

# Chapter 1

## Communities of practice and their value to the organization

### Draft

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In 1988, when Japanese competition was threatening to put the company out of business, no one suspected that the Chrysler Corporation (which is now the Chrysler unit of DaimlerChrysler) was going to create an innovative knowledge system based on communities of practice. While some of its competitors took as little as three years to get a new vehicle to market, a typical new-product development cycle at Chrysler easily ran 60 months. This was no way to compete. The first order of the day was to achieve a dramatic reduction in this product-development cycle.

The story is rather well-known, though the role that communities of practice played in it is less widely understood. At the time, Chrysler was a traditional organization typical of large manufacturing operations with functional units like design, engineering, manufacturing, and sales. The design department would send a new design to engineering, which would send it back for redesign a few times. The design would then go to manufacturing and be sent back for reengineering until the vehicle was “manufacturable.” The localized focus of the functional organization gave rise to these unavoidable iterations. Iteration, duplication, and therefore slowness were built into the system.

The decision was made to reorganize the unit radically. Engineers would now belong to “car platforms.” These platforms are product-oriented cross-functional structures that focus on a type of vehicle: large cars, small cars, minivan, trucks, and Jeep. Each platform is responsible for all phases of development associated with the whole vehicle. Engineers of all specialties report to supervisors within the platform on which they work. As a result, their primary focus is on the development of a specific vehicle. For instance, if you are a brakes engineer, your main allegiance, your reporting relationships, and your performance evaluation are no longer with the brakes department, but with a platform, such as small cars or minivan.

Eventually, the move to car platforms succeeded in reducing the product-development cycle from 60 to 30 months, with a corresponding cut in R&D costs. But the restructuring did not come without its own costs. A host of new problems started to appear: multiple versions of the same part with slight variations, uncoordinated relationships with suppliers, innovations that did not travel, and mistakes that were repeated. The company

had gained the advantage of product focus, but compromised its ability to learn from its own experience. Something had to be done to save the platform idea.

With a clear need for communication across platforms, former colleagues from functional areas started to meet informally. Managers recognized the value of these informal meetings in creating learning processes that cut across all platforms. Still, they wanted to keep the primary allegiance and formal reporting relationships of engineers within the platforms. Rather than formalizing these emerging knowledge-based groups into a new matrix structure, they decided to keep them somewhat informal but to sanction and support them. The Tech Clubs were born.

Tech Clubs began to take more active responsibility for their area of expertise. For instance, they started to conduct design reviews for their members before a design went through quality gates. In 1996, an engineering manager revived the old idea of creating an Engineering Book of Knowledge (EBoK), a database that would capture the relevant knowledge that engineers needed to do their job, including compliance standards, best practices, lessons learned, and supplier specifications. The EBoK vision could only succeed if the engineers themselves took responsibility for creating and maintaining the contents. Some Tech Club leaders saw the project as an opportunity for consolidating Tech Club knowledge and taking stewardship of it. Documenting engineering knowledge had been tried several times before, but now it was part of the activities and identity of specific communities in charge of an area of engineering. This communal responsibility for the process of producing the engineering book of knowledge was key to its success.

Over time, Tech Clubs progressively established their value and became an integral part of engineering life at the Chrysler division. Engineers have discovered that participating helps them do their job better, and the time spent together is a good investment. It often saves them time and increases their confidence in their own design. It gives them a chance to get help with their own problems, to learn what others are discovering, and to explore emerging technologies. Today, there are over a hundred officially recognized Tech Clubs, plus a few emerging ones. They are responsible for a host of knowledge-based activities such as documenting lessons learned, standardizing practices for their area, initiating newcomers, providing advice to car platforms, and exploring emerging technologies with suppliers. Through the Tech Clubs, Chrysler realized the value of what today people call “communities of practice.” Theirs is among a few pioneering stories, but it is no longer unique. It reflects a movement spreading all over the world.

Companies at the forefront of the knowledge economy are succeeding on the basis of communities of practice, whatever they call them. The World Bank delivers on its vision of fighting poverty with knowledge as well as money by relying on communities that include employees, clients and external partners. Shell relies on communities to preserve technical excellence across its multiple business units, geographical regions, and project teams. McKinsey counts on its communities of practice to maintain a world-class premium on its expertise in topics important to clients who are themselves becoming smarter and more demanding. The list could go on and on. In all industries, companies are discovering that communities of practice provide a critical element to address the

increasingly difficult knowledge challenges they face. They are learning to recognize these communities and cultivate them. Moreover, once these communities find a legitimate place in the organization, they offer new possibilities—many yet undiscovered—for weaving the organization around knowledge, connecting people, solving problems, and creating business opportunities. And because communities of practice are not confined by institutional affiliation, their potential value expands beyond the boundaries of any single organization.

## **What is a community of practice?**

Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their understanding and knowledge of this area by interacting on an ongoing basis. Engineers who design a certain kind of electronic circuits called phase-lock loops find it useful to meet regularly, compare their designs, and discuss the intricacies of their esoteric specialty. Soccer moms take advantage of the time when their children practice their sport to discuss their dilemmas and share tips and insights about the subtle art of parenting. Artists congregate in cafés and studios to debate the merits of a new style and to compare their experiments with new techniques, as the Impressionists did in Paris in their heydays. Gang members learn to live on the street and deal with an unfriendly world. Frontline managers in charge of running manufacturing operations get a chance to commiserate, to learn about upcoming technologies, and to foresee shifts in the winds of power.

These people don't necessarily work together on a day-to-day basis, but they get together because they find value in their interactions. As they spend time together, they typically share information, insight, and advice. They solve problems. They help each other. They discuss their situation, their aspirations, their needs. They think about common issues. They explore ideas and act as sounding boards to each other. They may create tools, standards, generic designs, manuals, and other documents; or they may just keep what they know as a tacit understanding they share. However they accumulate knowledge, they become informally bound by the value that they find in learning together. The value they find in their interactions is not merely instrumental for their work or their survival. It also has to do with the personal satisfaction of knowing each other, of having colleagues who understand each other's perspectives, and of belonging to an interesting group of people. Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices, and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice.

Communities of practice are not a new idea. They were our first knowledge-based social structures, back when we lived in caves and gathered around our fires at night to discuss the hunt, the shape of arrowheads, strategies for cornering the prey, how to recognize certain berries, or which roots were edible. In ancient Rome, "corporations" of metalworkers, potters, masons, and other craftsmen had both a social aspect (members worshipped common deities and celebrated holidays together) and a business function (training apprentices and spreading innovations). In the Middle Ages, guilds fulfilled

similar roles for artisans throughout Europe.<sup>1</sup> Guilds lost their influence during the industrial revolution, but communities of practice have continued to proliferate to this day in every aspect of human life.<sup>2</sup> Every organization and industry has its own history of practice-based communities, whether formally recognized or not. Why else are the surviving U.S. automakers all based in Detroit? What explains the high-tech fertility of Silicon Valley? And why can't you buy a world-class flute outside of three small manufacturers based in Boston?<sup>3</sup>

Communities of practice are everywhere. We all belong to a number of them—at work, at school, at home, in our hobbies. Some have a name, some don't. Some we recognize, some remain largely invisible. We are core members of some and we belong to others more peripherally. You may be a member of a band, or you may just come to rehearsals to hang around with the group. And you may or may not be aware that the lunch group you belong to is one of your main sources of knowledge. You may lead a community of consultants who specialize in telecommunication strategies, or you may just stay in touch to keep informed about developments in the field. Or you may have recently joined a community and are still trying to find your place in it. Whatever form our participation takes, most of us are familiar with the experience of belonging to a community of practice.

## **A key to success in a global knowledge economy**

If communities of practice have been around for a long time and if they are everywhere, why should organizations all of a sudden focus on them? It is not communities of practice themselves that are new, but the need for organizations to become more intentional and systematic about “managing” knowledge, and therefore to give these age-old structures a new, central role in running their business.

Knowledge has become the key to success. It is simply too valuable to be left to chance. Companies need to understand precisely what knowledge will give them a competitive advantage. They need to develop this knowledge and keep it on the cutting-edge. They

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<sup>1</sup> In fact, the term community of practice was coined in the context of studies of traditional apprenticeship. Apprenticeship is often thought of as a relationship between a master and a student. Yet, we observed that learning took place mostly in interactions with journeymen and more advanced apprentices. Community of practice is the term we used to refer to this social structure. Once we had the concept, however, we started to see these communities in all kinds of other settings, where there was no official apprenticeship. See Lave and Wenger (1991).

<sup>2</sup> In his Second Preface to The Division of Labor, sociologist Emile Durkheim in 1913 traced the history of professional groups from ancient times through to the twentieth century. He argued that occupational communities could provide much-needed social connections to strengthen the fabric of societal trust and mutual commitment, even as forces of industrialization and attendant social disruptions threatened to tear apart historical ties that bound people together in ancestral towns and villages.

<sup>3</sup> Cook & Yanow (1993) describe a cluster of flute-making companies in Boston. More generally, Porter (1998) showed that various types of industries—such as shipbuilding, auto-manufacture, and textiles—tend to cluster by geographic region. Spender (1989) found that industries themselves constitute a kind of knowledge-based cluster that includes companies that share a common “industry recipe.” A number of scholars have documented the ways Silicon Valley operates as an industry cluster with a concentration of technical and management skills related to high technology (Saxenian, 1996; Cohen & Fields, 1999; Brown & Duguid, 2000: 161-172).

need to deploy it, leverage it in operations, and spread it across the organization.<sup>4</sup> Cultivating communities of practice in strategic areas is a practical way to recognize that knowledge is an asset that needs to be managed as systematically as other critical assets. Indeed, the explosion in science and technology creates a difficult paradox. At the same time as the increasing complexity of knowledge requires increasing specialization and collaboration, the half-life of knowledge is getting shorter. Without communities focused on critical areas, it is difficult to keep up with the rapid pace of change.

These changes are happening at a time when firms are restructuring many relationships internally and externally to respond to the demands of a shifting market. Internally companies are disaggregating into smaller units focused on well-defined market opportunities, as illustrated by the Tech Club story.<sup>5</sup> Externally, they increasingly partner with other organizations in the context of their extended enterprise. The disaggregation of organizations and the emphasis on the extended enterprise spread production and delivery of value over many distinct entities. They create new needs for knitting the whole system together around knowledge requirements by connecting people across independent business units and across distinct organizations.<sup>6</sup>

The knowledge economy presents an additional challenge. Knowledge markets are globalizing rapidly.<sup>7</sup> What someone knows in Turkey could make or break your business in London. What a competitor's team is learning in South America can be the undoing of your project in Massachusetts. For instance, a sales team at Siemens in Malaysia was able to get a large telecommunication contract because of the experience and material developed by their peers in Denmark. Success in global markets depends on communities sharing knowledge across the globe. Besides contributing to the success of organizations in global markets, these communities have another benefit. In the globalizing knowledge economy, companies are not just competing for market share. They are also competing for talent—for people with the expertise and capabilities to generate and implement innovative ideas. One company found that employees belonging to world-class communities of practice exploring cutting-edge issues were much more likely to stick around. Finding and keeping the right people can make a big difference in a company's ability to become a leader in its market and to gain access to venture capital. In some

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<sup>4</sup> Over the last decade it has become widely accepted that an organization's capacity to learn, innovate, and leverage knowledge-based capabilities are critical to market success. Since Senge's (1990) The fifth discipline helped to popularize the seminal work of Argyris & Schon (1978) and others on organizational learning, a slew of books in recent years have addressed the topics of learning and knowledge, including: The knowledge link (Badaracco, 1991), Intelligent enterprise (Quinn, 1992), Post-capitalist society (Drucker, 1993), Competing for the future (Hamel & Prahalad, 1994), Wellsprings of knowledge (Leonard-Barton, 1995), The knowledge-creating company (Nonaka & Takeuchi, 1995), Intellectual Capital (Stewart, 1997); Working knowledge (Davenport and Prusack, 1998); and Learning in action (Garvin, 2000).

