

Surviving Outsourcing and Offshoring: Technical Communication Professionals in Search of a  
Future

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### Abstract

Major trends, such as outsourcing and offshoring, and field-specific factors, such as the advent of content management systems, have fundamentally changed technical communication in recent years. These changes have been widely discussed in the literature of the field, and this article traces their impact on technical communicators in Finland, a high-cost country where downturns in the export industry and the downsizing of major employers are currently coinciding. Through the framework of activity theory, the article looks at the historical changes in the industry as sources of tension and contradictions that need to be understood in order to support professionals in the industry. With the help of interview data, the authors explore the tensions experienced by technical communication professionals in the face of such changes. This analysis leads to the formulation of a hypothesis of historical contradictions currently at play in the field of technical communication. Developmental potentials stemming from these contradictions are outlined as potential ways forward for technical communicators who notice similar tensions in their own environments.

### Keywords

activity theory, developmental work research, discursive manifestations of contradictions, technical communication

Technical communication is going through a “seismic shift” (Dicks, 2009, p. 52). Outsourcing, offshoring, and the content management (CM) approach to documentation are major forces that have transformed the field in recent years (Carliner, 2009; Giammona, 2011; Hackos, 2005; Hart-Davidson, 2009; Slattery, 2007; Spinuzzi, 2007; Starke-Meyerring et al., 2007). Rich academic discussions have been pursued for some time on these themes. Two academic journals—*Technical Communication Quarterly* (2007) and *Technical Communication* (2005)—have devoted special issues to discussing the future of the field, and in *Reshaping Technical Communication* (Mirel & Spilka, 2002), leading technical communication scholars discussed ways for coping with these challenging transformations in the industry. More recent contributions (e.g., LaRoche & Traynor, 2013, Andersen, 2014) indicate that these challenges are far from resolved. Among the most acute signs of such challenges, LaRoche and Traynor listed the lack of resources and the decrease in content that is being produced.

Globalization has affected technical communication so severely because the industry has traditionally created information products that merely support other products. Therefore, when product development is shipped into cheaper production environments, the work of technical communication has to follow (Dicks, 2009; Faber & Johnson-Eilola, 2002). According to Andersen (2014), the modern CM tools “have made it possible for people who are not trained technical writers to produce well-structured content, allowing for the outsourcing and offshoring of writing and editing tasks” (p. 121). Similarly, Carliner (2009) sees offshoring and advances in CM tools as reasons behind “dwindling work opportunities” in technical communication in high-cost countries (p. 44).

Scholarly recommendations (Mirel & Spilka, 2002) for dealing with the current challenges in the field include strengthening the relationship between academics and practitioners and expanding the roles of technical communicators in their workplaces. Other scholars suggest becoming “dividuals” (Spinuzzi 2007, p. 273), focusing on customer knowledge (Hackos, 2005), becoming “boundary spanners” or “strategic negotiators” (Hart & Conklin, 2011, pp. 140-141), focusing on content strategy (Andersen, 2014, LaRoche & Traynor, 2013), or moving toward user experience tasks (LaRoche & Traynor, 2013). While some individual technical communicators have expanded their roles (Anschuetz & Rosenbaum, 2002, Giammona, 2011), there is little evidence of similar developments in the field of technical communication as a whole.

Scholars have argued that there is a gap between technical communication practitioners and academics, because the research done in the field does not seem to arise from the real-life experiences and needs of technical communicators (Andersen, 2014; Blakeslee & Spilka, 2004; Bosley, 2002; Sullivan & Spilka, 2011). In CM, for example, some of the future work descriptions that the literature describes appear “abstract and idealistic,” because the researchers neglected the viewpoints of CM practitioners (Andersen, 2014, p. 123; Carliner, 2009). Aware of this pitfall, we examine in the following study the state of the profession by focusing on practitioners’ own understanding and experience of it. To cope with the ongoing changes and help the field move forward, Andersen (2014) calls for practical research “that examines both what is working and why and what might be improved and how” (p. 143) in technical communication. Our study contributes to this discussion by addressing the following research questions: How do technical communication professionals articulate their experiences of the current challenges in their profession? What kinds of developmental opportunities can be identified from the ways

those professionals articulate such experiences? Through the framework of activity theory, this study attempts to answer these research questions by adopting an historical perspective on the transformations in the field and by identifying contradictions stemming from them as well as their developmental potential.

