Our World as a Learning System: a Communities-of-Practice Approach

By William M. Snyder and Etienne Wenger

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We live in a small world, where a rural Chinese butcher who contracts a new type of deadly flu virus can infect a visiting international traveler, who later infects attendees at a conference in a Hong Kong hotel, who within weeks spread the disease to Vietnam, Singapore, Canada, and Ireland. Fortunately, the virulence of the Severe Acute Respiratory Syndrome (SARS) was matched by the passion and skill of a worldwide community of scientists, health care workers, and institutional leaders who stewarded a highly successful campaign to quarantine and treat those who were infected while identifying the causes of the disease and ways to prevent its spread. In such a world, we depend on expert practitioners to connect and collaborate on a global scale to solve problems like this one—and to prevent future ones.

Marshall McLuhan's assertion in 1968 that we live in a "global village" has come of age. During the past century, the world has become considerably smaller not only through the effects of the media—McLuhan's focus—but also through science, transportation, the Internet, migration, and the spread of global commerce. At the same time, there has been a proliferation of global problems: environmental degradation, the population explosion, increasing economic disparities between rich and poor nations, threats of biological and nuclear terrorism, disease pandemics, and breakdowns of financial systems. As the world becomes smaller, the problems we face are growing larger in scope and complexity.

We have survived these threats and, paradoxically, also caused or exacerbated them through dramatic innovations in science, technology, and organizational structures that increase our collective capacity to influence life on earth. Consider our ability to improve harvest yields and control diseases; to alter the genes in plants, animals, and humans; to create city- and world-spanning "virtual communities"; and to extend corporations around the globe. Whether or not we take responsibility for designing our world, the evidence suggests that we are doing it already. For better or for worse, we are Prometheus unbound.

Yet we have just begun to discover the metaphors and mechanisms for participating in global stewardship and, even among cultural elites, incorporating an identity as global citizens. What does it mean to "think globally and act locally"? Does global stewardship primarily imply building international organizations that address social and environmental issues to compensate for the economic focus of global corporations?

Is such a global perspective sufficient to address issues that are essentially local? How can we connect the power and accessibility of local civic engagement with active stewardship at national and international levels? What are the design criteria for such a system and what might it look like?

Design Requirements for a World Learning System

We believe there are three fundamental design criteria that help specify essential characteristics of a world learning system capable of addressing the scope and scale of the global challenges we face today. Problems such as overpopulation, world hunger, poverty, illiteracy, armed conflict, inequity, disease, and environmental degradation are inextricably interconnected. Moreover, they are complex, dynamic, and globally distributed. To address such challenges, we must increase our global intelligence along several dimensions: cognitive, behavioral, and moral. We must increase, by orders of magnitude, our societal capacity for inquiry; our ability to continuously create, adapt, and transfer solutions. A world learning system that can match the challenges we face must meet three basic specifications:

- <u>Action-learning capacity</u> to address problems while continuously reflecting on what approaches are working and why—and then using these insights to guide future actions.

- <u>Cross-boundary representation</u> that includes participants from all sectors—private, public, and nonprofit—and from a sufficient range of demographic constituencies and professional disciplines to match the complexity of factors and stakeholders driving the problem.

- <u>Cross-level linkages</u> that connect learning-system activities at local, national, and global levels—wherever civic problems and opportunities arise.

Civic development is essentially a social process of action learning, in which practitioners from diverse sectors, disciplines, and organizations work together to share ideas and best practices, create new approaches, and build new capabilities. The full potential of this learning process is only realized when it connects all the players at various levels who can contribute to it.

There are a number of organizations—including the United Nations, the World Bank, and an array of nongovernmental organizations such as Doctors Without Borders, the World Council of Churches, Oxfam International, major foundations, and many others—whose mission is to address worldwide problems. But these organizations typically focus on solving the manifestations of problems—eliminating land mines from war-torn regions or reducing the incidence of AIDS, for instance. Given the urgency of these problems, it is understandable that these organizations do not focus on the underlying learning capacity of a city or country.

While it is essential to address these and other urgent problems on their own terms, our society's long-term capacity to solve them at both local and global levels will nevertheless require step-change increases in our foundational capacity for intelligent social action.

What is the nature of large-scale learning systems that can operate at local and global levels? How can we take steps to create such learning systems? To what extent can they be designed and what does design even mean in such a context? These learning challenges are among our world's most urgent as we find ourselves today in a race between learning and self-destruction.

Cultivating Learning Systems

Fortunately, we have examples of transformative, inquiry-oriented learning systems in hundreds of private-sector organizations, with a growing number in public and nonprofit organizations as well—at both organizational and interorganizational levels. Strong, broad-based secular forces are driving this movement. Most organizations today, including domestic firms as well as multinationals, have been forced to confront large-scale learning issues to compete in the knowledge economy.

There is much we can learn from the experience of organizations about how to increase our society's collective intelligence. The most salient lesson is that managing strategic capabilities primarily entails supporting self-organizing groups of practitioners who *have* the required knowledge, *use* it, and *need* it. We call these groups "communities of practice" to reflect the principle that practitioners themselves—in active collaboration with stakeholders—are in the best position to steward knowledge assets related to their work. A well-known private-sector example of such practitioner stewardship is the network of "tech clubs" that Chrysler engineers formed in the early 1990s.[1] The company had just reorganized its product-development unit into "car platforms" focused on vehicle types (small cars, large cars, minivans, etc.). Design engineers with specialties related to the various vehicle components—such as brakes, interior, and windshield wipers— organized communities of practice to foster knowledge sharing across car platforms. The cross-boundary sharing of these communities was a critical success factor for the reorganization. We are now seeing a proliferation of organizations fostering the development of communities of practice across industry sectors, geographic locations, and various elements of the value chain.

