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THE ROLE OF ONLINE COMMUNITY IN RELATION TO OTHER COMMUNICATION CHANNELS IN A BUSINESS DEVELOPMENT CASE

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ABSTRACT

We investigated how sales representatives (Salespeople) and members of a service business development department (the Service Dept.) communicated within an informal online community, particularly in relation to their use of other informal and formal communication channels. We found that while the Service Dept. developed formal communication channels in order to fulfill the information needs of Sales, some types of information were apparently more effectively provided by the online community. The result suggests that an online community may play an important role both in making visible information needs, and in providing information that can't be better provided by the formal organization.

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1. INTRODUCTION

Almost two decades ago, John Seely Brown identified the commonly unmet organizational challenge of recognizing and leveraging knowledge generated through local improvisation (Brown, 1991):

> *Unfortunately, it's the rare company that understands the importance of informal improvisation -let alone respects it as a legitimate business activity. In most cases, ideas generated by employees in the course of their work are lost to the organization as a whole. An individual might use them to make his or her job easier and perhaps even share them informally with a small group of colleagues. but such informal insights about work rarely spread beyond the local work group. And because most information systems now are based on the formal procedures of work, not the informal practices crucial to getting it done, they often tend to make things worse rather than better. As a result, this important source of organizational learning is either ignored or suppressed.*

This problem still exists. It has been an important topic in various research areas related to an individual's communication and collaboration supported by information technology: knowledge management, online communities (Preece, 2002), and phenomena supported by new communication media like blogs (Jackson, Yates, and Orlikowski, 2007) and wikis (Majchrzak, Wagner, and Yates, 2006). Much research using social network analysis has recently been conducted in order to capture the invisible relationship between formal and informal

communication patterns (Krackhardt and Hanson, 1993) or the frequency or type of informal communication and its performance (Aral and Van Alstyne, 2007). Even though information technology provides the capability of capturing and identifying the flow of information, it could also enable an unanticipated increase in communication activities -- activities that are difficult to manage or, in some cases, even notice. In such situations, we think that it is still crucial for practitioners or researchers to identify the roles of informal activities and channels and to understand their relationship with the formal organizational channels and business processes.

In this paper, we analyze the role of an online community in supporting and sharing the results of informal improvisation among Salespeople and employees in a business development department that had launched a new business. We analyze changing use of the informal online community itself, as well as its changing relationship to more formal organizational communication channels (and thus the formal organizational structure) created over time.

2. RELATED RESEARCH

2.1 The role of an online community in a company

In this paper we use the term 'online community' as any virtual social space where a relatively large set of people spontaneously come together to get and give information or support, to learn, or to find company, although we recognize that there is controversy regarding the term and there is no accepted definition (Preece, 2001). Some research looks at online or otherwise mediated communication in geographically distributed or virtual teams in organizations (e.g., Yoshioka et al., 2002; Kraut et al., 1990). Such research is typically focused on relatively small and defined task teams or groups. In this paper we are focusing on the role of a larger online community within an organization, a community that lacks a limited and clearly defined

membership and that is not focused on a particular task. Although much interesting research about online communities has been conducted, little of it examines the changing role of an online community over time in a company setting. Much of it concerns either non-company online communities or online communities between companies and customers, typically using information technologies such as USENET, mailing lists, bulletin boards, chat, wikis and blogs due to the public accessibility of these technologies for log and content analysis (e.g., Hiltz and Turoff, 1978; Jackson, Yates, and Orlikowski, 2007; Orlikowski et al., 1995). Some research has focused on innovation using the internet, such as that occurring in the large and often amorphous open source community. These online communities allow a company to innovate based on customer needs, taking an innovation made by one customer and sharing it with other customers in a general setting (von Hippel, 2001).

A few progressive companies have already incorporated larger and more spontaneous online communities in their daily work. For example, a product development team in a Japanese firm adopted a Usenet-based system, adapting it over time to support their development effort (Orlikowski et al., 1995). Based on ethnographic research about the work of customer service engineers, researchers at Xerox Corporation built the Eureka system to support and improve their knowledge sharing over time among a large photo-copier repair force (Bobrow and Whalen, 2002). Proctor & Gamble built a lifecycle collaboration system for manufacturing equipment design and product packaging; this system is used to permit global team collaboration, allowing distributed team members to evaluate different concepts by viewing digital prototypes in real-time product reviews (Huston and Sakkab, 2006). Buckman Laboratory also used virtual communities to turn knowledge into new products and services (Buckman, 2004).

Even though most companies have informal, IT-supported networks that cross organizational boundaries in their work setting, very little research on the role of online communities within a company has been conducted (Bobrow and Whalen, 2002; Füller et al., 2004; Quan-Haase and Wellman, 2005; Sproull and Kiesler, 1991). Füller et al. indicated the importance of community-based innovation and suggested a method for using the existing innovative potential of online communities by integrating its members virtually into new product development (Füller et al., 2004). Orlikowski et al. explored how a group of technology-use mediators shaped the evolving online community in the Japanese R&D group with a Usenet-based system over time (Orlikowski et al., 1995; Yates et al., 1999). Quan-Haase and Wellman applied social network analysis to investigate a computer-mediated community in a software company and made visible the actual lines of communication within departments, between departments, and outside of the organization in order to understand how a collaborative community is maintained online and offline (Quan-Haase and Wellman, 2005). As they pointed out, more studies are needed that examine online communities in the actual business context, rather than analytically isolating them. Little attention has focused on the changing role of an online community in relation to the formal organizational structure over time. In this paper, we focus on the relationship between an informal online community and its evolving relationship to other communication channels in a specific business context over time.

2.2 The use of different communication channels

New communication media have proliferated within the workplace in recent decades. In many settings, people have tended to use these media less as substitutes than as additions to their existing array of media. The result has been that individuals use many different media and

communicative channels[1] in various combinations and configurations to accomplish their work. In recent years, researchers have studied the use of new communication media in various settings, as Boczkowski and Orlikowski (2004) note, primarily by focusing on a single medium or channel at a time. But individuals in real work settings, especially geographically dispersed ones, rarely communicate entirely within a single medium (Bélanger and Watson-Manheim, 2003; Nardi and Whittaker, 2002; Whalen et al., 2002). Although much research compares email and face to face communication (Rice, 1994; Woerner et al., 2005), very little focuses on multiple communication channels used in conjunction with each other (Grippa et al., 2006; Nardi and Whittaker, 2002). Although some researchers have investigated only email communication logs in order to identify an organization's social network, Grippa et al. have suggested that e-mail alone may not reflect the social network (Grippa et al., 2006). Similarly, we think that understanding the role of an online community by focusing on the online community only is difficult, especially in a company setting, because the online community doesn't exist independently but emerges to support, supplement, or replace formal organization activities. In this paper we look at communication within an online community in the context of communication via other media and channels.