The seismic shift in technical communication takes place on many fronts simultaneously, from the tools and methods to the skills and professional connections (Dicks, 2009; Giammona, 2011; Spinuzzi, 2007). The field is also fragmented (Faber & Johnson-Eilola, 2002), context-based and interdisciplinary, the work differing from business to business and company to company (Dicks, 2009; Spilka, 2002). Because of this diversity, it is important to gather and compare the perspectives of practitioners. Much of the available technical communication literature tends to originate, however, from North America (e.g. Andersen, 2014; Boch, 2011; Conklin & Hayhoe, 2011; Malone, 2011; Mirel & Spilka, 2002; Spilka, 2009; Starke & Meyerring et al., 2007). The limited discussions on the situation outside North America usually pertain to the context of sending work from North America to lower cost countries (e.g., Faber & Johnson-Eilola, 2002; Giammona, 2011). More global perspectives on the weaknesses and strengths of the field as a whole require taking into account its international nature (Hennig & Tjarks-Sobhani, 2005) and ensuring that the voices of technical communicators in different countries are heard.

Our study offers a view into the field as it has developed in Finland, a country where the profession is still fairly new, having started with the information technology boom of the 1990s (Suojanen, 2000). The Finnish Technical Communications Society was founded in 1997, and many of its initial members worked for a single company—a major employer that played a key

role in establishing the field in Finland. In the beginning, the field was quite focused on documenting software and other high-technology products (Carliner, 2009), but since the global financial crisis in 2007, technical communicators have increasingly worked in smaller companies and the more traditional hardware-based industry.

Finnish technical communicators face many of the challenges that are discussed in the dominant North American literature. Outsourcing, offshoring, and the global financial crisis have left their mark on the profession here in much the same way as in other higher cost countries (Carliner, 2009; Giammona, 2011). In present-day Finland, however, those major trends coincide with various country-specific factors. Finnish technical communicators mainly work for the export industry, which has been struggling in recent years, and one of the main employers in the field—the one that originally helped set up the field in Finland—has recently cut a large part of its operations in the country. The Finnish economy in general is not expected to pick up in the near future. These factors together make this a difficult time for the profession.

In the next section, we outline the context of the study. We then present the theoretical framework, data, and methods for the study. After that, we reconstruct the history and current state of technical communication with the help of our interviews with practitioners in the field. Next, we identify the contradictions stemming from the history of the field and manifested in our case company. Finally, in the Discussion and Conclusions section, we answer our research questions and outline the developmental potentials arising from the analysis.

## Context of the Study

This study explores how the major changes in the industry are reflected in the real-life experiences of technical communicators in a multinational company in Finland and the developmental potentials of these changes.

Our case company has product-development and other teams scattered over various countries and sites. It has undergone multiple changes in ownership, bringing together different business cultures and ways of working. The company produces a large family of products, some of which have been developed for decades. We selected this company as a case in technical communication because the company has gone through major turns, such as the rise of the field in the information technology boom years of the 1990s and the outsourcing trend at the turn of the millennium. As one of the major employers in the field, the company helped establish the technical communication profession in Finland, and its subsequent decision to start outsourcing brought a significant amount of work to many of the vendors in the field. The most recent development in the company's technical communication activity has brought the work back in-house from various vendor companies. Although still quite a rare phenomenon, such *backsourcing* is growing in the IT business, as Kotlarsky & Bognar (2012) have noted. High cost and poor quality are listed as the main reasons for backsourcing, and those are the reasons for the backsourcing at our case company (see also Kinkel, 2012).

