

SMART LIBRARIES IN SMART COMMUNITIES

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Smart Communities - Definition

Smart communities are defined as those which develop innovative strategies that lead to the effective use of their human resources and of information technology to enhance their social, cultural and economic development. For example, they use information technology to empower people and organizations to gain better access to information and achieve better education and training, health care delivery, and better economic and business sustainability.

"A smart community is simply that: a community in which government, business, and residents understand the potential of information technology, and make a conscious decision to use that technology to transform life and work in their region in significant and positive ways."¹

The Elements of a Smart Communities

A smart community should include most of the following elements:

- * An Information Social Contract
- * A Strategic Vision of a Smart Community
- * Advanced Technological and Information Infrastructure
- * Tele-Learning (Distance Education)
- * Training and Education in Information, Networking and Technology Literacy
- * Community Access
- * Government On-Line
- * Electronic Commerce
- * On-Line Health (Tele-health)
- * Technology Development Centers
- * Knowledge Parks
- * Telework Centres
- * Integrated Geographic Information System
- * Smart Libraries
- * Smart Community Networks

In this presentation we are going to focus on the first and last two elements - information social contract, smart libraries and smart community networks.

THE SMART LIBRARY

The smart library will be based on knowledge management systems that will utilize expert or intelligent systems to locate precisely the right information that the user needs before the user knows he needs it. Smart libraries will re-define the concept of the right information at the right time.

Traditional library, subject-based, classification systems, will be abandoned and will be replaced with "intelligent systems which archive and direct the searching processes of the users by means of user profiles, in order then to offer them an a la carte service. Smart libraries will be self-educating systems. Their accessibility system will be generated in an interactive way in cooperation with the user."²

However, the smart library will be more than a technological wonder. The smart library will not only link users with information but it must also link users with comparable interests, and facilitate communications between users, that is the smart library will replicate and facilitate the most common information seeking process, that is, asking someone

you know.

SMART COMMUNITY NETWORKS

Smart Communities are fundamentally about connecting people and in particular about providing the means by which people can network with one another and exchange and share ideas, questions and answers. We all participate in a variety of networks involving a variety of forms, including direct contact with our friends, colleagues and families, and remote contact through electronic or digital systems.

Networking is a process, but in a smart community networks, must also provide access to content. The successful smart community will address process and content issues. This is why libraries may have difficulty positioning themselves in a smart community, since libraries are focused on content and not on process. Networking is a process, through which the community can cultivate human networks and human interaction. These human networks can use information and communication technology as the infrastructure for efficient and effective human interaction.

In a smart community, the efficiency and effectiveness of human interaction is increased by creating a record of the interaction and by adding value to the record or information gathered during the interaction by sharing the information record through a community network. Value is added to information by passing the record of the interaction - a piece of information, through an open network. This concept is similar to the value chain described by Michael Porter and a value network described by Don Tapscott³. Information value chains acknowledge the value-adding effect that passing information through a network has on the information and on its recipients. The information value chain transforms data into information and information into knowledge as people internalize the information, add experience, and add to the information record as it moves along the chain. Value is generated through an ever-changing, open, community network which is the backbone of a smart community.

Information gains value because it is:

- ? Networked: gains experiential value, both individual and group experience, by moving through a community network;
- ? Packaged: organized, indexed and put in context;
- ? Timely: up to date, available when needed;
- ? Controlled: limiting access to information can increase its value, when the information is proprietary = competitive environment; and seemingly contradictory,
- ? Open: openly distributing information can increase its value = collaborative environment.

The Smart Community Network⁴

Traditionally libraries have focused primarily on one resource - static information, whether printed word or in a digital format. Libraries were defined by location - the library was a facility. Library access was restricted by time - hours of opening. Libraries should get beyond dealing with static information and begin to deal with dynamic forms of information that are not dependent on a time and place. Libraries need to become involved in the process of connecting individuals to each other and to the full portfolio of resources available in the smart community. Librarians need to cultivate human networks and patron interaction. The Smart Community Network provides a model for librarians to begin to develop access to the best information resource - people.

