



**MANYONE COOPERATIVE EDUCATION NETWORK
APPROACH TO DEVELOPMENT**

CONFIDENTIAL

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What is the ManyOne Cooperative Education Network?

As explained in the ManyOne Executive Summary,

The education service, called the ManyOne Cooperative Education Network, enables people to explore and share knowledge of their world. This system enables educational and scientific research institutions to collaborate in the development of shared knowledge libraries, educational curricula, and science entertainment while all resources remain organized within an intuitive and coherent navigational taxonomy. ManyOne has established an open process by which new bodies of knowledge, curricula and learning adventures may be linked within the Education Network. Over time, the ManyOne Cooperative Education Network may evolve the broadest and deepest aggregation of world-class education and science entertainment in existence, supplying a '21st century Library of Alexandria' to people worldwide.

There is a large number of institutions and companies addressing the on-line education space. These organizations are proposing a variety of standards and the platforms on which these standards will be offered. Among corporations, offerings include

- comprehensive "middleware" platforms, described as "Managed Learning Systems" (MLS)
- packaged courseware
- distance learning business, offering credit granting courses for people in pursuit of educational credentials.

The educational institutions and foundations, though offering some of the same products and services as the corporations, generally have a more comprehensive program for developing tools and methodologies to enhance the educational experience, whatever and wherever the means of delivery. There is also the comprehensive program known as the Open Knowledge Initiative which has the mission to develop a set of web-based open-source standards and software that will support pedagogical sharing and the management of educational systems.

How should ManyOne fit into this universe? Unique to MO is the taxonomy for intelligently organizing and presenting information in a graphically immersive environment. As such, we need to examine how we approach the presentation of the material, how it either varies or supports the methodologies offered by others, and how it fits into the platforms utilized by the educational institutions. It would be a mistake to claim we offer the most comprehensive solution, since there are well-funded efforts that have long studied and experimented with a wide range of technologies and presentation formats. We have yet to develop the toolsets and administrative functionality that amply demonstrate that our system is a more cost and resource efficient means to assemble and deliver a valuable educational experience.

So what do we offer? First of all, there is the unique business structure. It is a community-centric platform built upon the premise of shared services in exchange for shared costs and shared revenues. Success will be determined by our ability to convince people that our platform allows for the sharing of costs in the development and growth of the technology and its population of content and services. Like Tom Sawyer, we need to convince the "global neighborhood" to paint the fence (i.e., using their resources to develop and furnish the content). In a decentralized manner, our platform enables the construction of mini-communities that offer the goods and services necessary to meet the expressed desires of that community, but with the added ability to share those resources with other communities in a seamless manner because they share a common underlying structure for organizing and presenting the information.

The ManyOne Network has the following characteristics:

- "constructivist" model of learning – we don't give knowledge, we help students to construct knowledge ("learnware") -- it is grounded in the idea that people learn by actively constructing new knowledge, rather than by having information "poured" into their heads
- Centralized technology development
- Distributed cost of implementation
- Distributed cost of content development

- Transaction cost free means of localized commerce
- Ability to build electronic communities that meet the specific needs of that community
- Ability to seamlessly redistribute the resources among communities.
- Platform for developing and sharing content (“learnware”), with option for payment akin to shareware or charityware -- funds can be remitted to the author or to the designated charity.
- An emphasis on core integration and utilization of widely supported open source software

The Challenge:

The world resonates with rhetoric about new needs and new opportunities for learning. But while the volume of the standard rhetoric accurately reflects an urgently growing sense that learning in the twenty-first century will be radically different, its content seldom questions conceptual and organizational constraints inherited from the nineteenth.

Education is increasingly important in this new world. In any country a shortage of human capital is often the key delimiter of growth and prosperity. Economic success in these times requires professionals who can function creatively in a world of increasing technological intricacy, professionals who are literate in science and engineering and who in their later careers can manage within complex organizations. Increasingly, a country’s most important natural resources are “between the ears” of its citizens.

The critical mission is to recognize and break the mindsets that limit systemic, global thinking about the latent learning potential of the planet. The conceptual mission is to elaborate the conceptual framework and the language to support thinking on a more holistic, systemic level about what being digital can mean for learning. The activist mission has two parts based on a distinction between micro-mathetics (actions directed at affecting learning on a level of individuals or small groups) and macro-mathetics (actions directed at affecting the way a country or, indeed, the entire planet, deals with learning.)