The decision to start backsourcing in this company also involved *nearshoring* (Aspray, Moyadas & Vardi, 2006): moving the work closer from a distant offshore location but to a country with lower wages. We represent this development here by focusing on two sites, Site A and Site B. Site A is an established hub within the company where most of the process guidelines

related to technical communication have been developed. The technical communication personnel at Site A have a background in the humanities, mostly in English, and they have extensive experience in the field. Site B is a newly established nearshore site and the technical communication personnel working there, including the line management, have an engineering background with little experience in the field of technical communication. In spite of these significant differences, the two sites operate according to the same technical communication guidelines and processes.

### Theoretical Framework

This study builds on the framework of cultural-historical activity theory (Engeström, 2015), in which the unit of analysis is the collective object-oriented activity system as a minimal meaningful context for understanding individual actions. Within this perspective, work activities are seen as relatively long-term historical formations that undergo constant development (Kuutti, 1996).

An activity system contains the following seven components:

1. *Subject*—a selected individual or group involved in carrying out the activity
2. *Object*—the concrete instantiation of the purpose for which the activity is carried out
3. *Outcome*—both intended and unintended results of the activity
4. *Instruments*—the material and conceptual resources used to work on the object
5. *Division of labor*—who does what within the activity, including the division of power and rewards
6. *Community*—the collective entity sharing the same object

7. *Rules*—the regulations, norms and conventions constraining the activity

These components, which are in constant interaction, shaping and destabilizing one another, form an activity system, often depicted by a triangle-shaped diagram (Engeström, 2015, p. 63). But the analysis of an activity system should not be limited to separate components, because such an approach tends to eliminate the systemic dynamics essential to real human activities.

Each historical phase in the development of an activity involves qualitatively different viewpoints, artifacts, and ways of thinking. The history of an activity carries with it contradictions that are both sources of problems and innovations. *Contradictions* are historically accumulating structural tensions within and between activities that manifest themselves as disturbances and conflicts in the everyday experiences of professionals (Engeström, 2008). Becoming aware of the contradictions at play in activities can relieve professionals from pressures experienced at an individual level and lead to a shift toward collective transformative efforts at a systemic level (Engeström & Sannino, 2011).

Contradictions are classified in four types: primary, secondary, tertiary and quaternary (Engeström, 2015). *Primary contradictions* involve clashes between the use value and the exchange value of work and are always present in each component of the activity system. *Secondary contradictions* exist between two components of the activity system, for example between a new rule and old instruments. When a new element is introduced into the activity, parts of the activity qualitatively change while other parts strive to remain the same, which can result in escalating tensions between the transformed component and the unchanged components of the activity. *Tertiary contradictions* stem from collisions between emerging new forms of an activity and dominant old forms of the activity; the old ways of working fight back to resist change.

*Quaternary contradictions* appear when a new model for an activity becomes stabilized and clashes occur between the focal activity that has undergone changes and neighboring activities that still operate according to old models. As the following analysis will show, important challenges in the technical communication field may be fruitfully represented as secondary and quaternary contradictions.

### Data and Methods

This study draws on the methodology of developmental work research (Engeström, 2005). This methodology involves interventions in which researchers and practitioners dig into the history of problems experienced in an activity to identify the contradictions behind them and construct expansive solutions to deal with them.

The data consist of two audiorecorded, semistructured interviews of key practitioners in the field and two audiorecorded, open-ended interviews in which one of us (Virtaluoto) and the practitioners at the case company jointly analyzed the activity system. Unlike the semistructured interviews, the open-ended interviews contained no predetermined questions. The aim was to help participants voice the tensions experienced in their work and explore the historical contradictory forces that might cause these tensions. As a technical communicator and board member of the Finnish Technical Communications Society, Virtaluoto used her professional networks to identify the case company and participants in this study.

