
UNDERSTANDING THE BENEFIT AND COSTS OF COMMUNITIES OF PRACTICE

PROMOTING HEALTHY COLLABORATION IN COMMUNITIES OF PRACTICE TAKES MANAGEMENT SUPPORT AT ALL LEVELS. AND MANAGEMENT, OF COURSE, WANTS AND NEEDS TO COMPREHEND WHAT THE FIRM GETS FOR THAT INVESTMENT.

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THERE HAS BEEN INCREASING INTEREST WITHIN LARGE ORGANIZATIONS IN THE DEVELOPMENT AND SUPPORT OF COMMUNITIES TO PROMOTE COLLABORATION, IMPROVE SOCIAL INTERACTION, INCREASE PRODUCTIVITY, AND TO IMPROVE ORGANIZATIONAL PERFORMANCE [3, 8]. THESE WORKER GROUPS, OFTEN CALLED “COMMUNITIES OF PRACTICE,” ARE DEFINED BY A COMMON DISCIPLINARY BACKGROUND, SIMILAR WORK ACTIVITIES AND TOOLS, AND SHARED STORIES, CONTEXTS, AND VALUES. DATING BACK TO THE TRADE GUILDS OF THE MIDDLE AGES, THESE LONGSTANDING VOLUNTARY WORKER ASSOCIA-

tions have developed rich and varied forms of both formal and informal social interaction in the modern workplace (for example, hallway exchanges and water-cooler conversations, meetings and conferences, brown bag lunches, newsletters, and teleconferences).

Increasingly, however, these communities are moving beyond

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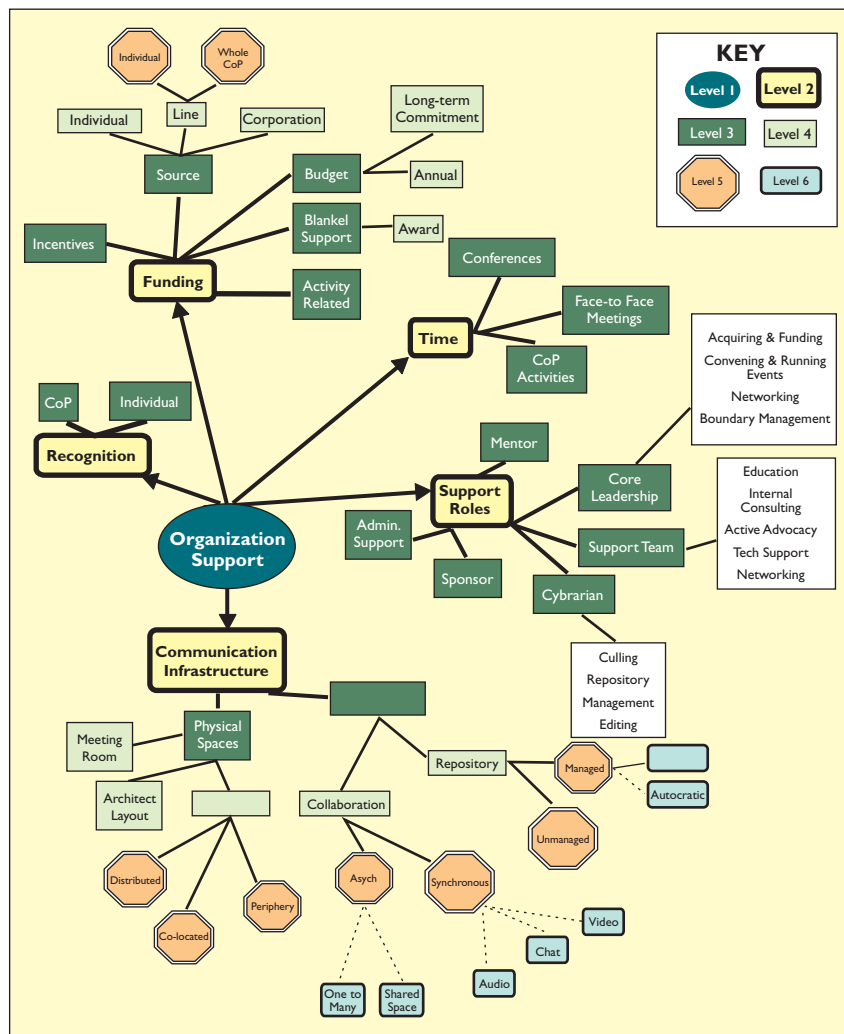


Figure 1. Community of practice mind map, organization support theme.

conducted a study of nine communities in seven firms sampled from a broad range of industry sectors—finance, manufacturing, pharmaceutical, software, chemical, and telecom (see the table). In total, we conducted semi-structured interviews with more than 60 community members, leaders, and knowledge management personnel. The sample communities were both local and global in scope, and ranged in practice from programming, to biochemical research, to land and real estate development in poverty-plagued nations. After analyzing the interview data, we developed a *mind map*, [2] a nonlinear graphical representation of the factors and relationships in our findings. This map uncovered the following five major community themes, the final two of which serve as the basis for this article:

• *Development path*: How did the community form and evolve? What was its catalyst?