<sup>5</sup> Peters, 1992.

<sup>6</sup> Research on the proliferation of network structures in organizations supports the claim that firms need new ways to connect across boundaries inside and across firm boundaries (Nohria & Eccles, 1992).

<sup>7</sup> Badaracco (1991: 9) argues that the "globalization of knowledge" is the driving force behind the changing shape of the modern firm towards joint ventures, alliances, and networks that connect firms around the world.

industries, recruiting, developing, and retaining talent is a greater challenge than competing in the market.<sup>8</sup>

All these trends of the knowledge economy point to the critical role that communities of practice are destined to play. Indeed, knowledge-driven markets make it imperative to develop a “knowledge strategy” along with a business strategy. Yet many organizations have no explicit, consolidated knowledge strategy. Rather, it exists implicitly at best, dispersed in strategic plans, human resource reports, or system-improvement proposals. A knowledge strategy details in operational terms how to develop and apply the capabilities required to execute the business strategy. Therefore, a knowledge strategy eventually depends on communities of practice. For example, organizations like Amoco and the US Navy have established a process for developing such a knowledge strategy. It starts with strategic goals and required core competencies, business processes, and key activities. It analyzes these in terms of critical “domains” of knowledge. Finally, it looks for the people who need this knowledge for their work and explores how to connect them into communities of practice so that together they can “steward” this knowledge.<sup>9</sup>

## **The nature of knowledge: a managerial challenge**

Though executives recognize the value of knowledge and the need to develop an intentional knowledge strategy, exactly how to manage knowledge is less clear. Recently, new information technologies have inspired dreams of capturing all the knowledge of an organization into databases that would make it easily accessible to all employees. Early attempts at knowledge management, however, were beholden to their origin in IT departments. They tended to confuse knowledge and information. Building the system was resource-consuming enough but it turned out to be even more difficult to motivate people to use these early knowledge bases. Companies that had invested their entire knowledge strategies in such information systems sooner or later found out that they had created digital junkyards. For instance, one consulting firm did an audit of its knowledge systems to find that it had 1100 databases. Only thirty of them were active, and of these active ones, about twenty were actually news feeds. Companies discovered the hard way that useful knowledge is not a “thing” that can be managed as a self-contained entity the way other assets can. Nor does it just float free in cyberspace. If companies are going to compete on knowledge and manage and design structures and technology for it, they need to base their strategy on an understanding of what the knowledge challenge is. The essence of this challenge comes down to a few key points about the human character of knowing.

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<sup>8</sup> Professional relationships and social ties are an important reason people stay with a company (Capelli, 2000; Dessler, 1999). Cohen & Prusack (2001) argue that companies can “win the war for talent” by offering members an opportunity to build a sense of community with others at work (Cohen & Prusack, 2001). Moreover, members have good reason to stay when companies can offer attractive opportunities for community participation. Research at Bell Labs found that its star performers were scientists with strong networks (Kelley & Caplan, 1993)..

<sup>9</sup> A number of observers have emphasized the importance of developing a “knowledge strategy” that is linked to the business strategy (Zack, 1999a; Manville & Foote, 1997). For examples of communities that steward strategic capabilities, see Brown & Gray (1995) and Storck & Hill (2000). An important benefit of strategic communities is their ability to help the firm inform and execute strategic visions, thus closing the perennial “knowing-doing” gap (Pfeffer & Sutton, 1999).

***Knowledge lives in the human act of knowing.*** If a friend told you that he had read many books about surgery and was ready to operate on your skull, you would be right to decline politely. When surgeons operate on a patient, they do not apply blindly knowledge they have gleaned from books and or procedures they have stored in their heads. Engaging their expertise to deal with a situation is an active, inventive process. They keep in mind the patient's medical history, monitor vital signs, look at tissues, make incisions, draw conclusions, and possibly revise the plan to make sure that the procedure is constantly responsive to the evolving situation. Their expertise lies as much in the ability to engage with a situation as it is in the store of knowledge they carry with them.<sup>10</sup> It helps them construct an understanding of that situation and it is their understanding of the situation that directs their action. To develop their knowledge, they need opportunities to engage with others in real situations. Neurosurgeons, for instance, will travel long distance to be able to operate with a colleague in order to refine their technique.<sup>11</sup> The knowledge of experts is a result of experience—a kind of “residue” of their actions, thinking, and conversations, which remains a dynamic part of their ongoing experience.<sup>12</sup> It is much more a living process than an object. Communities of practice do not reduce knowledge to an object. They make it an integral part of their activities and interactions. They serve as a living repository for knowledge.

***Knowledge is tacit as well as explicit.*** We are all aware that “we know more than we can tell.”<sup>13</sup> Not everything we know can be articulated into documents or tools. From a business standpoint, the tacit aspects of knowledge are often the most valuable.<sup>14</sup> They consist of embodied expertise, deep understanding of complex, interdependent systems, or dynamic responses to context-specific problems, which are the most difficult for competitors to replicate.<sup>15</sup> Sharing tacit knowledge requires interaction and informal learning processes such as story telling, conversation, coaching, and apprenticeship of the kind that communities of practice provide.<sup>16</sup> This is not to say that it is not useful to document knowledge and make as much of it explicit as serves the needs of practitioners.

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<sup>10</sup> In his studies of professional practice, in particular architects, Schön (1983) talks about having a “conversation with the situation” which is framed by the experience of the professional, but is always an interactive, improvisational, and reflective engagement with a problem.

<sup>11</sup> Drucker (1993) describes a group of surgeons, who have formed a community of practice to develop their art together and regularly visit each other to perform surgery together. Cohen and Prusack describe the problem when a doctor has no colleagues to keep current in the field. They recount the story of FDR's doctor who in his dedication to his one famous patient fell behind in his field and was not able to offer his client the best available care, which contributed to FDR's premature death.

<sup>12</sup> See McDermott (1999)

<sup>13</sup> Polyani (1966). Nonaka & Takeuchi (1995) provide a detailed description of the nature of tacit knowledge, from both eastern and western perspectives.

<sup>14</sup> Stewart (1997); Spender & Grant (1996). Nonaka & Takeuchi (1995) and Leonard & Sensiper (1998) argue that tacit knowledge is a critical source of innovation. Executives at Chapparral Steel were never worried about competitors visiting their operations, because they claimed that in a visit you only get the visible, and it is the invisible that really matters (Leonard-Barton, 1992b).

<sup>15</sup> See Schon (1983) for examples of the highly tacit nature of individual professional expertise in areas such as architecture, psychotherapy, engineering, and town planning. Nelson & Winter (1982) describe the nature of tacit knowledge embedded in “routines” at the organizational level that no one person understands completely.

<sup>16</sup> See Marsick & Watkins (1990).

But even explicit knowledge is dependent on tacit knowledge to be applied.<sup>17</sup> Companies have found that the knowledge bases that were most used were the ones that were part of the life of a community. The success of Chrysler's EboKs is largely due to the fact that the Tech Clubs are in charge of the process and view it as part of what their community is about. Communities of practice are in the best position to produce and manage the explicit codification of knowledge, because they can combine the tacit and explicit aspects into one process.<sup>18</sup> They are able to take responsibility for producing useful documentation, tools, and procedures that serve the needs of practitioners. These objects have meaning because they are not objects by themselves, but are part of the life of the community.

***Knowledge is social as well as individual.*** You know that the earth is round and in orbit around the sun, but you don't just know that as an individual. You depend on the understanding and practice of long-standing communities. Though our experience of knowing is individual, knowledge is not. The whole idea that we know as individuals is a myth. What counts as scientific knowledge is the prerogative of scientific communities, which interact to define what facts matter and what theories are valid. There may be disagreements; there may be mavericks. But it is still through a process of communal involvement—including all the controversies—that a body of knowledge eventually emerges. And it is by participating in these communities—even when going against the mainstream—that members can claim to having produced scientific knowledge.<sup>19</sup> The same is true of doctors, engineers, managers—and babies who learn to speak, think, and behave in their families. Knowledge belongs to human communities and knowing is an act of participation in these communities. Appreciating the collective nature of human knowledge is especially important in an age when any domain of knowledge worth paying attention to is far too complex and dynamic for any one individual to claim full

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<sup>17</sup> Law is a good illustration of the dance of the tacit and the explicit. Our societies have found it very useful to articulate our social norms into laws, but we also have judges and legal experts who interpret these laws. What makes laws effective is what literary theorist Stanley Fish calls the “community of interpretation” that gives them meaning in practice. You can never fully articulate how this community gives meaning to laws. In fact, the more you articulate, through briefs and precedents, the more you need a community to make sense of the new documents. You need both: the laws and the community. The explicit and the tacit always need each other to be effective (Fish, 1994).

<sup>18</sup> Practice is a tangled combination of tacit and explicit and dimensions. The interplay of explicit and tacit dimensions of knowledge has been described as a “generative dance between organizational knowledge and organizational knowing” (Cook & Brown, 1999) and as a “balancing act between process and practice” (Brown & Duguid, 2000b). Markus et al. (2000) emphasize the importance of communities to screen and steward codifiable knowledge assets.

<sup>19</sup> Sociologist of science Bruno Latour (1987) emphasizes the importance of having colleagues with whom to debate facts and interpretations in order to establish a scientific domain. He argues that the “first principle” of technology and science (or “technoscience”) is that “the construction of facts and machines is a *collective* [his italics] process” (28). He describes the existential dilemma of a technoscience practitioner who finds himself without colleagues: “What happens to the inside of a specialty made up of only one person? This is the question that makes Joao so despondent: the inside disappears as well. Since he has no one to discuss the draft of his articles with, no one to try out the links he makes between various parts of chip architecture, no one to whom he can submit his proposals for trials of strength, no one to debug his prototypes, Joao ends up not *knowing* what is real and what is fictional in MOS technology” (152).

ownership or mastery of it.<sup>20</sup> Serious problem solving requires multiple perspectives. The days of Leonardo da Vinci are over. We all need others to complement and develop our own expertise. This collective character of knowledge does not mean that individuals don't count. In fact, the best communities bring together and encourage strong individualities. They have a lot of disagreements and debates. But these debates are part of what makes the community productive. In fact, it takes a community of people who care about a domain of knowledge to even have these debates in the first place.

***Knowledge is dynamic.*** Knowledge does not stay in place. It changes. It is in motion. In fact, the rate at which our knowledge of any field is changing is accelerating. Any domain of knowledge critical to an organization's success is part of a broader field that is constantly developing. What was true yesterday has to be adapted to take into account new factors, new data, new inventions, and new problems.<sup>21</sup> This dynamism does not mean that there is not a stable core to a domain of knowledge. In all fields, there is a baseline of knowledge that everyone needs to have. And it is essential to have this baseline well covered and standardized so that people can focus their creative energies on the more advanced issues. One of the primary tasks of a community of practice is to establish this common baseline and standardize what is well understood. But the baseline just gets you in the door. You have to have the baseline to even be in the game. It is pushing on the leading edge that gives you a competitive advantage. That is why knowledge, even explicit knowledge, has to be constantly updated by people who understand the issues and can appreciate how their field is evolving. But they must work as a community to stay abreast of any non-trivial domain of knowledge because there is just too much to keep track of. In one community, for instance, members list the relevant conferences for a year and they each choose one to go to and report back to the rest. Interacting with a community helps filter out the noise and deal with information overload, bounce off new ideas and get knowledgeable feedback, and keep in touch with leading thoughts, techniques, and tools.

