Learning Landscape

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The learning landscape is a landscape in which users find all elements necessary for learning. Information and knowledge, but also administration, infrastructure and other basic elements needed for study and research will be present in the landscape. The learning landscape is also a landscape that has the ability to learn. The landscape grows, gets to know it`s users and becomes more intelligent.

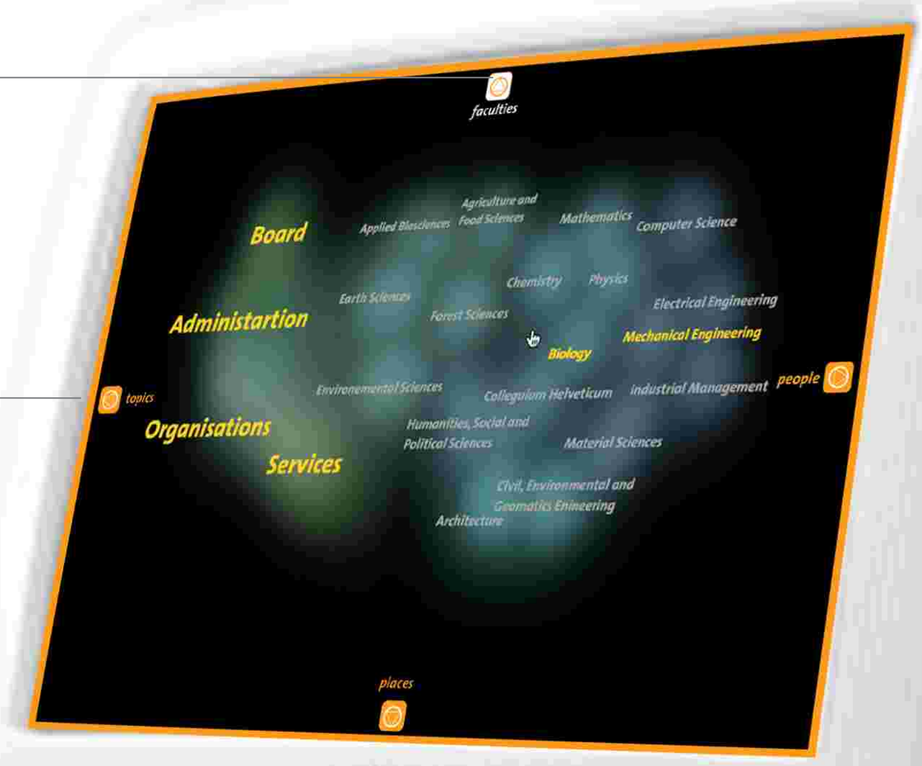
accessing information through different context

*faculties
This context is especially valuable for members of the ETH or other academic institutions. Since the faculties are the backbone of the ETH they form a vital information structure which lets members of the ETH find their way around their virtual community.

*topics
This context relates the ETH to the rest of the world. By structuring the ETH's knowledge in a globaly used manner, information between ETH and the rest of the world can easily be exchanged. ETH's knowledge will be accessible to the whole world, a basic need for a leading university. The members of ETH also benefit from this worldwide used information structure because it makes information seeking and international cooperation easier.

*people
with their mind and soul form the heart of ETH World. This context arranges people according to their function or academic position. The map displays people most related to the information the users are looking for and gives information about authors of documents, about references that are made and displays people which are experts in the field the user is researching.

*places.
This context helps you link the virtual and the physical world. It is especially useful for online learning. You can not only see a virtual study environment, but also know where the actual happening takes place. Maybe you want to join. Maybe you just want to ask a question to somebody who is attending a specific meeting.



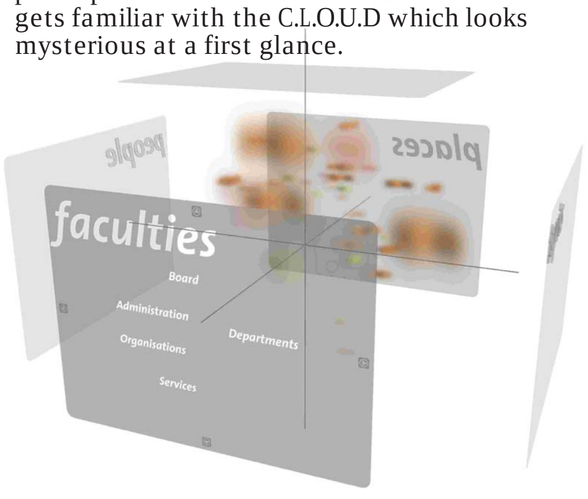
Julia Tobler: Student

Julia Tobler is a first year student in Physics, it is her first day at the ETH. The public ETH World terminal in the lounge draws her attention. She enters ETH World for the first time. She decides to take a guided tour. Bee Guide navigates her through the different maps of ETH World. The learning landscape shows her the structure of ETH and helps her orientate herself in this new world. She participates in a live transmitted lecture and gets familiar with the C.L.O.U.D which looks mysterious at a first glance.