- *Membership*: How and why did members join, leave, or give of their time and energy?
- *Activities*: What did members do in the community? How did they interact?
- *Organizational support*: How was the community supported by the organization?
- *Value*: What value did members receive? How did the organization benefit from the community?

Two themes, *organization support* and *value*, provided the lens and categorization scheme we used to extract the benefits and costs discussed here (Figures 1 and 2).

Recognizing Community Benefits

Our analysis of member interviews originally depicted in the value section of the mind map revealed three distinct categories of community benefits: *individual*, *community*, and *organizational*. Individual benefits spanned many topic areas including improved reputation, a better understanding of what others were doing in the organization

face-to-face exchanges, to interact in online environments, shared Web spaces, email lists, discussion forums, and synchronous chats. Not surprisingly, the support of these environments demands both financial and technological resources. These demands force organizations to invest with caution while trying to capture the value that communities ultimately deliver to their financial balance sheets. As with any other significant investment in IT and human capital, managers are naturally interested in understanding the impact these communities have on individual performance, team effectiveness, and overall productivity.

To address the challenge of how organizations can begin to analyze these financial tradeoffs, we explore the benefits and costs of communities of practice within large, geographically dispersed organizations and discuss the challenges inherent in justifying the corporate investment in such communities. To better understand the benefits and costs of communities of practice, researchers from the IBM Institute of Knowledge-based Organizations (formerly the Institute for Knowledge Management) and IBM Research

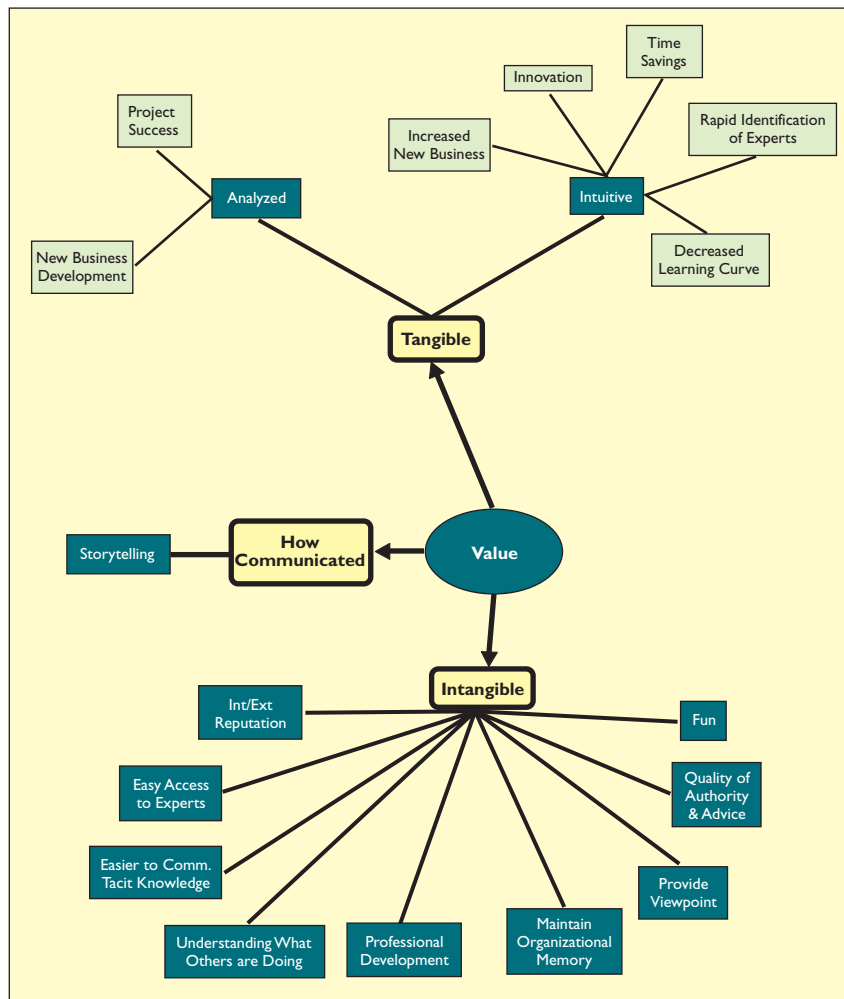


Figure 2. Community of practice mind map, value theme.

name known and raising your profile in the organization.” (SAS)

