g., support for both Norwegian languages. As solution supplier, it:solutions is active in the standardisation work done in the area and is on the cutting edge as regards this work.

A practical application of our leading role in the field of standardisation is that users can run standardised e-courses and learning aids on this tool. These may off-the-shelf courses such as Internet training, Office and IT courses from, e.g., Datapower, Boxer, Nettgymnaset, eBok publisher or international course suppliers.

### 1.5.4. Scaling

The solution is based on a compiled c++ code, as opposed to script language. This gives considerably better performance, especially when the traffic and growth increases. A 100 Mbits line to NIX, with a server park that has daily backup – currently serves around 150-200 players spread around the whole country (ASP solution).

it's:learning is based on Microsoft technology – and therefore has almost unlimited scaling.

Web servers are set up in Cluster with Network Load Balancing. This can have up to 32 web servers in a cluster. If you need more than this, you must set up a Round Robin or similar solution, in order to spread the load between the different clusters.

The database must run on a separate server, and the hardware side must be scaled up – Windows 2000 supports up to 32 processors, depending on what server version you use. You can also set up a redundant solution, with one or more extra database servers. The file servers can also be load balanced.

Scaling is regardless of the total number of users in the system, but depends on the number of simultaneous users – and it:solutions can set up a solution based on requirements in accordance with simultaneous users.

### 1.5.5. Special functions and modules we would like to emphasise

### 1.5.5.1. The learning network

The newly developed "learning network" ties our users together. This assumes that the solution is run centrally at it:solutions server park at USIT/UiO (ASP). With this connection it will be possible to co-operate with the training players over the whole of Norway. The learning network provides great possibilities;

1. Communication across different organisations, companies, schools / education players, counties and municipalities.
2. Course leaders can distribute their courses and their educational material at this level. In this way the course leaders will be able to co-operate between the different organisations, also nationally.
3. The course delegate can publish his/her projects at a superior level and invite in and work together with players elsewhere.
4. A course delegate will be able to receive a course offer on his/her solution that is supplied from another educational institution.
5. This is an arena where also the professional content suppliers and the publishers will present their digital learning material. These content databases are thus resources that are readily available to course leaders and delegates. Initially, there are several players with digital learning aids that will help to fill this service.

We would like to emphasise that access to the Learning Network currently depends on it:solutions running the solution.

### 1.5.5.2. Character set / equation editor for mathematics and science subjects

it's:learning has a powerful, built-in equation editor, which makes it easy to generate equations on the Internet. This is a version of the same editor found in MS Word, but which is now integrated in it's:learning's general content production editor. This allows the user to create equations and use special symbols, which then become web documents for quick and easy distribution to other users.
Our development department has spent much time making this easily available to the user  - and we know of no others with a similar WYSIWYG (What You See Is What You Get) functionality in production and editing of equations.

$$p = \frac{a}{n} \pm z_\alpha \sqrt{\frac{\frac{a}{n} * \left(1 - \frac{a}{n}\right)}{n}}$$
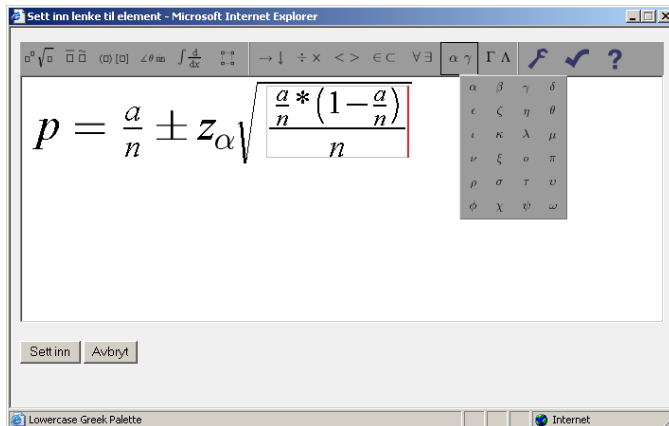
### 1.5.5.3. ePLus

ePlus is a new module in it's:learning. This module is the result of a research project under the FUNN-scheme where the client is it:solutions as and the participants have been: The media centre at Bergen Regional College, eBok publishing company and The Norwegian Research Council – Government Regional Development Fund.