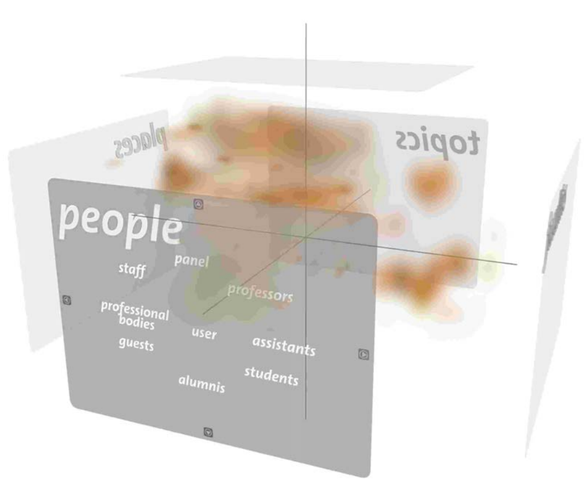
Julia notices that the information which is shown can always be set in another context. The four context maps set every information in a familiar context like faculties,people, places and topics. The C.L.O.U.D unveils its practical use. She really likes the bees through which she can communicate with other participants of the learning landscape.

She discovers her name on the list of students of the Physics department this makes her feel part of the ETH World. Julia sets up her personal profile to get involved . As she looks at other Students she finds a friend that she hasn't seen in a while. By clicking on the places button she locates her friend.

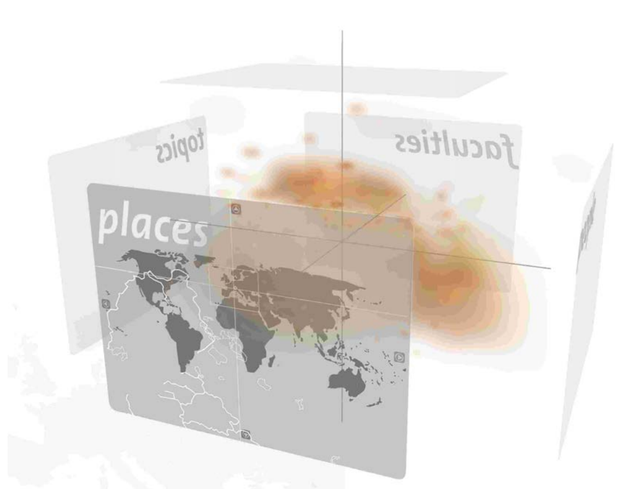
Julia discovers her schedule. While she is consulting her timetable another physics student who is enroling for the same lecture gets in contact with her. He asks her where she bought the books needed for the lecture. She didn't buy it yet and they decide to look for the bookshop together.



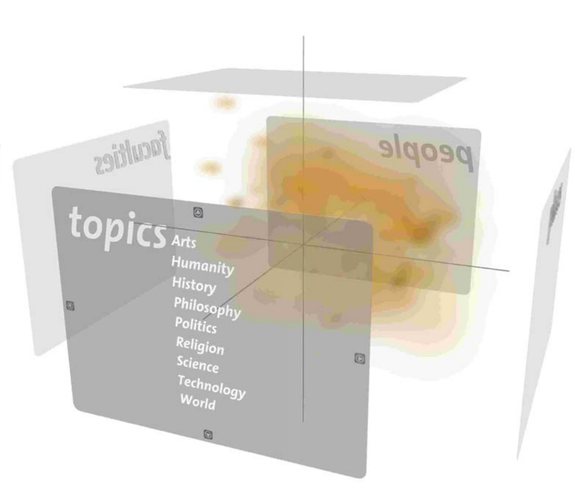
Faculties
displays informations according to its institutional surrounding



People
This map arranges the information according to the people

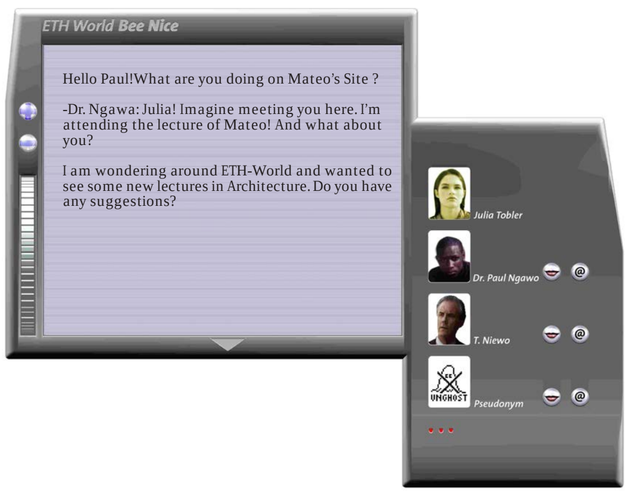


Places
this map displays the information according to the locationof its physical equivalent.



Topics
structures ETH World's information in the context of its topic

Bee Nice online exchange



Bee Nice makes your virtual presence visible in the ETH World. Bee Nice will represent you when you visit a website. You meet other visitors in real time and real space. You can talk to them, like you would communicate with someone you meet on an exposition or in a lecture, the content of the page offering a theme to talk about. Out of the conversation you could get information and tips that are not found on the website or even on the internet. Every Bee Nice carries the name of the person he represents or tells if it's a student, teacher, researcher etc. If you want to make a personal remark to a specific bee, you can whisper. Bee nice is a subtract from chat environments and enhances communication between visitors in an interdisciplinary manner.