Communities of practice are not new. They have existed since Homo sapiens evolved 50,000 years ago,[2] but organizations have now become increasingly explicit about

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[1]Etienne Wenger, Richard McDermott, and William M. Snyder, *Cultivating Communities of Practice*. Harvard Business School Press, 2002, chapter 1.

[2]In 1902, in the preface to the second edition of his seminal book *The Division of Labor in Society* (New York: Free Press, 1964), Emile Durkheim traced the history of professional groups—communities of practice—from ancient times through the twentieth century. He argued that these groups would be essential in the 20th century and beyond for weaving the fabric of social capital that would be torn apart as industrialization took hold in countries worldwide.
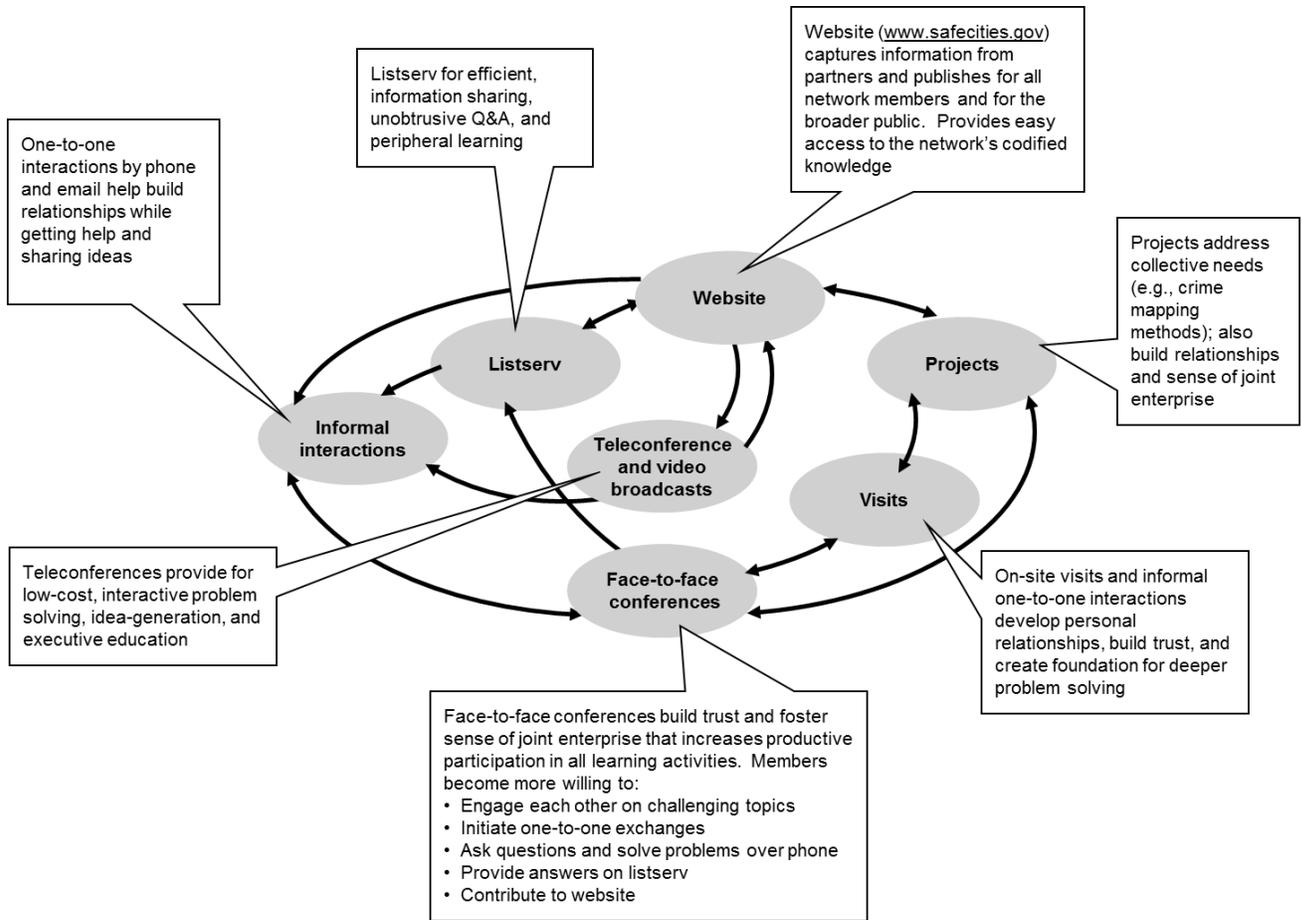
cultivating these communities. Distinctive competencies in today's markets depend on knowledge-based structures that are not restricted by formal affiliation and accountability structures. The most distinctive, valuable knowledge in organizations is difficult or impossible to codify and is tightly associated with a professional's personal identity. Developing and disseminating such knowledge depends on informal learning much more than formal—on conversation, storytelling, mentorships, and lessons learned through experience. This informal learning, in turn, depends on collegial relationships with those you trust and who are willing to help when you ask. Informal learning activities and personal relationships among colleagues are the hallmarks of communities of practice. Hence, we see an increasing focus on informal community structures whose aggregate purpose is to steward the learning of an organization and its invaluable knowledge assets.

