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**SOME PERSPECTIVES ON
COMMUNITIES OF PRACTICE**

By

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Working Paper # 460

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Abstract

A community of practice is a group of people who share a concern, a set of problems, or a passion about a topic, and who share their knowledge about the topic by interacting on an ongoing basis. In the current turbulent environment of change, communities of practice have been found to be effective tools for sharing knowledge and management strategies and practices within and between organizations, helping to cope with change and to maintain or improve competitive position. We have identified four classes of communities of practice: 1) internally in individual organizations, 2) spanning network organizations linked through formal agreements for a common business purpose, 3) network communities that span organizations but are not a part of other formal relationships, and 4) self-organizing network communities. Characteristics of these communities vary according to their classification, but not as much as might be expected. Our findings indicate that communities of practice in classifications 1) and 2) are more likely to include activities that require transfer of legally protected intellectual property, while classifications 3) and 4) tend to focus more on managerial issues and strategies.

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1. Introduction

A community of practice can be described as “a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” [42]. Individuals in the community bond through their exposure to common problems, practices, and language (natural and/or professional), their sense of purpose, and commitment to learning and innovation. Communities of practice are not a new idea, and have been around since the days when individual craftsmen got together to share ideas and issues. Eventually these developed into craft guilds and finally into professional associations. But more specifically focused communities of practice have recently begun to attract a great deal of attention in the business community, because they provide a way for strategically growing and managing knowledge as an asset. The increasing complexity in products, services, and processes requires more specialization and collaboration between workers. By responding to new economy pressures for rapid transformation, communities of practice can help to improve knowledge exchange in critical areas so organizations can maintain or improve their competitive positions.

Communities of practice can exist in four classifications that we have been able to identify: 1) entirely within individual organizations, 2) spanning organizations that are linked through mergers, acquisitions, or by formal business partnerships (network organizations), 3) formal networks that span organizations but are not part of other formal relationships, or 4) self-organizing networks of individuals with ad hoc relationships and no formal ties. Among these four types are characteristics of particular interest, especially when successful practices exhibited in one type can be replicated in others. It is the purpose of this paper to explore differences and similarities among these classifications, with the objective of encouraging the migration of successful ideas for knowledge transmission and learning among communities of practice.

2. Knowledge, Learning, and Communities of Practice

As the realization grows that knowledge is a critical business resource with a pivotal role in the marketplace, knowledge management, transfer, and learning are attracting a great deal of attention in today's organizations. Knowledge management is related to the wider field of management in the context of overlapping and synergistic relationships in such activities as learning and innovation, benchmarking and best practice, strategy, culture and performance measurement [28]. Knowledge can exist in both tacit and explicit forms. The embodied expertise that exists in the tacit form may be the most valuable, especially if it is difficult for competitors to replicate. However, tacit knowledge is often difficult if not impossible to transform into written form, often making it necessary to transmit to others in the form of stories, coaching, or apprenticeship. Explicit knowledge is knowledge that exists in documents, software, hardware, and other instruments. It is more easily transmitted to others, but for the same reason it is more difficult to safeguard from unauthorized use.

Huber [19] outlines the characteristics of organizational knowledge and information, breaking related processes down into acquisition, interpretation, distribution, and organizational memory. Communities of practice deal primarily with acquisition and distribution, and the process of learning is very much complementary to these processes, since communities of practice create a potential for organized learning and change that goes beyond individual capacity. Individuals

grow in understanding and capability to innovate by participating and learning in a community with shared knowledge and interests, supporting the suggestion [2] that learning is the link between work and innovation.

Researchers and practitioners have suggested a number of knowledge management approaches, that can be classified broadly as either codification or personalization [16]. Codification amalgamates individual knowledge in organizations, putting it in some relatively cohesive context, usually in a central repository, and making it available to organizational members. Personalization recognizes the difficulty in codifying knowledge, especially that which is tacit, and relies on face-to-face interaction, dialogue, and mentoring, to transfer knowledge. Codification separates knowledge from its creator, while personalization does not. Hansen et al [16] suggest that the appropriate split between personalization and codification for knowledge management and transfer depends upon three factors: 1) standardized or customized products, services, or management strategy, 2) mature or innovative products, services, or management strategy, and 3) reliance on explicit or tacit knowledge to solve relevant problems.