“If I have a question about an offering, for instance ... to find the right person to answer the question might take several phone calls. This way, I can go out here [online community portal] and I will not only find the answer to my questions, but I will also find documentation and information that goes well beyond what I was thinking of in the first place, and it will expand my knowledge. I think that is not only helpful professionally, but personally in that it expands my knowledge about the offerings, who the contacts are, and who I can contact for more information.” (IBM)

Community benefits consist of those benefits that accrue to the community. These benefits included increased idea creation, increased quality of knowledge and advice, problem solving, and creating a common context. Communities provide a forum for the free expression of creativity and new ideas, providing members with the opportunity to share ideas and think outside of the box:

• Bristol-Myers Squibb	• NSA
• British Telecom	• SAS
• Buckman Laboratories	• World Bank
• IBM	• United Technologies

“Members might be in a project where they need advice, or they need guidance on how to do something. That’s when they really feel good about the fact that they can go somewhere [community portal] and find out where things are, or they can ask on the list server and get some good advice. They get professional, high knowledge advice.” (SAS)

and increased levels of trust. **Organizations that participated in the research.** The familiar and supportive environment found in many communities of practice encourages member interaction and ongoing professional development and learning about new tools, methods and procedures. Study participants expressed the importance of the benefits of increased access to subject-matter experts and valuable information resources. Together these benefits allowed members to develop professionally, remain at the forefront of their discipline, and gain confidence in their own expertise. Some of the sentiments echoed in the collective comments were:

“Well, I think because there is a sense of community, shared values, and shared goals; you can talk to people about similar issues that they will have had before. Everybody is quite open and they will give you lots of help.” (British Telecom)

“If you’ve done good work on a project, package it up, put it into the tool [community knowledge-sharing database] and it’s well-perceived by other developers around the world, it’s a good way of getting your

Organizational benefits involve the most tangible types of value expressed in communities—business outcomes. Study participants indicated that the improved communication among community mem-

bers contributed to successfully executed projects, increased new business, and product innovation. The more compelling evidence of community benefits for the firm was in the area of time savings. These comments highlight the reduced time to perform a variety of information-seeking and -sharing tasks that contributed to improved operational efficiency:

“It’s the fact that we don’t have to reinvent the wheel all the time. If we’re sharing our information, then I can use what somebody else has learned and work on it somewhere else, instead of spending 80 hours doing it myself. It not only saves time, it also has improved the effectiveness of people’s delivery material.” (United Technologies)

“It’s probably 50% of the time that you will find someone else who has had the problem and who has solved it. Basically, that can save a lot of work.” (SAS)

“We are gaining information that enables us to make value decisions quickly. It benefits the business and it benefits customers. I’ve got a good example. One of my project managers came to me and needed a project implementation for a big proposal going out the next day, and we hadn’t yet done a similar project, [so we] requested a PM [online] discussion. He came back within five to ten minutes. The project implementation part was done in a completely different sector and we were able to quickly doctor it into our customer’s proposal. If we had had to do it internally, it would have taken us three or four days. It would have taken somebody the afternoon just to collect the information, put it in, and go.” (British Telecom)

In summary, study participants described a rich qualitative set of individual, community, and organizational benefits provided by their respective community of practice, some of which can be quantified through traditional time, financial, and transaction cost analysis.

Exploring Community Costs

For a complete understanding of the contributions of a community of practice, we must also consider the costs of supporting a community. All too often the cost estimates for communities are based on the technology investments, which significantly underestimates the total cost of ownership (TCO) for a community. In studying organization support, we found four major categories of TCO cost drivers. These include the costs of the participation time for community members, meeting and conference expenses, technology, content publish-

ing, and promotional expenses.

Specifically, the costs of participation included the salaries for members who were identified as supporting the community through 11 identifiable roles (for example, community member, leader, core team, subject matter expert, sponsor, mentor, facilitator, content coordinator/cybrarian, admin/events coordinator, technologist, and journalist) [6]. Technology costs included the costs of synchronous and asynchronous group messaging applications and community Web sites. Meeting costs included the expenses associated with face-to-face meetings, including travel expenses, as well as the costs associated with electronic meetings (for example, teleconferencing). And finally, the cost of publishing content included the cost of online content development and production costs for community newsletters and promotional materials.

To assess whether the cost categories were reasonable and complete, 36 knowledge management professionals divided into teams of six were asked to consider the TCO framework in a budget allocation exercise. In this exercise, a case study of a developing community of practice was presented and the teams decided how to allocate financial resources across each of the cost areas. There was remarkable consistency among the responses from the six groups. On average, the groups allocated 52% of the community budget to pay for salaries (and incentives) for community workers. On average, 32% was used to pay for meeting expenses, 10% for technology, and 6% for publishing and promotion expenses. The relatively low investment in technology was a bit of a surprise, but may be reasonable given that the exercise assumed that general corporate communication infrastructure (for example, telephone and email) was available to the community at no additional expense.