Communities of practice consist of three basic dimensions: domain, community, and practice. A community's effectiveness as a social learning system depends on its strength in all three structural dimensions.

- *Domain.* A community of practice focuses on a specific "domain," which defines its identity and what it cares about—whether it is designing brakes, reducing gun violence, or upgrading urban slums. Passion for the domain is crucial. Members' passion for a domain is not an abstract, disinterested experience. It is often a deep part of their personal identity and a means to express what their life's work is about.
- *Community.* The second element is the community itself and the quality of the relationships that bind members. Optimally, the membership mirrors the diversity of perspectives and approaches relevant to leading-edge innovation efforts in the domain. Leadership by an effective "community coordinator" and core group is a key success factor. The feeling of community is essential. It provides a strong foundation for learning and collaboration among diverse members.
- *Practice.* Each community develops its practice by sharing and developing the knowledge of practitioners in its domain. Elements of a practice include its repertoire of tools, frameworks, methods, and stories—as well as activities related to learning and innovation.

The activities of a community of practice differ along several dimensions—face-to-face and virtual; formal and informal; public and private. Further, activities are orchestrated according to various rhythms—for instance, in one community, listserv announcements come weekly, teleconferences monthly or bi-monthly, projects and visits occur when an opportunity presents itself, back-channel e-mails and phone calls are ongoing; and the whole group gathers once or twice a year face-to-face. (See Figure 1.) These activities form an ecology of interactions that provide value on multiple levels. Beyond their instrumental purpose of creating and sharing knowledge, they increase the community's "presence" in members' lives and reinforce the sense of belonging and identity that are the foundation for collective learning and collaborative activities.

Figure 1. A typical ecology of community learning activities

One-to-one interactions by phone and email help build relationships while getting help and sharing ideas

Listserv for efficient, information sharing, unobtrusive Q&A, and peripheral learning

Website (www.safecities.gov) captures information from partners and publishes for all network members and for the broader public. Provides easy access to the network's codified knowledge

Projects address collective needs (e.g., crime mapping methods); also build relationships and sense of joint enterprise

Website

Listserv

Projects

Informal interactions

Teleconference and video broadcasts

Visits

Face-to-face conferences

Teleconferences provide for low-cost, interactive problem solving, idea-generation, and executive education

On-site visits and informal one-to-one interactions develop personal relationships, build trust, and create foundation for deeper problem solving

Face-to-face conferences build trust and foster sense of joint enterprise that increases productive participation in all learning activities. Members become more willing to:
• Engage each other on challenging topics
• Initiate one-to-one exchanges
• Ask questions and solve problems over phone
• Provide answers on listserv
• Contribute to website

Communities of practice do not replace more formal organizational structures such as teams and business units. On the one hand, the purpose of formal units, such as functional departments or cross-functional teams, is to deliver a product or service and take accountability for quality, cost, and customer service. Communities, on the other hand, help ensure that learning and innovation activities occur across formal structural boundaries. Indeed, a salient benefit of communities is to bridge established organizational boundaries in order to increase the collective knowledge, skills, and professional trust of those who serve in these formal units. For instance, at DaimlerChrysler, brake engineers have their primary affiliation with the car platform where they design vehicles. Yet they also belong to a community of practice where they share ideas, lessons learned, and tricks of the trade. By belonging to both types of structure, they can bring the learning of their team to the community so that it is shared through the organization, and, conversely, they can apply the learning of their community to the work of their team.

Pioneering, knowledge-intensive organizations have recognized that beyond the formal structures designed to run the business lies a learning system whose building blocks are communities of practice that cannot be designed in the same manner as formal, hierarchical structures. Communities of practice function well when they are based on the voluntary engagement of members. They flourish when they build on the passions of their members and allow this passion to guide the community's development. In this sense, communities of practice are fundamentally self-governed.

Our experience suggests, however, that while communities do best with internal leadership and initiative, there is much that organizations can do to cultivate new communities and help current ones thrive. The intentional and systematic cultivation of communities cannot be defined simply in terms of conventional strategy development or organizational design. Rather, sponsors and community leaders must be ready to engage in an evolutionary design process whereby the organization fosters the development of communities among practitioners, creates structures that provide support and sponsorship for these communities, and finds ways to involve them in the conduct of the business. The design of knowledge organizations entails the active integration of these two systems—the formal system that is accountable for delivering products and services at specified levels of quality and cost, and the community-based learning system that focuses on building and diffusing the capabilities necessary for formal systems to meet performance objectives. It is crucial for organizational sponsors as well as community leaders to recognize the distinct roles of these two systems while ensuring that they function in tandem to promote sustained performance.