For the semistructured interviews, we selected two prominent technical communicators as our interviewees based on their extensive professional experience and strong involvement in the Finnish Technical Communications Society. In these interviews, we wanted to trace the history of

the activity of technical communication and provide a context for the open-ended interviews and the empirical analysis of the activity. We obtained consent from both interviewees to use their names in the study and carried out the study according to the instructions of the Ethics Committee of Human Sciences at the University of Oulu. One of the interviewees, Nicholas Hill, was a coauthor in a study on technical documentation in Finland (see Abdallah et al. 2005). Currently the chairperson of the Finnish Technical Communications Society, Hill has over 15 years of practical experience in technical communication. The other interviewee, Mary Nurminen, is the previous chairperson of the society, and also has over 15 years of technical communication experience. We conducted these interviews face-to-face, in English, using a semistructured protocol (Di Cicco-Bloom & Crabtree, 2006). The transcript for Hill's interview contains 11,639 words and Nurminen's 6880 words. The topics of the interview questions, which the interviewees received beforehand, ranged from the job descriptions and skills of technical communicators to the challenges of the industry today and how the field has evolved during the interviewees' careers. The next section provides an overview of the history and current state of the activity derived from these semistructured interviews.

The participants in the open-ended interviews were selected based on their professional experience (minimum of 3 years), location (representatives from both company sites), and willingness to devote their time to the study. Our first open-ended interview was with a documentation project manager (DPM) and a technical writer (TW), who was also a lead author (LA). The DPM and TW were both from Site A and had been with the company for over 10 and 5 years, respectively. The interview was conducted in Finnish, recorded, transcribed, and translated into English. The transcript contains 13 393 words. The second open-ended interview was

conducted with a technical writer/documentation engineer (DEng) at Site B, who had joined the company 4 years ago. The transcript for this interview, which was conducted in English, contains 4882 words. In these open-ended interviews, the activity of technical communication was scrutinized with the help of insights from the semistructured interviews and the activity system model (Engeström, 2015, p. 63). Each interview began with an introduction to the model and its seven components.

We analyzed the open-ended interview data by identifying discursive manifestations of contradictions (Engeström & Sannino, 2011), a method that distinguishes four types of such manifestations, listed from least to most aggravated, respectively: 1 dilemmas, 2 conflicts, 3 critical conflicts, and 4 double binds. These discursive manifestations can become apparent when participants elaborate on the tensions they experience in their work. Each type can be empirically traced based on the use of specific linguistic cues. In our methodological framework, the perceived reality conveyed in speech is always a reflection of complexities stemming from historical transformations in practice that are difficult for the professionals to handle. *Dilemmas* are linguistically conveyed with ambivalences such as “on the one hand ... on the other hand” and “yes ... but.” *Conflicts* are disagreements conveyed with linguistic cues such as “no” and “I disagree.” *Critical conflicts* can be empirically identified in the use of vivid metaphors and emotional narratives conveying a sense of paralysis between opposing motives. *Double binds* are expressed with pressing rhetorical questions conveying the urgency of mobilizing collective resources to tackle problems.

After identifying the discursive manifestations of contradictions in the interviews, we used an iterative procedure of thematic analysis to identify the themes in the manifestations

(Boyatzis, 1998; Braun & Clarke, 2006). Our procedure involved an element of directed content analysis (Hsieh & Shannon, 2005) in that the topics and concerns brought up by the two expert informants in the semistructured interviews sensitized us to a range of issues and facilitated our naming of the themes. After identifying these themes, we categorized all the discursive manifestations into the themes.

### History and Current State of the Activity

The historical accounts we gathered reveal that the case company has gone through an almost cyclical development path. Initially, information products were created by the product development personnel when needed. As the company grew, it needed more uniform, standardized information, so it employed specialized TWs, often with a background in languages. Another reason for employing these TWs was to ease the additional work burden of the engineers, who did not feel that writing was one of their main competence areas. This was the boom time of the IT industry in Finland in the 1990s, with numerous companies suddenly needing technical communication personnel, thereby creating a new career opportunity for English majors.

The company TWs were physically located in the same sites as the product development teams and formed close ties to the subject matter experts (SMEs) that they relied on for technical background information. But increasing pressures to cut costs and the outsourcing trend at the turn of the millennium—the attempt to concentrate on the core, or central, tasks of a company—saw the rise of specialized technical writing subcontractors or vendors. The writers at the case company were also outsourced to one of these vendors, with a core team of documentation

managers and specialists remaining at the case company to oversee the documentation projects. The in-house documentation personnel formed their own team; they were not part of the product-development organization but were considered a service provider instead. Thus, the documentation personnel performed document-development tasks, whereas the day-to-day technical writing was carried out by the specialized vendor company. The in-house team was responsible for purchasing these technical communication services from the vendors.