2.3 Communication formality and informality

In examining communication within multiple media and channels, one dimension of comparison is level of formality. Most formal is what McPhee and Poole (2001) term "formal structural communication," which produces and is reproduced by an organization's formal structure. This metacommunication typically takes written or recorded form and authoritatively spells out the organizational structure. Fish et al. (1992) provide a broader characterization of

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[1] We will consider email a medium and particular email lists channels within that medium.

formal communication as communication that "goes through organizational channels following the hierarchy of an organization's structure" (p. 37). In contrast, as Kraut et al. (2002, p. 5) have noted, "Informal communication is a loosely defined concept and is often treated as the residual category in organizational theory"—what is not explained by or doesn't follow organizational structure. Its essence, they go on to posit, "is [its] lack of pre-specification." Sometimes informal communication is defined more narrowly, as when Whittaker et al. (1994, p. 131) define it "as taking place synchronously in face-to-face settings." Such a strict definition, however, is limiting, allowing informal, technology-mediated communication only via synchronous video media. It also neglects commonly recognized linguistic aspects of formality and informality. A useful approach (Kraut et al., 2002) sees formality as a continuum. Formal communication, at one end, is planned, managed, structured, and linguistically formal. It reflects organizational hierarchy, and participants communicate in their formal organizational roles. Informal communication, at the opposite end of the continuum, is unplanned, emergent, and interactive, and may be linguistically informal. Participants in informal communication are not necessarily acting authoritatively in their formal roles.

In this paper, we look at the use of one communication channel—a relatively informal online email list—in relation to use of several others, including more formal email lists. Here, authority based on organizational hierarchy and formal role is particularly important as a distinguishing element. More formal communication occurs when the communication is taken to have the force of authority. Such communication tends to be primarily one way, from higher levels of authority in the hierarchy to lower ones. When it is two-way, questions from lower levels are responded to by higher levels. In the setting we study, informal communication is less

role- and authority-bound, in part because it is typically between peers in separate sales subsidiaries who have no hierarchical relationship between each other.

By combining a survey on use of all the channels with content analysis of the focal, increasingly informal channel, we examine how, over time, people in a sales community use the online community as well as the other available channels. This allows us to draw some tentative conclusions about what uses are most valuable to the people involved.

3. THE CASE - COMMUNICATION CHANNELS RELATED TO A NEW BUSINESS

The case we explored was in a new business development at a Japanese manufacturing company (the Company) that already had a well entrenched business (Westerman, 2006). We focused on the role of an online community in its development. We felt this would be a setting in which more of the communication would raise and attempt to resolve hitherto unexplored issues. Also, a new business is more likely to have informal as well as newly established formal organizational structures.

A service development department (the Service Dept.) in the Company launched a new business providing a network service (the Service) in late 2002. The Service Dept. tried to sell it through the existing sales structure (Sales) of the Company, consisting of multiple sales subsidiaries for different geographical areas. Due to its novel nature in the Company, most sales representatives (Salespeople) did not have the skills needed to sell the Service to their customers. Moreover, their customers did not expect the company to offer network service. Thus it was essential for the Service Dept. to promote the Service internally and to provide an educational program to Sales as well as conducting general marketing and advertising.

In this paper, we focus on the development of a relatively informal communication channel used for communication between Sales and the Service Dept. as well as among Salespeople themselves. We examine the online community that emerged in this channel in the context of various other channels, many of them more formal than the focal email list. This list-based community enabled Sales to sell more by understanding the Service better, to improve their skills, and to improve processes and practices among Sales and the Service Dept. Figure 1 shows the introduction of various communication channels (above the time line) and the main events related to the Service (below the time line) during the period studied.
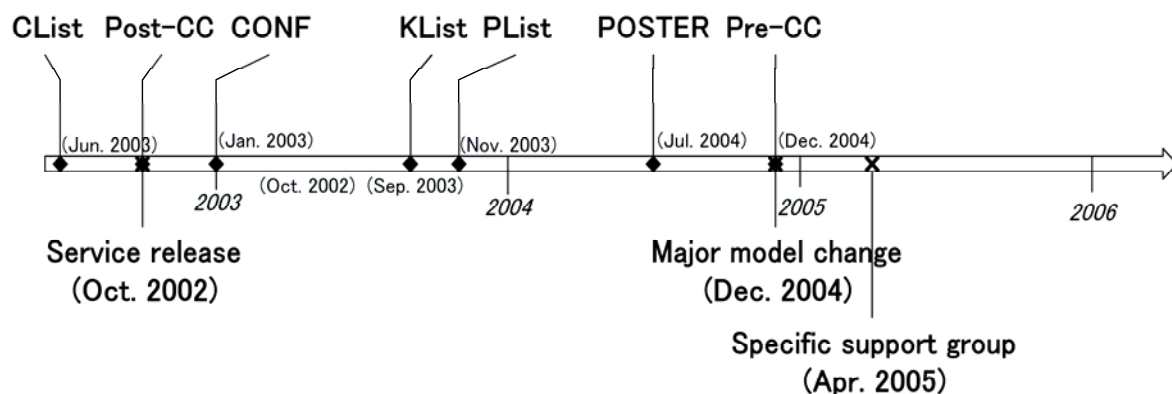
Figure 1. Main events and different communication channels related to the Service.

The Service was first released in October of fiscal year 2002[2]. Even before the official launch, the Company established a Community Mailing List (CList) comprised of a few Salespeople from each sales subsidiary. This list was our focal online community. The Company then announced the launch at a semi-annual conference (CONF) to which important members of Sales were invited. After the launch, any members of Sales could join CList, leading to growth in membership. At the time of the launch, the Service Dept. also established a call center (Post-CC) to provide maintenance service and post-sales support.

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[2] The Company's fiscal year is from April 1st to March 31th next year (e.g. F2002 was from 4/1/2002 to 3/31/2003).

In fiscal year 2003, the Service Dept. decided to create another mailing list, the KEY Mailing List (KList), only for key Salespeople as identified by each sales department. The purpose of the KEY Mailing List was primarily to carry one-way communication of formal or authoritative information from the Service Dept. to Sales. Also, some members of Sales launched a cross-Sales project around selling the Service and created another mailing list, the Project Mailing List (PList), in order to collaborate with each other from geographically distributed Sales offices.

In fiscal year 2004, the Service Dept. released a major model change to the Service. They conducted four conferences as opposed to the usual two. They launched another call center, Pre-CC, for Sales to ask questions before an actual sale. They also started to publish a news poster (POSTER) about every other month, which was intended to be printed and placed on a physical wall in the office.

In fiscal year 2005, the Company launched a specific group in the sales headquarters to support the Service. This change meant that the Company recognized the Service as a more important offering than before. The headquarters group started an on-site educational program, which was conducted by the top selling Salespeople, an evangelist who sold over 100 licenses in a year. The purpose of this educational program was to nurture more evangelists. Both the specific group and the educational program were launched based on a proposal on the Project Mailing List in F2004.