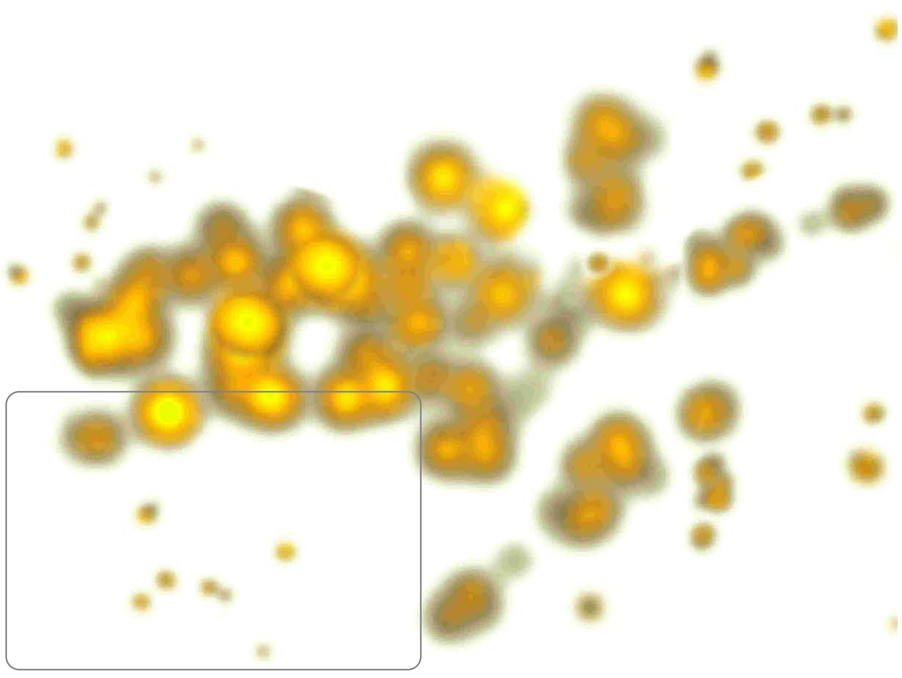
Bee's that collect information

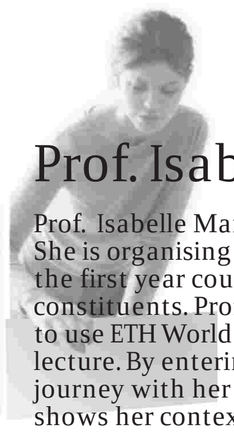
Bees accomany the user through ETH World. They learn about user's interests.
They are sent out to collect information according to the users profile.
They could meet other bees and usersand suggest information.

Personalization

ETH World organizes Information according to the user's profile.
The personalized informationfield allows a fast acess to the individual study, work and research environment. The user works like a attractor which deformes the information space according to his interest. The maps adapt to the users and become cleverer and more helpful .

the C.L.O.U.D shows the infinite mass of data in a comprehensible way...





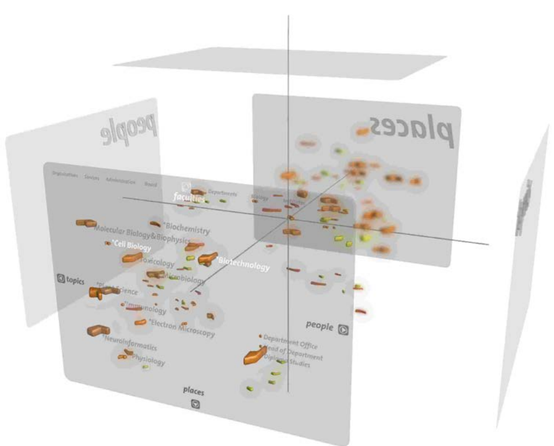
Prof. Isabelle Mansuy

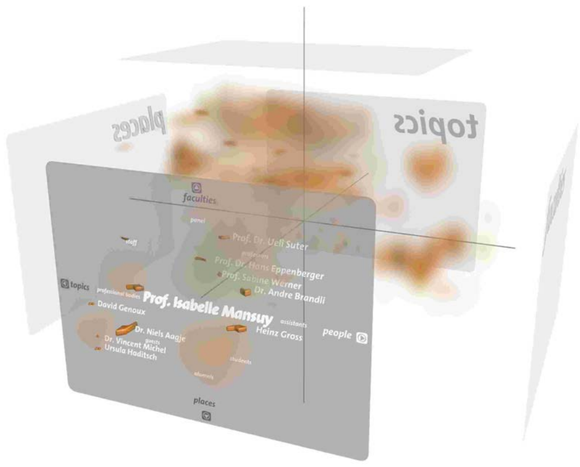
Prof. Isabelle Mansuy is Professor in Biology. She is organising her introduction lecture for the first year course about cells and their constituents. Prof. Isabelle Mansuy chooses to use ETH World as a supporting tool for her lecture. By entering ETH World she starts her journey with her personalized portal which shows her context of the faculty, the people, the places, and topics.