Success in a networked society will require not just new skills and new knowledge, but new ways of thinking. Rather than seeing the world as a clockwork mechanism, people will need to think in more ecological terms, recognizing the importance of adaptation and improvisation, and understanding how patterns can arise from many simple, local interactions. We are developing new technologies and activities to help people develop as “eThinkers.”

"Tomorrow's information and communication infrastructure is being shaped today. But by whom and to what ends? Will it meet the needs of all people? Will it help the citizenry address current and future issues? Will it promote democracy, social justice, and sustainability? Will the appropriate research be conducted? Will equitable policies be enacted?"

[From the "Call for Papers" for the CPSR conference Shaping the future. Patterns for Participation, Action, and Change, 16-19 May 2002, in Seattle, see <http://www.cpsr.org/conferences/diac02/>.]

It is unclear though which kind of rules should govern education market, and what issues - sustainability, democracy and public access - have to be taken account of, and how. The current answers, by international laws, by the activities of corporations and educational institutions alike, are all based on one assumption: That knowledge is a commodity, and education is a product. Our claim is that knowledge, education is a process.

The major thrust of the activist mission of the organization will be developing ManyOne network of linked communities, a global network which operates a collaborative learning site that breaks radically from prevailing assumptions and uses its success to leverage the adoption of new ideas by the general public, the political leadership and the education establishment.

We are embracing "Constructionism" as the guide to learning and education. Constructionism is based on two different senses of "construction." It is grounded in the idea that people learn by actively constructing new knowledge, rather than by having information "poured" into their heads. Moreover, constructionism asserts that people learn with particular effectiveness when they are engaged in constructing personally meaningful artifacts

The ManyOne mission to help bring new ways of working with local communities in order to help achieve long-term self-sufficiency through the introduction of new methodologies and new technologies. The idea is that using internet-enabled technologies can open not only new possibilities for development, but also new ways of learning and working. These opportunities can result in deeper understanding of the environment and to applicable innovations leading to self-sufficiency. The methods used take a systemic view and actively encourage and support sustainability, sustainable development, active participation, ownership by and empowerment of local communities and integrated participative evaluation processes. At its basis, self-sufficiency implies that new project initiatives, and even new development of tools and technologies, originate in the local areas. Thus, one of the primary areas upon which we will focus is learning. This, however, does not mean learning in the abstract or in the typical school sense. Rather, the learning we refer to is learning in the context of the local needs of the community, such as food production, environmental issues, and infrastructure.

One cannot think about the future of learning without thinking about rural communities. There is an urgent need for different approaches to rural education around the world, especially in developing countries. Such approaches need to take into account the relationship between education, technology, and culture, and must build on local resources and environments. Our goal is to enhance student learning while also improving community life by strengthening relationships between rural schools and their communities. The form may differ in each “virtual community”, but the network provides a means to learn and benefit from each other, allowing the leveraging of each community’s efforts and instantiations of innovative learning environments.

Today's emerging technologies facilitate new pedagogy, new styles of learning, new styles of teaching. Investing in infrastructure to facilitate global reach thereby provides us with the exciting opportunity to reinvent the learning process. In designing our technology infrastructure, pedagogy drives the technology decisions.

With supportive technologies learning experiences can become:

- More participatory
- More goal oriented
- More tailored to a learner’s learning style
- More collaborative
- More interactive with faculty
- More compatible with lifestyle constraints
- More timely
- More relevant
- More fun
- More memorable

With technology-facilitated learning, many of our traditional points of view are altered. Our patterns and methodologies are evolving:

Old Pattern

New Pattern

- | | |
|---------------|---------------------------------|
| • Teaching | → Learning |
| • Teacher | → Mentor or Coach or Co-learner |
| • Student | → Learner |
| • Synchronous | → Asynchronous |
| • Passive | → Active |
| • Linear | → Nonlinear |
| • Scheduled | → On-demand |

- Teaching material → Accomplishing a Goal

Our logic simply can be described in this way: More open access to learning materials will generally lead to an increase of knowledge, which in turn will lead to increased innovation in all fields, and stimulate the economy, and thereby benefit society. By fostering this sort of exchange, we encourage innovation, and thus society as well as the economy will profit from it. In contrast, the commoditization and tight control of information and communication will limit this exchange, thus threatening the exploitation of these human capital resources. If the main resource is the process of knowledge exchange, not the knowledge products, then protecting the latter at the cost of severely constraining the former looks like a very bad idea.