4. METHODOLOGY

We investigated the internal communication within CList as well as observing the usage of the other communication channels in order to consider the role of the CList in relation to the other communication channels.

4.1 Interviews and documents related to the Service

We conducted semi-structured interviews with 10 employees in the Service Dept., 20 Salespeople (including 1 headquarters' employee and 7 PList members) in order to get an overview of the Service business and the usage of each communication channel. It took 1.5-3.0 hours for each scripted interview. We collected relevant internal documents in the Service Dept. and Sales to help us understand past events and strategy and determine the number of licenses sold.

4.2 Log analysis

We performed log analyses of activity levels for five of the channels. Three of them, CList, PList, and KList, use a mailing list system. When a member of any of these communication channels posts a message in it, the messages is distributed to all its members. We counted up the number of messages posted in each communication channel in each fiscal year in order to investigate activity levels. For the Pre-CC Call Center, launched in F2004, we used the contact history log as an index of how much information the staff got or provided during each month. Similarly for the Post-CC Call Center, launched in F2002, we used the contact history log, but unfortunately this data was collected only beginning in F2003.

4.3 Coding the messages posted to the Community Mailing List

In order to understand how the Sales and Service departments were using CList, we coded the 2269 messages from the CList by content—that is, what kind of information a

participant posted in a message on the CList. We developed five content categories from a close reading of many of the messages and from the interviews: technical (TECH), sales (SALES), formal (FORMAL), competitor (COMPETITOR), and trend information (TREND). After developing the coding scheme, we trained three coders to code the messages, and tested intercoder reliability using Cohen's kappa. After confirming high inter-coder reliability (over 0.7 Cohen's kappa) in all categories of content, one of the coders coded all of the 2269 messages.

4.4 Questionnaire

We conducted a web-based questionnaire to investigate the usage of the 7 communication channels and practices around each communication channel. We referred to the interview transcripts, coding results, and internal documents from the Service Dept. in creating the questionnaire. The targets of the questionnaire were the 1451 Salespeople enrolled in the CList. The response rate for the questionnaire was 36.2% (525 respondents). A major portion of the questionnaire concerned how they used the seven communication channels between the Service Dept. and Sales over time (see appendix), asking them to select the information channel they used to get the following types of information during each year.

- Tech (technological issue, trouble, setting)

- Sales (sales material, sales case)

- Official announcements (new function/service release)

- Competitor (competitor information)

- News/trends (IT news or the trend of industry)

In order to orient the respondents temporally, the questionnaire provided a description of the main events that happened during each year just before the question about channel usage in that year (see Appendix).

5. DATA AND ANALYSIS

5.1 Use and Formality of Channels

Of the channels described above, interviews indicated that only the Community and Project Mailing lists (Clist and PList) could be classified as primarily informal communication channels, in which hierarchy and authority were less salient, and the communication carried no inherent authority; the others could be classified as formal channels carrying official information and in which individuals communicated within their hierarchical roles. Table 1 shows the profile of each of these communication channels, including the type of channel, duration, the number of participants or potential users, the cumulative number of posters, the number of messages, contacts, or possible chances to attend or read it, and the number and percentage of messages receiving replies among total messages. Below we describe each channel.

Table 1. Basic profile of each communication channel (ML: Mailing List, F2F: face to face).

	Type of channel	Informal or Formal	Duration (months)	# of participants or potential users	cumulative # of posters	total # of messages, contacts, or possible chances to attend or read (per month)	total # of replied message (%of total # of messages)
CList	ML	Informal	Jul. 2002 – Sep. 2006	1612 employees (by 2006)	326	2250 (52)	1263 (36%)
PList	ML	Informal	Nov. 2003 – Sep. 2006	15-20 employees (average)	50 (*1)	2065 (67)	455 (62%)
Pre-CC	phone + email	Formal	Dec. 2004 – Sep. 2006	all Sales related to the Service	-	7982 (374)	-
Post-CC	phone + email	Formal	Oct .2002 – Sep. 2006	all Sales related to the Service	-	65023 (1667)	-
KList	ML	Formal	Sep. 2003 – Sep. 2006	481 key persons	96	1011 (27)	92 (10%)
CONF	F2F	Formal	Jan. 2003 – Sep. 2006	481 key persons	-	11 conferences (normally 2 conferences)	-
POSTER	poster	Formal	Jul. 2004 – Sep. 2006	all employees in the Company	-	11 issues plus 6 extra issues	-

(*1) The cumulative number of posters is the number of participants who have posted at least one message to each communication channel. The cumulative number of posters in the Project Mailing List is greater than the number of participants because the membership of the Project Mailing List changed each year.

5.1.1 Community Mailing List (CList)

The CList is a mailing list used for communication between Sales and the Service Dept. or among Salespeople. The list participants discussed and shared information related to the

Service. CList was established to cultivate informal communication without any restrictions. Salespeople and the Service Dept. discussed how to sell the Service, how to solve technical problems related to the Service, and how to improve their back office procedures both before and after selling the Service. They shared and discussed the emergence of competitors and trends in the same industry. While employees in the Service Dept. also used the CList to announce formal organizational information, such as the release of a new function or the establishment of a new organizational procedure around contracts or accounting, they also used it to discuss problems or ideas about the Service itself directly and less formally with Sales. And when Salespeople at the many sales subsidiaries discussed the Service among themselves, the absence of hierarchical relationships between them and the fact that higher-level executives in their own Sales organizations were not part of C-List allowed relatively unconstrained and informal communication. The informality was not necessarily reflected in the language (indeed, only 19% were coded as using distinctly informal and colloquial expressions), but was reflected in the willingness to share what had worked for them in setting up and selling the Service, even if it was not authoritative communication following hierarchical lines.

5.1.2   Project Mailing List (PList)

The PList supports evangelist-driven projects related to the Service. The mailing list leveraged a company-wide program for launching cross-organizational projects, most of which were originally started as informal projects across existing organizations that each member belonged to. A Sales representative declared the foundation of this cross-sales-subsidiary project on the CList during July 2003. They launched the PList using a mailing list system as a communication channel among Sales members who volunteered to join the project. PList, like CList, was primarily informal, since it was used for non-hierarchical, non-authoritative

communication among Salespeople who shared an interest in the project. The majority of

members of PList (31 of 50 members) were also members of CList. Even though PList was not a

direct communication channel between Sales and the Service Dept., some Service Dept.

employees, including a top manager and a product manager, were informal observers (though not

official members) of the list even though they sometimes provided useful comments and

information for this informal project.