The ePlus project consists of three parts:

A production environment where you can generate own learning objects, course modules and courses. This is a tool for generation of content, digital learning aids and home pages. The tool maybe used by course leaders and course creators, textbook authors and learning aid producers, but shall have as simple an interface as possible so that the course delegates themselves can create good multi-media rich content productions on the Internet.

Multi-media library. Access to content databases with multimedia will make it easy to use finished content components such as sound and images. Produced material can easily be transferred to it's:learning, or be taking out on standard formats.

The ePlus project means that it's:learning has been extended with a stronger content management system (CMS). A file function for produced learning objects, and thus the possibility for reuse and sharing of modules and templates, is an important part of what is being launched in this project.

The production tool consists of two types of templates:
- Graphic templates
  o Many standard templates
  o You can create own templates for your own organisation/department/ course

- o Or personal templates
- Structure templates
  - o Templates for help to structure a course / content, with finished pages and structures.



Media elements may be inserted either from the library in it's:learning – or from own libraries linked to this. You can also maintain large media elements here, such as still photos, sound files, video files, Flash / Shockwave, etc.
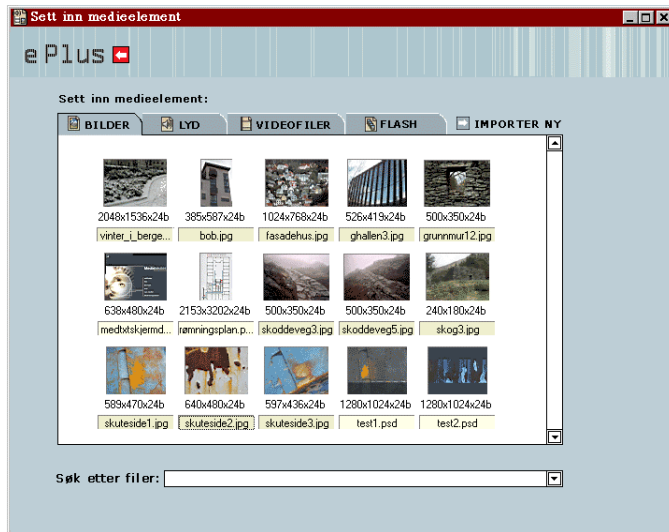
After production you can use the content independently or reuse it in larger structures. There are many, standardised reuse possibilities. The content may be inserted straight into to it's:learning in an easy way, be exported to standard HTML (for CD-ROM, own website) or be exported on SCORM format for use in other LMS platforms.

There will also be an additional module with possibilities, among things, for the content supplier to store the content in access-cleared database for further distribution and sale. (at ASP)

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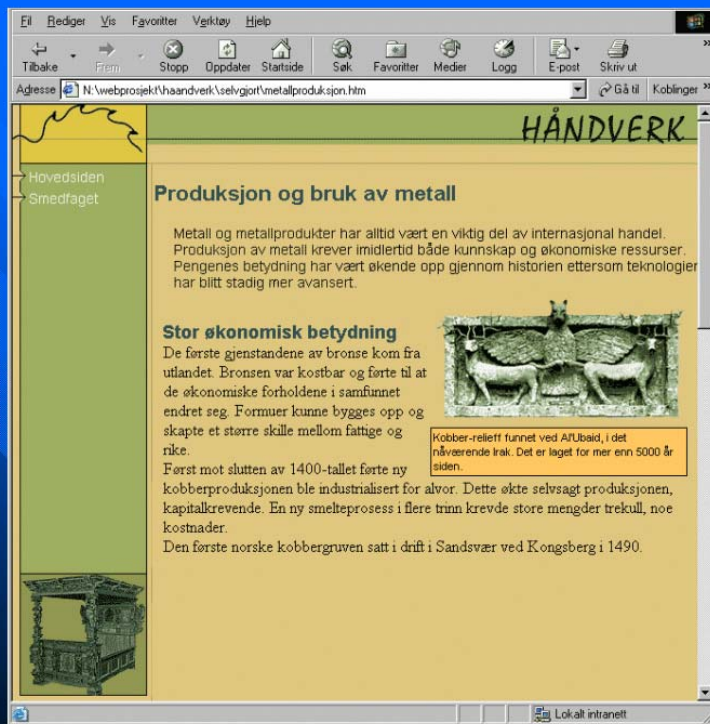
### 1.5.6. Integration with content catalogue and pertinent management of access rights and simple distribution of digital learning aids/courses