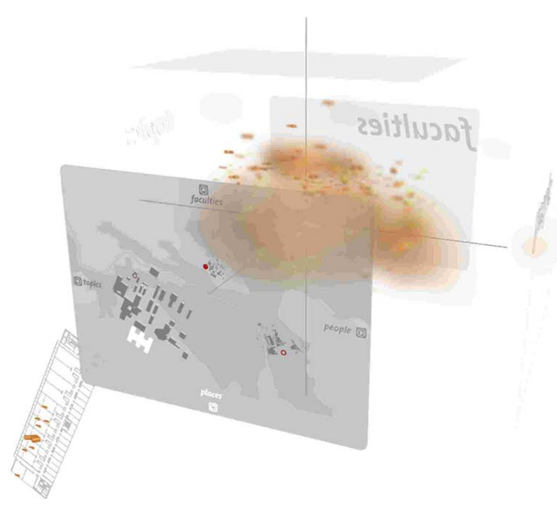
ETH World helps her organize information. The facultymap shows her position in this context. The peoplemap shows her relational environment. Colleagues of the institute, research groups and students can easily be contacted. The placesmap shows her geographical environement. Persons, facilities and rooms are displayed on this map and relate the virtual to the physical world.
The topicsmap assures direct access to the topics in the field of interest of the user.

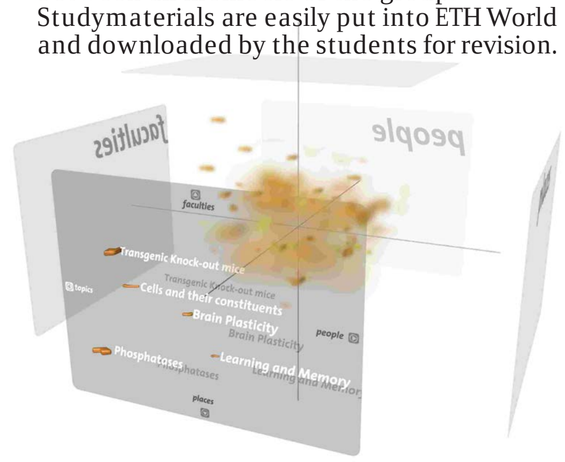
For the introductionlecture Prof. Isabelle Mansuy prepares a short virtual tour of ETH World. She demonstates with the facultymap the structure of the University and the departement of biology. With the peoplemap she introduces herself and her assistants. The placesmap allows her to show all the facilities of the department.
In the topicsmap she gives a survey of the topics which belong to the science of biology and show her personal research themes and goals.

Her assistans have created a study environement in both virtual and physical space. The lecturehall with all the equipment has been booked. In the virtual space workspace modules and tools like research units, bulletin boards, a bibliography and mailgroups have been assembled to create an individual study environement. The contact between the students and the teachers is established very fast. The connection intensifies the relationship between all members of the group.
Studymaterials are easily put into ETH World and downloaded by the students for revision.









Faculties
The existing organisation structure of ETH will be integrated. Attributes like relations and interaction between the different departments organize the Information in the space of ETH World. Each member of the ETH will be placed according to itsdepartment,institution, and function in the c.lo.u.d. The faculties, institutions are displayed in their context of the ETH.

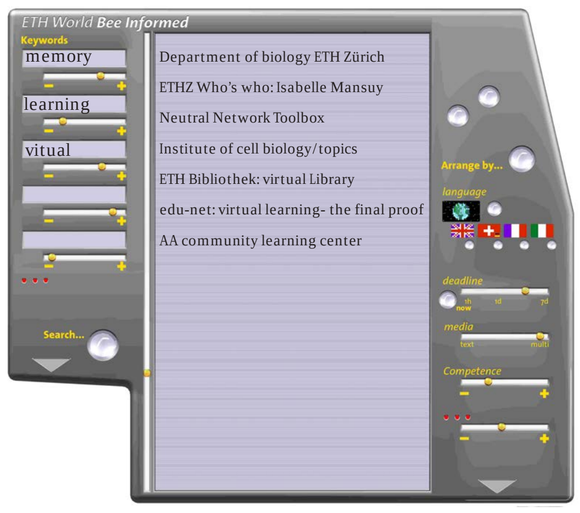
People
Attributes like the relational Network, the position at the ETH, departments, the research goals, the personal interests, age, education and professional experience, languages.....
of every member of ETH World defines and redefines his/her place in the in the multidimensional c.l.o.u.d/information space of ETH World.
On the "peoplemap"the user is placed as in his/her personal relation-environment.

Places
Information is displayed according to geographical maps in different scales with different level of detailing.
Other criterias as the geographical position for the mapping will be added and transform the placesmap during its development: like opening hours, acessability, puplic transport. All the functions of a pathfinder are included.
The information can be retrived for a traveldescription.

Topics
A conventional structure of the topics organize the information in the space of ETH World. Attributes like the relation to other topics.
Any type of information is set in the context of its field of topics.

Bee Critical Provides and collects comments about information

This Bee leaves traces on websites with personal statistics, critics and comments. You can view other user's comments and see which other persons have visited the site. This gives you an overview of the relevance of the specific information to other people. Bee Critical is a useful tool for an online study environment. It is a database driven application that keeps track of the Bee's actions. If a user calls for some information, it is recorded by the database at the ETH World, which in turn, returns the historical traces of that specific information to the Bee. The user can add comments about the information or make comments on comments made by other participants. The relevant feedback information, which is collected by Bee Informed can be used to make a statistical statement about the entity.