The fundamental learning challenges and nature of responses in business and civic contexts are very similar. The size, scope, and assets of many businesses create management challenges that rival those of large cities, or even small countries. In both cases, one needs to connect practitioners across distance, boundaries, and interests in order to solve large-scale problems. Organizations have found that communities of practice are extremely versatile in complementing formal structures. They are known for their ability to divide and subdivide to address hundreds of domains within and across organizations; they lend themselves to applications where scalability, broad scope, and the need for extensive, complex linkages are relevant. Hence there is much we can learn from the early, highly developed business examples. The approaches for building large-scale learning systems in organizations—by combining both formal and informal structures—provide a blueprint for thinking about how to build such systems in the messy world of civil society.

Civic Communities of Practice: Local, National, and International

Communities of practice already exist in the civic domain, where they complement place-based communities as well as the ecology of formal organizations, including businesses, schools, churches, and nonprofits. In the civic arena as well as in organizations, our challenge is not to create communities of practice so much as to foster them more systematically.

Our analysis of societal learning systems—whether at local, national, or international levels—focuses on cities (which we define as an entire metropolitan region) as high-leverage points of entry for a number of reasons. For one, as of the year 2000, there are more humans on the planet living in cities than outside them. In 2002, there were 20 megalopolises in the world with more than 10 million people, and by 2015 there will be nearly 40. Cities have always been the font of new ideas, new applications of technologies, new cultural movements, and social change. They constitute natural nodes in a network for disseminating innovations. In the problems they face and the opportunities they offer, they also provide a microcosm of the world. Finally, cities possess an organizational infrastructure and established leadership groups with the potential to see the value and to sponsor the design of a local learning system.

In many cities, multisector coalitions or alliances are formed to take on a pressing issue such as improving urban schools, increasing access to low-income housing, cleaning up a business district, or building a stadium, park, or cultural facility. These coalitions, however, generally do not take sustained responsibility for stewarding a civic domain or for bringing together the full array of stakeholder constituencies to identify and address short- and long-term priorities. One way to assess the level of civic stewardship in any city or region is to map the prevalence, inclusiveness, and effectiveness of civic communities of practice (also known as coalitions, associations, partnerships, and alliances, among other terms) who take responsibility for clusters of issues related to particular civic domains, such as education, economic development, health, housing, public safety, infrastructure, culture, recreation, and the environment. The reality is that in many cities these domains have no explicit stewardship, or they are left to public agencies or to a menagerie of disparate, often competitive and conflicting organizations that carve out small pieces of the puzzle—regarding housing availability, for example— but do not coordinate efforts or leverage a common base of expertise and resources.

The city, reimagined as a learning system, consists of a constellation of cross-sector groups that provide stewardship for the whole round of civic domains. (See Figure 2.) Cultivating a learning system at the city level means taking stock of the current stewardship capacity in the city and accounting for the array of civic disciplines and the quality of active communities of practice stewarding them. This city-level assessment provides a template for what a nation can do. At the nation level, leaders might evaluate a representative sample of major cities and regions as a baseline assessment of its civic stewardship capacity. By extension, an evaluation of the top 500 strategic cities in the world could provide a benchmark for our civic learning capacity at a global level. At the national and global levels, the analysis also considers the strength and quality of linkages across cities both within and across nations. Of course, even at the city level, there are subsectors and neighborhoods that are fractal elements of the city, each with its own whole round of civic practices, and among which neighborhood-to-neighborhood linkages are as instrumental as ones that connect cities and nations.

Figure 2. The City as a learning system: Stewarding the whole round of civic domains

A City-Based Community: Economic Development in Chicago

A city-based initiative to promote economic development in Chicago provides an example of an effort designed to leverage communities as agents of civic development.[3] In 1999, The City of Chicago established a cross-sector coalition, the Mayor's Council of Technology Advisors, to create 40,000 new high-tech jobs in the Chicagoland region. The coalition leaders began by pulling together a group of 45 civic leaders to brainstorm ways to achieve this goal. According to a study commissioned before the group met, the greatest challenge they faced was encouraging business development in high-tech industries such as telecommunications and biotech. A related challenge was cultivating local sources of seed capital for start-ups in these industries.

The result of the group's first meeting was a slate of long- and short-term initiatives—including the introduction of technology in schools; encouraging young women and

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minorities to explore technology careers; and building a stronger digital infrastructure in the city, especially in underserved areas. Several of the groups focused on initiatives specific to the industry sectors identified in the initial study: telecommunications, software development, biotech, venture capital, and emerging areas such as nanotechnology. The industry groups were particularly successful in this initiative, largely because they were able to coalesce communities specific to development challenges in each industry sector.

The civic leaders in Chicago understood that coalescing communities of practice—in this case, along industry lines—was the foundation for building relationships, generating ideas, and catalyzing business initiatives. As one leader put it, "Our first objective was to create communities, period. The technology industries were fragmented without a sense of commonality. For example, we have more software developers than in Silicon Valley, but here it's only 9 percent of the workforce. So we started getting people connected and networked and building a sense of community in our high-tech sectors."