We have developed a course catalogue, where the licensees can easily distribute their digital learning aids, and at the same time from a technical point of view can ensure reporting regarding use and management in such a way that it is possible to take payment for the content. This can currently give access to more than 1,000 courses.

The management and distribution system has been developed according to international specifications and the user can easily open new courses using codes distributed by the suppliers via e-mail or in the mailing system in it's:learning.

By entering a code we have made the whole process automatic by integrating standardised course structures. As mentioned previously, these may be interactive, contain a video, simulations, etc..

In co-operation with the supplier and the customer we can set up local or regional course catalogues with "site-licences" for free use of learning aids.

Using these options, we have distributed digital learning aids, for which the licensee has received payment, to thousands of individual users, entire classes and in the form of open course catalogues available to large user masses.

We would like to emphasise that connection to this service currently assumes an active installation of it:solutions (ASP).

## 1.6. Other possibilities

### 1.6.1. Intranet for educational use

The learning platform set-up includes a built-in option to set up an intranet based on the group structure in the solution, e.g., organisation/division/department, and also at lower group level. This is an information structure that is basically independent of the term "subject/topic/course". The administrator gives access to build up and publish in the intranet at individual and group level.

In this package our customers receive the intranet included in the delivery, if they want to use the possibilities this offers. We would like to emphasise that it may be necessary to have a separate customisation to the other system in order to use this.

### 1.6.2. Set-up of the information service

If desired, the portal is set-up with an information and news service and certain organisation units. Publishing of information cane be separated into the following flow of information:

This may be transferred/synchronised from AD (Active Directory) or HR/human resources management system

Compulsory information from, e.g.:
1) Organisation 2) Division 3) Department, etc.
to
a) course leaders b) course delegates c) both groups

Course delegates and leaders may also subscribe to news categories (voluntary). It must be clarified here what categories shall be created and the publishing rights must be assigned to individuals.

## 1.7.      Security

When the course delegate uses the system, all use of the system will be registered and stored and includes, e.g., when the course delegate is logged on, handing in assignments, communication with course delegates/leaders, grades and absence. This information is available only to the course delegate, the course leader and the supplier.

All information stored lies on servers and is only available through the system (and is in no way available on the Internet without the use of a user name / password to the system). Neither the customer nor the supplier can use the information for any other purpose than the ongoing educational activity and possibly information about the system itself. The information cannot be passed on to others, either free of charge or commercially.

Information about the course delegates is stored in the supplier's servers until it is requested that this be deleted (only for ASP solution).

Use of a user name and password takes care of the system security. In addition to this, SSL (Secure Sockets Layer) is used to protect data and traffic. (It is possible to choose between 40 or 128 bit). The system has also been secured so that the logged on user only has access to data that his/her access rights allow. There is also access control for the various course modules and courses. Reference is made to the built-in help function in the system for a list of what access the different user roles and roles in hierarchy and courses give. All data, except for "my internet files" are secured with access control. It is the different roles that our users create themselves that give access to information and data. It is assumed that the customer familiarises himself with these.

### 1.7.1. Logging

- All application errors are logged to separate files
- User activity is logged to the database and the log files in IIS
- Standard reports may be printed out via it's:learning
- Own defined reports may be taken out from the database using an own report tool, such as Crystal Reports (reports from database), and Webtrends (reports from IIS logs)

Refer to the licence agreement for protection of privacy, copyright and liability.
Refer to the Service Agreement as regards backup, physical security and fire protection.