Most difficulties in knowledge management arise out of the difficulty of current management paradigms to manage intangible/tacit knowledge, as compared to tangible/explicit knowledge. The latter may be supported by extended information resource management approaches, but the former has overlapping and synergistic relationships in such personalized activities as learning and innovation, benchmarking and best practice, strategy, and culture. Such activities need not be confined within an organization, and they can cross organizational, international, and cultural boundaries, with attendant transmission of knowledge of both types [20].

Communities of practice are an organized way of implementing knowledge management, learning, and transfer. With appropriate support, motivation, and coordination, these communities can create both codification and personalization channels to distribute knowledge and support learning within and among organizations, and among individuals both internal and external to any particular organization. However, the value attributed to knowledge that gives an organization a competitive advantage will inhibit its sharing with other organizations, unless there are formal agreements relating to how and what knowledge and information is to be shared. There are a variety of motivations for participating in communities of practice [41]. However, harnessing technological innovation with communities of practice is one of their major applications [34], potentially leading to competitive advantage [26]. They have been used widely for brokering a variety of knowledge within organizations [3] [15] [37] [42].

The impact of communities of practice on organizational performance has been measured in certain contexts [25], and a balanced scorecard approach has been suggested [1] for developing and deploying a knowledge management effectiveness measurement index. There are many totally virtual communities of practice [39], but there is some debate on their effectiveness, with a major question relating to trust [22] and how to build it in this environment. However, the use of technology is clearly a valuable supporting and complementary infrastructure when implementing communities [29], especially in a global environment [20, 22] and in strategic alliances that cross organizational boundaries [33] [38]. Considerations and constraints affecting communities of practice include protecting knowledge in strategic alliances [31], managing in an internationalized business environment [17], managing knowledge versus information [27], and associated costs and benefits [30].

A community of practice goes beyond mere interest in a topic. It involves developing a shared practice, originating from the recognition that members of a peer group may have good ideas that can be shared with other members. Community members help each other solve problems, give each other advice, and develop new approaches or tools for their field. Regularly helping each other makes it easier for community members to show their weak spots and learn together in the community. As they share ideas and experiences, people develop a shared way of doing things, a set of common practices or even best practices. This is not unlike a professional field, where members of an association exchange formal and informal knowledge at infrequent intervals at professional conferences. However, a professional society lacks the continuous nature and focus of a community of practice that may concentrate strategically on one or more of: helping, best-practice, knowledge-stewarding, and innovation [42].

Communities of practice need to have a defined objective and scope in order to succeed. Wenger [42] indicates the three most important elements to be domain, community, and practice. All these elements must be developed together in a carefully balanced manner. All grow dynamically, and interact in various ways. The key is to extract the maximum benefit for the community membership, so all members are motivated to contribute and participate fully.

2.1 Best Practice Development

Best practice and benchmarking studies are often undertaken by communities of practice, as two of the main organizational entry points to knowledge management. They can be characterized as the processes of identifying, capturing and leveraging knowledge to help the company compete [28]. Most organizations contain a great deal of untapped knowledge, know-how and best-practice. Best-practice exercises routinely employ a variety of strategies to facilitate knowledge-sharing among participants, and the creation of knowledge content in pursuit of enhanced organizational performance. As an example of potential impact, a survey of 88 chemical companies by Christmann [5] found that capabilities for process innovation and implementation are complementary assets that moderate the relationship between best practices and cost advantage, a significant factor in performance of the firm.

Internal communities of practice that focus on management and process practice tend to be limited to knowledge and constraints of the internal historical practices of the organization, so learning and practice improvement is inhibited in such situations. It is in the interest of organizations to be involved in collaboration in both internal and external best practice learning and development [42], often by interacting with competitors. This may be supported through professional associations, sometimes with specifically targeted initiatives such as standards development, special interest groups, etc. However, diversity in community population will inhibit best practices development unless organizations that address similar needs work together. It may also be necessary to develop a common language if it does not already exist, so community members can communicate in a common forum [23].