The Smart Community Network facilitates information transfer and provides a powerful gateway to traditional library services whether print or digital, and it also facilitates the process of connecting people in a smart community. Smart community networks are about cultivating human networks and human interaction. This is where the power of the smart community resides. The power is in the process. That is why it is both humanistic and technological: The smart community is where people and technology converge.

The Smart Community Network is a capacity-building initiative, sponsored by the public library, designed to link people, share information and generate new ideas.

The network should enable the autonomous assembly of resources and human connections under the personal control of each person involved in the smart community.

A Smart Community Network should consist of the following types of elements:

A. Learning and Information Resources.

Learning and information resources would be made generally available for self-directed learning and information gathering, preferably in electronic formats. This is similar to the resources offered through tele-learning or the digital library.

B. A "How To" Network or Skill Exchange.

A "How To" Network or Skill Exchange helps people match local expertise with local needs for expertise. It consists of a directory in which persons register their abilities, skills, and experience and the conditions under which they are willing to serve as mentors for others who want to learn from them, or sell or exchange their expertise.

C. Peer-Matching.

A communications network which enables people to describe the activity in which they want to engage, in the hope of finding a partner for the project.

D. Reference Services to Experts-at-Large.

A directory giving addresses and self-descriptions of professional, para-professional and free-lancing experts and/or a registry of people and organizations, with specific skills who want to make their expertise available to local initiatives.

E. Smart Network.

A network which acts as a meeting place for prospective and present members of a smart community. It facilitates the application of local expertise and knowledge to the formation and development of smart communities.

F. Entrepreneurial Network

A network which acts as a meeting place for prospective and present members of the entrepreneurial community. It facilitates the application of local expertise and investment to the formation and development of business opportunities.

G. Problem Solving Network

An on-line discussion group aimed at solving local community social or economic problems or developing strategic directions for local social and economic development.

H. The Opportunities Portfolio

A continually updated electronic document, published in hard copy at least annually, which identifies local learning or business opportunities and local resources available to act on them. The focus is on ideas, talents, projects, and services that are innovative, unusual and suggest alternative approaches.

I. Portfolio of Investors

An electronic registry of individuals, groups, institutions, and corporations who wish to invest in new or expanding local entrepreneurial ventures.

J. Portfolio of Entrepreneurs

A database of individuals with good ideas who require financial and/or managerial support to begin businesses.

K. Portfolio of Investments

Established businesses that require more investment to improve and/or expand their operations.

The Smart Community Network recognizes that the local information infrastructure, the library, and the expertise in the community is important community capital. The Smart Community Network is essential to the development of an

inclusive smart community.

THE INFRASTRUCTURE OF THE SMART LIBRARY

The smart library will be dependent on the following:

.1 Knowledge Management

Knowledge management is driven by the following technologies:

- * Intelligent software agents that allow people to sift through the mass of data becoming available via intranets, extranets and the internet, and to be alerted to data of personal interest. Intelligent systems archive and direct the searching processes of the users by means of user profiles, in order then to offer them an a la carte service. Intelligent libraries are self-educating systems. Their accessibility system is generated in an interactive way in cooperation with the user.

Intelligent software agents include:

- software filtering
- automatic dissemination software
- Knowbots

Knowbots are "programs that go in search of information products and services that users request"⁵. They are standard features at sites like Yahoo!, Excite and HotBot. Knowbots can do:

- * information brokering:
 - alert users to new information or recommended products based on past selections or criteria specified by the user.
- * supplier brokering
 - act to identify best sources and suppliers as a by collecting information about price and availability.

- * Data mining software that enables organizations to burrow down through very large files in order to perceive patterns, trends and anomalies.

- * Search software that enables organizations to explore very large data collections and come up with accurate, pertinent facts and figures.

- * Evaluation software that sorts, categorizes and sifts assembled data and enables users to perceive information of potential importance.