The Chicago Biotech Network (CBN) is one of the more mature high-tech communities in Chicago and provides an illustration of the influence and stewardship such a community can have over time. CBN started as a grassroots group that held about five seminars a year for diverse constituents interested in biotech developments. At first, it was more for individuals interested in life sciences. Then companies (such as Abbott Laboratories and Baxter, two *Fortune 500* pharmaceuticals located in the Chicago area), started to attend the meetings as well, and they brought different perspectives. Over time, the community came to include scientists, university deans, lawyers, venture capitalists, angel investors, city and state business development staff, and others. Anywhere from 25-200 people showed up at the meetings, which were held at various places and sponsored by members. These gatherings provided an opportunity for members to discuss science and industry trends and build relationships. One of the leaders summarized the community's evolution: "Early on, people mostly came for the personal value of networking and discussing ideas. Now the domain of the community is to promote science and business development in the biotech sector in the Chicago area. We focus on science ideas, business development know-how, and knowledge transfer processes." Offshoots of community activities include targeted events that link scientists, angel investors, and large pharmaceuticals to fund biotech startups that can commercialize promising innovations coming out of university labs. On a broader level, the community has helped increase biotech lab space in the city, lobbied at state and federal levels for increased research funding, and recruited biotech companies to locate in Chicagoland.

The leader of the Chicago-based biotech community estimated the value of the community's activities for generating start-ups and, by extension, job creation in the region: "I can't point to anything specific, but our events have brought structure to the interface between R&D scientists and the venture community; and we've gone from very little venture funding to the point where we now have $50 million coming to various biotech companies this year."

The Chicago Biotech Network illustrates how an industry-based community of practice can serve as a powerful force for civic development. In this case, the focus was on economic development, but the key point is that strong stewardship of civic issues, even in the hard-nosed area of industry development, depends on vital communities of practice. The purpose of the communities was not only to provide professional development and networking opportunities but also to cultivate thriving high-tech industries in Chicagoland. These communities advocated for their domain as a strategic focus for the city, built relationships among community members from various backgrounds, and shared know-how among practitioners. Finally, as one community leader stated, they worked to serve the city they loved, and ultimately their children, who would inherit their civic legacy.

A National Community: SafeCities to Reduce Gun Violence

Communities of practice can also provide powerful stewardship for civic issues at the national level by connecting innovative civic groups across cities. The SafeCities community, for example, was organized in March 1999 by Vice President Al Gore's Reinventing Government initiative to reduce gun violence in the United States. The announcement of the SafeCities community coincided with publication of the FBI's crime-rate statistics, which showed significant variation across cities in injuries and fatalities caused by gun violence. Senior executives in the National Partnership for Reinventing Government (NPR) office began by convening officials from relevant agencies and developing a shared vision for what the network would be about and how they would work together. They sent out an invitation to cities and regions nationwide and selected ten coalitions to participate in the SafeCities community—based on criteria that included multisector collaboration, a track record of innovation, and commitment to improved results. These local coalitions provided stewardship for public safety issues in their cities as did the industry-focused communities in Chicago. A striking characteristic of the initiative was that it offered participants no funding—the value of participation was to get connected, to learn, and to enhance the capacity to reduce gun violence. The scale of the initiative was also distinctive—connecting civic coalitions from across the nation for the purpose of sharing ideas, collaborating on innovation initiatives, and helping to shape policy at local, state, and federal levels.[4]

The SafeCities community can be described in terms of the three structural dimensions of communities of practice. Each of the coalition members was focused, broadly speaking, on issues related to the domain of public safety. Their specific domain targeted a subdomain within this area—defined as reducing injuries and fatalities due to gun violence. The specificity of this domain was crucial for coalescing a community with

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[4] See "Communities of Practice: A New Tool for Managers," William M. Snyder and Xavier de Sousa Briggs, 2003 (*IBM Endowment for the Business of Government*, at businessofgovernment.org/reports), for a detailed case analysis of the SafeCities community and others sponsored by the NPR office and other federal agencies.

overlapping interests, focusing its learning activities, and attracting sponsors. The community was composed of members at local and national levels and from various disciplines and constituencies, such as officials from the FBI, the Bureau of Alcohol, Tobacco, Firearms and Explosives, and an assortment of divisions within the Justice Department at the national level; and mayors, police chiefs, faith leaders, hospital and social workers, school principals, neighborhood activists, and district attorneys at the local level. Finally, the practice of SafeCities members included community policing strategies, after-school programs, crime-mapping methods, prosecutorial strategies, the design of local gun-possession laws, and ways to improve the interaction between at-risk youth and law-enforcement professionals.

After a couple of preliminary teleconferences, SafeCities was launched at a face-to-face meeting in Washington, D.C., explicitly billed as a community-of-practice launch. The sponsors and community coordinating team (based in the NPR office) posed three basic questions for the group to address during the two-day conference: What is SafeCities about (domain)? Who is part of SafeCities (community)? What does SafeCities do (practice)? The conference included opportunities for members to meet informally, including an evening reception and knowledge-sharing "fair." A nationally renowned police chief from Highpoint, North Carolina, gave a talk about his city's success at reducing gun violence through both rehabilitation and enforcement efforts that focused on the city's most violent individuals. (He was so impressed with the gathering that he asked NPR officials if his coalition could join, and they agreed to make his group an honorary member.) During the conference, members outlined a design for how they would learn together—including teleconferences, visits, a Web site, and other activities. The issues they identified became topics for their biweekly teleconferences. The conference was instrumental in coalescing members around a shared agenda and building trust and reciprocity. The SafeCities teleconferences subsequently became more active and members were more forthcoming about selecting topics and offering to speak to the group about their experiences. Fostering "community"—a sense of mutual trust, shared identity, and belonging—took on more prominence as an important structural element that made SafeCities successful.