# 2. Services

## 2.1. Implementation of it's:learning

### 2.1.1. Graphic and functional design

- We can design the graphic interface for you. The platform allows fairly extensive changes also as regards functional set-up.

We recommend that as many functions as possible be included in a start set-up. Changes may also be made later in the administration interface in it's:learning (for a few functions you must also contact support@itsolutions.no directly), if you want customisation. Refer otherwise to the appendix of references for a list of the different graphic interfaces.

### 2.1.2. Integration with the organisation's existing systems

it:solutions has carried out both large and small integration jobs, of which the largest are for Stavanger Regional College, NTNU and the Norwegian School of Economics and Business Administration and Hordaland county municipality.
it:solutions has experience from several levels of these integration jobs, and in dialogue with you, can help to share our experience and find a good solution and then estimate the necessary time required.
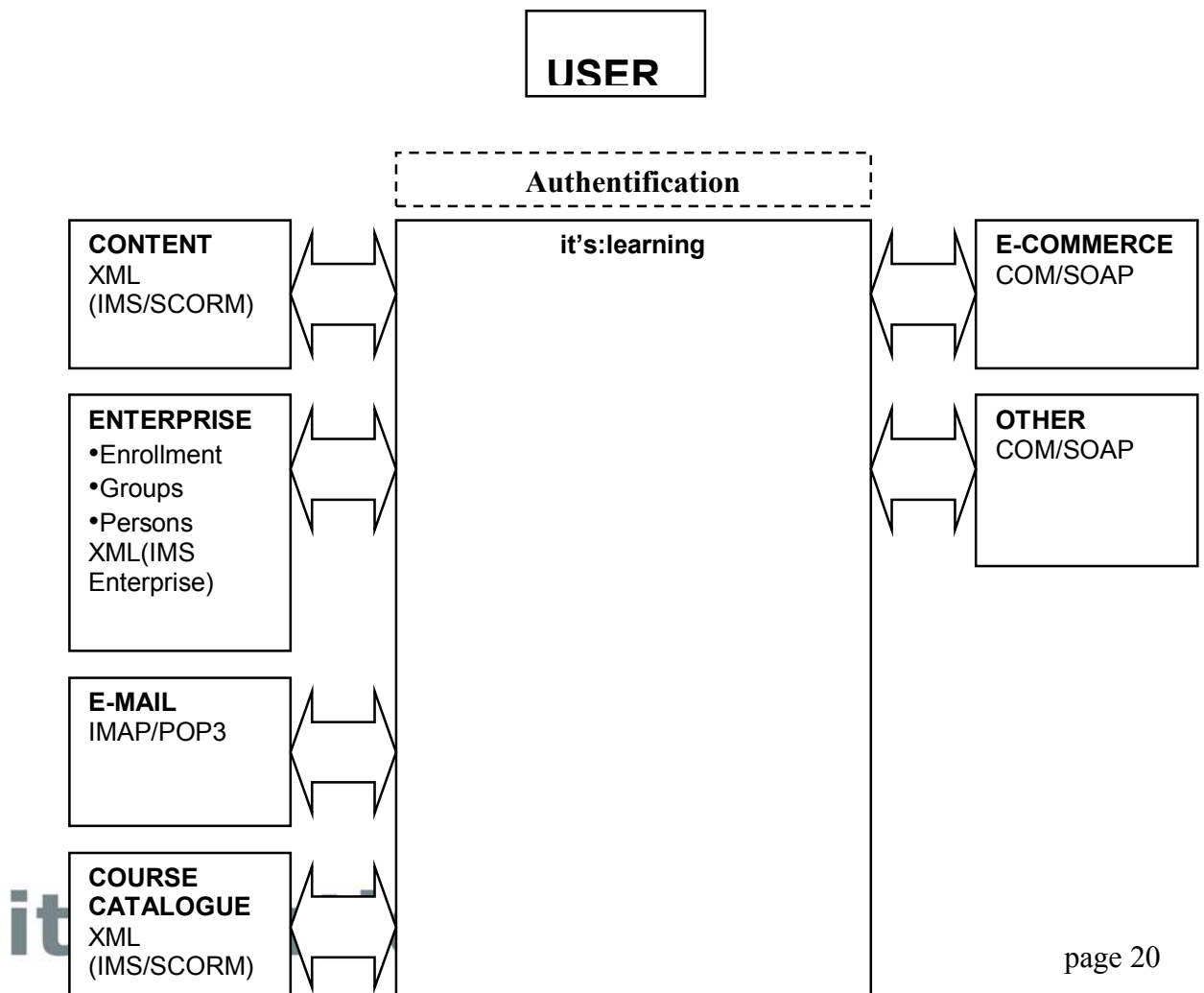
### 2.1.3. Training