In short, what makes the knowledge of an organization a challenge to manage is that it is not an object that can be stored, owned, and moved around like a piece of equipment or a document. It resides in the skills and understanding of its members, in the relationships among people that allow them to learn together, as well as in the tools, documents, and processes that embody some aspects of this knowledge. Companies must "manage" their knowledge in ways that do not merely reduce it to an object.<sup>22</sup>

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<sup>20</sup> For a further discussion of the collective and individual character of knowing and learning, see Wenger, 1998, Chapter 3, Coda I, and Intro II.

<sup>21</sup> Badaracco (1991: 24-25) offers evidence of how quickly the stocks of knowledge are growing and changing. For example, he cites studies by bibliometry and scientometry scholars (an emerging field itself) who have found that the growth rates of scientific journals, books, and papers has been doubling in quantity every fifteen years for the past two centuries—a kind of Moore's Law of exponential growth in scientific insight. He explains that knowledge is becoming more specialized as it grows—there were 54 scientific specialties listed in the National Register of Scientific and Technical Personnel after World War II, and 20 years later there were 900.

<sup>22</sup> Walsh & Ungson's (1991) review of organizational memory describes the variety of ways in which knowledge can be stored or embedded in organizations; See also Pea (1993) on the ways knowledge is distributed in the context of practice and social relationships.

What managers have been missing so far is a clear understanding of the kind of social structure that can take responsibility for fostering learning, developing competencies, and managing knowledge.<sup>23</sup> Managers have discovered clear structures for other purposes. For instance, in the last three decades many firms were able to move to customer-focused project-based organizations because they had discovered teams—the ideal social structure to which managers can assign the responsibility for projects. Understanding the right social structure was the key enabler for managing through projects. But what about the ownership of knowledge? Conventional structures do not address knowledge-related problems as effectively as they do problems of performance and accountability. Even though a lot of learning happens in business units and teams, it is easily lost. Business units focus on immediate opportunities in the market in order to achieve their business goals so learning usually takes the back seat. Project teams are temporary, so their knowledge is largely lost when they disband. Ongoing operational teams are focused on their own task, so their knowledge often remains local. Traditional learning-oriented structures such as corporate universities and centers of excellence have usually been located in headquarters, separated from people with line responsibility who would put the knowledge to use.<sup>24</sup> Many companies are discovering that communities of practice are the ideal social structure to assign responsibility for “stewarding” knowledge. By enabling the practitioners themselves to generate and share the knowledge they need, these communities provide a living forum that does justice to the “living” nature of knowledge.

## Cultivating communities of practice

Communities of practice are a natural part of organizational life. They will develop on their own and many will flourish whether or not the organization even recognizes them. Their health depends primarily on the voluntary engagement of their members and on the emergence of internal leadership. Moreover, their ability to steward knowledge as a living process depends on some measure of informality and autonomy. If their members are the keepers of expertise, they cannot be second-guessed or over-managed in their keepers’ role. If you knew how to direct them, you would not need them. These observations may lead some to argue that there is nothing one can do to cultivate communities of practice, or worse that anything organizations do will merely come in the way. We disagree. In fact, this book is born of our experience that organizations need to learn to cultivate communities of practice actively and systematically, for their benefit as well as the benefit of members and communities themselves.<sup>25</sup>

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<sup>23</sup> Senge indicated that managers aren’t the only ones coming to this conclusion. He responded in a recent interview (Pulmer, XXXX) that one of his key realizations about organizational learning since writing The Fifth Discipline has been the nature of various social structures—including but not limited to teams—that foster learning.

<sup>24</sup> Effective centers of excellence seem to be approaching a more community-like model in which a group of working practitioners—instead of or in conjunction with full-time staff based in headquarters—takes the initiative to steward their practice (Moore & Birkinshaw, 1998).

<sup>25</sup> Many early articles noted the challenge of managing communities of practice: “indeed, managing [these “invisible” structures] can kill them” (Stewart, 1996, p. 174); or “virtually everyone who has studied them agrees that communities of practice cannot be created out of the blue by management fiat...” (Stamps, 1997, p. 39); or “communities of practice evolve, they are not created” (Liedtka, 1999, p. 7). Even

Cultivation is an apt analogy. A plant does its own growing. You may have carefully planted the seed or the plant grew spontaneously after the wind blew in a seed. It does not matter. You cannot pull the stem, leaves, or petals to make a plant grow faster or taller. And yet there is a lot we have learned we can do to help plants grow healthy: tilling the soil, making sure they have enough nutrients, supplying water, and securing the right amount of sun exposure. We know to protect them from pests and weeds, and to harvest them when the time is ripe. There are also a few things we know not to do, like pulling a plant out to check if it has good roots.

Similarly, in organizations, some communities of practice grow spontaneously and some may require careful seeding. Yet in both cases, a lot can be done to create a context in which they can prosper: valuing the learning they do, making time and other resources available for their work, encouraging participation, and removing barriers. Creating such a context also entails integrating communities in the organization, giving them a voice in decisions and legitimacy in influencing operating units, and developing internal processes and capabilities for managing the value they create.

If organizations fail to take active steps in this direction, communities of practice will still exist, but they are unlikely to achieve their full potential. They will tend to organize along friendship lines or within local geographical or organizational contexts rather than cover the whole organization. Some communities may not develop at all, either because people do not know about each other or because they do not have the time and energy to devote to community development. It is also difficult to channel resources (both time and financial) in the absence of active engagement with the organization. Without intentional cultivation, the communities that do develop will depend on the spare time of members, and participation is more likely to be spotty, especially in a context of leaner resources. Finally communities are also less likely to have the full impact they could have. They may not be fully aligned with the organization and therefore fail to contribute all they could. And just as importantly, the organization may not be well aligned with them, and therefore fail to recognize and leverage their contributions.<sup>26</sup>

Still there is a foundation of truth in the argument of those who claim there is nothing that organizations can or should do. You cannot cultivate communities of practice in the same way as you develop traditional organizational structures. Design and development are more about eliciting and fostering participation and contribution than planning, directing, and organizing them. The process has to be one of negotiation. You cannot act

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Wenger, when told by an interviewer that a company had “implemented” communities, responded immediately by saying that “they hadn’t implemented anything—you don’t ‘implement’ communities of practice.” We will stand by that statement, but assert alongside it that there is much you can do to catalyze and nurture a community’s development.

<sup>26</sup> Indeed, one of the chief roles of future corporations may be to sponsor various communities of practice who steward strategic and emergent capabilities on which these firms and smaller companies draw to staff projects, joint ventures, and ongoing supply-chain activities. Malone and Laubacher (1998) argue that the 21<sup>st</sup> century is likely to see both the proliferation of small firms, “e-lance” contractors, as well as the continued presence of very large firms—all linked through various network relationships, including a rebirth of a new kind of guild.

unilaterally. With a team you can choose the goal. The task is the reason members are hired. With a community, your power is always mediated by the community's own pursuit of its interest. You cannot violate the natural developmental processes and dynamics that make a community function as a source of knowledge, including member's passion about the topic, the sense of spirit and identity of the community, and its definition of what constitutes expert performance. You must learn to understand and work with these processes and dynamics. Cultivating communities of practice in an organizational context is an art, and the following chapters offer a guide to the subtleties of this art.

## **Value creation**

Organizations that have taken steps to cultivate communities of practice have found that these communities are unique among organizational structures in their ability to deal with a broad variety of knowledge-related issues. For instance, they can

- connect local pockets of expertise and isolated professionals who lack peers to interact with
- diagnose and address recurring business problems whose root causes cut across team boundaries
- analyze the knowledge-related sources of uneven performance across units performing similar tasks and bring everyone up to the standard established by the best
- link and coordinate unconnected activities and initiatives addressing a similar knowledge domain

Appreciating the value communities of practice create depends on setting the right expectations. Communities of practice are not a universal silver bullet. They are not meant to replace teams or business units as structures for serving markets and delivering products and services. But when their role in stewarding knowledge is well understood, they will be recognized as one of the prime vehicles for value creation in the knowledge economy. Communities of practice do not merely operationalize knowledge management. They create value in multiple and complex ways, both to their members and to the organization, as summarized in Table 1.1.

	<b>Short-term</b>	<b>Long-term</b>
<b>Organization</b>	Improve business outcomes <ul style="list-style-type: none"> <li>➤ Solve problems</li> <li>➤ Answer questions quickly</li> <li>➤ Save time and cost reduction</li> <li>➤ Quality of decision</li> <li>➤ More perspectives on problems</li> <li>➤ Coordination, standardization, and synergies across units</li> <li>➤ Implement a strategy</li> <li>➤ Quality assurance</li> <li>➤ Ability to take risks because of the support of the community</li> </ul>	Develop organizational capabilities <ul style="list-style-type: none"> <li>➤ Competence for realizing a strategic plan</li> <li>➤ Authority with clients</li> <li>➤ Retaining talent</li> <li>➤ Knowledge-development projects</li> <li>➤ Benchmarking capabilities with the rest of industry</li> <li>➤ Emergent capabilities</li> <li>➤ Develop new strategic options</li> <li>➤ Ability to foresee technological developments</li> <li>➤ Ability to take advantage of emerging market opportunities</li> </ul>
<b>Members</b>	Improve experience of work <ul style="list-style-type: none"> <li>➤ Help with challenges</li> <li>➤ Access to expertise</li> <li>➤ Better able to contribute to team</li> <li>➤ Confidence in one's approach to problems</li> <li>➤ Fun of being with colleagues</li> <li>➤ More meaningful participation</li> <li>➤ Sense of belonging</li> </ul>	Professional development <ul style="list-style-type: none"> <li>➤ Skills and know-how</li> <li>➤ Keeping abreast of a field</li> <li>➤ Professional reputation</li> <li>➤ Marketability and employability</li> <li>➤ Professional identity</li> </ul>

**Table 1.1 Dimension of value creation.**

This table crosses the organization/members dimension with the short-term/long-term spectrum. In each entry, elements of value are listed from more tangible to less tangible.

<<Table 1.1 anchor here>>

**Short-term and long-term value.** Participating in a community of practice has both short-term and long-term value. Members can get help with the problems they are facing today. They save time looking for information or for solutions to problems. They devise better solutions and make better decisions by involving the perspectives of their peers.<sup>27</sup> They can be more daring in taking risk or trying new things knowing they have a community to back them up. They can coordinate efforts and find synergies across organizational boundaries. At the same time, communities build capabilities that have long-term value, because while they address current problems, they develop an ongoing practice that will serve the organization's long-term strategy. Members develop professionally, they keep abreast of new developments in their field, they benchmark their expertise against that of colleagues in other organizations. This confluence of short-term and long-term value creation is well-illustrated by the Tech Clubs. They help each other solve immediate problems, but they also accumulate their experience in a knowledge base, and they are in

<sup>27</sup> Hoopes & Postrel (1999) found, for example, that software developers were less likely to produce "glitches" and more likely to finish projects on time when they could leverage a base of shared knowledge and cooperative relationships with colleagues.

constant discussion with suppliers to be aware of upcoming technologies and prepare the organization to respond to these developments.