One of the outcomes of the initial conference illustrates the value of network participation for members. After hearing the Highpoint police chief talk about his success, groups from Ft. Wayne, Indiana and Inkster, Michigan—including police chiefs, mayors, and faith leaders from both cities—visited Highpoint and observed programs in action. Both coalitions then adapted the Highpoint model for their own locales with coaching from Highpoint.

SafeCities operated successfully from March 1999 until June 2002, spanning the transition from a Democratic to a Republican administration. Political appointees from both parties, as well as senior civil servants in the Justice and Treasury departments (where the sponsorship was primarily based) believed in the cross-level, cross-sector approach that SafeCities embodied. Sponsors were impressed to see such active

participation on the part of senior civic leaders, even though they received no government funding for participating. These local leaders felt strongly about the value SafeCities provided—in terms of ideas, access to expertise, and opportunities for national visibility and influence based on local success.

Agency sponsors ultimately decided to close the SafeCities community in favor of a more conventional federal program. The decision confused many of the participants, given the minimal federal costs associated with the initiative, principally the cost of funding the community's full-time coordinator (a junior staff person, albeit a talented leader) and intermittent attention by agency champions. The coordinator's role was particularly important—arranging speakers for teleconferences, documenting insights on the Web site, arranging peer-to-peer visits, and coordinating with state and federal officials. The loss of the coordinator and agency attention was a fatal blow to the community. In its place, the Justice Department enacted a new program, called SafeNeighborhoods, which provided funding for local initiatives such as after-school programs. The program managers intended to build on the SafeCities foundation, but they did not appreciate the distinctive characteristics of the community—opportunities for peer-to-peer learning and collaboration across cities, sectors, and levels of government. While SafeCities members were glad that the government was providing new funds to support local initiatives, they passionately argued that such funding could never substitute or compensate for the value of the SafeCities community.

The SafeCities story thus validates the power of cross-city communities of practice while highlighting a key challenge: how to educate senior leaders with the power to sponsor such initiatives—from public, private, or nonprofit sectors (including foundations).These and other questions about starting, sustaining, and scaling such initiatives must be addressed for communities to succeed at local, national, and international levels.

An International Community: Ayuda Urbana on City Management

At the international level there are a myriad of professional groups and organizations that focus on global civic issues. In recent years a number of these have developed a stronger emphasis on peer-to-peer learning and innovation among members from diverse disciplines. The Ayuda Urbana initiative was started in conversations about developing municipal capabilities between World Bank urban specialists and several mayors of capital cities in the Central American and Caribbean region. They recognized the value of connecting with peers across borders to address problems and challenges that all cities in the region face. A group of ten cities decided to participate in the initiative: Guatemala City, Havana, Managua, Mexico City, Panama City, San Jose, San Juan, San Salvador, Santo Domingo, and Tegucigalpa. The people involved in the project include the mayors and their staff in each of the ten cities. Additional partners include the World Bank,

which provides overall coordination, some regional organizations to provide local legitimacy, and the British and Dutch governments to provide funding.[5]

The project was to create a constellation of communities of practice that would take advantage of the knowledge available in the participating cities. The domains would focus on a challenge of urban development and management the cities shared, including e-government, urban upgrading, environmental sanitation, municipal finances, urban transportation, renovation of historical city centers and poverty alleviation, and disaster prevention and management. The communities would consist of urban specialists in each domain from the participating cities and from local organizations. Together they would build their practice by comparing experiences and sharing resources across cities, with input from World Bank experts about what had been learned elsewhere.

The communities of practice were officially launched through a series of two-day workshops, each focused on one of the topics. Each workshop brought together specialists from the participating cities as well as a few World Bank experts. The purpose of the workshops was to

- create an initial forum to develop relationships and trust through face-to-face interactions among participants
- provide an opportunity for each participating city to share its experience
- engage participants in a discussion of lessons learned based on presentations by World Bank experts
- establish a prioritized list of the most pressing issues and most frequently asked questions
- introduce Web-based tools for use in facilitating an ongoing learning process and train participants to use the system
- choose a person to coordinate the collection of resources to be shared via e-mail and the Web site.

The project has created an interactive Web site, available to the public, which serves as a repository for the various communities of practice. The site includes a library of resources, downloadable manuals, bibliographic references, and proceedings of meetings. In addition, the site hosts an online forum to give participants the opportunity to discuss issues, ask questions, share relevant information, and stay in touch. For example, a community member asked how to price waste management services. Another member from San Salvador responded with a posting that explained how his city determined the price of such services.

The Ayuda Urbana initiative illustrates the value of collaboration across borders to address urgent issues in urban development, and it raises salient issues common to

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[5] For a more extensive review of this initiative see: Etienne Wenger, *Ayuda Urbana: A constellation of communities of practice focused on urban issues and challenges in Central America, Mexico, and the Caribbean region*, 2003 (summary at: worldbank.org/externalprograms).

international communities. Creating communities of practice among cities from different countries is not all that different from similar efforts within a country, but there is additional complexity. The regional focus of Ayuda Urbana meant that participants spoke the same language and shared a cultural context. The situation would have been more complex if the project had expanded beyond the region. Another issue is the role of the convener when members do not share the same national government. Sponsorship has to come from an organization like the World Bank, which can appreciate the vision of cross-border communities and the subtleties involved in cultivating such communities. Indeed, Ayuda Urbana represents the latest development of a broader initiative at the World Bank to focus on knowledge as a key lever in the fight against poverty. The Bank started an initiative in 1998 to support the development of communities internally, and since then the number of communities has grown from 25 to more than 100—and the influence of several has been considerable. An external study of the communities found that they were the "heart and soul" of the Bank's new strategy to serve its clients as a "knowledge bank."