6.1.3 Pre-implementation Call Center (Pre-CC)

The Pre-CC is a pre-implementation call center in the Service Dept. that provides support

and exception handling for Sales in selling the Service to their customers. The Service

Department set up this call center as the official channel that Salespeople were supposed to

contact whenever they had questions about selling the Service. Pre-CC was mandated to provide

the official, authoritative answers to questions; it was also intended to give the Service Dept. a

complete picture of what difficulties Sales was encountering.

5.1.4 Post-implementation Call Center (Post-CC)

The Post-CC is a post-implementation call center in the Service Dept. that provides

support for Sales in solving technical problems or changing the configuration of the Service,

during or after installation. Like Pre-CC, it was set up as the official channel which all

Salespeople were supposed to use for problems at this stage of the sale; the Service Dept.

promised to respond to all questions posed to it.

5.1.5 KEY Mailing List (KList)

The KEY Mailing List is a formal communication channel using a general mailing list

system launched by the Service Dept. This list was not intended for interaction between Sales

and the Service Dept. but primarily for one-way announcements from the Service Dept. to key

persons selected by each sales subsidiary company or department for their interest in the Service.

5.1.6 *Conference (CONF)*

The Service Dept. conducts a semi-annual conference (CONF) to disseminate future

plans and showcase distinctive sales examples to the key individuals in each sales subsidiary or

department, most of whom are on the KEY Mailing List. The information distributed at this

conference was all official and authoritative.

5.1.7 *POSTER*

The POSTER is a physical poster issued every other month (except when an extra edition

was warranted by big news such as the release of a new version), and placed on the wall in the

office. The purpose of this one-way and formal communication was to publicize the Service to

Salespeople who have not yet been interested in or attempted to sell the Service.

5.2 Change in the usage of different communication channels

Figure 2 shows the number of messages posted on CList, PList and KList over time. Figure 3

shows the number of contacts to the Pre-CC and Post-CC call centers over time.
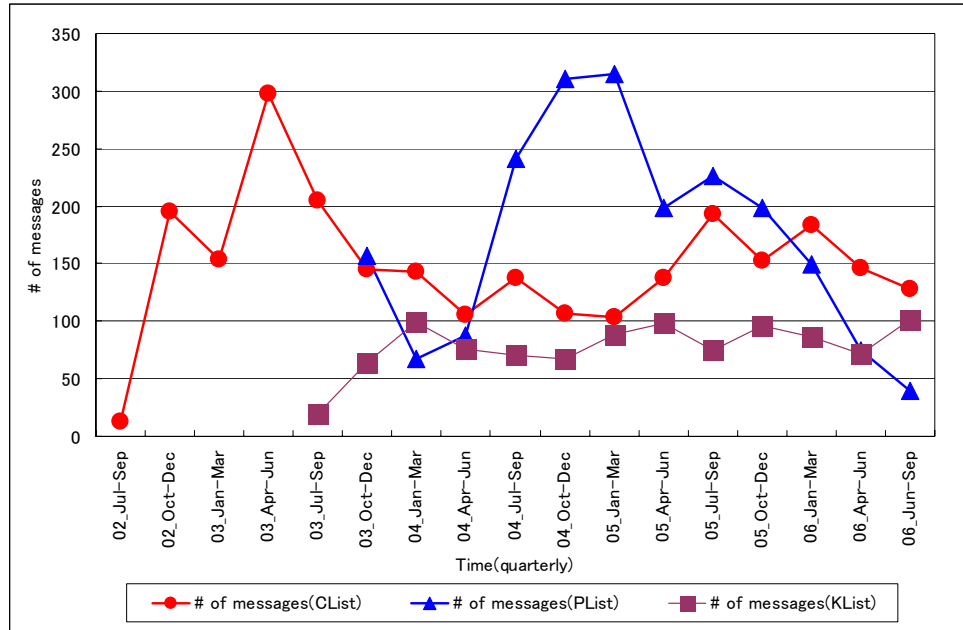
Figure 2. The number of messages posted in each mailing list by quarter.

As Figure 2 shows, the number of messages posted on KList increased from September[3] to March in 2003, while those on CList decreased. The Service Dept. launched the KList in September 2003 to propagate formal information such as campaign information to its members, who are key persons selected by each sales subsidiary based on ability and interest in selling the Service. In Figure 2, we also observe more stability in the level of communication on KList than in CList and PList. The Service Dept. regularly announced formal information such as the release of a new function or a report of sales through the KList. CList and PList peaked at different times, CList in 2003 and PList in 2004, because the members of PList were some of the most active posters on CList and their new activity on PList might have resulted in less activity on CList. 31 posters on PList who were also active posters on CList posted 42% of the total messages (1031) on CList although they were only 9.6% of the total number of people posting

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[3] Since the KList was implemented in September 2003, the number of messages posted in KList in the July to September 2003 period only includes data from September.

on that list (326). One active poster on both lists posted 35 messages in CList and 258 messages in PList in 2004, and 49 messages in CList and 204 messages in PList in 2005. Apparently, while PList was valuable for discussing particular issues and suggesting the results of their discussion to top executives, it seems to have had a negative effect on the activities of CList. The project leader recommended that PList members resume active posting on CList when the project ended [PList] (2/15/2006). We can assume that the actual value of CList was less in 2004 due to the decreased number messages posted to it.

Figure 3 shows the number of contacts to the formal call centers. Note that the number of contacts to the formal call centers was much larger than the number of messages posted in the three mailing lists. Some of this difference in magnitude might be the one-on-one nature of the call centers as opposed to the broadcast nature of the mailing lists. A question and its response posted on CList would be received by 1600 people but a question and its response from the call center is known only to the asker, so all others with the same question had to make separate calls to the call center. In fact, a member of Sales posted a message about the usefulness of the CList in comparison to the Post-CC:

> I think that if we ask something to the Post-CC, the information gotten from the Post-CC would not be shared among Sales. So, we should use CList as a discussion space more and more. [translated from CList 300](1/28/2003)

In responding to questions on CList, the Service Dept. also sometimes identified and shared related cases previously posted on CList, as indicated in this response:

> Here is the list of the messages related to your question that were posted in this mailing list (CList) from Salespeople in the past. [translated from (CList 1177)] (8/17/2005)

Service Dept. staff responding to queries to Pre-CC also sometimes suggested that

Salespeople should ask the same thing on the CList, especially if they didn't have enough

information to answer their question:

> I got a question about development software available for the Service from my
> customer who has already used the Service. When I asked a staff member of
> Post-CC about this question, he didn't have an answer and suggested that I ask on
> CList. Does anyone know the answer to my customer's question? [translated from
> (CList 1041)] (6/20/2005)

In some cases, even when they received a response, Salespeople would use CList to

confirm it, as in the following message:

> Our customer asked me about usage of the Service in their network environment.
> I've never heard about it before. So, I asked Pre-CC whether or not they had
> heard of similar cases in the past. But, they didn't have any. When I also asked
> Post-CC about it from technical viewpoint, they answered that it would be
> possible under some conditions. Does anyone else know the same kind of case in
> any of your customers? [[translated from (CList 49)] (8/28/2003)