What is the value proposition for educational institutions?

First and foremost, any platform employed by the educational institution must meet their stated mission.

1. In what form does the presentation take?
2. At what student level must it appeal?
3. Does it have features that support interactivity, feedback, and peer level support?
4. How does it integrate with the existing IT infrastructure?
5. Can it replace the current infrastructure and thereby lower the IT related costs borne by the institution?
6. Does it offer features that support other activities of the institution?
7. How flexible is the platform to address particular needs of the institution's constituency?
8. What happens to the software if the vendor ceases operation?
9. Does the platform support the institution's goal to capture the hearts, minds, and wallets of their constituency?
10. Can it provide features and benefits that enable the expansion of their core constituency?
11. Does it support the core values of the institution?
12. What features does it lack that can be obtained by using other platforms?
13. If lacking desired features, can this platform be used to supplement other platforms that do offer those features?
14. How important is the "Not Invented Here" syndrome?
15. Is the platform particularly suitable or desirable for certain programs?
16. How does it address the public outreach mission of the institution?
17. What resources must the institution devote to content generation and could the content be easily repurposed for other applications/platforms?
18. What toolsets are offered by ManyOne and what is the learning curve for these applications?
19. What is the direct financial incentive for the institution to join the ManyOne network?
20. Does it comply with the requirements of the education-related standards organizations (e.g., IMS, AICC, SCORM) and university-driven open source initiatives (OKI)?

Reasons for relationship with ManyOne:

- Presents the information in an intelligently navigable, visually compelling manner
- Adds entertainment value to educational content
- Supplements the classroom activities
- Supports a distance learning initiative
- Provides a source for additional revenues
- Desire to share their content
- Seeking a cost effective manner to obtain content not readily available
- Seeks better way to present the content
- Offer new, compelling ways for faculty and students to engage in the process of teaching and learning;

- Reach new groups of learners;
- Generate significant new streams of revenue;
- Save on "brick-and-mortar" infrastructure;
- Integrate online learning with existing portals and student information systems
- Mine student data to improve the learning experience.
- Leverage the institution's resources - be they physical, intellectual, technological, or financial - as efficiently and effectively as possible

The ManyOne Community Environment

(Source: Cynthia Typaldos The 12 Principles of Collaboration™)

12 Principles of Collaboration

1. Purpose

Community exists because the members share a common purpose, which can only be accomplished jointly

What is the community about? What, in the minds of its members, is it for? Why do people join, come back, become regular visitors, contribute? What can be done there? How can members collaborate to get their joint purpose and accomplish their common goals?

2. Reputation

Members build a reputation based on the expressed opinions of others.

Members must be able to tell how valuable or useful other members consider any member. Reputation allows them to act on advice with some expectation of its quality without the community website acting as reviewer or police. The desire for good reputation prevents or discourages bad behavior and encourages members to seek feedback from others that may build their reputation.

3. Communication

Members must be able to interact with each other.

Communities cannot exist without one or more mechanisms for member interaction. The best choice for communication tools depends on the purpose of the site and its members. For instance, a CFO site would thrive on shared spreadsheets. whereas a teen site would be better served by instant messaging.

4. Environment

A synergistic environment enables community members to achieve their purpose.

All online communities exist within the framework of an online environment. To be effective, they must be integrated with the rest of the website so that navigation, appearance, etc., are seamless between community and non-community areas.

5. Trust

Building trust between members and with community facilitators increases group efficiency and enables conflict resolution.

Without trust, a community cannot function. Members must be able to tell how much they can trust other members and must trust those that run the community not to abuse or exploit it.

6. Expression

The community itself has a “soul” or “personality”; members are aware of what other community members are doing.

How does the community reveal the activity and preferences of a member or a set of members?

7. Identity

Members can identify each other and build relationships.

Although members can be anonymous, they cannot be unknown. It must be possible for other members and the facilitators of the community to identify someone as the source of a series of items or actions. A persistent identity is the cornerstone to building other key community principles such as trust, reputation, and history.