The in-house documentation personnel would write a requirement specification outlining the project for the vendor whenever a new product-development project was started at the company. In addition to the product-specific part of the requirement specification, which was written in collaboration with the product-development SMEs, the specification would contain various technical communication details outlining, for example, style and graphics requirements. The vendor would then reply with a cost and workload estimate. In the resulting negotiations, an agreement would be reached and work would be started as required by the schedules of the product-development project. At times, the negotiations were quite long and complicated, due to differences of opinion regarding the actual workloads and numbers of expected changes in the project.

In his interview, Hill mentioned that the customers buying technical communication services from vendors often “do not know what they are buying.” This difference in perspectives may have caused some of the difficulties in the case company too:

Excerpt 1

Hill: It can also be a case where you're halfway through a project when you realize that hey, there's way more work here to be done than the calendar time allows ...

and then you wind up in the sort of situation, because the people ordering don't understand that you're basically stuck, and the first impulse is to kill yourself, and that's not a long-term solution! It's an industry problem of the people who are in control of the budgets—I don't mean from the vendor side, I mean from the purchasing side—don't understand what they're buying.

In the semistructured interviews, both Hill and Nurminen mentioned that a vendor model can work well in certain types of situations—for example, as work overflow management—but be less efficient in cases the need for technical communication is long-term (Dicks, 2009).

#### Excerpt 2

Hill: Cases where I see outsourcing—and actually, I wouldn't call it outsourcing but buying from a vendor—so I think buying from a vendor has a lot of strong points. There's the case where it's a company that does not have enough work to employ a writer full time. Or I can see the case where, if it's a company that has maybe writers of its own but suddenly has a work spike, I can see that vendor model. Or, if you have a small writing team that's not necessarily going to have among itself the exact skills that are required in some specific context, setting up a new system or consultation about minimalization or going DITA or whatever.

#### Excerpt 3

Nurminen: There are some jobs where it makes total sense to use a supplier, and some jobs where it does not. There are situations where it makes total sense, but not these long-term “Will you please bring in 20 writers to sit in our premises where we're going to put a big wall around you and you can collaborate in these ways but

not in those ways.”

The long-term type of vendor purchasing that Nurminen mentioned in Excerpt 3 was similar to that of the case company at the time when it was outsourcing its technical documentation projects. Hill and Nurminen both also pointed out that the cost savings associated with outsourcing are generally less significant than expected:

Excerpt 4

Hill: I think companies undercount how much outsourcing costs in terms of managing the outsourcing, and in terms of human intelligence that walks out the door. Now, when you have companies that basically say, no we don't want to have a tech writing department and just get rid of everybody and bring in vendors—it's hard for me to see how that's going to save them any money.

Excerpt 5

Nurminen: But I don't buy the theory that it saves money to outsource. The thing that everybody knows but nobody will say. And you have to build management on both sides to support that, so how does that work?

At the case company, the division of labor was often unclear within the documentation projects. In addition, the company experienced quality and efficiency problems. The need to manage both in-house and outsourced TW personnel also meant that the cost savings were not as great as expected. The workload estimates created at the start of a project often proved unrealistic, resulting in costly renegotiations. As a result, the technical communication activity was eventually brought back in-house, and the outsourcing contracts were terminated. Thus, although

the outsourcing and offshoring trend is still strong (Andersen, 2014; Dicks, 2009; Giammona, 2011), it does not seem to be irreversible (Kinkel & Maloca, 2009).