As Figure 3 shows, the number of contacts to Pre-CC peaked from January 2005 to

September 2005 and decreased after that to March 2006. A steeper peak in Post-CC contacts also

occurred in April-June 2005. Note that from April 2005 to September 2005, we observed a

second peak in the number of messages posted in the CList (Figure 2), as well. All three peaks

might be correlated with an increase in sales after the release of a major upgrade in December

2004. In fact, the number of licenses they had on contract with customers increased 28% during

the 6 months surrounding the founding of the Pre-CC. Interviews suggest that the number of

contacts to Post-CC decreased gradually over time because the Service Dept. succeeded in

increasing the quality of the Service itself as well as the efficiency of their back office

procedures related to trouble shooting. While these improvements led to the decrease in the

number of trouble messages posted in the CList, Sales sometimes posted a message with

information about trouble to be shared among Sales, or with questions that could not solved by the Post-CC.
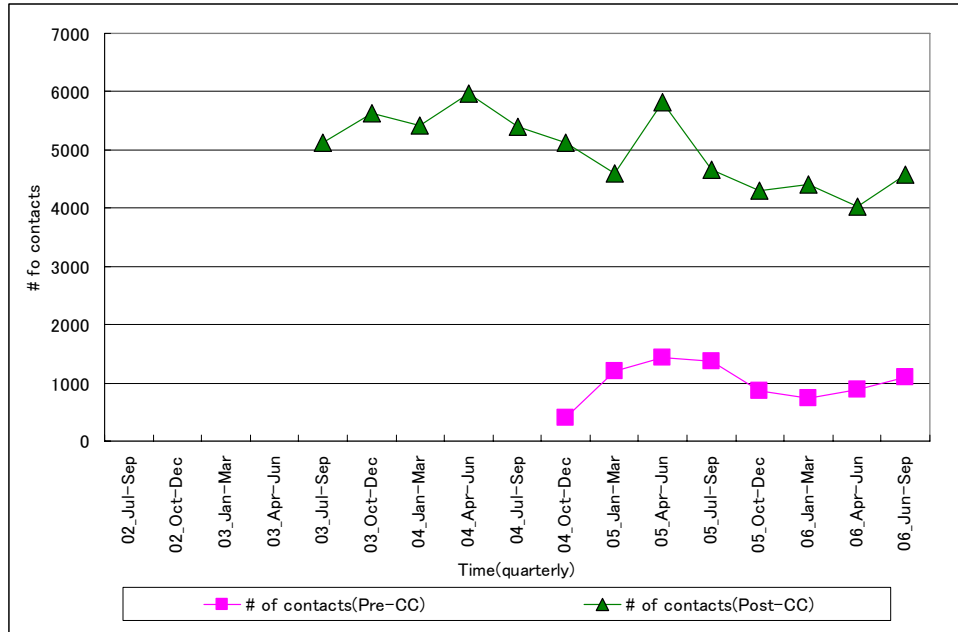
Figure 3. The number of contacts to the call centers by quarter.

5.3 Ongoing value of the Community Mailing List

Based on results of the questionnaire, we examined which communication channels the respondents (Salespeople) used to obtain each of the five types of information also used in coding CList messages. Table 2 summarizes the use of different communication channels over time.

Table 2. The usage of different communication channels over time.

(The number and percentage of respondents who used each communication channel in each fiscal year)

	F2002	F2003	F2004	F2005	F2006	Total
CList	532(72%)	595 (43%)	635 (32%)	702 (33%)	707 (33%)	3171 (38%)
PList	-	77 (6%)	80 (4%)	106 (5%)	112 (5%)	375 (4%)
Pre-CC	-	-	242 (12%)	283 (13%)	273 (13%)	798 (10%)

Post-CC	-	251 (18%)	305 (15%)	298 (14%)	287 (14%)	1141 (14%)
KList	-	208 (15%)	241 (12%)	272 (13%)	291 (14%)	1012 (12%)
CONF	203 (28%)	256 (18%)	254 (13%)	233 (11%)	187 (9%)	1133 (14%)
Poster	-	-	229 (12%)	265 (12%)	258 (12%)	752 (9%)
Total	**735 (100%)**	**1387 (100%)**	**1986 (100%)**	**2159 (100%)**	**2115 (100%)**	**8382 (100%)**

The following figures each focus on a particular type of content and report to what extent respondents used each of the channels to obtain such content. For example, Figure 4 shows which communication channels the respondents used to get *technical* information. The figure shows that the number of messages with technical content on the CList dropped from 2002 to 2004, as the respondents obtained this information from the other, more formal, channels but then stabilized and increased slightly through 2006, perhaps due to the postings confirming call center answers as highlighted above or the level of trust in the online community built by the CList among Sales.
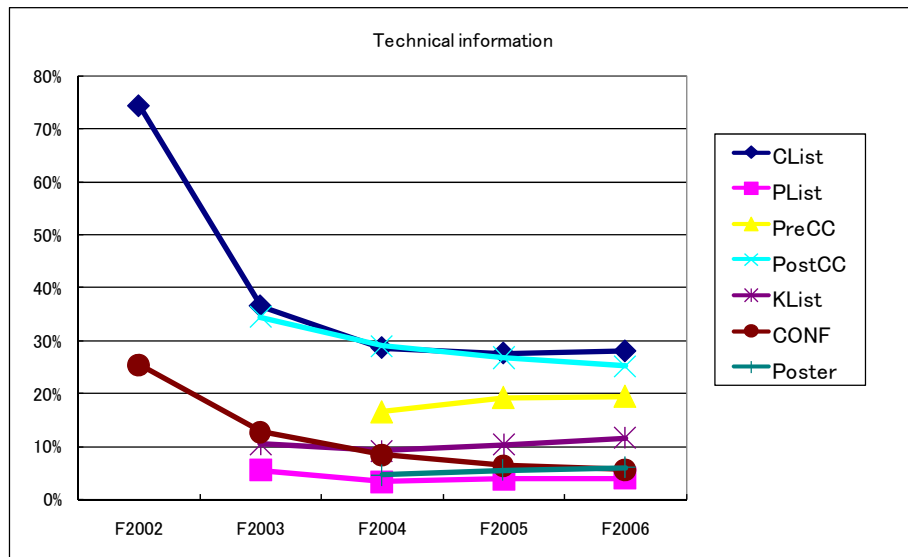
Figure 4. The use of each communication channel over time for getting technical information.