8. Governance

The facilitators and members of the community assign management duties to each other, allowing the community to grow.

Communities must be managed and governed. Members are involved in governing themselves and other members, and the formal facilitators take a reasonable role in managing the community, its standards and rules, and allocating responsibilities to defined members. Without some governance, few communities will grow or survive.

9. Groups

Community members group themselves according to specific interests or tasks.

All communities contain groups that focus on some subset of the community's purpose or otherwise segment the membership of the community. These groups are typically dynamic (they form, split, merge, end, etc.) and normally have subgroups within them. The larger and more diverse a community, the more the groups within it will drive its behavior and actions.

10. Boundaries

The community knows why it exists and what or who is outside and inside.

Boundaries define who is a member and who is not and what members can do and what nonmembers can do. Without clear definition, there is no incentive to become a member and no ability to control access based on membership. Content generated by the community must also be clearly identified.

11. Exchange

The community recognizes forms of exchange values, such as knowledge, experience, support, barter or money.

Does the community exist to make for its members? If so, how does it accomplish this? What role does the community play in facilitating commerce? Is it a revenue generator for the site? What monetary and non-monetary forms of reward exist in the community?

12. History

The community must keep track of past events and must react and change in response to it.

Communities should remember what has gone before – and be able to forget things, too. What the community knows about a member must have some statute of limitations, but should be available to a member so that they don't have to repeat themselves. Those running the community should be able to learn from the past and apply this learning to the future.

Goals and Features:

(NOTE: not yet any particular order)

*"Let a thousand flowers bloom."
"Yes, but we must provide the garden and the fertilizer."
--anonymous*

*The Most Valuable Natural Resources of a Country Lie Buried ...
Between the Ears of Its Citizens!*

1. Construct continually evolving learning communities
2. Deliver easyto use, intuitive tools for instructors, students and administrators;
3. Offer an effective suite of bestofbreed pedagogical tools, enabling true teaching and learning innovation on the Web.
4. Provide scalability, integration, flexibility, and customizability and fulfill the mission critical need for an allencompassing teaching and learning solution through enterprise capabilities.
5. Emphasis on the enhancement of learning
6. Dominant vision is one of openness
7. Communication - asynchronous and synchronous collaboration tools
8. Extend educational/learning opportunities to people throughout the world in a more cost-effective manner
9. Democratization of world-wide learning
10. Raise educational opportunity throughout the world
11. Increase the quality of education by enhancing the process of flexibly conceiving, shaping, organizing and expanding knowledge to fit a spectrum of contexts, both existing and evolving.
12. Build a web of knowledge to enhance human learning across distance and cultures.

13. The organic world of open software and open systems is the true wave of the future – we are creating an open knowledge system as the framework for exploration and learning
14. Vanguard of a new era in web-based learning
15. Design an environment that fosters curiosity and joy in learning
16. Education provides opportunities for a better life and better access to other opportunities
17. Offering the systems and services required to serve society
18. For content producers, system cannot detract from their primary mission
19. Vision of bringing a high-quality learning experience to students wherever and whenever they need it
20. Improve conceptual understanding
21. "replace the sage on the stage with the guide on the side"
22. inspire students and organize knowledge wonderfully
23. Flexible mode of teaching that can stimulate discovery and improve understanding of conceptual material
24. A deep commitment to effective teaching and learning
25. Develop collaborative activities and electronic learning communities
26. Students will navigate virtual space and time as they strive to understand basic concepts and learn to design or synthesize information in new ways
27. Forces us to rethink the educational process and to think in fresh ways about ancient techniques
28. Thus we come full circle to the essential human quality of teaching and learning -- it is our minds, our sharing spirits, our insights, our quest to improve what we do, and our passion to explore new horizons that drive the quality of teaching and learning
29. We have new opportunities to form educational alliances across distance, time, institutions, and nations — alliances that will expand opportunity, learning, and understanding.
30. Host the materials ..., presented with a coherent interface that will include sophisticated search algorithms to explore additional concepts, pedagogies, and related attributes across the site as well as within a course
31. Advance education by constantly widening access to information and by inspiring others to participate
32. *"Scholarship entails a responsibility to pass on what you have found, what you have invented, [and] what you have created [to] the other members of your community, assuming that they will do the same for you."* [Lee Shulman, president of the Carnegie Foundation for the Advancement of Teaching]
33. Present material in a manner designed to encourage exploration -- one can discover interesting and useful associations between and among elements within the collection of course content, relating concepts not only within a course, but across courses within a discipline of study
34. Knowledge is not some 'commodity', 'good' or 'thing' to be handed over, but is constructed by the students themselves -- we do not 'give' knowledge, but help students construct knowledge.
35. Train students to be "community architects"
36. Teaching is replaced with learning, with the learner pulling in knowledge from a variety of sources rather than the teacher pushing out material;
37. Listening passively to lectures is replaced by active goal oriented learning;
38. The learner traverses the knowledge space nonlinearly in a manner that matches her learning style, interests and prior knowledge;
39. Interactions between learner and teacher can be enhanced and increased with technologies.
40. Education becomes "edutainment"
41. A virtual community of students, mentors, teachers and researchers, whose shared goal is to enhance the learning experience -- an open community for learning in which each learner is expected to use the resources in his or her own way, according to learning style, interests and background.
42. Spatially dispersed communities connected together by a variety of communication technologies
43. Everyone is a learner and a teacher
44. Numerous opportunities for collaborative research
45. An Intelligent Matching of Pedagogy and Technology to Content and Learners
46. New Collaborative Organizational Forms
47. New technology-enabled pedagogy
48. Promise of access to quality education to those previously denied access
49. Diverse and flexible distribution channel for educational products and services
50. Using new learning methodologies and technologies to create models of learning environments to serve as exemplars not only for rural education but also in large urban environments
51. To create a new, more embodied space with which one can interact.
52. In deeper understanding of the environment and to applicable innovations leading to self-sufficiency.