Developing a Business Case for Community Investment and ROI

The results of our multicompany research offers qualitative evidence for several kinds of benefits from communities of practice, and a reasonable framework to consider the costs to support such communities. There is increasing pressure, however, to augment the qualitative results with more formal measurement of the financial benefits and costs of the communities. Measures of value are instrumental for communities to gain visibility and influence as well as to educate and guide their own development [11]. This emphasis on financial measurement is similar, in most respects, to the formal cost/benefits analysis for investments in information systems [10], electronic performance support systems [5], human factors [9], and usability [1].

No doubt, precise financial measurement of the costs and benefits of a community of practice is a significant challenge. To measure the financial benefits, we have considered two approaches. The first is based on measurements of the cost savings due to specific community activities. An example would be the time saved preparing a customer proposal by using a template found on a community portal (as reported by interviewees). Measurements of these kinds of cost savings could be gathered through a variety of means, including self-report surveys and through well-designed activity logs within the community software environments. This approach is promising, as there were several participants in our study who described costs savings due to community knowledge-sharing activities.

A second approach to estimating the financial benefits of a community of practices is by using a special form of storytelling referred to as a “serious anecdote” [4]. A serious anecdote is a story with an easily quantifiable punchline. An example can be seen in the earlier quotation where an employee utilized his community relationship and community portal to find a specific person and template to achieve a customer-facing business objective in three to four days less than expected. The benefits associated with decreased preparation time can be easily calculated.

In contrast to measuring the benefits of a community, the measurement of the cost to support a community is more straightforward. Based on the TCO workshop results, we believe that reasonable estimates of the costs associated with communities are readily available to community leaders.

Once reasonable estimates of the costs and financial benefits of a community are in hand, there are several traditional ways to evaluate community investment decisions. One method frequently used in capital budgeting exercises is to look at the discounted costs (cash outflows) and returns (cash inflows) over a multiyear horizon, and compare the resulting Net Present Value (NPV) of several investment alternatives [3]. A good illustration of the use of NPV and related financial measures (for example, Return on Investment, or ROI) can be found in a discussion of the cost justification of usability [7].

The financial evaluation of a community is useful for at least two reasons. First, community builders and managers need to be aware of the path to value for their communities and some cost justification is required for many corporate environments. Second, financial measurement allows community managers to compare different communities and focus attention on community activities that work and those that need to be changed.

Measuring and demonstrating the value of communities of practice is as difficult, in its way, as is the measurement and demonstration of the value of user-centered design or usability work (for example, [7]). It should be noted that while we have described various approaches to measuring the costs, benefits and returns for a community of practice, we feel there is much work to be done in this area. Financial measurements of community are often based on soft measures or estimates of costs and benefits of questionable reliability and validity. Many economics and finance researchers are looking into radically different approaches to measuring the value of communities by looking at the assets that a community creates. The valuation of these *intangible assets* may be a promising approach to evaluating community contributions. ■

REFERENCES

1. Bias, R.G., and Mayhew, D.J., Eds. *Cost Justifying Usability*. Academic Press, New York, 1994.
2. Buzan, T. *The MindMap Book: How To Use Radiant Thinking to Maximize Your Brain's Untapped Potential*. Dutton, New York, 1994.
3. Clare, M. and Detore, A.W. *Knowledge Assets: A Professionals Guide to Valuation and Financial Management*. Harcourt, New York, 2000.
4. Davenport, T.H. and Prusak, L. *Working Knowledge*. Harvard Business School Press, Boston, MA, 1998.
5. Desmarais, M.C., Leclair, R., Fiset, J., and Talbi, H. Cost justifying electronic performance support systems. *Commun. ACM* 40, 7 (July 1997), 39–48.
6. Fontaine, M.A. Keeping communities of practice afloat: Understanding and fostering roles in communities. *Knowledge Manage. Rev.* 4, 4 (Sept./Oct. 2001), 16–21.
7. Karat, C-M. A business case approach to usability cost justification. *Cost Justifying Usability*. R.G. Bias and D.J. Mayhew, Eds. Academic Press, New York, 1994.
8. Lesser, E. and Storck, J. Communities of practice and organizational performance. *IBM Systems J.* 40, 4 (2001).
9. Mantei, M.M., and Teorey, T.J. Cost/benefit analysis for incorporating human factors in the software lifecycle. *Commun. ACM* 31, 4 (Apr. 1988), 428–439.
10. Sassone, P.G. Cost benefit analysis of information systems: A survey of methodologies. In *Proceedings of the ACM Conference on Supporting Group Work*. (Palo Alto, CA). ACM Press, New York, 126–133.
11. Wenger, E., McDermott R.M., and Snyder, W.M. *Cultivating Communities of Practice*. Harvard Business School, Boston, MA. 2002.

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