Figure 5 and Figure 6 show that the proportion of employees who referred to the CList for competitor and trend information increased in 2005 and 2006 while those who referred to other channels decreased or stayed even.[4] Sales apparently preferred to use informal communication channels rather than the other formal communication channels to get competitor and trend information based on their experience in using other channels. While the Service Dept. could gather and provide sales and technical information from both internal and external sources, competitor and trend information, by their nature, must be gathered from outside of the company. The CList seems to have been useful for Sales and the Service Dept. to share this information as opinions without having to justify it with detailed and authoritative reports. For example, Salespeople sometimes posted their own experiences with the competition on CList, with advice as to what to avoid or how to compete with them. The Service Dept. sometimes formally took action after they learned of the emergence of a competitor from a posting by Sales on the list, as demonstrated by the following set of messages during a 3-day period. First, a Sales representative posted a challenging problem he faced with a current customer:

> Our current customer has decided to cancel the Service because another company could not provide their service with any guarantee if our customer uses our service with their service. This didn't make sense to me. Does anyone have the same situation, or know how to compete in such a situation? [translated from (CList 1102)] (7/19/05).

Someone from the Service Dept. responded to this suspicion of competition from the other company with a promise to investigate:

> I think that this might not be good even for our customer. I'll investigate this case in more detail from various viewpoints. [translated from (CList 1110)] (7/20/05)

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[4] The growth of the usage of the CList from F2004 to F2006 for getting technical information is 0.6 %, sales information is 1.5%, and formal information is 1.3 %, while that for getting competitor information is 6.0 % and trend information is 6.1%.

The next day the Service Dept. employee provided some guidelines under the circumstances and requested that other Salespeople report similar situations so the Service Dept. could monitor the issue:

> After considering this situation more in detail, I wrote down the guideline of how to handle such situation. Could you do that if you have the same kind of situation? [translated from (CList 1115)]

Furthermore, the Service Dept. asked the participants to post more competitor information if they didn't have sufficient knowledge of a certain area:

> I got information about a similar service that will be provided by another company. If you have any information about this, could you let us know? [translated from [CList 277]] (1/16/2003)

For trend information, a knowledgeable product manager in the Service Dept. made the latest trend news understandable even for non-technical Salespeople and posted it to CList. It sometimes included "breaking news" that Sales could not get through mass communication media such as a general industrial newspaper. A knowledgeable Salesperson could then provide his thoughts about trends affecting sales of the Service. The Service Department could not provide such information about trends, sometimes with individual interpretation, via a formal communication channel since it was early and incomplete, contained opinion, and was not yet official information. The following passage from a CList post suggests that the Service Dept. employee was just beginning to gather information on an issue that interacted with, and might have implications for, the Service.

> I write down my thoughts about how a company handles employees' email in a company. There are not enough precedents to understand the best or only way in order to handle this matter. But, we'll look at ongoing cases and consider it in order to provide better service [translated from (CList 1094)](2/15/2005)
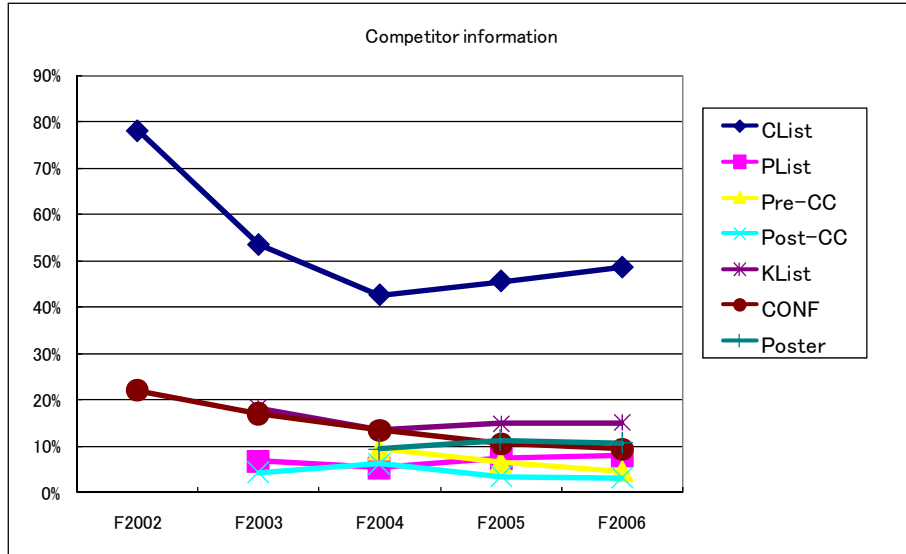
Figure 5. The use of each communication channel over time for getting competitor information.
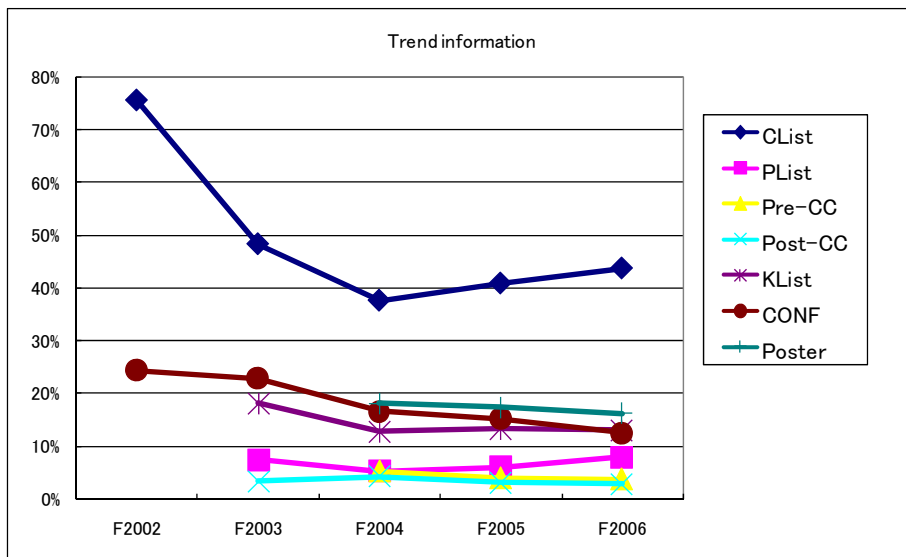
Figure 6. The use of each communication channel over time for getting trend information.

6. DISCUSSION

6.1 The role of the CList in relation to the other communication channels

The use of each channel seems to have changed over time depending on the Service Dept.'s communication strategy and how and what Sales actually used. These changes are shown in Table 3. In addition to the data shown in the previous section, we will refer to the actual content exchanged in the communication channels, the interview data, the free text answers on the questionnaire and other internal documents in explaining these changes. The numbered arrows on the table show apparent movement of activity.

Table 3. Summary of activity (posting and contacting) of each communication channel over time.