- * Visualization software that displays information in highly graphic formats that enhance the users' ability to spot trends, items of importance and crucial intelligence without the need for lengthy study and browsing.

- * Communication networks, both internal and external, that bring large masses of global data within easy reach of all information users and gatherers.

- * Desktop computing power and storage that give individuals, and corporate divisions, enhanced ability to work on data collections and convert these collections to operational intelligence.

.2 Multi-media (New Media)

The convergence of sound, images and text through a common digital system will lead to the integration of these media into a unified multi-media or new media package. New multimedia production and delivery process will be incorporated into an intelligent meeting spaces which are yet to be designed and constructed. Libraries will be reorganized and reengineered to become an intelligent or smart meeting space.

.3 Digital Copyright

Intellectual Property.

Intellectual property rights in the networked environment of the virtual library will be controlled by intelligent workstation software.

Because of the convergence the separation of the creator, publisher, distributor and library functions will no longer be maintained.

THE SMART LIBRARY WILL BE USER-CENTRIC

In the traditional library environment, it was the user who had to move, from one information source to the next. In the smart library the user remains sitting in front of his screen, while in fact the information navigates in the direction of the user⁶.

The smart library will provide customized answers to information inquiries, such as:

- * alert notices for new novels based on user profiles
- * SDI - selective dissemination of information alerts
- * personalized news and information
- * special personalized reports from aggregated newspapers and magazine articles on any subjects of personal interest.
- * OnLine Broadcasts⁷. Allows users to view video broadcast presentations from thought leaders around the globe. Speakers would include thought leaders from a wide range of fields.

Smart Libraries will, over time, transform the concept of a knowledge object away from a thing like a book or document towards an experience or program. Library users will experience knowledge objects.

However, smart communities, smart community networks and smart libraries will not become a reality until we develop an information social contract.

INFORMATION PARTNERSHIPS AND INFORMATION SOCIAL CONTRACTS

In an industrial society both private sector and public sector organizations tended to try and control access to the information they controlled and "owned". In the industrial age governments, publishers, business and even libraries tended to treat information as proprietary. A knowledge society and smart communities are based on the sharing of information.

A smart community depends on:

- * access to a pool of knowledge to which all community organizations, including governments, educational facilities, businesses, organizations, individuals and libraries contribute⁸.
- * an infinite series of reciprocal partnerships, relationships and social interactions between people and between organizations. For example, most of us look to our friends or colleagues for information rather than to a database.
- * a communications and information technology infrastructure which facilitates access to the pool or flow of information and which also facilitates open communication.

Technology is the physical infrastructure that enables a smart community to function and the relationship between people is the glue that holds the smart community together. Together the information infrastructure and the personal relationships create a smart community that is alert, responsive, educating and productive, and that determines the success of a community.

However, none of this will work unless smart communities are enabled by a broad social contract. A social contract is

a basic pre-political understanding of what people in a given community are prepared to agree to in order to accomplish a set goal. A social contract must be agreed to before people will consider any legislative authority or regulation. Before we begin to develop truly smart communities we must engage in a broad discussion as to what constitutes a smart community and what we, as a society, are prepared to commit to, or submit to, in developing smart communities.

The discussion leading to the develop of an information social contract could include:

- * defining the shared goals and level of cooperation that would be required to unite a smart community
- * developing clear descriptions of the opportunities and risks offered by smart communities.
- * developing a common language and set of models for understanding smart communities.
- * describing the leadership that is responsive to smart communities.
- * defining how community institutions will have to change in order to foster smart communities.
- * identifying ways to involve all of the community in a smart community initiative.

Once the social contract is in place we can begin to outline the agreements, both formal and informal, that will determine the methods of access to the common pool of information and to the reciprocal exchange of information. Formal agreements include such things as copyright laws, while informal agreements include the willingness of an individual or organization to put something on the web to share with others.

The Information Systems/Information Management community is the construction crew of the smart community and public policy makers and librarians have the task of building the information social contract. We need social contracts that will enable the open sharing of information before we can build smart communities.

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