The company's decision to start back sourcing created problems for the vendor companies, which were having a hard time finding new customers on such a short notice and in a generally difficult financial environment. For these vendors, lay-offs were inevitable. Because the case company needed to cut costs, the new technical writers were employed in lower cost countries. The company's Site B is located in one of these nearshore countries. In many cases, the new technical writers had no training or prior experience in technical communication; therefore, based on customer feedback and as an attempt to save the valuable time of the SMEs, the company hired writers with a more technical background. This, in turn, created quality problems related to language and other technical communication issues, so the company hired language editors to check the language and style of the information products. Again, to reduce costs, the editors were also hired in nearshore countries, and while their background was often in languages, they had very little prior experience in technical communication.

The general assessment among the technical communication professionals participating in this study was that a language background is no longer enough in the job markets (Giammona, 2011). This development was evident in the case company; all the new technical communicators in the company were engineering majors. In his interview, Hill suggested that there is room for both types of technical communicators: one focused on technical skills, the other on communication skills:

Excerpt 6

Hill: Well, the way I see it, there's basically two columns: There's the command of

the technical stuff, and an engineering background can be very useful there. And then there's the technical communication skill set, which tends to be very humanities-focused in many ways, understanding human agency, how to structure information, how to do analysis, how to learn and so on. No writer in my opinion, or a very rare writer, is actually at the top of both columns. So it's a mix and match thing, where you need to compensate for your skills in the one column with skills in the other.

A recurring theme in the field of technical communication, however, is the division of labor between the technical communicator and the SME (e.g., Lee & Mehlenbacher, 2000), especially when creating developer documentation or documentation that is highly technical rather than end-user oriented. According to the data, the management view at the case company is that an engineering background helps in this division of labor. At the case company, the current division of labor for technical communication seems to be somewhat similar to that in the early days when the company started: The information products are created by in-house employees, many of whom have a technical background. There is no subcontractor–customer divide and no need for a double management structure. But the roles of the people involved differ from those in the original setup: Now, there are documentation project managers, technical writers, lead authors, documentation engineers, and editors, each with a specific task in the documentation projects. There are company-wide guidelines for publishing documentation, but each technology within the product family has its own, historically developed way of deciding what information is published at which stage in the product-development process.

As for the state of the technical communication field overall in Finland, Hill listed a variety of reasons why it is currently struggling: Problems in the Finnish export industry, the significant downsizing of a major employer, and the effects of minimalization. These reasons are all signs of the global financial crisis, which hit Finland quite hard and the effects of which are still felt in the industry:

Excerpt 7

Hill: I think there are a number of things going on. There's the general working life transition in this country that we're not immune to. Who do we work for? We work for companies that are selling products outside of this country. What does the ministry of finance say about the export industry right now? It's flatlined, there's no growth, the order books are down, it's tough. And then there's the fact that one of the companies that provided a lot of work for people in our industry has not had a happy time in the last few years, and there just aren't those large groups of tech comms jobs anymore. And I think the impact of minimalization thinking, where people stopped to say why are we issuing these documents, should we have them at all, I actually think that in a lot of companies there's a lot fewer documents being issued. So these things coming together makes for not a happy time.

Nurminen also brought up the changed landscape of Finnish technical communication; now that more technical communicators are working for smaller companies and in smaller teams instead of for one major employer that dominates the field, technical communicators increasingly need to network outside their own circles:

Excerpt 8

Nurminen: It's not dying out in any way, I don't think. I think we're going to continue to be strong. Well, that big thing we've both noticed is that at one time there were 300 of us and we were all working for the same company, and nowadays people will end up working in smaller groups, maybe for smaller companies, which isn't such a bad thing. There's a bigger need to network outside your own company and find colleagues in tech comms outside your own company ... I don't know if we're caught up to being good at networking yet.

This changed landscape has caused a shift in the focus of technical communication from information technology products and software to hardware-based products:

#### Excerpt 9

Nurminen: All of a sudden there were all these customers that didn't do software, or they did software because most of these things nowadays have a user interface ... but it was really fascinating to get into the world of machines. My favorite was a fish processing company, they made machines that processed fish, and they had wonderful names, things like "de-slimer."

In the next section, we discuss how the data that we gathered at the case company show the ongoing transformations in the technical communication profession. In the analysis, we emphasize the contradictions manifested in the data.