Best practice development can lead to great improvements in organizational efficiency and effectiveness. For example, incorporating best practice knowledge into work processes to reduce errors and improve performance is one approach to knowledge management in health support systems [9]. Another is the development of knowledge bases in evidence-based medicine that

incorporate many sources of knowledge into a single set of recommended diagnoses and treatments [14], thus providing a close linkage between medical research and practice.

Closely related to best practice is benchmarking [18] of successful organizations so others can adapt and emulate practices that are seen as the best available. Benchmarking focuses on process simplification and automation, cycle time reduction, linking decisions to strategic considerations, and improving efficiencies in collaboration with business partners. Examples of companies that work with organizations to develop benchmarks include the Global Benchmarking Council¹ and the Hackett Group².

2.2 Knowledge Management Systems

There are basically three broad objectives of knowledge management [1]: leveraging the organization's knowledge; creating new knowledge or promoting innovation; and increasing collaboration and hence enhancing the skill level of employees. The most common knowledge management approach requires development of a knowledge repository supported by a knowledge management system, and forming and nurturing communities of practice. These two, jointly, address the three objectives of knowledge management.

Although there is evidence that a personalization strategy (e.g. face-to-face) for knowledge transfer is the most effective in many situations [8], there is also a need in communities of practice for technologies known as knowledge management systems (KMS) that support asynchronous and/or synchronous knowledge transfer and communication on a relatively continuous basis. This can be the primary vehicle for knowledge transfer if the community's strategy is codification. But there is still a supplementary role for technology even if the community's strategy is personalization. Technological support for communities of practice can cover a wide range of services, including e-mail, telephone and video conferencing, and online portals for enterprise knowledge, decision processing, content management, and/or collaboration functions [13]. A common feature of online portals is a repository, with three basic types [8]: a) external knowledge, such as competitive intelligence, b) structured internal knowledge, such as research reports, techniques and methods, and c) informal internal knowledge, like discussion databases loaded with formal or informal know-how. However, to fulfill its potential, a KMS must be dynamic and living, and not just an archival system [36].

Barriers to use of KMS to implement codification strategies include [10] 1) resistance of contributors to becoming known as an expert, 2) the required knowledge that is tacit does not lend itself to transformation to an explicit form, and 3) the technological codification approach cannot completely replace the personalization strategy. The personalization strategy may be called upon to play a complementary role (e.g. annual face-to-face conferences of community members) to enhance trust and the feeling of community membership, thus encouraging the effectiveness of knowledge transfer among members.

¹ <http://www.globalbenchmarking.com>

² <http://www.thehackettgroup.com>

3. Classifications of Communities of Practice

Communities of practice can exist in four classifications that we have been able to identify: 1) entirely within individual organizations, 2) spanning organizations that are linked through mergers, acquisitions, or by formal business partnerships (network organizations), 3) formal networks that span organizations but are not part of other formal relationships, and 4) self-organizing networks of individuals with ad hoc relationships and no formal ties. Objectives of communities of practice can be to share knowledge and encourage learning about design, development, and production of products and services, and/or share knowledge and learning about management strategies, practices, and procedures. There are major differences in these objectives across the four classifications. Overall findings are summarized in Tables 1a and 1b.

Both product and practice innovation are aided by sharing knowledge within and among organizations and individuals. However, ownership of proprietary product and service intellectual property can be valued tangibly and may be regarded as a major competitive advantage. For this reason, communities of practice that engage in knowledge exchange on tangible property appear to require a much tighter legal framework than those that consider intangible managerial process and procedural issues.