	F2002	F2003	F2004	F2005
CList	Launched (Very active)	Active	Less active	Active
PList		Launched	Very active no.4	Very active no.5
Pre-CC			Very active no.3	Very active no.6
Post-CC	Launched	Upgraded and Stable no.2	Updated and Stable (slight decrease)	Stable (slight decrease) no.7
CONF	Launched	Stable	Very active	Stable
KList		Launched no.1	Stable	Stable
POSTER			Launched	Stable
Summary of each fiscal year	**CList and CONF were launched**	**A part of the role of CList was moved into Post-CC and KList.**	**Formalization of other channels weakens the role of the CList.**	**A part of the role came back to CList.**

In F2002, the Service Dept. launched CList as a conversational communication channel between Salespeople in the various sales subsidiaries and the Service Dept., to increase the number of Salespeople who could sell the network Service and also to proselytize the potential value of the Service. In order to help Sales understand the Service, the Service Dept. aggressively responded to messages posted by Sales. Additionally, the Service Dept. officially launched the CONF to help key individuals introduce the Service to their customers in local fairs or seminars. CList seems to have been useful for cultivating internal skilled Salespeople or supporters of the Service while supplementing the formal CONF.

In F2003, the CList served as a forum allowing Salespeople to discuss the existing

problems and procedures related to the Service itself. Active discussions and sharing actual

experiences of selling the Service on CList led Salespeople to launch an informal project—which

had a specific purpose and duration—on PList. Meanwhile, the Service Dept. was implementing

various official and formal channels of communication with Sales to solve these initial problems,

including the Post-CC call center service and KList. The number of relatively official messages

from the Service Dept. on CList decreased while those on the KList increased from September

2003 to March 2004 (arrow no.1 in Table 3). Based on the interview with an employee in a

marketing group with the Service department, they also intended to move questions and answers

about implementation problems from the CList to the Post-CC call center (arrow no.2 in Table 3),

as they noted in the following CList message:.

> We have gotten a lot of messages directly posted in CList. We would like to
> inform you about other formal communication channels that were specialized for
> certain types of questions. Could you please use the one that corresponds to your
> questions and requests? [translated from (CList 216)] (12/2/2003)

> However, this intention was not entirely realized. For example, Sales intentionally

continued to discuss critical problems in the CList if they thought that they should share the

answers or discussion among other Salespeople. The discussion between Sales and the Service

Dept. sometimes became fierce, and controversy arose about the position of the Service in the

industry due to the emergence of the first large competitor. As the following quote suggests,

Salespeople were very concerned about the new competitor, and strongly requested guidance.

> I strongly request the Service Dept. to consider how to handle the service
> provided by other company. This service can compete with a part of our service.
> So, I think that we should rapidly respond to it. [translated from [CList 697]]
> (6/23/2003)

Another salesperson who had experience with this competitor suggested joining

forces rather than competing:

> I've already competed with this competitor. Our customer let us know that
> they've just been considering the possibility of replacing our service with the
> competitor's. However, our service and theirs are complementary to each other.
> So, I believe that this could become a big opportunity for us if we consider
> [building] a good relationship with their service. [translated from [CList 701]]
> (6/23/2003)

The Service Dept. responded to these calls for a competitive response by

promising an announcement soon; two weeks later they posted an official document

laying out their suggested response:

> We've been intensively considering how to handle this matter. Please wait for a
> while until next announcement.[translated from [CList 700]] (6/23/2003)

> We uploaded the document including our thought about responding to this matter
> in the following url. [translated from [CList 738]] (7/8/2003)

This response did not satisfy the Salespeople, however, as revealed by one posting in

response to the document:

> Unfortunately, I'm very disappointed with your response to this matter. Here is
> my quick thought for possible case that would happen with our
> customer. ..[translated from [CList 743]] (7/8/2003)

Furthermore, gaps in knowledge about competitor information or customer needs

continued to be discussed. In this situation, one of the Salespeople, who was also the most active

poster on the CList, declared the establishment of the virtual evangelist project and launched the

Project Mailing List (PList) in order for a subset of Sales to intensively discuss and concretely

solve these problems without including the Service Dept.:

> I'm very happy to inform you that I launched a cross-organizational project
> related to the Service. This project is intended to promote the Service more and
> more by focusing on the increase of value that our customers get from the Service.
> I need your active participation to this project. Could you let me know if you

agree with the purpose of the project and would like to join it? [translated from [CList 767]] (7/16/2003)

Despite the controversy, the CList still provided a forum for Sales to discuss problems and for the Service Dept. to understand their needs.

In F2004, as a result of the establishment or endorsement of other channels, many of Sales' communication activities on the CList were moved to Post-CC and PList. The Service Dept. also established a second call center (Pre-CC), to which they transferred simple questions and answers related to sales (arrow no.3 in Table 3). The amount of communication between the Service Dept. and Sales rapidly decreased on the CList (messages decreased 68% from F2003) and two way communication also decreased (replies decreased 59% from F2003). The Service Dept. seemingly wanted to utilize CList not as an interactive channel with Sales but as a one way communication channel to announce formal information. Also, the establishment of PList had a negative impact on the volume of posting on CList (arrow no.4 in Table 3). This movement of activity from CList to PList was not visible except to PList members. These new channels could have meant the end of the role of the CList except for perhaps its most fundamental role, that of Sales sharing their experiences and learning from each other.

In F2005, this fundamental role of the CList seems to have been recognized by more than just Sales, and certain types of communication came back again. The CList was a supplemental communication channel to fulfill the information needs of Sales not fully provided by Pre-CC, Post-CC or other channels. For example, Sales had started to gather actual cases of the availability of the Service in hotels all over Japan in order to make an availability list when they stayed in hotels for their business trips. It would be very inefficient for the Service Dept. to gather this kind of information. The discussions seemed to be not just communications but

productive collaborations with some actions for a shared purpose, sometimes even outside of CList.

The discussions that had moved to the PList came back to the CList again (arrow no.5 in Table 3). Sales exchanged accounts of actual sales cases on the CList (sales information increased 26% from the previous fiscal year) while they also continued to use Pre-CC (arrow no.6 in Table 3). Sales also started to confirm compatibility with the services of other companies (technical information increased 63% from the previous year). They also started to collect sales cases on CList (arrow no.7 in Table 3). Even though competitor information accounted for only 2.5% of the total number of messages posted in CList, and trend information accounted for only 5.5%, for these two purposes Sales preferred CList to all other communication channels, as indicated in Figures 5 and 6). CList had not been displaced, but had stabilized, retaining an important role for Sales and for the Service Dept.

6.2 The role of informal communications in a company

A company often makes plans as to what they want done and how and why employees should do that, and then executes the plan using formal and structured communication. In this section, we'll discuss the roles of an informal communication channel such as CList by focusing on several communication dichotomies in a company: peer-to-peer versus hierarchical, formal versus informal, and planned versus emergent.