### Discursive Manifestations of Contradictions at the Case Company

In our analysis of the open-ended interviews, we identified 66 discursive manifestations of contradictions dealing with six substantive themes: Different practices at Site A and Site B,

relations between technical communicators and line management, support from SMEs and customer feedback, the cost of technical communication, outsourcing, and the CM system. These findings are summarized in Table 1. The discursive manifestations of contradictions were remarkably evenly distributed among dilemmas, conflicts, critical conflicts, and double binds. In fact, the most aggravated manifestations (double binds) were more frequent than the least aggravated ones (dilemmas). The large numbers of double binds and critical conflicts in the data indicate that the contradictions were fairly aggravated in this case. The discursive manifestations of contradictions were much less evenly distributed among the six substantive themes that we identified in the data. The different practices at Site A and Site B and the relations between technical communicators and line management were clearly the most frequent themes. Support from SMEs and the cost of technical communication were the next most frequent themes, whereas outsourcing and the CM system were the least frequent themes in the manifestations. The contents of all the six themes are close to the core of the historically formed tensions discussed in the preceding section. In fact, a closer scrutiny of the contents of the discursive manifestations categorized into the different themes will show that the themes are intricately interwoven and that the central contradictions permeate all the themes.

INSERT TABLE 1 ABOUT HERE

We will now more closely scrutinize the discursive manifestations of contradictions, discussing the findings for each theme.

## Different Practices at Site A and Site B

Excerpt 10 is an example of dilemmas through which tensions caused by different practices at Site A and B become apparent.

Excerpt 10 (Site A)

DPM: But it's funny, I remember when we started, we were so eager to start developing things, and all these instructions, processes, structures ... this needs document here and a process there ... but now, it's like you have to force people, they [in Site B] are so reluctant ...but there's this one person ...

TW/LA: Yeah.

DPM: Who is like in the right place, interested in developing things ...

TW/LA: Yeah, but they also have a LA role, so they don't have to just write all the time ...

DPM: Yeah, yeah, it's just that if they had a little more time, I'm sure they would have figured this thing out already.

TW/LA: Yeah.

DPM: But there's no, it's just not ... but maybe it's because there's just so much work. When we were starting out, there was more time to play, and develop, and innovate ...

TW/LA: Yeah, now it's always that as soon as you get one publication out of your hands, the next one is just around the corner. So it's not like ... And getting the documents out has to be the number one priority.

Excerpt 10 contains a cluster of *buts* that are typical linguistic cues to dilemmas. The personnel at Site A felt that the documentation personnel at Site B (identified as “they” in the excerpt) did not appreciate the documentation guidelines of the company and neglected to follow them. The employees in this excerpt connected this tension between the sites to production pressures and the lack of time. The production pressures can be interpreted as a secondary contradiction between increasing output demands (outcome in the activity system) and decreasing human resources (community in the activity system).

Our interview data indicated that general attitudes toward processes and instructions differed between the two sites, as conveyed by the double bind in Excerpt 11:

Excerpt 11 (Site A)

DPM: We are so invested in this whole quality and process thinking that it’s difficult to accept this “let’s just do this, who cares how” mentality. It doesn’t work in an organization this size, we have to agree on common rules. We have a lot of instructions. Whenever we spot a missing piece, we try to get it covered with guidelines. We have to have everything in writing because this is such a large, globally distributed team, we need to get everything out in the open. We can’t just chat to each other in the hallway, so information doesn’t just flow naturally. So we have to formalize everything.

This focus on guidelines and conventions was typical of Site A but not of Site B. Representatives of both sites agreed that in a company of a certain size you need rules, but while representatives from Site A emphasized the official rules, those from Site B prioritized the unofficial ones:

### Excerpt 12 (Site B)

DEng: In a big company like this, if you want to change something, you should just do it and apologize later. Otherwise you'll never get approval.