3.1 Internal Communities of Practice

Communities of practice add value to organizations in a number of ways [43]. They may: 1) help drive strategy, 2) start new lines of business, 3) solve problems quickly, 4) transfer best practices, 5) develop professional skills, and 6) help companies recruit and retain talent. They complement activities of other organizational networks including formal work groups, project teams, and informal networks [43]. Communities of practice are used very extensively in some larger organizations. For example, in the Global Services organization of IBM, there are over 60 communities of practice [15], with a total of 20,000 members in most of the countries it serves. Patterns observed in the growth and maturation of these communities at IBM included stages of growth with key activities in each stage cumulated to further stages, including 1) Potential (connecting), 2) Building (memory and context creation), 3) Engaged (access and learning), 4) Active (collaboration), and 5) Adaptive (innovation and generation). Process support and enabling technology are key factors in encouraging the growth of such communities.

P&G is another company that uses communities of practice extensively [38], with 20 in place over a wide range of disciplines. Each is sponsored by an R&D vice president, and their purpose is to promote cross-fertilization and diffusion of expertise. Activities include problem solving through e-mail conferences, knowledge sharing through live seminars and websites, engagement of expert practitioners both internally and externally, and communication tools for knowledge diffusion throughout the organization. Communities of practice at P&G play a key role in identification, development and deployment of new research methodology, and problem solving on specific projects.

3.2 Communities of Practice in Network Organizations

A network organization is a network of several independent organizations. Members of a network work in close and continuous co-operation, involving partnerships, common products

and/or services and even a common strategy. Reasons for building such networks include faster time to market, ability to concentrate on core competencies, increase in competencies due to networking with business partners, and the need to guarantee availability of resources and materials. Formal agreements that allow for explicit exchanges of product and service knowledge are traditionally required, and are usually an adjunct to the main collaboration agreement among the members. Such collaboration among organizations is more likely in a rapidly evolving field such as biotechnology [35].

In solving problems in today's environment, it is becoming increasingly important to cross boundaries, either within the organization or to unconnected organizations for fresh insights. For a community of practice, an important question involves deciding what other organizations should be connected. No matter what the precautions, there will always be leakages of knowledge and information to other organizations. Broad networks of practice make it easy for such exchanges to occur, and shared practices provide channels to share knowledge efficiently [2]. Learning and knowledge exchange through networks focuses on the inter-organizational network as a resource generator to enhance learning. Powell et al. [35] suggest that the locus of innovation in an industry that is both complex and expanding, with sources of expertise widely dispersed, will be found in inter-organizational networks of learning rather than within individual firms. This view can be compared with the strategic approach [44] that calculates risks versus returns in pooling resources with another organization. Effective collaboration may also be hampered by lack of trust, difficulties in gaining control, and differential ability in learning new skills [32].

Motivation to make such a community succeed is very high in network organizations, because there is a formal commitment and an investment where a return is expected. A community of practice in this case is monitored closely by management, because of the organizational commitment involved. In a network organization, there are formal agreements in place that govern the exchange of knowledge. In particular, the sharing of intellectual property such as inventions, product design knowledge, and the like, are specifically encouraged through the network agreement, aided by knowledge transfer and learning through channels such as communities of practice. An example is the Toyota manufacturing company that maintains very close relations and insists on a high level of knowledge exchange among its network organization partners (primarily suppliers) [11].

Communities of practice in network organizations must be highly proactive in improving knowledge access and transfer, to achieve communication of knowledge between people who would not otherwise work together because they are competitors. For example, at Sematech, the semiconductor research consortium in Austin, Texas, managers instituted formal practices for knowledge transfer to ensure that sponsoring companies received research results. Sematech has a knowledge transfer organization and several formal roles for that purpose, and holds many sessions for which the primary objective is knowledge transfer [7].