***Tangible and intangible value.*** The value communities create includes tangible products and effects such as a manual, improved skills, or reduced costs through faster access to information. It also includes less tangible outcomes such as a sense of trust or an increased ability to innovate. Tying community activities to tangible business outcomes is important because business leaders might make the mistake of dismissing communities by classifying them as “soft” structures. Articulating the value of communities in terms of their tangible effects on performance provides them with the legitimacy they need to steward knowledge effectively. But it is still important to remember that some of their greatest value to organization and members lies in intangible outcomes, such as the relationships they build among people, the sense of belonging they create, the spirit of inquiry they generate, and the professional confidence and identity they confer to their members.<sup>28</sup>

***Strategy-implementing and strategy-making value.*** In terms of strategy, the value communities of practice lies not only in the capabilities they develop to implement a given strategy, but also in their ability to contribute to the development of new strategies and keep a portfolio of strategic options open. On the one hand, communities of practice are a way to realize a business strategy. Implementing an innovative strategy most often depends on the participation of highly competent front-line practitioners who understand the products, are aware of market trends, and know what it will take to beat the competition. At P&G, communities are a key component of the strategy to apply technological innovation across product lines. The process design community, for instance, consolidates process innovation across the company. It realizes the strategic advantage of a variety of product lines by translating ideas and techniques across manufacturing operations.<sup>29</sup> On the other hand, communities of practice contribute to the formulation of strategy. McKinsey is known as a premier strategy-consulting firm, and yet it relies largely on practitioners in its communities of practice to drive the evolution of its own strategy. For example, it developed a new business line in retail-finance consulting when a small group of 5-7 consultants started meeting at the O’Hare airport between client engagements to pool their knowledge about consumer marketing and

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<sup>28</sup> Such outcomes have become associated with human capital (Becker, 1964, Stewart, 1997) and social capital (Coleman, 1988; Cohen & Prusak; 2001; Nahapiet & Ghoshal, 1998), which are gaining increasing currency in business circles. Human capital measures (such as retention rates and skill levels), for example, are increasingly becoming part of the measures of firm performance. There is a growing body of research on the value of social capital for members and organizations—especially as networked forms of organizing become common where personal relationships are instrumental to making and maintaining successful service and knowledge-sharing alliances (Liedka, et al. 1997; Gupta & Govindarajan, 2000; Nahapiet & Ghoshal, 1998; Sparrowe et al., 2001). For articles that show how personal relationships contribute to the success of intra-firm and inter-firm networks and alliances, see: Liebeskind et al. (1996), Granovetter (1985), Tsai & Ghoshal (1998), Powell et al. (1996), Jones (1997), Gulati (1998), and Hutt et al. (2000). For articles that focus on value to members for their own professional development or access to expertise, see: Higgins & Kram, 2001; Gersick et al., 2000; Krackhardt & Hanson, 1993; Fink & Resnick, 2001.

<sup>29</sup> Current research describes a number of communities with a clear strategic focus in the organization, such as IT managers at Xerox (Stork & Hill, 2000) and school administrators in an urban school district (Fink & Resnick, 2001).

financial institutions in the late 1980's. Soon they had developed several effective approaches for clients and over the next several years the practice grew to include hundreds of consultants serving clients in the U.S. and Europe in a fast-growing market niche. When highly developed, influential communities of practice take responsibility to keep abreast of market opportunities as well as their own practice development, they can inform or enact new strategic initiatives.

Most importantly, communities of practice create value by connecting the personal development and professional identities of practitioners to the strategy of the organization. Successful ones deliver value to their members as well as to the organization. If it is not clear how members benefit directly from participation, the community will not thrive because the members will not invest themselves in it. Without being clear on the value the community delivers to the organization as a whole, however, it is difficult to justify investing resources in the community and to give the community enough legitimacy to find a voice in the organization. This ability to combine the needs of organizations with the needs of their members is crucial in the knowledge economy where companies succeed by engaging fully the creativity of their employees. The multiple and complex way in which communities of practice deliver value to both members and organizations is the reason they are fast becoming a central part of the management agenda.

## Ushering in the knowledge organization

A knowledge organization depends on a constellation of communities of practice to bridge the gap between strategic imperatives and performance.<sup>30</sup> These communities form a structure of their own. They are defined by domains of knowledge, not by market segments, product lines, or functions. Because they follow the flow of knowledge across business units, teams, and even suppliers, partners, and customers, they transcend official boundaries and hierarchies. But for an organization to learn from its own experience and to fully leverage its knowledge, the communities that steward knowledge and the business processes where knowledge is applied must be tightly interwoven. The people who are in the best position to manage knowledge are not business strategists, headquarter staff, or technologists, but the practitioners who use it, develop it, and have a stake in sharing it.

In this regard, a community of practice is very different from a center of excellence where specialists develop knowledge without being involved in line operations. At DaimlerChrysler, for instance, engineers wear two hats. Their main affiliation with their car platform allows them to fully focus on working with other engineers to optimize the design of a model, whereas as Tech Club members, they keep up with their specialty, coordinate standards, and share knowledge and lessons learned. This *multimembership* creates a learning loop as illustrated in figure 1.2. As members of teams and workgroups, people are accountable for performing tasks. When they face familiar problems they apply and refine their skills and when they face new problems they invent new solutions. But the same people are also community members, and as such they are accountable for

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<sup>30</sup> Brown & Duguid, 1992.

developing a practice. They bring their team experience with them to their communities and receive help with their problems. They get a chance to discuss their new solutions, share them with others, generalize or document them, and integrate them into the community's practice. Then they return to their projects equipped with expanded capabilities, which again face the test of application to real problems to be further refined and extended. And through this multimembership the learning cycle continues. That is why it is so important to have communities of actual practitioners manage their own knowledge.

This “double-knit” structure of teams and communities is reminiscent of “matrix” organizations, in which people have multiple reporting relationships to serve different purposes.<sup>31</sup> For instance, you would have a boss in your business unit and a boss in your functional area. In fact, a knowledge-management guru once asked us whether this was not “matrix management done on the cheap.” We had to respond that this is in fact matrix management done right. Indeed, there is a subtle but crucial difference. You don't have the same kind of structure for knowledge as you have for delivering products and services. Communities of practice are based on collegial relationships, not reporting relationships. Even community leaders are not your bosses; they are your peers. You have a boss in your business units, but relationships in your communities remain less formal. This combination of formal and informal structures provides new degrees of freedom for designing organizations.<sup>32</sup> Managers can design formal structures to focus on accountability for customer and business results, while relying more explicitly and heavily on *informal* structures such as communities of practice to address issues related to knowledge, competence, and innovation

Relying explicitly on communities of practice fundamentally transforms the landscape of the organization. Domains of knowledge become focal points to connect people in different units who are working on potentially related projects. The power associated with the development and management of these knowledge domains becomes a more visible part of the organization. In fact, in a fast-moving knowledge economy, these

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<sup>31</sup> McDermott (1999) describes the connection between teams and communities as a “double-knit” structure. Nonaka & Takeuchi (1995) describe the relationship between business units, project teams, and knowledge structures as a “hypertext organization” because project teams and formal units draw on the knowledge structures on an as-needed basis as if clicking on hypertext to access embedded information accessible through a url.

<sup>32</sup> Informal structures, of course, have always existed in organizations. There has been considerable research since the early years of management theory on the interdependence of formal and informal phenomena in organizations, including the famous Westinghouse studies on group behavior, Barnard's reflections on leadership (1938), and work by Roethlisberger & Dickson (1939), and Fayol (1949). Since the 1950's, there has been a steady stream of research on “human factors” in organizations—more recently manifested in studies related to group dynamics (Hackman, 1976), socio-technical systems (Pasmore, 1988), organizational culture (Schein, 1992), “networks” (Krackhardt, 1993), and “self-organizing systems” (Wheatley, 1994), which have all emphasized informal as much as formal elements in organizations. These informal phenomena are endemic to organizations and are critical elements to consider in organization design (Gittel & Weiss, 1997). For example, see Krackard & Hanson (1993) discussion of “the company behind the charts.” Communities of practice represent an increasingly important informal phenomenon in organizations competing in knowledge-intensive markets—just as teams became especially important as firms recognized the need to create more flexible, cross-functional units in a hypercompetitive, global economy.

domains are often more stable and enduring than specific projects, jobs, products, or even businesses. Business units are constantly being reorganized. Projects come and go. Teams are assembled and dispersed. Given such flux in the formal organization, communities of practice offer an underlying layer of stability. They provide a welcome “home for identity” where practitioners can connect across organizational and geographic boundaries and focus on expertise and professional development rather than merely the application of expertise to further the goal of a team.<sup>33</sup> As an engineer at Shell reported, “You are redeployed so often, the only source of stability is your community of practice. It is great to have them. These are people you know you will be with the rest of your career.” In an organization that is constantly changing, employees don’t know who their boss is going to be tomorrow, which country they will be sent to, or on which team they are going to be. But they know that they will still belong to their community of practice and interact with their colleagues.

The focus on communities of practice thus points the way to a new wave of organizations where the formal structures are changing to meet shifting market needs, organized around providing products and services, while stable structures are more informal, voluntary, organized around knowledge. Indeed, one could argue that with a stable layer of belonging to communities of practice, knowledge organizations will be able to become more flexible in response to shifting market demands without losing the stability that allows them to learn and to provide people with consistent developmental opportunities. As a consequence, leading knowledge organizations are increasingly likely to view communities of practice not merely as useful auxiliary structures, but as foundational structures around which to build the organization.

Word count: 6720

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<sup>33</sup> Malone and Laubacher (1998) argue that an increasing amount of work is done by freelancers who have no organizational home and are increasingly independent contractors. They later predict (Malone & Laubacher, 2001) that such independent practitioners are likely to organize “guilds” for several reasons, including socialization, professional development, and reducing health and financial risks.

## Chapter 2

# Communities of practice and their elements

### Draft

From “*Cultivating Communities of Practice: a Guide to Managing Knowledge*” by Etienne Wenger, Richard McDermott, and William Snyder. To be published by Harvard Business School Press.

Participation in the monthly teleconference calls of the High-Availability software community at HP is voluntary, but attendance remains at a fairly constant level. The core group came together a few years ago with the help of facilitators from a knowledge-management support team. They had been largely isolated, and discovering how many problems they had in common and how much they could learn from each other generated a lot of energy for developing a shared practice. For instance, they succeeded in standardizing the software’s sales and installation processes and establishing a consistent pricing scheme for HP salespeople. These areas had been a source of much frustration. Since then, the community has grown and has addressed many other problems.

Today the call focuses on Maureen’s experiences installing the product for a major customer. Before diving in, however, the consultants spend the first ten minutes chatting about the recent reorganization of their division—whether it is a good thing, what it means for them, and so on. Maureen hasn’t spent a lot of time preparing a formal presentation. She knows that only by talking directly and openly can she spur the back-and-forth that would make the call worthwhile for the group. People know each other and they know the kinds of problems they share. They don’t need fancy explanations. As the call proceeds, community members interrupt Maureen constantly with questions and examples from their own experiences—all of which not only helps her understand how to work more effectively with her client but also help everyone broaden their repertoire of cases. And Chris will put the notes on the website.

The conversation then turns to a persistent bug in the software. Rob, a member of the software division that developed the product, has been invited to take part in these calls in order to create a stronger connection between the product-delivery consultants and software developers. He’s already worked out a way to get rid of the bug, but he learns from the stories he hears in the teleconference how to make the fix even more effective. He will follow up during the next month’s call.

This particular community primarily meets via teleconference. It is known as a “learning community” at HP. But communities of practice take many different forms and go under many different names in different organizations. In this chapter we will explore both the variety of forms communities of practice take and the fundamental characteristics they

have in common. It is important to know the various forms communities of practice take because it help people recognize them, under different guises and different names.<sup>34</sup> The first skill of community development is to be able to “see” communities of practice.

But it is also important to have a good theory of what they are. It creates a language to talk about community development across disciplines and it connects those who do this work to a common body of knowledge. It also enables the members of these communities to recognize their work and become more intentional about it. It helps them legitimize their participation to themselves and to others and in some cases get some funding for their work. With a clear theory of what communities of practice are and how they function as stewards of knowledge, it is easier to integrate them into the organization.