53. Learning in the context of the local needs of the community, such as food production, environmental issues, and infrastructure
54. Form a local group of "learning activists" to develop, guide, research and help others appropriate successful models
55. Creating a new environment for creation, expression, and exploration of these concepts
56. A virtual world to re-think, re-invent, and re-invigorate the learning environment for all children
57. Our ultimate goal is a world of playfully creative people, who are constantly inventing new possibilities for themselves and their communities
58. Develop curricula design tools that allow children to create their own "learningware" enabling children to become engaged in scientific inquiry not only through observing and measuring, but also through designing and building
59. By building their own learning environments, children not only become more motivated in science activities, but will also develop critical capacities in evaluating scientific knowledge, make stronger connections to the scientific concepts underlying their investigations, and develop deeper understandings of the relationship between science and technology
60. Help children to become "fluent" with new technologies, helping them to become producers (not just consumers) of new computational media
61. Develops technologies and activities to help individuals, communities, and nations identify and use their intellectual and material capital toward developing a genuine independence from and a healthy interdependence with other individuals, communities, and nations.
62. Help people develop the tools and contexts that they need for addressing their own challenges, meeting their own needs, and creating their own opportunities.
63. Enable children and adults from a wide range of backgrounds to use our tools in new and exciting ways every day.
64. Form a strong community of learners, educators, and learning researchers by providing a set of tools to help them to talk about, and reflect upon, their experiences and practices.
65. Design to enable people (particularly children) to work together, not only to tell others about their thoughts, ideas, and particularly the things they create, but also to get feedback and reflect on their ongoing projects, thus fostering collaboration and communication.
66. Provide easy-to-use authoring tools that support text, image, video, and audio, as well as simple administrative tools that make setting up, customizing, and maintaining new sites with different work and connectivity requirements easy.
67. Build tools that enable children to create and shape the things in the world around them in new, better, and more effective ways
68. A web-browsing environment designed to help users interactively assemble "learnware" and to help them make connections to mathematical and scientific ideas underlying those constructions that transcend "what is", instead focusing on "how to" and "what if."
69. A communal resource in which children not only have the ability to observe the "learnware", but also contribute their own ideas and designs
70. Basic services as part of the subscription fee, value-added services for additional income.
71. A peer educational publishing system
72. Perceived value exceeds the "cost" for providing the info – cost measured by necessary expertise and time required
73. Independent content developer program – incentives, income from selling their content
74. Robust content management capabilities
75. Continue to provide new and improved learning tools as part of the ManyOne solution;
76. Partner with our customers and industry consortia to develop new paradigms for delivering e-Learning and improving the e-Learning environment;
77. Provide open APIs for integration with third party tools, which will allow institutions, entrepreneurial faculty, and third-party tool vendors to build new tools for ManyOne which can fully integrate with, and leverage, the course delivery system's core services.
78. Enables course creators to intelligently tag, store, reuse reassemble, and share learning objects (assessments, lessons, lectures, tutorials, activities, simulations, graphics, multimedia, and other intellectual assets);
79. Tracks how content is used, and by whom;
80. Controls use and reuse of copyrighted or licensed content and intellectual property.
81. Provides ongoing support for open industry standards for data exchange, including IMS and SCORM, to enable interoperability, object reusability, and global portability of content.