3.3 Networks of Practice

Brown and Duguid [2], refer to extra-organizational communities of practice as networks of practice. A network of practice is an open activity system focused on work practice, and it may exist primarily through electronic communication. A network of practice is similar to a

community of practice in that it is a social space where individuals working on similar problems help each other and share perspectives about their practice. In a network of practice, people working within occupations or having similar interests, congregate to engage in knowledge exchange about the problems and issues that are common to their occupational community and shared practice. Communities of practice can be extended and augmented to span organizational boundaries, and provide external sources of innovation even from competitors in some cases [40]. These can bring together divergent and complementary views that contribute to organizational knowledge and innovation. However, as compared to the previously discussed communities of practice in network organizations, networks of practice are standalone and not adjunct to more general agreements and contracts. Moreover they are more likely to focus on business processes, strategies, and management, and less on products and services. Sharing ideas and experiences about strategies, management processes, and procedures are often acceptable in networks of practice, and these are usually covered by blanket agreements that assign intellectual property rights to the network and not the members as individual organizations. We will differentiate between two such networks: 1) formal networks of practice, and 2) self-organizing networks of practice.

3.4 Formal Networks of Practice

A formal network of practice has a membership that is controlled by fees and/or acceptance through some central authority that also assists in organizing, facilitating, and supporting member communications, events, and discussion topics. This is similar to a professional, business, or non-profit association, although these should be classified as affinity networks [21]. However, the network of practice has a focus on specific work issues and strategies of immediate importance to the membership, and it may in fact become an adjunct to an affinity network. An example of an adjunct network is purchasing managers, members of an association who may form networks of practice where they communicate on a regular basis on strategies, practices, opportunities, and innovations. Other networks of practice are standalone, such as the *Open Group*, an association of information technology companies that wish to achieve “Boundaryless Information Flow through global interoperability in a secure, reliable and timely manner”. Although composed of competitors, this group develops standards and best practices that promote their goals, and certifies products that meet their standards. Similar associations exist for standards development and certification in other industries. Associations for open systems such as Linux and Unix also fall in this category, where product innovation is the objective and legal agreements cover ownership and use of intellectual property.

An example of an association that focuses on management strategies and practices is the *Customer Contact Strategy Forum* (CCSF), operated by an independent firm in Toronto, Canada for senior call centre industry executives in Canada and the United States. These executives interact with their peers in other firms on a variety of strategic and tactical issues. The call centre industry is rapidly evolving in terms of activities, practices, and technologies, and the forum began initially a few years ago by facilitating best practices face-to-face discussions. The main support for interactions then moved to teleconferencing, but online collaboration through a commercial application service provider was added recently. CCSF now supports four communication channels: hard copy, face-to-face, teleconferencing, and online collaboration. Members may come from companies that compete with one another. The CCSF membership of

approximately 300 also includes vendors to the industry, who pay higher fees and are not allowed to promote their services or products directly to other members.

The domain of CCSF is any issue that relates to call centre strategies and operations. Examples of issues that may be discussed include human resources, training, business functions, technology acquisition and application, etc. As the facilitated community concept is new to some people, drawing members out to share information and best practices can be somewhat challenging at first until they see the value firsthand in sharing with others. All members must sign a sharing agreement that assigns to CCSF any intellectual property discussed or developed by the community. Trust that members develop with staff members is regarded as an important success factor for the community.

CCSF staff are constantly arranging and facilitating events for the community, with as many as 16 to 20 events each month. This network of practice emphasizes personalization, supplemented by codification. Clearly, not all events will appeal to all the membership, but they include teleconferencing, online community interactions, tours of member facilities, annual retreats, and executive breakfasts. Staff members prepare reports, monitor member needs, assist in maintaining confidentiality and privacy, organize special interest groups, arrange for subject matter experts, assist with benchmarking and best practices studies, and do follow-up surveys for quality assurance purposes.

3.5 Self-Organizing Networks of Practice

A self-organizing network of practice is a loosely organized network that has no central management authority or sponsor, membership is voluntary, and there is little explicit commitment. Members may choose to join or leave as they wish. Most such networks operate virtually, so communication strategy is primarily based on knowledge codification. An example is Usenet groups. In a study of such groups, Faraj and Wasko [12] found that obligation and not trust was a predictor of knowledge contribution, but individuals acquiring knowledge from the network trusted knowledge provided by others. People participate in such networks due to their affiliation with a profession rather than an organization. Results support general findings from communities of practice that individuals do not participate due to a need to socialize, but are motivated by a need to engage in working, learning, and innovating [2]. Another such network was established by a group of companies after the 9/11 disasters, to communicate with each other in times of crisis [6].