## Communities of practice take many forms

At the heart of communities of practice is the knowledge that members share and care for. It is this knowledge that creates interdependencies among them, and therefore the learning they do together that binds them into a community. They may or may not work together on a day-to-day basis. They may apply their expertise somewhere else, in teams or at a client’s location. But the community offers them a chance to share and deepen some knowledge they need. In providing these opportunities, communities of practice take many different forms. They are as diverse as the situations that bring them into existence and the people who populate them.

***Small or big.*** Some communities of practice are very small and intimate, involving only a few specialists while others are made up of hundreds of people. The largest we know of have over a thousand people. Size does matter, however, and very large communities are structured differently, usually subdivided by geographic region or by subtopic in order to encourage all members to take part actively.<sup>35</sup>

***Long-lived or short-lived.*** The development of practice takes time, but there is much variety in how long communities of practice last. Some communities of practice exist over centuries—for example, communities of artisans, such as violin makers, who pass their craft from generation to generation. Many are shorter-lived but last a good number of years, like the Cobol programmers in a company. Some are intense enough to give rise to a local practice and to transform the identities of those involved in a very short time.

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<sup>34</sup> Companies have used many terms, including “tech clubs,” “learning networks,” “thematic groups,” “knowledge communities,” “knowledge center,” among others. This is true for researchers as well as practitioners. There are descriptions of communities of practice in the literature under a variety of names, including “invisible colleges” (Crane, 1972), “communities of practitioners” (Argyris, Putnam, & Smith, 1987; Schon, 1987), “occupational communities” (Van Maanen & Barley, 1984), “epistemic communities” (Haas, 1992), “cognitive communities” (Porac et al., 1989), “communities of interpretation” (Fiorenza, 1984; Fish, ), “guilds” (Leonard & Swap, 2000), “occupational cultures” (Schein, 1996), “communities of knowing” (Boland & Tenkasi, 1995), and “knowledge communities” (Botkin, 1999).

<sup>35</sup> Size matters because for members to know each other takes experience and time, and this makes it harder to do for very large groups. The sense of community also depends on a feeling of “closure” (Coleman, 1988) or a feeling of the boundary of the group within which I know my identity and feel trust and sense of belonging. Kochen (1989), for example, found that while contemporary people may know over a 1000 people, they only maintain about 20 active community ties.

For instance, such communities may form as people come together to learn a new technology in response to a competitive threat.<sup>36</sup>

***Collocated or distributed.*** Sharing a practice requires regular interactions. So naturally, many communities start among people who work or live in the same place. But collocation is not a necessity. Many communities of practice are distributed over wide areas. Scientists have long been forming communities of practice by communicating across the globe (once by letter and now by e-mail). Some communities of practice meet regularly, say for breakfast every Wednesday. Others are connected primarily by e-mail and phone and may meet only once or twice a year. What allows members to share knowledge is not the choice of a specific form of communication as opposed to another (face-to-face as opposed to web-based, for instance), but the existence of a shared practice—a common set of situations, problems, and perspectives. Whether some face-to-face interaction is absolutely required or how much is a minimum are still open questions. But new technologies and the need for globalization are quickly making distributed communities of practice the standard rather than the exception.<sup>37</sup>

***Homogeneous or heterogeneous.*** Some communities are homogenous—people from the same discipline or function. Others bring together people with different backgrounds, for instance, all people from different functions who deal with a big customer or a certain country. It is often easier to start a community among people with common backgrounds, but having a problem in common is also a strong motivation for building a shared practice, even among people who have little else in common. Over time people with different backgrounds may end up being as closely bound together as people who started with a lot in common.

***Inside and across boundaries.*** Communities of practice can exist entirely within a business unit or stretch across divisional boundaries. Many even cross the boundaries between organizations.

- ***Within businesses:*** Communities of practice arise as people address recurring sets of problems together. Claims processors within an office form communities of practice to deal with the constant flow of information they need to process. By participating in such a communal memory, they can do the job without having to remember everything themselves.

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<sup>36</sup> Again, some sense of continuity is important for feeling of loyalty and belonging among members, as to give members time to develop a practice as well as shared norms and rituals together. A key feature of a community as opposed to other formal units is feeling of mutual commitment, which generally implies some expectation that others will be there when the next meeting is held. David Whetten (2000: 176), in his Presidential Address at the Year 2000 Annual Meeting of the Academy of Management based the title of his talk, “What matters most,” from the governing theme of the conference. He interpreted these words to describe the “social intercourse among academics...like colleague and college, which are formed from the Latin word *collegium*, meaning ‘a fellowship.’ These terms suggest that the business of academe is best accomplished when it is encompassed within a social fabric characterized by open, honest, and trusting relationships.” Research on academic professional development supports this belief in the importance of personal relationships for professional development (Gersick et al., 2000).

<sup>37</sup> We discuss distributed communities in more detail in chapter 6.

- ***Across business units:*** Important knowledge is often distributed in different business units. People who work in cross-functional teams often form communities of practice to keep in touch with their peers in various parts of the company and maintain their expertise. At a large chemical company safety managers from each business unit gain from interacting regularly, solving problems together, and developing common guidelines, tools, standards, procedures, and documents.
- ***Across organization boundaries:*** Communities of practice are not bound by company affiliation. With the emphasis on the extended enterprise, communities of practice often become useful precisely by crossing organization boundaries. For instance, in fast-moving industries such as computer hard disks, engineers who work for suppliers and buyers may form a community of practice to keep up with constant technological changes, even though it is not part of their job description.<sup>38</sup>

***Spontaneous or intentional.*** Many communities of practice in organizations start without any intervention or development effort. Members spontaneously come together because they need each other as peers and learning partners. In other cases, organizations have intentionally developed specific communities to take care of a capability they needed. Whether spontaneous or intentional, some communities remain very informal about the way they function as communities and accumulate knowledge, while others are much more intentional about organizing themselves as communities, calling meetings, setting agendas, having various roles, and creating community artifacts such as websites or knowledge bases.

***Unrecognized to institutionalized.*** Communities of practice have a variety of relations to the organizations in which they exist, ranging from completely unrecognized to largely institutionalized.<sup>39</sup> Nurses in a ward, for instance, used to meet regularly for lunch. They discussed patient cases. Over time, they had created a history of cases they all knew about and could use to think about new problems. Yet they were not explicitly aware that these lunches had become one of their main sources of new knowledge. And of course, the hospital administration had no awareness of the value of these informal lunch discussions. At the other end of the spectrum, some communities have been found so valuable that they have been included into the official structure of the organization. When done carefully and in keeping with the culture of the organization, such institutionalization can confer legitimacy and resources to a community without violating its internal drive. Between invisibility and institutionalization there is a whole range of possible relationships as described in Table 2.1. The point is not that one kind of

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<sup>38</sup> As we describe in chapter 7, intra-unit and inter-unit or inter-firm communities are often connected in a “fractal” structure that provides a strong local identity for local members while creating links that provide greater access to colleagues, knowledge, and influence that a broader community can provide. Oliver & Liebeskind (1998) describe an analogous three-level structure in research on intra-firm and interfirm networks to source intellectual capital in the biotechnology industry. Leonard & Swap (2000) describe an example of an inter-organizational network of venture capitalists in Silicon Valley.

<sup>39</sup> In an article on types of “work-related learning networks,” Poell et al. (1999) differentiate networks that are more formally sponsored and directed by managers and those that are more horizontal or “organic”; they also differentiate networks that cross organizational boundaries and those that do not.

relationship is necessarily better than the others, but that different issues arise as the relationship changes.

Relationship	Definition	Typical challenges
<i>Unrecognized</i>	Invisible to the organization and sometimes even to members themselves	Difficult to see value and be aware of limitations, may not involve everyone who should participate
<i>Bootlegged</i>	Only visible informally to a circle of people in the know	Getting resources, having an impact, keeping hidden, gaining legitimacy
<i>Legitimized</i>	Officially sanctioned as a valuable entity	Broader visibility, rapid growth, new demands and expectations
<i>Supported</i>	Provided with direct resources from the organization	Scrutiny, accountability for use of resources, effort, and time, short-term pressures
<i>Institutionalized</i>	Given an official status and function in the organization	Fixed definition, over-management, living beyond its usefulness

**Table 2.1 Relationships to Official Organization**

<<table 2.1 here>>

## A structural model: domain, community, and practice

Under the variety of forms that communities of practice take, there is basic structure that they all share. A community of practice is a unique combination of three fundamental elements: a *domain* of knowledge, which defines a set of issues, a *community* of people who care about this domain, and the shared *practice* that they are developing to be effective in their domain.

- The domain creates common ground and a sense of common identity. A well-defined domain legitimizes the community. It inspires members to contribute and participate, guides their learning, and gives meaning to their actions. Knowing the boundaries and the leading edge of the domain members decide what exactly is worth sharing and how to present it. It also allows them to recognize the potential in tentative or half-baked ideas. To you, an apple falling from a tree is just natural, but to a physicist, the very sight can reconstruct the whole universe.
- The community creates the social fabric of learning. A strong community enables interactions and relationships based on mutual respect and trust. It fosters a willingness to share and combine ideas, expose your ignorance, ask real questions, and listen carefully. Have you ever experienced this mixture of intimacy and openness to inquiry? Knowing and learning are not just an intellectual process, but a way of belonging, which involves the heart as well as the head.<sup>40</sup>

<sup>40</sup> Sociologists might also refer to “sociability,” or “associability” to emphasize the collective nature of interactions, as opposed to merely one-on-one interpersonal relationships.

- The practice provides a shared repertoire that allows members to communicate efficiently about their domain, solve problems, share knowledge, and develop new knowledge. A rich practice provides a language of terms, images, and concepts. It sets a common baseline of knowledge that can be assumed on the part of members of the community, so you don't have to explain everything. It also provides a shared collection of cases, principles, stories, rules, tools, and common experiences that members refer to when they face new problems.<sup>41</sup>

When they function well together, these three elements make a community of practice an ideal *knowledge structure*—a social structure that can assume responsibility for developing and sharing knowledge. Let us explore in more detail how each element contributes to a community's ability to steward knowledge.

## Domain

Arlene is a consultant. Today she takes the time to document a client problem and its solution, because she can see that it has broader implications beyond her specific client situation. It is a great case for the new e-business practice she belongs to and she knows that her colleagues will appreciate the issues. The solution her team came up with is innovative and will change the way the firm approaches this type of engagement and may even suggest a new line of business.

It is her understanding of her community's domain that enables her to recognize that this particular problem is interesting. It is her commitment to a shared learning agenda that motivates her to contribute her insights to the practice of her community. Her appreciation for the leading edge of the domain demonstrates her membership in the core of the community. She understands what matters to this community and is able to contribute something that everyone will find relevant. She knows what to communicate and how to present information in useful ways—an outsider would not appreciate why sharing this or that detail, like the size of a meeting room or the personality of an executive, is important to the story.

Without commitment to a domain, a community is just a group of friends. A shared **domain** creates a sense of accountability to a body of knowledge and therefore to the development of a practice. Communities may be more or less explicit about their domain, but whether explicit or implicit, the members' shared understanding of their domain—its purpose, its resolved issues, its open questions—allows them to decide what matters. It guides the questions they ask and the way they organize their knowledge. It helps them sort out what to share and distinguish between a trivial idea and one with real promise.

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<sup>41</sup> The notion of practice has a long intellectual history and has become an important way to frame the nature of “knowledge for action” (Argyris, 1993) as applied in organizations. The American philosopher, John Dewey, helped to establish a school of epistemology at the beginning of the 20<sup>th</sup> century that was based on the notion that knowledge was best understood by what you could do, not merely what you could understand conceptually. See also Argyris, Putnam, & Smith (1987), Schon (1983), and Tsoukas (1996) for reviews of the notion of knowledge as practice.