Bee Informed knowledge retrieval system

Bee Informed is a highly sophisticated assistant that helps users find relevant information on the internet. This information agent works with a complex user-profile to filter the right information from the internet. The Bee can simultaneously perform different search tasks. A union of different tools helps to personalise the search and more specifically to personalise the flexible outcome of the searched information.

Depending on the user-defined time interval Bee Informed searches for one hour, one day or one week for relevant information. The Bee starts his search in a classical manor and works like search engines that either have a big database of index keywords (Altavista) or search engines that value websites by the amounts of links that refer to a specific page (Google). Bees that are send away for long search activities also look at the content of the pages. Other search elements like amount of visitors or experience of the author can be included.

Context Navigation

Accessing information through different contexts allows the users to evaluate their information. The circumstances in which something happens or is to be considered can easily be followed. The four different contextual maps are visualizations of the information of ETH World. They offer the possibility to zoom into more detailed Information and to zoomout to get a contextual overview. Every Information independent of its level of detail can be set in a different context.

Communication is the main catalyst for the success of a world leading research institute.
ETH World offers extra tools for decentralised communication. This will ease down hierarchycal structures and stimulate interdiciplinary interaction.
Many future application like a multilingual translator allows the communication between all users.
(The translator is supported by members of ETH World.)

Contact can be established with all existing communication tools and stimulates the use of new communication technologies like ICQ, WAP,....

Context is more valuable than information...

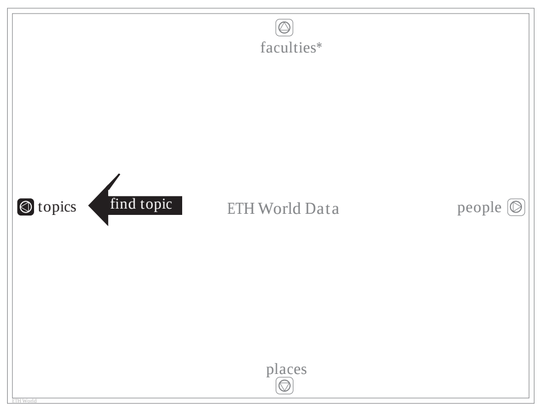
Dr.Niels Aagje:Scientist

Dr. Niels Aagje, a dutch scientist, is looking for team members for an interdisciplinary research project about "Learning and Memory". As he knows "Learning and Memory" is part of the main interest of cell biology. ETH World offers a precise and intuitive way of getting and contextualizing information. Dr. Niels Aachje chooses the topic map to enter ETH World.

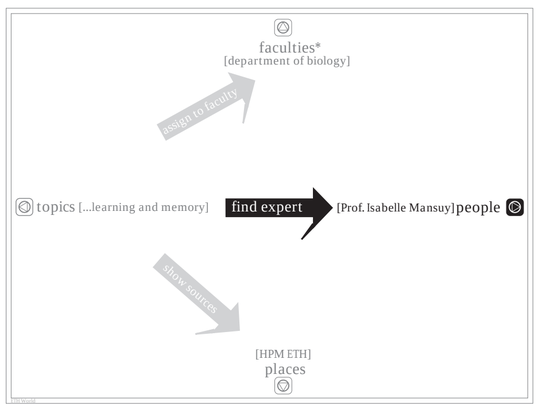
The topic map structures the information of ETH World in basic topics. By structuring the topics in a globaly used manner, information can easily be exchanged between ETH and the rest of the world.
The topic Niels is looking for is found. Either by typing the subject he is interested in or by navigating through the possibilities the topicmap offers.

By switching to the people map, persons working on the same topic are displayed. The people map displays people which are experts in the field Niels is investigating. Aagje is choosing Prof. Isabelle Mansuy displayed on the people map. Her profile corresponds exactly to the one he is looking for.

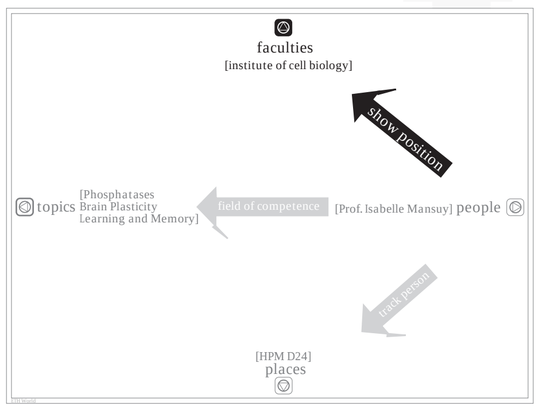
Aagje can easily get in contact with her. The contact tool offers different communication possibilities and shows whether a user is logged on or off. The faculties map assigns Prof. Isabelle Mansuy's position, the topic map shows details about her field of competence. The places map allows the user to locate a person in the physical world.