6.2.1 Peer-to-peer versus hierarchical communication

The informality of the CList allowed for more peer-to-peer communication and the establishment of an online community that was found to be desirable even after the introduction of more formal channels (Takahashi et al., 2008). The formal channels were seen as being the official 'party line' and did not include discussions of potential flaws which were more

frequently discussed on the CList. Salespeople had a level of shared understanding of other

Salespeople's issues and consequently a level of trust. The Service Dept. attempted to force

communication onto the structured channels such as KList, pre-CC, and post-CC, but Sales

resisted. Some activity did migrate to the new formal channels when they were established, but

some came back, as shown by the volume of technical content questions (Figure 4). Also, there

was some activity that remained on the CList since a migration to a structured,

Company-endorsed channel would raise a statement from an opinion to a policy. The CList was

seen as useful for stating opinions throughout, as can be seen in its continuing popularity for

sharing competitor and trend information.

6.2.2 *Informal practice versus formal process*

We found that the use of the CList for informal discussion allowed for the productive

tension between informal practice and formal process that Brown and Duguid (2000) discuss.

Thus CList retained its utility for certain types of informal communication as more formal

channels were introduced. Many discussions of informal practices on the CList resulted in their

incorporation into more formal processes. This type of behavior was especially prevalent during

the early years, but continued throughout. Part of the need for an informal channel such as CList

appears to be correlated with the non-traditional nature of the Service. There were existing,

formal processes for how to discuss the traditional offerings of the Company that did not apply to

the Service. To speed up time to market, offering the Service before formal processes were

developed became feasible because the Service Dept. and Sales helped each other out informally

and developed these processes together. A channel that supported non-hierarchical, informal

communication in which individuals did not always remain strictly in their official roles (as

when Salespeople got upset at the Service Dept. upon the emergence of the first competitor, and

as when a Sales representative set up PList to work outside of the hierarchical channels) proved useful and its use, after declining, increased again in F2005 and F2006.

6.2.3 Planned change versus emergent behavior

The establishment of the formal channels and a strategy to use them was a planned change intended to displace the informal CList. The resistance to allowing that displacement was evinced by changes in the way the CList was used in certain instances. As we saw above, for example, Sales started using the CList to confirm answers given by the call centers. Part of the resistance to the planned change might also have been a level of comfort with the CList that was built up during its early years and a sense of community that was not as obvious in the formal channels. Some literature has also suggested the value of (necessarily informal) improvisation in the context of emergent online activity (Yates et al., 2001). That value was clearly present in this case.

7. LIMITATIONS AND FUTURE WORK

Even though the roles for CList that we've discussed in this paper might not be generalized as the roles for all online communities, we believe that it could be useful for managers to consider the roles of informal online communication channels in relation to formal communication channels. One element of future work could be to conduct more case studies to find the patterns and variables that could define the role of an online community in different business contexts; to consider how to coordinate its role with that of other communication channels; and to cultivate the participants' communication within an online community in order to fulfill their information needs.

We gathered and analyzed a large amount of quantitative and qualitative data in our case study. This was a lengthy process and a part of our data (the contact history of the Post-CC in

F2002) is not complete. However, the implementation of more IT-based enterprise systems in many companies could allow for more accurate and less costly analysis. Informal communication data can be more easily captured and analyzed using logs of email communication, blogs (Jackson et al., 2007), wikis (Majchrzak, Wagner, and Yates, 2006) and even physical position data recorded by sensor devices (Eagle and Pentland, 2006; Nemoto et al., 2008). Multi-channel analysis among these new informal communication channels in relation to the formal enterprise information system might be useful for managers themselves to identify information needs, to learn how the information is provided, and to learn how best to change communication channels over time.

8. CONCLUSION

We examined the role of an online community, the Community Mailing List (CList), in relation to the usage of other informal and formal communication channels and how it changed over time during the introduction of a new business. As Malone predicted, although centralization will never completely disappear (Malone, 2004), we are likely to see more and more decentralization in the coming decades. We believe that people can utilize both approaches to different extents as their needs change over time. In this paper, we proposed that we should not just analyze the role of an online community, but also consider its role in relation to the usage of the other communication channels.

9. ACKNOWLEDGEMENTS

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Appendix

Questions about the usage of communication channels related to the Service

Could you select which information channel did you use to get the types of information below in each year?

- tech(technological issue, trouble, setting)
- sale(sales material, sales case)
- official announcement(new function/service release)
- competitor(competitor information)
- news/trend(IT news or the trend of industry)

F2002

Main Events: [events have been omitted to maintain confidentiality]

Communication channel	tech	sales	official	competitor	news/trends
CList	☐	☐	☐	☐	☐
CONF	☐	☐	☐	☐	☐
Your co-worker and friends (F2F, Phone, EMAIL, or the others)	☐	☐	☐	☐	☐
Other ( )	☐	☐	☐	☐	☐

F2003

Main Events: [events have been omitted to maintain confidentiality]

Communication channel	tech	sales	official	competitor	news/trends
CList	☐	☐	☐	☐	☐
KList	☐	☐	☐	☐	☐
PList					
Post-CC	☐	☐	☐	☐	☐
CONF	☐	☐	☐	☐	☐

Communication channel					
Your co-worker and friends(F2F, Phone, EMAIL, or the others)	☐	☐	☐	☐	☐
Other( )	☐	☐	☐	☐	☐

F2004

Main Events: [events have been omitted to maintain confidentiality]

Communication channel	tech	sales	official	competitor	news/trends
CList	☐	☐	☐	☐	☐
KList	☐	☐	☐	☐	☐
PList					
Pre-CC	☐	☐	☐	☐	☐
Post-CC	☐	☐	☐	☐	☐
Poster	☐	☐	☐	☐	☐
CONF	☐	☐	☐	☐	☐
Your co-worker and friends(F2F, Phone, EMAIL, or the others)	☐	☐	☐	☐	☐
Other( )	☐	☐	☐	☐	☐

F2005

Main Events: [events have been omitted to maintain confidentiality]

Communication channel	tech	sales	official	competitor	news/trends
CList	☐	☐	☐	☐	☐
KList	☐	☐	☐	☐	☐
PList	☐	☐	☐	☐	☐
Pre-CC	☐	☐	☐	☐	☐
Post-CC	☐	☐	☐	☐	☐

Poster	☐	☐	☐	☐	☐
CONF	☐	☐	☐	☐	☐
Your co-worker and friends(F2F, Phone, EMAIL, or the others)	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

F2006

Main Events: [events have been omitted to maintain confidentiality]

Communication channel	tech	sales	official	competitor	news/trends
CList	☐	☐	☐	☐	☐
KList	☐	☐	☐	☐	☐
PList	☐	☐	☐	☐	☐
Pre-CC	☐	☐	☐	☐	☐
Post-CC	☐	☐	☐	☐	☐
Poster	☐	☐	☐	☐	☐
CONF	☐	☐	☐	☐	☐
Your co-worker and friends(F2F, Phone, EMAIL, or the others)	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