The domain of a community of practice can range from very mundane know-how, like eating healthy food, to highly specialized professional expertise, like designing aircraft wings. It is a lot easier to define a domain when there is already an established discourse, as is the case of a professional discipline, but what brings members together is not always in line with recognized topics. Members of a community may indeed share a profession or a discipline (cardiologists, history teachers, petrophysicists, powertrain engineers), have the same job or role (insurance claims processors, safety managers), or deal with the same clients. But they may also face similar problems that are not officially recognized as domains (on-line facilitation, document management, aggressive customers, low-status job). For instance, a group of medical insurance claims processors are in their office to process a certain number of claims per day. That is the official version of the task, if you view them as a workgroup. But if you view them as a community of practice, their domain goes beyond this simple goal. They not only care about the competence needed to meet production quotas, but equally they care about preserving a sense of identity despite the status of their job. Their actual domain in practice is as much about how you survive in a place like this as it is about production goals. As a community, they hold each other accountable to the latter commitment even more stringently than to the company's demands: It is OK to miss your daily quota, it happens to everyone at times, but it is not OK to show too much interest in the job. What guides the actual learning of the community is an insider's view of the domain. This view may or may not be easily articulated by members, and it may not always align with the organization, but it nevertheless shapes what they hold each other accountable to.<sup>42</sup>

Whatever creates common ground among them, the domain of their community is its *raison d'être*. It is what brings people together and what guides their learning. It is what defines the identity of the community, its place in the world, and the value of its achievements to members and to others. In this regard, the identity of the community depends in good part on the importance of its domain in the world, which in turn makes the domain important to members. For a group of engineers with whom we were working to form a community of practice, what turned out to be exciting and rewarding to them was not merely sharing knowledge among themselves, but also the idea that the company would actually listen to their voice as a community with professional authority (as opposed to simply putting them on projects).

A domain is not a fixed set of problems. It evolves as the world evolves and as the community's understanding of itself and of the world evolves. A community of web designers will shift its focus as languages like HTML or Java become popular or certain applets are in demand. In any domain, there are rhythms of hot topics that generate energy at any given time. In science, most notably, each discipline has its one or two hot questions that researchers focus on at any given time. But this is true of most communities. As members focus on these hot topics, as old problems become solved and new ones appear, as new technologies pose new challenges, as new generations of members bring new perspectives, the community's sense of what it is about evolves and

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<sup>42</sup> Liedtka (1999) cites Berry et al. (1990) who noted that "An interactive community of coworkers who collaborate, overcome, and achieve together is a powerful antidote to service burn-out" (33).

grows. And yet, through these changes, the community maintains a sense of identity rooted in a shared sense of its domain.

Mapping domains and defining their content and scope is an art. A good domain is not merely a passing issue, like the choice of a new supplier, which can be addressed by a temporary task force. It concerns issues that have persistence and where sustained learning is necessary. One consulting firm uses the heuristic that a domain should have a “half-life” of at least 18 months.

A domain is not an abstract area of interest, but represents key issues or problems that members experience in their own lives. An insurance organization had started a community around “technical skills,” because it was a term and an issue that many people recognized as important. But in practice, it turned out to be too general to grab anyone’s identity. They had to restructure this community into more specialized communities around specific techniques and skills associated with specific responsibilities people had in the organization, such as claims processing or training.

The most successful communities of practice thrive at the intersection between the goals and needs of an organization and the passion and aspirations of participants.<sup>43</sup> If the domain of a community fails to arouse members’ passion and active engagement, the community will flounder. Conversely, if the topic lacks strategic relevance to the organization, the community will be marginalized and have limited influence. This intersection of personal meaning and strategic relevance is a potent source of energy and meaningfulness. Domains that provide such a bridge are likely to inspire the kind of thought leadership and spirit of inquiry that is the hallmark of vibrant communities of practice.

A well-developed domain becomes a statement of stewardship of knowledge. It is a commitment to care for an area of expertise and take responsibility for providing the organization with the best that can be found. For instance, a community of engineers decided to attend each other’s project reviews as a way to learn from each other, to help each other, and to assure world-class quality. In turn, a domain is also an acknowledgment on the part of the organization that the community is given a voice in stewarding its expertise and capabilities. A firm with such communities would not dream of making important decisions relevant to their domain without consulting members—a large purchase of equipment, an acquisition, a new business line, an executive hire. The engineers who went to each other’s reviews did so also as a way to gain influence in the organization. Indeed, a well-honed domain becomes a source of influence when it is the purview of a self-conscious community.<sup>44</sup>

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<sup>43</sup> Csikszentmihalyi (1996), Amabile (1997), Polanyi (1966), among others have noted the importance of passion and personal investment in a domain to spur creativity and the persistent commitment to an area that is required to develop expertise or create significant innovations.

<sup>44</sup> Knowledge or expertise is a significant source of power, especially in today’s knowledge economy—rivaling other established sources—such as status, coercion, authority, and interpersonal influence—for preeminence. (See French and Raven (1968) and Pfeffer (1981) for reviews of typical sources of power in organizations.)

## Community

Quantitative biologists at two sites at Eli Lilly and Company, one at corporate headquarters in Indiana and one at an affiliate site in North Carolina, recognized challenges in collaborating effectively on projects. Because the affiliate site was an acquired company, both sites had differences in culture, which led to differences in methodology, terminology, and missions. The distance caused inconsistent working and personal relationships. Both sites had an incomplete understanding of project histories and an inability to easily identify and contact experts. As a result of these issues, there was significant duplication of effort, duplication of competing technologies, and ineffective transfer of project work from one site to another. A small group of scientists from both sites decided to consider creating a community of practice to solve the problem.

At first, the community concept was met with some skepticism, since most of the scientists did not understand the scientific benefit of a community. It was at a launch meeting of the core group that this began to change. What allowed them to build trust and relationship was working toward a common vision for community. At the behest of the facilitators, they started to talk about the value of community, starting with their experience outside of work. What kept them in a community? What made them leave? They also agreed on what their practice was—quantitative biology—which allowed them to see it as a connecting thread among them.

Now they meet face-to-face quarterly, alternating sites. Between meetings, they have bi-monthly teleconferences. They also publish their travel schedules so members can meet if they happen to be in the same place. Their roster is growing fairly rapidly. They have designed a charter and committed to avoid finger-pointing. They have also decided to breakdown the traditional hierarchy among scientists and to involve everyone from the senior research scientists to the lab technicians, though at first the lab technicians were a bit reluctant to express their opinions in front of the senior scientists. At a recent meeting they even organized a contest to adopt a mascot—the “Q-Bee” for quantitative biology.

The effect of all this community work is showing up in their performance. They have created a joint strategy for developing new technologies to reduce replication and pool resources. In addition, they found that by combining orders for chemicals from the two sites, they could save money through bulk discounts. The sites have begun sharing compounds for testing, which, for one group, had not happened in the past. Their success is a combination of two key factors. First they have removed barriers to relationships by addressing head-on initial trust issues, problems in the work environment, and challenges from skeptics. But this focus on relationships, which has become extremely important to the group, has always been in the service of—not at the expense of—their focus on science, which is equally important to them organizationally and personally. Their community enables them to better deliver the value of their scientific disciplines and experience more deeply their identities as scientists. As one said: “Relationships are what science is all about.”

The community element is critical to an effective knowledge structure. A community of practice is not just a website, a database, or a collection of best practices. It is a group of

people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment.<sup>45</sup> Having others who share your overall perspective on the domain and yet bring their own individual perspectives on any given problem creates a social learning system that goes beyond the sum of its parts. Members use each other as sounding boards, build on each other's ideas, and provide a mutual filtering mechanism to deal with "knowledge overload."<sup>46</sup> Interpersonal relationships are also critical. Knowing each other makes it easier to call for help: you know who is likely to have an answer and you feel more confident that your call will be welcome. If you are at the other end of the request, you assume that the caller is competent enough not to waste your time with trivial questions.

To build up to a community of practice, members must interact around their domains. Having the same title, for instance, is not enough.<sup>47</sup> You can all be safety managers in different business units, but unless you interact, you do not form a community of practice. Moreover, these interactions have to have some continuity. A good conversation on an airplane ride or a workshop at a conference does not constitute a community of practice. The time element is essential. Interacting regularly, members develop a shared understanding of their domain, with their unique perspective and approach. They build relationships. They learn to trust each other. They know what each other knows, who is likely to be able to answer a question or to appreciate a piece of information. Over time, they build a sense of common history and identity.

The concept of community often connotes commonality, but it would be wrong to assume that the hallmark of an ideal community of practice is homogeneity. While interacting over time does create a common history and communal identity, it also creates differentiation among members. They take on various roles, officially and unofficially.

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<sup>45</sup> Thomas Bender's (1982: 7-8) sociological definition of community is a helpful benchmark "A community involves a limited number of people in a somewhat restricted social space or network held together by shared understandings and a sense of obligation. Relationships are close, often intimate, and usually face to face. Individuals are bound together by affective or emotional ties rather than by a perception of individual self-interest. There is a "we-ness" in a community; one is a member." Klein & D'Aunno (1986) cite Sarason's (1974: 1) definition of the psychological sense of community as "the sense that one belongs in and is meaningfully a part of a larger collectivity" and apply this notion to "functional subgroups" in organizations that consist of members who "work together on a common task (e.g., marketing, purchasing)" (Klein & D'Aunno, 1986: 368). Etzioni (1996) notes regarding the term "community," that "many widely used terms are not readily definable" and then defines three key characteristics: a web of affect-laden relationships, commitment to shared values, norms, and meanings—along with a shared history and identity, and a relatively high level of responsiveness to both members and the world.

<sup>46</sup> Davenport (2001) argues that information overload is quickly becoming a principal bottleneck for learning and innovation. Communities help members sift through the sand dunes to know what ideas and methods and problems to pay attention to.

<sup>47</sup> Van Maanan and Barley's (1984) description of "occupational communities" is somewhat unclear on the extent to which they consider an ongoing, practice-based relationship to be a defining element. While members of the same profession—say, truck drivers or police officers—may develop quick rapport and share basic values, language, and rituals, they do not necessarily share a personal history or make any commitment to a joint enterprise. The extent to which any group is a community of practice cannot be determined in the abstract (by defining someone's role, for instance), but rather only in terms of their experience in practice.

They create their own specialties or styles. They gain a reputation. They achieve a status and generate their own personal sphere of influence. In other words, they develop a unique individual identity in relation to the community. Their interactions over time are a source of both commonality and diversity. Homogeneity of background, skills, or point of view is neither a required condition for starting a community of practice, nor a necessary result of having become one. In fact, it is not even an indicator that a community will be more tightly bonded or more effective. With enough common ground for ongoing mutual engagement, a good dose of diversity makes for richer learning and more interesting relationships and it increases the potential for creativity.<sup>48</sup>

We are often asked what the ideal size is for a community of practice. As mentioned earlier, we have seen them in such a wide variety of sizes that it is difficult to give absolute numbers. On the one hand, you need a critical mass of people to have enough interactions and perspectives. On the other hand, if the community becomes too large for members to have much direct interaction, it can become something abstract and distant where it is difficult to develop relationships of trust. Size does matter, however, and communities change in structure and characteristics as they grow. Under 15, they are very intimate and everybody knows each other well. Between 15 and 50, relationships become more fluid and differentiated. Between 50 and 150, communities tend to divide into subgroups around topics of geography, and beyond 150, the subgroups usually develop strong local identities.<sup>49</sup> As will be discussed further in Chapter 6, these “fractal” structures of groups within groups allow member to be very engaged locally while still having a sense of belonging to the larger community.