82. Ease of use and innovation
83. Enterprise technology and scalability
84. Flexibility and modular product architecture
85. Operational and administrative efficiency
86. Commitment to open standards
87. Expanding the educational reach to more learners and new markets
88. Providing faculty and students with a single login and a consistent look and feel for online courses and communities
89. Offering anytime/anywhere access to course materials, research resources, and grades
90. Supplying an enterprise online solution that is scalable & customizable
91. Providing a full set of applications to costeffectively meet clients' complete eEducation needs
92. Endtoend solution with intuitive modularity: Course management system coupled with academic portal technologies, email readers, community and organization tools; and, extended academic resource functionalities, provide a comprehensive online community environment with a highly intuitive, modular interface.
93. Enhanced support for largescale implementations: An increased capacity for growth and flexibility through enhanced system administration, individualized database optimization, and updated distributed hardware architecture and loadbalancing schemes.
94. Support for multiple databases and multiple operating systems:
95. Modular and flexible system architecture:
96. Greater institutional integration
97. Simplification and increased consistency: Improved graphical interfaces and a decreased number of graphical screens provide the user with a consistent way of working with the system.
98. Expand Platform System Services: Develop a broad suite of underlying system services that allow for greater extensibility and provide access to a finer granularity of application logic for the integration and customization of System security, user roles and enrollment, rights management, transaction processing, and many others.
99. Develop Supported System Interfaces: Create written specifications and interfaces that integrate with additional tool suites and administrative systems, allowing end users to interact with ManyOne platform services, such as security and enrollment; centralized reporting and statistics; and, user profile data.
100. Standards Adoption: Provide programmatic system interfaces that are supported by industry standards, including content specifications and standards such as IMS, AICC, SCORM and Microsoft's LRN, as well as interoperability with JASIG, Oracle and Microsoft portal technologies.
101. User Interface Extensibility: Develop flexibility in the graphical interface to meet multiple needs and to provide the internal capabilities needed for ADA (accessibility) compliance, multiplelanguage and international uses, distribution on PDAs and other handheld devices, as well as creating graphical interfaces for easy and seamless end user tool additions.
102. Provide Developer Tools for Industry Use: Provide tools that link services and interfaces in a programmatic way, allowing for third party development on the ManyOne platform, such as custom tools, modules, and content.
103. Promote ManyOne through Partners: Work with major publishers, tool vendors, and others to provide recommended and unique ManyOneenabled products that satisfy a variety of pedagogical needs. Our goal is to offer a wide range of solutions on ManyOne that clearly differentiate the platform in the market and serve faculty and system administrator needs.
104. Enable instructors or end users to select from multiple ManyOneenabled pedagogical tools
105. Extend the pedagogical experience by automatically integrating the tracking and reporting of ManyOneenabled tools into a centralized area for increased user customization.
106. Provide an instructor or end user with the ability to search for and configure educational content through public and private content repositories that can be used to tailor and populate content into courses or communities.
107. Provide "anytime, anywhere" wireless access through palmtype and next generation Internet appliances and devices.
108. Offer multiple language support.
109. Integrate with a customized development tool that adapts to diverse pedagogical needs for learning flow, assessments, and evaluations.
110. Satisfy each user's need through the same core technologies and architecture.