It is recommended that at least one of the company's staff has attended both the basic and the administrator course.

Our training partner in Norway is the Norwegian based company Ajourit. The company offers standardised and tailored training courses for administrators, regular users and super-users. The company is also authorized to certify administrators and super-users on our behalf.

Only administrators and super-users are given access to the support telephone at it:solutions.
It is therefore of high importance that the customer arrange for regular user support. This can be done by establishing an internal help desk or it can be carried out by Ajourit.

For further information on training programs and solutions for customer support please refer to separate product sheet for training courses by Ajourit.

### 2.1.4. Support and customer service

it:solutions will offer telephone support regarding the application to certified super-users/ administrators. In connection with full roll-out, the support service will apply to those who complete courses that end up with certification of it's:learning.
- Our support telephone 55349188 is manned during the period 09.00 to 17.00 all weekdays.
- Matters can be reported from our website at http://support.itsolutions.no/

All correspondence in the matter will automatically follow the matter.

### 2.1.5. Development of functionality

it:solutions is a strong technical supplier within e-learning, with good possibilities for our users to participate in joint projects regarding development and influence.

it:solutions is organised with 2 separate department that work on development of it's:learning. Our development department works closely with the customers' needs and wishes and ensures that we are always on the cutting edge of the market both technologically and educationally. We also have a customer service department that also works on tailored modules in it's:learning. Our customers can be sure that the solution is future-oriented also with a view to functionality and user friendliness. Our philosophy is that it:solutions succeeds if the customer succeeds. Our relationship with our customers remains close even after the application has been put into use. We ensure that customers with "similar needs" meet to help us with priorities in the general development work.

Requests for improvements or new functionality are implemented in two ways:

- We co-operate with several customers for individual projects. This is then functionality that the customer finances. We work out a requirement specification together and make agreements regarding time and costs limits in the project.
- General requests come continuously from our users. If the input comes from several sources and has a general interest – this becomes part of our general development plan.

In future, it:solutions will also be able to be a partner in the process where you shall build on an integrated learning solution. We have the knowledge about the work necessary regarding further integration of LMS with other administrative systems, library services, course registration, payment and shopping solutions, SMS services, handheld computers, etc. This combined with the competence related to the standards now entrenched in the area of electronic learning, will give you a good business partner in the years ahead.

For those of our customers who choose the ASP solution, it's:learning will be continuously improved and developed (updates as soon as new functionality has been fully tested in our own test environment and possibly beta-tested at a pilot customer). These changes are always followed by service messages to the administrator and technical contacts that document the changes. As regards those of our customers that choose local installation, additional documentation is supplied with the half-yearly application updates.

# 3. Technology and platform

it:solutions supplies as a basis a pure ASP solution, which does not require any local installations, either on the server or client side. This has many advantages, but primarily you can take part in the continuous development of it's:learning.

Those who choose local installation of it's:learning must be responsible for running the solution and will only receive updates of it's:learning every six months (2 versions per year)

As regards it:solutions technology in the ASP solution, this is given in our service agreement. If the customer wants to run the solution, the costs of this will depend on 3 factors:

- Servers
- Software (Operating system, database, 3rd party components)
- Simultaneous users

The server configuration, except for storage space, only depends on the number of simultaneous users.

it's:learning is based on Microsoft technology – and as almost unlimited scaling possibilities.
Web servers are set up in Cluster with Network Load Balancing, which can have up to 32 web servers in a cluster. If you need more than this, you must set up a

Round Robin or similar solution in order to spread the load between the different clusters.