Another question that people often ask is whether membership in a community of practice has to be voluntary. A community of practice is not like a team that management can pull together. It depends too much on people’s personal passion to work through coercion. It must build on existing identities or invite participation with the promise of new identities. Membership may be self-selected or assigned, but the actual level of engagement is a personal matter. In this deep sense, participation is voluntary.<sup>50</sup> This does not mean that it cannot be encouraged, however. Of course, the kind of personal investment that makes for a vibrant community is not something that can be invented or forced. The last thing you want is for community participation to be perfunctory. But sometimes it takes a bit of prodding for people to interact enough to discover the value of learning together. There is nothing that says that these communities have to be purely

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<sup>48</sup> Leonard & Swap (2000) argue that creativity and innovation depend on “creative abrasion,” the right combination of diversity and common ground that can propel iterative processes of divergence and convergence towards a creative output.

<sup>49</sup> According to anthropologists, “real” communities cannot go beyond 150 members because it is about the highest number of people one can know in significant emotional terms. Gladwell (1999: 190) explains that such size limits are driven by the “psychological preconditions for transactive memory.” He explains: “it’s knowing someone well enough to know what they know, and knowing them well enough so that you can trust them to know things in their specialty. It’s the re-creation, on an organization-wide level, of the kind of intimacy and trust that exists in a family.

<sup>50</sup> Giddens (1976) argues that all social structures are enacted in both cognitive and behavioral terms—none are immune in this sense from the effect of voluntary participation.

spontaneous. Just know that in the end, the success of the community will depend on the energy that the community itself generates, not on an external mandate.

All communities of practice depend on internal leadership, but healthy communities do not depend entirely on the leadership of one person. Leadership is distributed and is a characteristic of the whole community. Recognized experts certainly need to be involved in some way in order to legitimize the community as a place for sharing and creating knowledge, but they are not necessarily the ones who bring the community together or take all initiatives to explore new territory. Rather than think in terms of specific leaders and followers, it is more useful to think of roles in a community of practice in terms of an ecology of leadership. Leadership in a community can be very diverse, including community organizers, experts and thought leaders, pioneers, administrators, and boundary spanners. Roles may be formal or informal. They may be concentrated in a small subgroup or more widely distributed. But in all cases, those who undertake them must have intrinsic legitimacy in the community.<sup>51</sup>

Anthropologists who study communities have noted the importance of reciprocity in community participation. Members of a healthy community of practice have a sense that making the community more valuable is to the benefit of everyone. They know that their own contribution will come back to them. This is not a direct exchange mechanism of a market type where commodities are traded. Rather it is a pool of goodwill—of social capital, to use the technical term<sup>52</sup>—which allows people to contribute to the community while trusting that at some point and in some form they too will benefit from the contributions of everyone. This kind of reciprocity is neither simple selflessness nor simple tit for tat, but a deep perception of mutual value that extends over time.<sup>53</sup>

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<sup>51</sup> Historically, group studies have identified multiple types of leadership in groups, including “task-oriented” and “behavior-oriented” leaders (Bales, 1958). Gladwell (1999) describes several types of leaders that are crucial to social movements and relevant for communities—connectors, mavens, and salesmen. Research on civic organizing efforts has identified a number of “civic entrepreneur” roles, including: motivator, networker, teacher, convener, integrator, driver, and mentor (Henton et al., 1997: 77), each of which plays a particularly important role at different stages during the lifecycle of an initiative. Studies of creativity note the value of combining people with different aptitudes and perspectives—such as those that are more oriented to details and procedures, convergent or divergent, or more emotional and “big-picture” oriented (Leonard & Straus, 1997; Leonard & Swap, 1999; Hermann, 1989).

<sup>52</sup> Putnam, 1993; Cohen & Prusack, 2000.

<sup>53</sup> Putnam (1993: 173) notes the importance of “generalized reciprocation” where one gives to others without expectation of direct quid pro quo. Such gifts are much more likely in communities with high levels of social capital where members share “mutual expectations that a benefit granted now should be repaid in the future,” even if not from the direct recipient. He goes on to describe the virtuous cycle between such giving and the trust that fosters it: “In communities where people can be confident that trusting will be requited, not exploited, exchange is more likely to ensue. Conversely, repeated exchange over a period of time tends to encourage the development of a norm of generalized reciprocity.” See also Granovetter (1985). On a practical level, Maister (1993: 338) explains that the first principle for fostering such collaboration in a professional services firm is to encourage “*long-term repeated interaction between the same people*. Cooperation emerges when people find it in their interest to do favors for each other, to help each other out. However these favors rarely occur simultaneously....To sustain this, the future must have a large enough shadow: those who are to cooperate must have a large enough chance of interacting with, and needing, each other again” [his italics]. A community’s boundary provides the “shadow” that fosters a sense of mutual commitment and makes such reciprocation more likely.

Learning requires an atmosphere of openness. Each community develops a unique atmosphere—intense or laid back, formal or informal, authoritarian or democratic. Whatever norms members establish, the key is to build a foundation for collective inquiry. An effective community of practice offers a place of exploration where it is safe to speak the truth and ask real questions.<sup>54</sup> Trust is a key to this process. There is a confidence that others can play along. There is a flow of improvised contributions, like in a well-coordinated jazz band. There is a pleasure in thinking together. Meetings are intense, rich in content, engaging members in good discussions. Effective communities are not necessarily ones that have no conflict. In fact, the stronger a community, the better it is able to contain conflict and make it productive. Good communities are not weakened by conflicts. Their strong bonds withstand disagreement and they can even use conflict as a way to deepen their relationship and their learning.

## Practice

Tom is an electronic engineer specializing in a commonly-used but delicate type of circuits called phase-lock loops. This is the kind of circuit that will tune your radio to the frequency you select, for instance. Today, Tom has a vexing problem with a promising design and he decides to bring it to the community meeting to get help. He goes to the white board and draws a quick diagram using weird symbols. In a matter of minutes, all his colleagues at the meeting are ready to discuss his new idea with him. They can see it is a promising idea and they understand where his problem is. They all get to work, ready to think, invent, and find solutions together. Eric, a newcomer to the community, is in awe. For him, this is an ideal context to learn the craft. Through its practice, the community itself acts as a living curriculum

A shared practice provides a baseline of common knowledge that can be assumed on the part of each full member. This does not mean that all members are cognitive clones. People specialize and develop areas of individual expertise. They may belong to slightly different schools of thought. But they share a basic body of knowledge that creates a common foundation allowing members to think together effectively.

A shared practice both accumulates the learning of the past and opens new learning possibilities into the future. As a product of the past, it embodies the history of the community and the knowledge it has developed over time. You can't be a real electronics engineer unless you are familiar with the repertoire of your community: all these hieroglyphic symbols Tom was using, Ohm's law, last year's disaster that resulted in a recall of a whole batch of chips, the design guidelines on the website, or the stock of stories about relationships with people at the fab, which may help you address tricky manufacturing problems. At the same time, the practice is also oriented to the future: it embodies the community's potential for further learning because it provides the resources that members use to make sense of new situations and create new knowledge. Music is a good example of a craft where a base of masterful techniques makes for artful

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<sup>54</sup> Edmonson's (1996) research on team learning showed a relationship between mutual trust and members' ability to acknowledge and learn from errors as a team.

improvisation. A shared practice supports innovation because it serves as a channel for communicating new ideas quickly and for focusing conversations.<sup>55</sup>

The term practice is used here in the sense it has in an expression like “reasonable medical practice.” It denotes a set of socially defined ways of doing things in a specific domain: a set of common approaches and shared standards that create a basis for action, communication, problem framing, competent performance, and mutual accountability. These communal resources include a varied collection of interrelated knowledge types: cases and stories, theories, rules, frameworks, models, principles, tools, experts, articles, lessons learned, best practices, and heuristics. They include both the tacit and the explicit aspects of the community’s knowledge. They range from very concrete artifacts, such as a specialized tool or a manual, to very subtle displays of competence, such as an ability to interpret a slight change in the sound of a machine as indicating a specific problem. The practice includes the books, the articles, the knowledge bases, the websites, and other repositories where a community documents its practice. It also embodies a certain way of being in the world, a perspective on problems, questions and ideas that are in the air, a style of thinking and behaving, and even in many cases an ethical stance. In this sense, a practice is a sort of local mini-culture that binds the community together and serves as a vessel for connection.<sup>56</sup>

An effective practice is a living thing. It evolves with the community as a collective product. It is integrated into people’s work. It produces knowledge that practitioners can use to do what they need to do because it reflects their perspective. Each community has a specific way of making its practice visible in the process of developing and sharing knowledge. Some use stories. Traditional midwives in the Yucatan discuss how to proceed with a birth by sharing stories relevant to each decision.<sup>57</sup> Similarly, Xerox repair technicians tell war stories to communicate their insights and to help solve difficult encounters with recalcitrant machines.<sup>58</sup> Some use formulas and procedures written out in articles, as do scientists and researchers. The EboK at DaimlerChrysler is a mixture of procedures, best practices, and lessons learned that reflect the way an automotive engineer thinks about design. In each case, the mode of communicating and capturing knowledge is in tune with the demands of actual use.

A community must have a shared understanding of what aspects of its domain are codifiable and which are not, and what to do in each case. Successful practice development depends on a balance between joint activities in which members have a

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<sup>55</sup> Csikszentmihalyi explains that artists and scientists depend on the foundation of a commonly shared “field” for both sources of ideas and practice elements that help them creatively realize ideas. Moorman & Miner (1998) have demonstrated a correlation between an organization’s memory and its capacity for improvisation.

<sup>56</sup> A number of studies in organizational culture have focused on occupational groups as sub-cultures within the organization (Schein, 1996; Martin, 1992; Sackman, 1992).

<sup>57</sup> Jordan, 1987.

<sup>58</sup> Orr, 1990 argues that the war stories shared by the repair technicians constitute a form of collective memory for their community. Schank & Morson (1995), Davenport & Prusack (1998), and Denning (2001) explain that stories are often the best way to capture and transfer knowledge because they integrate contextual information better than purely conceptual or procedural methods.

chance to explore ideas together and the production of “things” like documents or tools. It involves an ongoing interplay of codification and interactions, of the explicit and the tacit.<sup>59</sup> Documentation is not a goal in itself, but integral part of the life of the community. At DaimlerChrysler, communities of practice spend a good part of their meetings discussing the chapters of the EboK that their members are authoring and debating what should go in them. Engineers report that participating in these discussions is just as important to them as having the final documents. Some say they don’t really need to read the documents after they have participated in the discussions. The twin goals of interacting with peers and creating knowledge products complement each other. On the one hand, the goal of documenting and codifying focuses community activities, and on the other hand, these activities give life and legitimacy to the documentation.

Successful practice building goes hand in hand with community building. The process must give practitioners a chance to gain a reputation as contributors to the community’s practice. At Xerox, all tips in the database prominently carry the name of the contributor and at DaimlerChrysler EboK chapters are always signed. In addition, there has to be a process by which the community validates and endorses new submissions as actual communal knowledge. At Xerox, all new tips are explicitly endorsed by reputable experts. Debates about the body of shared knowledge that constitutes the practice allows the community to own its standards. Agreeing on standards and best practices inevitably involves disagreements and conflicts. When this process takes place in the context of an ongoing community, however, each specific debate is part of a longer debate to which members have committed. This ongoing commitment can put the process of dealing with disagreement in perspective. As one DaimlerChrysler engineer reports, you know that the issues can be revisited and that new issues will come up: You lose this one, you’ll win another one.