111. Provide graphical modules that can be customized to current ManyOne-enabled university systems and applications.
112. Enable institutions to capitalize on ManyOne's future-oriented architecture and customization options.
113. Integrate homegrown technology with ManyOne and share it with other institutions
114. Integrate with commercial technology
115. Plan and develop freely distributed or commercially supported applications as extensions to the ManyOne platform.
116. Access existing ManyOne functionality and graphical interfaces through standard supported APIs
117. Automate entry of users
118. Coordinate passwords with role-based management for system authentication
119. Address FERPA guidelines
120. Enforce consistency in access policies
121. Promote institutional branding at many levels
122. Provide consistency within and across organizations
123. Provides out-of-the-box support for current authentication protocol(s) to automate the setting, management, and resetting of user passwords.
124. Control security permissions and enable/disable features for selected user roles
125. Track and report statistics for community administrators
126. Track content usage
127. Collect - and securely store -- aggregated, institution-specific data from student activity, while protecting user privacy;
128. Mine collected data to yield information that can be used to continually improve course offerings, programs, and services
129. Encourage users to leave "tracks" in the system - notes, papers, projects, etc. - that help the institution to maintain an ongoing, dynamic relationship with the user
130. Provide a highly customizable learning experience. The more capability the institution, instructors, and students have to customize online interactions with personally meaningful and useful information, the more personalized the online learning experience becomes
131. Provide multiple levels of interactivity. ManyOne products will let institutions and instructors offer students many different kinds of interactions, which will enable students to indicate their learning preferences, and choose the most appropriate ways to learn for themselves.
132. Customized learning paths, which will permit creation of alternative learning paths for students based on performance, activity, or date;
133. Enhanced communication tools, such as awareness of other section members online (for spontaneous chat sessions), scalable, synchronous chat and whiteboard applications, improved discussion navigation, and the ability to subscribe for notification of discussion postings on specified topics.
134. A New Media Library for managing and sharing graphics, video, audio, and other media content.
135. Access to best-of-breed learning tools - tools that facilitate the delivery of the highest-quality, pedagogically sound educational experiences - within the context of a unified course environment that supports diverse teaching styles and learning needs

The Platform Architecture

While ease of use, feature-rich tools, and enterprise technology remain guiding lights for ManyOne, it is clear that a new paradigm is emerging for eLearning infrastructure in education. The future envisioned by educational institutions, as well as our partners, revolves around the notion that flexibility and choice must allow a virtually unlimited spectrum of options from which our clients can configure and operate their respective eLearning environments. To achieve this goal, ManyOne will position itself as an enabling technology - a platform that powers an underlying architecture, and an "operating system" for eLearning upon which educational content and tools are assembled to meet a specific pedagogical or institutional need. The "cookiecutter" or simple all-in-one course authoring system approach offered by others in the industry will no longer be a viable solution for dynamic eLearning organizations. We believe the ManyOne platform will become an underlying "middleware" system, with a variety of user interfaces and

configurations that represent the core technology and functionality of a specific institutional implementation of an eLearning environment.

Enterprise-class platform architecture. To truly be considered state-of-the art - and to offer institutions every advantage of emerging technology - a content delivery system must conform to industry-standard software architecture and data formats. It must be an extensible, scalable, resource-efficient citizen of an institution's IT infrastructure. To this end, ManyOne will be built to offer:

- Core implementation of open source software wherever feasible
- Integration with other key players in the institution's educational infrastructure, including student information systems, intranets, portals, and mobile devices using open APIs;
- A modular, extensible architecture based on software industry standards for enterprise application development;
- Scalability, reliability, and performance consistent with an enterprise-class system supporting from hundreds to hundreds of thousands of users in a cost effective way for institutions of all sizes.
- High availability. In addition to load balancing, ManyOne will add session fail-over and database server clustering, ensuring that students or faculty using the system work uninterrupted in the event of planned or unplanned server outages.
- Standards compliance and advocacy (IMS, AICC, SCORM, OKI)

ManyOne is being built from the ground up to take advantage of all significant advancements in Internet application architecture, enabling institutions to leverage the best course management technology available today, and to integrate new technologies, applications, and devices as they emerge.

Resources

This document, which is intended for internal use only, extensively uses the following resources for its production:

1. *Disturbing the Educational Universe: Universities in the Digital Age – Dinosaurs or Prometheans?* – Report of the President (MIT) – 2000-01, Charles M. Vest (<http://web.mit.edu/president/communications/rpt00-01.htm>)
2. *OpenCourseWare: Simple Idea, Profound Implications* – Philip D. Long, Syllabus Magazine, January 2002 (<http://www.syllabus.com/syllabusmagazine/article.asp?id=5913>)
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