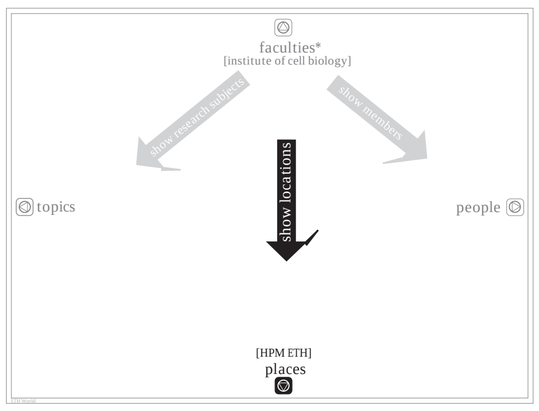
The context topics offers a perfect start for a search information on a certain research area.



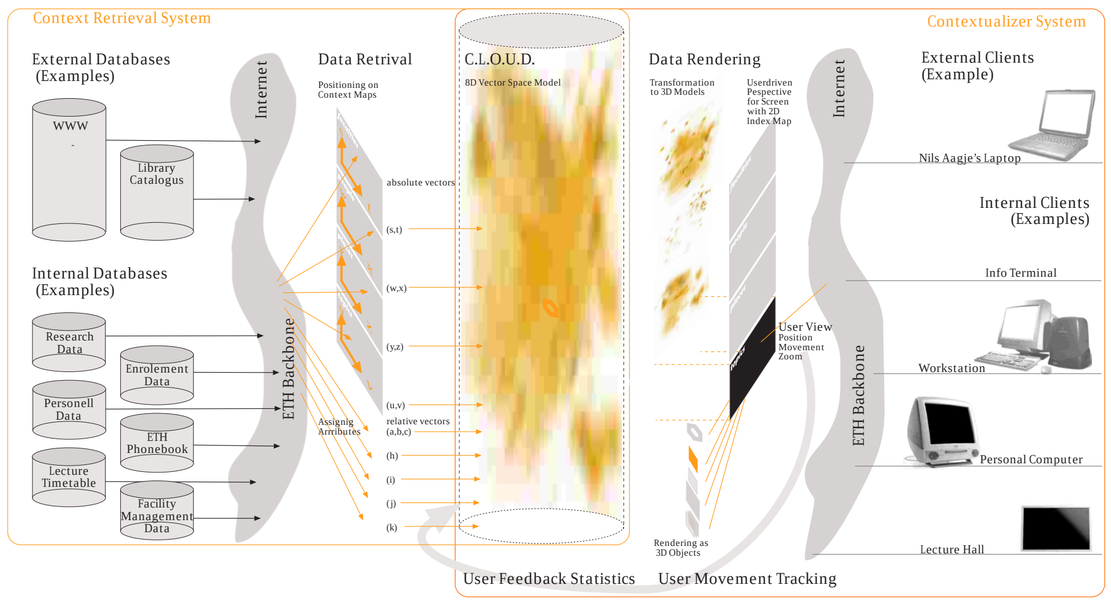
Linking the chosen topic to people helps to find experts and people related with this topic.



Linking to faculties visualizes the departments and institutions relevant for your research.



The context places locates the people in the physical world.



Visualisation Process of the Contextual Learning Objectoriented Userdriven Databse C.L.O.U.D

Input: Definition of Objects in the C.L.O.U.D.