## Implications of the model

Developing a model of communities of practice in terms of constituent elements is not merely a theoretical exercise. It is useful in multiple ways. It provides a language for discussing situations, for taking collective action, and for gaining legitimacy in an organization. The three elements of the model clarify the definition of communities of practice as a social structure distinct from other types. They provide a means to understand the different ways in which participation becomes meaningful to members—some may be more interested in the community than in the practice aspect for instance. Finally, the three elements guide community development efforts by indicating the various areas on which one needs to focus in order to foster a well-rounded community.

## Distinctions from other familiar structures

This model reinforces the significance of the term *community of practice*. Not every community is a community of practice. For instance, a neighborhood is often called a

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<sup>59</sup> Nonaka & Takeuchi (1995) explain that learning methods should be matched to the types of knowledge to be developed or shared. Snyder (1996) reviews the literature on various types of learning approaches—both formal and informal—and how these can best be applied to discover and diffuse tacit and explicit knowledge.

community, but it is rarely a community of practice. It usually lacks a clear domain of knowledge that unites the population or a practice that inhabitants develop together.<sup>60</sup> Similarly, not everything we call practice gives rise to a community. For instance, many people practice the piano, but they do not form a clearly identifiable community. Together the two terms community and practice refer to a very specific type of social structure with a very specific usefulness. Providing some contrasts with other, more familiar structures will help elucidate what is distinctive about communities of practice as knowledge structures.

***Versus business or functional units.*** At the core of a business or functional unit is the responsibility for managing a business goal, such as serving a specific market segment, manufacturing a product, or fulfilling an administrative function. This responsibility includes allocating resources, managing business processes, and assigning formal roles, reporting relationships, and accountability for business outcomes. By contrast, the primary purpose of communities of practice—to develop knowledge—does not make them a very good basis for purposes such as allocating resources or managing a business in order to deliver a product or service to the market. Communities of practice remain more loosely connected, informal, and self-managed even when they are highly institutionalized. They are based on collegiality, not on reporting relationships, and membership depends on participation not on institutional affiliation. Production targets, allocation of resources, and reporting relationships distract a community of practice from its purpose of stewarding knowledge and fostering learning.

This focus on knowledge does not mean that members of communities of practice do not care about these other matters, just that as community member they focus primarily on knowledge and learning; they care about these other objectives as members of their business units. Nor does this focus on knowledge mean that there are no differences in power among members of a community of practice. An expert will certainly have more power than a novice, but this power derives from the ability to contribute to the knowledge of the community, not from formal authority to control resources, give orders, or determine people's promotions.

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<sup>60</sup> In some cases neighborhood groups do organize as a community of practice, often in response to an urgent problem. In such cases members develop a shared practice in community organizing—related to specific issues such as safety, education, or housing. (See Medoff & Sklar, 1994).

	<b>What's the purpose?</b>	<b>Who belongs?</b>	<b>How clear boundaries</b>	<b>What holds them together?</b>	<b>How long does it last?</b>
<b>Communities of practice</b>	To create, expand, and exchange knowledge, and to develop individual capabilities	Self-selection based on expertise or passion for a topic	Fuzzy	Passion, commitment, and identification with the group and its expertise	Evolve and end organically (last as long as there is relevance to the topic and value and interest in learning together)
<b>Formal departments</b>	To deliver a product or service	Everyone who reports to the group's manager	Clear	Job requirements and common goals	Intended to be permanent (but last until the next reorganization)
<b>Operational teams</b>	To take care of an ongoing operation or process	Membership assigned by management	Clear	Shared responsibility for the operation	Intended to be ongoing (but last as long as the operation needs doing)
<b>Project teams</b>	To accomplish a specified task	People who have a direct role in accomplishing the task	Clear	The project's goals and milestones	Predetermined ending (when the project has been completed)
<b>Community of interest</b>	To be informed	Whoever is interested	Fuzzy	Access to information and sense of likemindedness	Evolves and end organically
<b>Informal networks</b>	To receive and pass on information, to know who is who	Friends and business acquaintances, friends or friends	Undefined	Mutual need and relationships	Never really start or end (exist as people keep in touch or remember each other)

**Table 2.2. Distinctions from other structures**

*Versus project or operational teams.* The heart of a team is a set of interdependent tasks that lead to an objective defined in advance. The team makes a commitment to this goal and ensures that individual commitments are kept. The team leader keeps the team focused on its deliverable and coordinates individual contributions to the overall objectives. By contrast the heart of a community of practice is the members' personal investment in its domain. A domain is different from a task. It refers not so much to a specific achievement as to a territory, an area of shared interest, that the community explores. Members are connected by interdependent knowledge not by interdependent subtasks. A community coordinator does not "lead" the community in the traditional sense, but brings people together and enables the community to find its direction. Now a community may undertake specific tasks and projects on the course of developing its practice. It may charter a team to establish a standard or to document a procedure. But the community is not defined by any of these tasks. It is defined by its more fundamental commitment to exploring its domain and developing and sharing the relevant knowledge.

*Versus informal networks, communities of interest, and professional associations.* All organizations have informal networks of people who communicate, share information and build relationships and reputations.<sup>61</sup> Employees have their own lists of contacts to whom they will transmit an important piece of news or to whom they will turn for a request. A community of practice is different from such a network in the sense that it is "about" something. It is not just a set of relationships. Its domain gives it an identity, and the commitment to care for this domain gives it a cohesiveness and intentionality that goes beyond the interpersonal nature of informal networks. Now a shared interest does not necessarily yield a community of practice. You can be interested in French cinema and enjoy reading postings on a newsgroup, but the members of this newsgroup are not developing a practice. Caring for a domain implies an interest in this domain, but it goes beyond mere interest. It entails developing a shared practice, which directly affects the behaviors and abilities of members. You can recognize members: they behave in ways consistent with this shared practice, they understand and use a common language, they have a definite style. But again, having a shared practice by itself does not imply a community of practice. Many professional associations, for instance, act more as lobbying or advocacy entities than communities of practice, though they may include specialized subgroups that create practice-development relationships among members.

Obviously, all these distinctions have degrees; they are not black and white. The extent to which any group is or is not a community of practice is not something that can be determined in the abstract by its name or by characteristics of members. You have to look at how the group functions and how it combines all three elements of domain, community, and practice.

## Forms of participation

Domain, community, and practice are not merely a useful way of defining communities of practice. They represent different aspects of participation that motivate people to join a community. In fact, they seem to characterize basic types of members in a community of practice. Some people participate because they care about the domain. They are so interested in the topic that they will talk with anyone about it. They have a passion for it and want to see it taken care of. Others are drawn by the value of having a community. They are mostly looking for peers to interact with, people who share something important. Sometimes it is a practice they have devoted most of their lives to learning. Connecting with others who share that passion is itself rewarding. Communities are also a place where people can make a contribution among people who can genuinely appreciate what they are doing. Other members want to learn about the practice. They want to know what standards have been established, what tools work well, and what lessons have been

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<sup>61</sup> See Krackart & Hanson (1993) and Nohria & Eccles (1992) for descriptions of informal networks in organizations. Lipnack & Stamps (1993, 1994) describe intentional networks in organizations designed explicitly to connect distributed team activities for purposes related to marketing, training, resource utilization, R&D, and quality management. Many of the characteristics and principles relevant to the networks they describe also apply to communities of practice—for example multiple leaders, voluntary links, and integrated levels. Communities of practice, however, are by definition more specifically focused on stewarding a practice, as opposed to “teamnets” broader set of aspirations that include marketing, product-delivery, and resource-management as well as knowledge-related objectives.

learned by master practitioners. The community is an opportunity to learn new techniques and approaches in their personal desire to perfect their craft.

Obviously no one cares exclusively about one thing. And any one driver naturally leads to the others. Even people who *join* a community because they are interested in the domain and expect value, often *stay* because they become emotionally connected to the community. People participate for a mix of reasons. Still it is useful to perceive these distinctions because the right mix of people who care primarily about each element will yield a balanced community.

These elements also show what a complex thing knowledge is for human beings. It involves the head, the heart, and the hand; inquiry, interactions, and craft. It involves identity, relationships, and competence; meaningfulness, belonging, and action. A community of practice matches that complexity because it is a nexus of all three elements.<sup>62</sup>

## Developing all three elements in concert

Finally, and most importantly, the three elements provide a practical model to guide community development. Having a good model is useful for developing communities of practice because it allows you to make sure that you are addressing all the relevant issues, and that you are maintaining a proper balance among the elements.

- **Domain.** The work of negotiating a shared domain is critical to community development. A community would have to ask itself: What do we really care knowing about? How is this domain connected to the organization's strategy and expected outcomes? What is in it for us? What are the open questions and the leading edge of our domain? Are we ready to take some leadership in promoting and developing our domain? What kind of influence do we want to have? Addressing these types of questions will help a community develop a shared understanding of its domain, find its legitimacy in the organization, and engage the passion of its members.
- **Community.** The community element needs attention, organization, and nurturing: What roles are people going to play? How often is the community going to get together and how are members going to connect and interact on an ongoing basis? What kinds of activities will generate energy and develop trust? How to balance the needs of various segments of members? What norms should members live by? How are newcomers going to be introduced into the community? Addressing these types of

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<sup>62</sup> Psychologist Mihaly Csikszentmihalyi's study of creativity in a multitude of disciplines, including arts and sciences, found that three analogous elements were critical: a chosen "domain," a "culture" that includes theories, rules, methods, and stories (like our notion of "practice"), and a "field of experts" who can recognize and validate innovations. The common use of "head, heart, and hands" corresponds to three elements used to describe community in the Jewish tradition: belief, belonging, and behavior; and to three foundational elements of Buddhism, buddha (enlightenment; domain); sanga (community), and dharma (practice). These also correspond to the three dimensions that Marshall Ganz emphasizes in his course at Harvard's Kennedy School of Government on community organizing: conceptual, relational, and behavioral.

questions will enable the community to find its specific way to operate, to build relationships, and to grow.

- **Practice.** Any community with sustained interactions in a domain will develop a practice over time. Nevertheless, a community can become proactive in taking charge of the development of its practice. What knowledge to share, develop, document? What kinds of learning activities to organize? How should the knowledge repository be organized to reflect the practice of members and be easily accessible? When should processes be standardized and when to accept differences? What development project should the community undertake? Where are there sources of knowledge and benchmark outside the community? These are the kinds of questions that will help a community intentionally become an effective knowledge resource to its members and to other constituencies that may benefit from its expertise.

It is important to develop all three elements in parallel. Focusing too much on one while neglecting the others can be harmful. For instance, trying to design a knowledge base without a clear focus or a coherent community can easily produce a useless tool, as demonstrated by the numerous databases, built without involving a well-defined community that are now collecting digital dust. Conversely, a community that does not focus on building a shared practice will remain a diffuse friendship group that may be socially satisfying, but will fail to develop expertise in a domain. While it is important to combine domain, community, and practice, each element requires a distinct kind of developmental attention and work.

At the same time, the three elements interact and it is their interplay that makes for a healthy community. For instance, all three elements of a community of practice are dynamic. The domain evolves as the focus shifts from hot topic to hot topic. Members join the community and others move on. New practices arise and old ones are discarded. We have found that if all three elements are in flux at the same time, the community is at risk. People are not sure why they are together, they don't know who is in and who is out, and they are not clear about what knowledge constitutes the baseline that defines membership. It is difficult to proceed. But stability in one element can help facilitate a transition in another. If the domain is clear and the practice is well established, then people can come and go without harming the community. Newcomers can join in numbers or old-timers leave. There can be lots of "visitors" or people who are not too sure whether they belong. Similarly, if the community has a strong commitment to each other, it can survive a deep transformation of its practice by an innovation and members can push the edge of the domain with confidence that they are not at risk. The art of community development is to use the synergy between domain, community, and practice to help a community evolve and fulfill its potential.