The Internet can also serve as a democratizing influence through self-organizing networks of practice, by giving people the ability to organize and communicate on topics of specific interest. The freedom of electronic association and related group communication allows e-democracy to thrive in this environment [4].

4. Discussion

Our findings are summarized in Table 1a and Table 1b. We have included some gains and problems that are common to all versions of communities of practice, and some characteristics that are more specific to particular types of communities. Our study has shown that many organizations have deployed knowledge management initiatives but those that engaged

communities of practice to implement knowledge management have been more likely to see positive results from their initiatives. We began this study with the belief that there would be many differences in the ways that knowledge would be shared among the different categories of community of practice we identified. In the end, we found that there were many more similarities than differences in their characteristics. The majority of the differences arise from governance, remediation of problems, and from the agreements and legal constraints that restrict knowledge sharing and learning.

Table 1a. Characteristics of Communities of Practice

Characteristic	Community of Practice			
	<i>Internal</i>	<i>Network Org.</i>	<i>Formal Network</i>	<i>Self Organizing Network</i>
Type of knowledge	Product, service (technical), management skills, processes	Product, service (technical), management skills, processes	Management skills, processes; operational, product knowledge	Management skills, processes; operational, product knowledge
Desired Objective or Outcome	Innovations in products, services, improved management practices	Innovations in products, services, improved management practices	Improved management practices, products, services	Improved products, services, management practices
Funding	Internal	Shared	Shared	Voluntary
Intellectual Property	Internal	Shared by formal agreement	Controlled by the network	Shared by agreement
Management	Internal	Managed jointly as component of org'l agreement	Externally managed	Externally managed
Professional Expertise	Internal	Shared by formal agreement	Shared by agreement	No agreement
Dispute Resolution	Internal mg't	Legally resolved	Withdrawal	Withdrawal
Potential Knowledge Contribution	Unlimited from internal sources, with need to know	Limited by formal agreement	Determined by members. No min. or max. limit	Determined by members. No min. or max. limit
Common Gains	Developing and sharing formal best practices, learning and sharing tacit and explicit knowledge, innovations in management, operations, processes			
Potential Gain -- Shared knowledge of:	Innovations in products, services	Innovations in products, services, shared access to IP	Innovations in management practices, innovations in products, services	Innovations in practices, understanding and innovating products, services

The emphasis in networks of practice appears to be on the propagation of improved management strategies and practices, although this may also be an objective of internal communities of practice [24], and for network organizations. Even when competitors are in the same community, management practice diffusion does not seem to have the tight constraints on

intellectual property associated with product and service innovations, since these are treated more as competitive advantages. Trust among members does not seem to be an important issue, provided that appropriate legal contracts are in place. One can speculate that sharing of management strategies, processes, and procedures is not perceived as a direct threat to the organization sharing it, since such sharing benefits the entire community and no single organization is likely to achieve a competitive advantage because of it.

Table 1b. Characteristics of Communities of Practice (continued)

Characteristic	Community of Practice			
	<i>Internal</i>	<i>Network Org.</i>	<i>Formal Network</i>	<i>Self Organizing Network</i>
Common Problems	Unpredictable payback, initiating and maintaining interest, building and maintaining trust, encouraging steady flow of information and knowledge among participants, divergence of objectives, lack of common participant language (natural and/or professional), ensuring payback to all participants.			
Potential Problems	Reorganization may be required to improve knowledge sharing and learning	Limitations of formal agreement	Ensuring knowledge contributions from all members	Unknown value of knowledge communicated. Hard to reach contributors
Remediation of Operational Problems	Attention from moderator or manager(s)	Attention from moderator, manager(s), or legal resort	Attention from moderator	Targeted attention from membership
Examples	IBM [15], AMS [43], P&G [38]	Toyota [11], Biotech. firms [32] Sematech [7]	Critical Emergency Ops Link [6], ASAE Futures Scan [29], User groups	Usenet groups [12], Democracy Online [4]

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