The Ayuda Urbana initiative highlights the importance of a skilled convener who is committed to a community-based approach as a way to address societal challenges. In this case, the World Bank is applying the same knowledge strategy with client countries that it has been applying internally. Indeed, the Bank's experience in cultivating communities of practice was critical to the success of the Ayuda Urbana project. The result is a new model for facilitating knowledge development among countries. Experts at the Bank consider it their task not just to provide their knowledge to clients but to build communities of practice among them as a way to develop their capabilities. The Bank experts still have a role to play, but not in a one-way transfer. Instead, their contribution takes place in the context of a community of practice that emphasizes peer-to-peer learning. This approach models a shift in the traditional relationship between sources and recipients of knowledge.

The Fractal Structure of Large-Scale Learning Systems

Cultivating civic learning systems involves many of the challenges that organizations face in cultivating internal learning systems, but many of these become amplified in the civic context. The domains are especially complex; the communities tend to be very diverse; and the practices involve different disciplines, varied local conditions, and less well-defined opportunities to work together on projects. But perhaps the greatest challenge is the scale required for civic learning systems to leverage their full potential and match the scale of the problems they address.

How do you significantly increase the scale of a community-based learning system without losing core elements of its success—identification with a well-defined domain, close personal relationships, and direct access to practitioners for mutual learning? The

principle to apply is that of a fractal structure.[6] In such a structure, each level of substructure shares the characteristics of the other levels. Applying such a design principle, it is possible to preserve a small-community feeling while extending a system from the local to the international level. Local coalitions such as the Chicago Biotech Network and each of the SafeCities partners created a local focus of engagement that made it possible for members to participate in broader networks at national and international levels. The idea is to grow a "community of communities" in which each level of sub-communities shares basic characteristics: focal issues, values, and a practice repertoire. Each dimension of a community of practice provides opportunities for the constitution of a fractal learning system.

Fractal domain. In many cases, domains may start more broadly and eventually subdivide as members discover nuances and opportunities to focus on different subtopics or to apply a topic to different localities. Ayuda Urbana, for example, is spawning subdomains related to particular civic practices and engaging members with particular expertise and interest in those areas. The city-based coalitions of SafeCities focused on the same issues but within the context of their situations. All these subdivisions retain a global coherence that gives the entire system a recognizable identity and allows members to see themselves as belonging to an overall community even as they focus on local issues.

Fractal community. Topical and geographic subgroups help create local intimacy, but they must be connected in ways that strengthen the overall fabric of the network. A key to this process is multi-membership. Members such as those in the SafeCities network join at the local level but end up participating in multiple communities in ways that help interweave relationships in the broader community. As a result, they become brokers of relationships between levels in equivalent types of communities. This works because trust relationships have a transitive character: I trust people trusted by those I trust. The police chief in Highpoint, for example, had developed strong relationships with FBI officials, which in turn encouraged his peers to work more closely with federal agents.

Fractal practice. Useful knowledge is not of the cookie-cutter variety. Local conditions require adaptability and intelligent application. A fractal community is useful in this regard because it allows people to explore the principles that underlie a successful local practice and discuss ideas and methods in ways that make them relevant to circumstances elsewhere. A fractal community can create a shared repertoire and develop global principles while remaining true to local knowledge and idiosyncrasies. Moreover, if one locality has a problem or an idea, the broader community provides an extraordinary learning laboratory to test proposals in practice with motivated sites. In the SafeCities community, local coalition members were ready and willing to share results quickly and

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[6] See James Gleich, *Chaos: Making a New Science*. New York: Penguin Books, 1987, pp. 81-118.

convincingly with peers and then translate these into action. A SafeCities member from Michigan reported, for example, that a visit to meet with innovating colleagues in Highpoint "added ideas and motivation to an initiative that we had been planning for a year. Once our mayor visited, he wanted to do it." Highpoint members then helped the Michigan coalition adapt their model successfully.

Each locality constitutes a local learning experiment that benefits from and contributes to the overall learning system. The key insight of a fractal structure is that crucial features of communities of practice can be maintained no matter how many participants join—as long as the basic configuration, organizing principles, and opportunities for local engagement are the same. At scale, in fact, the learning potential of the overall network and the influence at local levels can increase significantly. The key challenge of a large-scale learning system is not whether people can learn from each other without direct contact but whether they can trust a broader community of communities to serve their local goals as well as a global purpose. This depends on the communities at all levels—local, state, national, and international—to establish a culture of trust, reciprocity, and shared values. Developing this social capital across all levels is the critical success factor for going to scale. The evolution of a learning system must therefore be paced at the time-scale of social relationships, not according to an externally imposed objective to achieve short-term results. Organizers need be careful not to scale up too fast. They need to establish trust and shared values at different levels of aggregation through various mechanisms, including a network of trusted brokers across localities.

Challenges for Supporting Civic Learning Systems

In the civic domain, the institutional context can be fragmented and the issues politically charged. This presents particular challenges for finding sponsorship, organizing support, and managing potentially conflicting constituencies.

