From E-learning to Virtual Communities: A New Approach for Developing Collaborative Software Platforms

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Objectives of this presentation

- investigate the relationship between successful e-learning initiatives and the software architectures of e-learning platforms supporting them
- E-learning platforms evolving along different development lines, determined by market and by relationship between institutions and stakeholders
- One of these trends sees e-learning systems as software platforms evolving towards supporting social and cooperative interactions among participants.
- How a different software architecture could facilitate LMS to grow towards different utilization (and different market perspectives)
- integration of e-learning (or collaborative) software platforms with the information systems represents a new challenge for the development of new advanced e-learning platforms
Introduction

- LMS have been successful systems thanks to
  - services and tools provided
  - stakeholders involved
- LMS can be extended to many areas of an organization’s information system
- New challenges
  - evolution of LMSs
  - advent of web 2.0 & social networks
  - integration with efficient collaboration tools
  - integration with the rest of the information systems of an organization
LMS and information systems

- collaboration platforms can be integrated with e-learning services, in order to provide and integrate
  - Collaboration
  - Communication
  - Accounting
  - Authentication
  - Recording
  - document sharing
  - Etc.
LMS and IS integration

- All of the above have their own markets as separate tools:
  - different producers
  - different UI
  - different credentials
    - ... but the same user
    - ... that probably do not need the full-fledged platform
    - ... that will use the LMS
    - ... that will in turn use the IS component elsewhere
Focus

- Integration of collaborative systems and eLearning platforms to provide better services to organizations
  - Studying the implications for the design and prototyping of software architectures and services
  - Different current trends in academic research and in the marketplace
- Providing insights that contribute to the practice of design and construction of future eLearning and collaborative systems
Initial statements

• Considering e-learning and collaboration platforms as external bodies means losing an excellent opportunity to improve collaboration and open innovation inside an organization

• Having a virtual communities platform with a different approach to people aggregation is an advantage respect to traditional LMS

• Having the source code of an open source software that has not been built from zero by the developers is not enough to be effective in complex and pervasive integrations with the information system of the organization
IS-LMS: examples of integration

- Video-Conferencing
- Web 2.0 tools
- Social media
- Questionnaires / polls
- Business intelligence
- Decision support systems
- Document management systems
- Time management (agenda, doodle...)
- Project management
- Authentication services
- Authorization services
- Participants records alignment and exchange
- Attendance records and certifications
- Ticketing
- Accounting and ERP integration
- Automatic membership to specific communities
- Payment management
- Public tenders and concourses
- .....
Rationale

• What clearly emerged from our experience

  1. private and public institutions need virtual collaboration spaces available for their employees / partners

  2. Inside institutions’ information systems, people is mostly self-organized with many tools and respective many problems (dropbox, manymoon, redmine, MSP, sharepoint, liferay, moodle, ......)

  3. traditional LMS are not suitable because they are oriented to e-learning
     • pillars ➔ metaphors like “classroom”, “class”, “course”, rather than “community”, “group”, “team”, “secretary”, “board”, “office”, “department”, “recreation centre”

  4. social networks are not suitable for learning settings
Virtual communities

- Communities are aggregation of people with different needs.

- different types of communities created on:
  - common interests (sports centre, chess club, student associations...),
  - academic courses
  - administrative aggregation of people (secretaries, boards, Faculty councils, research groups etc.)
  - degree or specialized degree, doctorate studies, faculties

- the whole IS of the educational institution could be treated as a hierarchical structure of VC, where people play multiple and different roles, with different rights and duties, in different period of times
A virtual community...

- can be an open space accessible to anyone.
- can be a restricted space
  - access reserved only for some people
  - authorized by the community administrator
- The users can have different roles with rights and duties
- services activated in a virtual community
  - Inheritance
  - Traversal
  - Incapsulation
  - polymorphism
• We consider a virtual community like a space on the web dedicated to a collaboration objective
• a Virtual Community is not the result of a process of social networking
• it is a virtual space shared by groups of people who have a common goal
• it can contain further virtual communities, thus establishing a hierarchical “parent-child” relationship
"Online communities": the tools

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronous Communication</td>
<td>Chat; Webmeeting</td>
</tr>
<tr>
<td>Asynchronous Communication</td>
<td>Whiteboard; Forum; Memo; Mail management; WebCast, mini-sites</td>
</tr>
<tr>
<td>Presentation and Course</td>
<td>Teacher Information; Users Gallery; Users CV; Community Cover; Course Diary; Course Organisation; Syllabus; Links</td>
</tr>
<tr>
<td>Details</td>
<td></td>
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<tr>
<td>File Management</td>
<td>Upload; Download; File Management; SCORM Player; SCORM Management and Statistics, mini-sites</td>
</tr>
<tr>
<td>Events Management</td>
<td>Calendar (Personal and Community); Appointments; News, sticky notes</td>
</tr>
<tr>
<td>Activity Management</td>
<td>Call for thesis; Tasklist (Project Management), todo-list, ticketing, face-to-face booking</td>
</tr>
<tr>
<td>Collaboration and Web 2.0</td>
<td>Wiki; Blog; Workbooks; Exercises, FAQ, glossary</td>
</tr>
<tr>
<td>Test</td>
<td>Polls; Questionnaires; Test; Statistics</td>
</tr>
</tbody>
</table>
From this....
... to this...
... to what could be implemented...
... to what could be implemented
Example: managing documents

- LMSs today are mainly covering educational objectives, but they could provide, due to their services, solution to other collaborative needs
  - Sharing documents
  - Blogs / wikis / FAQ
  - Knowledge management
  - Discussion / Collaboration tasks
  - Videoconferencing
  - ....

...but they are not conceptually and architecturally prepared for this
Example: managing documents

• Managing documents today generates a plethora of solutions inside an organization
  • supplied by ICT departments over some networked file system
  • Available through DMSs
  • Supplied by some collaboration platform
  • Supplied by LMSs (for educational part)
  • Available via cloud services
• Which is the solution that can cover the widest range of problems?
Findings

- Difficult Integration of collaborative services with the metaphor of «class» or «course» typical of LMS
- Semantic technologies integration in the architecture of LMS could be profitable for them
- An LMS could be more oriented to manage virtual communities, instead of classrooms, in order to provide its services to larger audience
- Integration of project management needs inside a virtual community that is not necessarily a «learning-oriented» community
- Introduce decision support techniques in a collaborative environment not only devoted to teaching
Thank you