The database must run on a separate server, and you must scale up on the hardware side - Windows 2000 supports up to 32 processors, depending on which server version you use. You can also set up a redundant solution, with one or more extra database servers.

The file servers can also be load balanced.

> *An example: (based on standard rack machines with Pentium III processors)*
>
> 500 simultaneous users
> 3 machines (2 web, 1 db) with double CPU 1,4MHz, 2GB RAM
>
> This configuration supports up to 900 simultaneous users (approx.). We recommend having a separate file server. Machines with better processors (faster speed, or e.g., Xeon) and the like mean that you can make your own configuration, with lower requirements regarding the number of processors and machines. A few adjustments can also be made to also load balance the database, and then you will be able to use less expensive machines with two processors.

As regards operating system and software requirements in possible local servers, these are given in section 3.1.1 and 3.2.1 below.

## 3.1. Operating system

### 3.1.1. Server

it:solutions runs it's:learning for the customer. it's:learning is run on powerful IBM/Dell computers with Windows 2000 Advanced Server with Network Load Balancing. The computers are scaled out as required. The computers give access to the latest version of it's:learning at any given time. Information regarding notification of possible downtime, interruptions, maintenance and other circumstances that might influence the users / service, is notified to a separate e-mail list.

### 3.1.2. Client

There are no requirements regarding the client operating system, but it is recommended that the latest service release/package of this system has been installed.

## 3.2. *Software and settings*

### 3.2.1. Server

*NB! This only applies of the customer wants to run it's:learning on own computers. Most of our customers can ignore this point.*

In addition to basic installation of the operating system and IIS, the following components must also be installed. (These may be supplied by it:solutions).

- myODBC (all web servers)
- Java(TM) 2 Runtime Environment (all web servers)
- 3rd party components:
  - ActiveFile 2.3 (all web servers)
  - AppletFile 2.5 (all web servers)
  - PowerTCP Mail Tool (all web servers)
  - WebEQ 3.0 (all web servers)
  - IRC server, preferably IRCPlus (a server)

- Windows Media Server (all web servers)
- ActiveSMS - Telenor Link (a server)
- mySQL (win32) (database servers)

All service packages, fixer and security patches must be installed as soon as these are available from the suppliers.

### 3.2.2. Client

it's:learning only requires a web browser on the client. In order to utilise all functions and also to prepare for use of digital learning aids, there are a few technical factors that must be taken into consideration during implementation.

- Web browser – Microsoft Explorer 5 (or higher) is recommended (Or: Netscape 4.7 or Netscape 6.2, Opera 6.0)

- Screen resolution: Min 600X800 – recommended 1024x768.

A few extended functions (including use of digital content), is achieved if the following factors are present.

- it's:learning contains an active-x component. This gives the user extended options on the editor side. The component may only be run on Windows operating system.

- Chat requires that port 8002 or 6667 is open in firewall

- Java – In order to be able to use special functions in it's:learning, such as chat, equation editor, tools for major file uploading and SCORM reporting in content compoenents – requires Java installed on the users' computers. (Java 2 plugin version 1.4.0)

- Players: Interactive content supplied by different content suppliers usually requires different players. Flash/ Shockwave / Authorware / RBX / MS Mediaplayer – are the most commonly used.

- If Word 2000 is in use, the Office 2000 version prior to service release 1 contain errors. We recommend upgrading to service release 1 or a newer version to avoid the problem.

## 4. Digital learning aids, a large course portfolio from the most well-known suppliers

it:solutions currently has a large library of digital learning aids from different suppliers. Learning resources and content are a natural part of a complete package to students and the parties should consider establishing a combined resource library from different suppliers. Site licences can be supplied at favourable terms.

Our course database currently contains courses from Datapower, Glasspaper/ElementK, eBok, nettgymnas.no, Grieg Multimedia and other IT training. More than 1,000 courses can be made available (touch course, multi-media design, orthography, etc.).