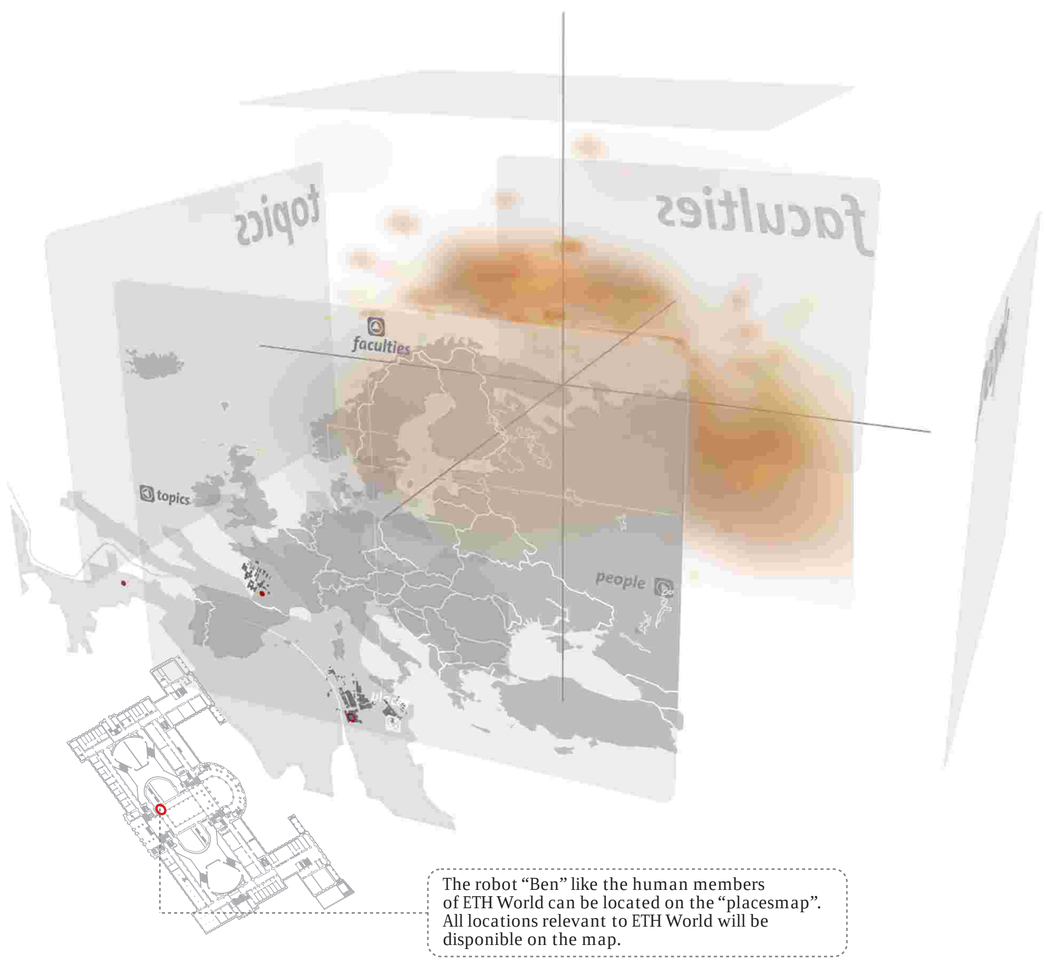
	Attributes					Position				Dynamic Behaviour	
	Shape	Colour	Luminosity	Size	Opaqueness	Faculty-Map	Topics-Map	People-Map	Places-Map	Gravity Pull	
Internal Objects											Internal Objects
Institution	bar	Group (Green to Orange)	Presence Time	Organisational Level	Client Satisfaction Feedback	Place in ETH-Organisation	Research Themes	Members	Location(s)	To Faculty	Institution
Theme	Mole	Category (Orange to Purple)	Actuality	Popularity	Relevance Feedback	Research Themes	Classification	Experts and Interested	free variable	To Topics	Theme
Person	Head	Years at ETH (Yellow to Red)	Presence Time	fixed	Competence Feedback	Academic Position	Field of Interest	Relational Field or Team	Whereabouts	To People	Person
Location	Cross	White	Density of Occupation	Actual Size on Scale	Frequentation Feedback	Purpose	free variable	Occupants	Geography, Room Number	To Places	Location
External Objects (Examples)											External Objects (Examples)
Book	Vertical Flat Box	Theme (Orange to Purple)	Date of Publication	fixed	Reader Satisfaction Feedback	Publisher if ETH Faculty	Keywords	Author	Library Location(s)	To Topics	Book
Research Project	test-tube	Theme (Orange to Purple)	Time Running	Number of Participants	Scientific Feedback	Organising Institution(s)	Subject	Research Team	Laboratory or Office	To Faculty	Research Project
Event	Explosion	Theme (Orange to Purple)	Time Until or Since	Number of Participants	Participants Feedback	Organising Institution(s)	Thematic Brief	Lecturer, Participants	Lecture Hall or Room etc.	To Faculty	Event
WWW-link to html or xml	tail	Theme (Orange to Purple)	Time Since Last Update	fixed	Reader Satisfaction Feedback	domain name if ETH Faculty	Meta Name="keywords"	Meta Name="author"	Position of Domain	To Any Relevant	WWW-link to html or xml
WWW-link to Database	barrel	Theme (Orange to Purple)	Time Since Last Update	fixed	User Satisfaction Feedback	domain name if ETHFaculty	Meta Name="keywords"	Meta Name="author"	Position of Domain	To Any Relevant	WWW-link to Database
WWW-link to Multimedia	Circle	Theme (Orange to Purple)	Time Since Last Update	fixed	Satisfaction Feedback	domain name if ETHFaculty	Meta Name="keywords"	Meta Name="author"	Position of Domain	To Any Relevant	WWW-link to Multimedia
List Can Be Extended											
	relative vector (a,b,c)	value (h)	value (i)	value (j)	value (k)	absolute vector (s,t)	absolute vector (u,v)	absolute vector (w,x)	absolute vector (y,z)		
	Descriptors of Appearance in 3-D Space (a,b,c,h,i,j,k)					Descriptor of Position in 8-D Vector Space Model (s,t,u,v,w,x,y,z)					
	relative vector (a,b,c)	value (h)	value (i)	value (j)	value (k)	Faculty-Transform to (a,b,c)	Topics-Transform to (a,b,c)	People-Transform to (a,b,c)	Places-Transform to (a,b,c)	Motion to 4 Sides	
	Appearance in 3-D Space of Centtualyzer										

Output: View of Objects in the Contextualyzer

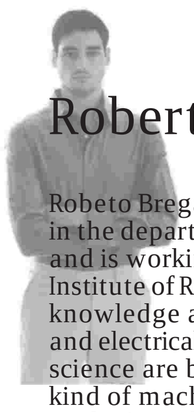
Definition of Objects in the C.L.O.U.D.

Growing Datastructure

The Contextual Learning Objectoriented Userdriven Database C.L.O.U.D. is a multi-dimensional index that shows the infinite mass of data in a comprehensible way. This intuitive interface allows users to choose relevant data and at the same time to see this data in it`s overall context. As a meta-database, comparable to internet search-engines, it is a powerful visualization of all of the knowledge of the ETH and the growing amount of relevant data on the internet.