Sponsorship. All three communities depended on sponsorship from executives such as the Mayor of Chicago, the Vice President of the United States, or representatives of the World Bank and funding governments. Sponsorship is especially important for large-scale learning systems that will require additional activities to connect localities. It can be difficult, however, to identify the "client" who benefits when a learning system is so dispersed. When you try to engage a city to sponsor a constellation of cross-sector communities of practice to address an array of civic domains, where do you start? A civic community of practice is such an innovative approach that leaders typically do not have enough context to see its value. Sustained sponsorship, furthermore, requires community members to make the value visible enough to demonstrate the payoff of sponsor and stakeholder investments. Finally, the legitimacy of sponsorship can be contested in a politically fractious context, where the role of institutions such as the World Bank or the federal government in orchestrating local affairs is not universally welcome.

Support. Process support was key to the communities we have described. They needed help with local event planning, finding resources, coordinating projects across levels, finding others to connect with, and designing ways to connect. All three communities needed facilitation at meetings, and SafeCities and Ayuda Urbana both required moderation for their online interactions. A challenge for civic learning systems is that there may be no clearly defined institutional context or financing model for process support. The Ayuda Urbana experience also suggests that one must be ready to provide a lot of support at the start to help develop members' local capabilities and prepare the group to operate more independently. Civic communities of practice also need help to build a technology infrastructure for communicating across geographies and time zones, and for building accessible knowledge repositories. This can be particularly difficult when communities span multiple organizational contexts.

Conflict management and collaborative inquiry. Civic communities of practice organized around contentious issues such as housing, education, and health will face considerable obstacles from formal and informal groups with entrenched and opposing views and interests. There are good reasons these basic conflicts have been so intractable: views and values are divergent and trust among players is often low. Moreover, businesses, nonprofits, governments, and universities have reasons to resist the development of communities of practice. These formal organizations and their leaders have developed established, privileged positions in society, and changes initiated by community members may not be welcomed. Inevitable mistakes early on could further diminish low trust levels and reduce the low-to-medium public readiness to invest time in these unfamiliar social commitments. Communities that face such tensions will have to develop expertise in collaborative inquiry and conflict management and learn to build trust over time through activities that enable members to find common ground

Where Do We Go from Here?

There is an emerging, global zeitgeist about community and learning. These issues have become commonplace in multinational organizations—private, public, and nonprofit. Still, when one looks at the learning requirements of the world, the complexity of the required learning system may seem so overwhelming as to discourage action. But the advantage of a community-of-practice approach is that it can be evolutionary—starting small and building up progressively, one community at a time. It is not necessary to have broad alignment of the kind required for designing or changing formal structures. We can start wherever there is opportunity, energy, and existing connections. We can build on what already exists. Indeed, we have found successful examples of initiatives to cultivate learning systems: within cities, across cities at a national level, and across cities internationally. Taken together, these early examples paint a picture of what a mature world learning system may look like, and they give some indication of what it will take to cultivate such a system.

We now need to develop frameworks for describing the organizational nature of civil society as a community-based action-learning system—and tools and methods for cultivating such systems. This essay is thus not only a call to action and a proposal for what is possible. It also calls for a new discipline. A discipline that expands the field of organization design and applies analogous principles at the world level. A discipline that promotes the development of strategic social learning systems to steward civic practices at local, national, and global levels. A discipline whose scope is the world and whose focus is our ability to design the world as a learning system—a discipline of *world design*.

This essay is only a beginning. There are many established and emerging disciplines— political science, economic sociology, social network analysis—that can inform the work in this domain. A community-based approach to world design is not a silver bullet for solving the problems of the world. While the emphasis here has been on community, a complete discipline of world design would address how the power of communities can be most fully realized by aligning community activities within a broader ecology of formal and informal structures—institutions, cultural groups, laws, and social networks.

To steward such a discipline, we need a community of practice ourselves—or indeed a constellation of communities on the topic of world design, at local, national, and global levels. For instance, a small group of people passionate about civic development may gather to outline an approach to cultivating the city as a learning system. They might connect with various civic leaders and extant initiatives, and organize a gathering for the purpose of assessing the implicit structure of the city today as a practice-based learning system. Which practices have active stewardship? What groups are providing it with what sorts of initiatives and results? Who is represented? Where is the focus of sponsors—such as local government, corporations, universities, the media, and foundations? To what degree is there a shared language and understanding across constituencies of the nature of cross-sector civic governance and how to participate effectively? These questions become the concerns of "meta-communities" at various levels, which can link together—as a community of meta-communities—and build their own practice to support the development, effectiveness, and influence of civic communities at all levels.

The complexity and intelligence of such a social learning system must match the complexity of world design challenges and the knowledge requirements associated with them. The messy problems of civil society require a commensurate capacity for learning, innovation, and collaboration across diverse constituencies and levels. The challenge to intentionally and systematically design and develop the world as a learning system must be a global, diverse, interwoven social movement. This social movement is not simply about advocacy; nor is it a political revolution. Rather, it is about the transformation of civic consciousness—a way of thinking about governance as an action-learning process, as a role for civic actors across sectors, as a process that links the local and global in clear and concrete ways. And it depends, fundamentally, on individuals finding a path to participate locally—whether via a community of place or practice, or both—a way that gives them access to the entire learning system. Let us begin.

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