The robot "Ben" like the human members of ETH World can be located on the "placesmap". All locations relevant to ETH World will be disponible on the map.



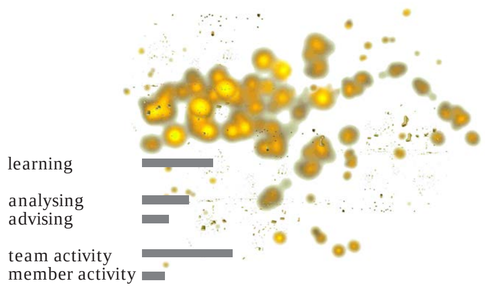
Roberto Brega: assistant

Robeto Brega Dipl. Inf.-Ing. ETH is a assistant in the department of mechanical engineering and is working on his PhD Thesis at the Institute of Robotics. Robotics is an area where knowledge and methods from mechanical and electrical engineering and from computer science are being integrated to form a new kind of machine. His PhD Thesis contributes to the interdisciplinary developement from mechanical and electrical engineering, biology, and physics for the project of the robot "Ben". This machine is a mobile service robot. Roberto is developing the operating system for this project.

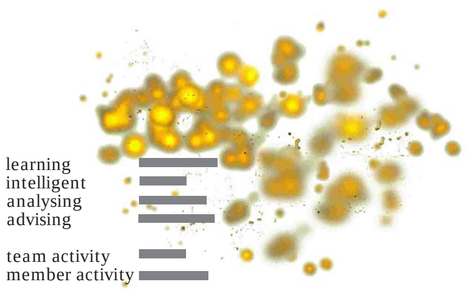
Roberto sets up and customizes a workspace module for the needs of the group, as he is the most familiar with ETH World due to his collaboration for the development of the activity display. The interdisciplinary group uses ETH World as a virtual online development platform. The virtual platform is a substantial tool for all members of this group. As they intend to use new and very specific techniques for the development of their project, information has to be collected and exchanged all around the world. "Bee Informed" is used to scan the web and other databases for information. Information which is not yet integrated in ETH World will automatically be built in by the feedback of "Bee Informed".

As Roberto is investigating in an unexplored field, his information is very valuable for ETH World. He feeds the C.L.O.U.D with his latest research and knowledge. Data and information can easily be added to the system using the C.L.O.U.D input mask, a online context retrieval system which is designed analogous to the contextualizer. Data is positioned in the right context and made accesible to the whole usercommunity.
In case of confidential information the access can be controlled by the author.
ETH World is a dynamic growing system.

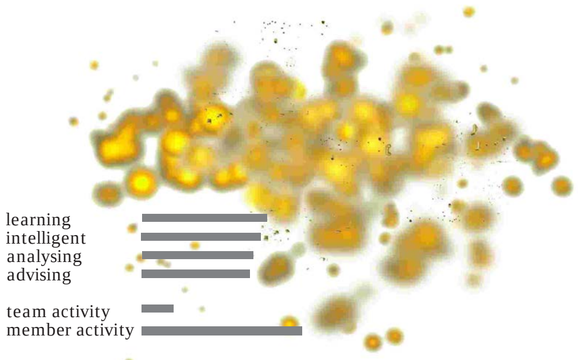
Once developed Ben will be visible in the physical world as well as in the virtual world. He can be navigated through ETH world and fullfill tasks. In ETH World Ben can be found through every context. Clicking on the people button and you will find Ben's authors and designers. Choosing the topic map Ben is set in the context of robotics. By tracking his position on this map one encounters other valuable information about the location.



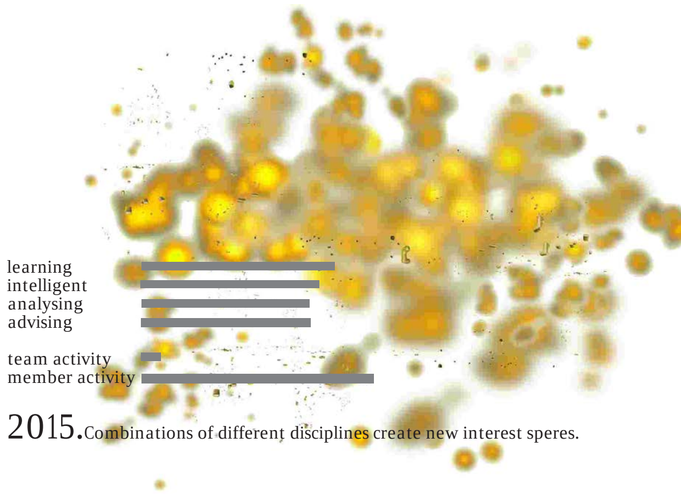
2001. System Development and Realisation. ETH World Team is organised in Task forces which develop different aspects of ETH World. The Datastructure starts growing.



2005. Implementationof ETH World.the direction of the growth of the c.l.o.u.d is depending onthe interest of the users. Different sets and subsets will be introducedand developped. The users are developping the c.l.o.u.d ETH World Team has a monitor function.



2010. ETH World forms a new standard for information visualisation, data mining and cooperative interdiscplinary research platform. The C.L.O.U.D is fed by an augmenting number of indexed database objects. An increasing number of links are built between the nodes.



2015. Combinations of different disciplines create new interest speres.