Changes in work practices emerge as the involved practitioners and managers try to find solutions to existing contradictions. The secondary contradiction at the case company discussed in this section—the need to produce more documentation at a faster pace with fewer resources—is being addressed differently at Site A and at Site B. The previously dominant form of activity was defined by Site A: Documenting practices and following guidelines and processes that had been developed over time. The personnel at Site A are still committed to this form of activity. But the personnel at Site B have developed their own way of working and a different set of unofficial rules to guide their practices, whereas the previously dominant form of the activity relied on commonly agreed-upon rules and adherence to technical communication conventions for planning, review and obtaining approval. Participants at Site A emphasized that proper planning and control are the keys to working efficiently and quickly while upholding quality. The activity as it is carried out on Site B relies on getting the work done with minimal regulatory influence (e.g., little planning or reporting, light reviewing, quick approval processing).

In the interview, the DEng mentioned that little training for the personnel at Site B had been available when the site was set up. This difference in the training, education and work backgrounds of the personnel at the two sites had contributed to the way that the activity is perceived at the two sites. In addition, the technical communicators at Site A have a background in the document-based approach to technical communication, in which they manage the entire information design process, whereas in the CM approach, technical communicators are expected

to produce chunks of content according to the standards of the CM system (Andersen, 2014; Carliner, 2009). The technical communicators on Site B only have experience of working in a CM setup and a more tools-focused approach to documentation in general.

There seemed to be a quaternary contradiction between the two sites, which was particularly evident in their different conceptions of rules. Usually quaternary contradictions are detected when an activity system is transformed and its neighbors or partners remain unchanged. In this case, the quaternary contradiction is somewhat more complicated. Site B was recently established as a new activity system, which challenged the established ways of working in Site A. Site B was introduced as a way to resolve a prior, historically developed secondary contradiction between the increasing outcome demands and the limited available community, or the pool of human resources. When the vendor model was in place, there were mounting pressures to cut costs, improve quality and save the SMEs' time. The vendor model, however, had not been as cost-effective as expected, so the management at the company decided to hire in-house technical communicators with a technical background: Technical quality would be improved and less SME time would be needed. Costs could also be cut if the recruitment was done in a lower cost country. This development mirrors the process that Andersen (2014) described: Thanks to advances in CM tools, content can now be produced by people who are not trained in technical communication and who do the work at a fraction of the cost in offshore locations (Hackos, 2005).

But the attempted resolution to the previous secondary contradiction in Site A gave rise to a new, quaternary one, namely the contradiction between the different modes of operating in Site A and Site B. Even though the technical communication activity seemed uniform at both sites,

two concurrent and quite different activity models were being employed simultaneously. This quaternary contradiction further aggravated the secondary contradiction in Site A, because the more cost-efficient way of working in Site B generated additional pressure for Site A to increase its efficiency.

#### Relations Between Technical Communicators and Line Management

A second theme in the discursive manifestations of contradictions in the data may be attributed to a contradiction between the technical communicators in both sites and the line management in Site B. This contradiction was frequently conveyed in the form of conflicts. Excerpts 13 and 14 contain multiple negative words (“no,” “don’t”), which are typical linguistic cues to conflicts. Excerpt 13 demonstrates a transition from discussing the tension between the two sites to discussing the tension between technical communicators and the line management:

##### Excerpt 13 (Site A)

DPM: It’s funny, whenever they [in Site B] do have some ideas, it’s always about simplifying ... . “I don’t want to report, reporting is useless”...

Researcher: So the ideas are not about developing the contents?

DPM: No, it’s like “I don’t have time, I don’t want to”...

Researcher: But do you think that if there was a few more of the kind of writers you mentioned, do you think that things could change? Or is it just a general feeling that it just doesn’t matter ...

DPM: Well, that’s again up to the line management. Because they just don’t ... it’s their responsibility, as management, to say what happens in an organization. I think

that if a writer [in Site B] suddenly started having all these development ideas, they'd just tell them to calm down. Tools development is the only thing they're interested in.

Excerpt 14 (Site A)

DPM: They [the line managers] have no background in customer documentation, they have no idea about what technical writing is, and they have resisted, for example, this lead author thing the whole time, because they don't understand what topic-based writing is. So they haven't, it has just recently begun dawning on them that we actually write modular documentation, that we don't write linear documents.

Excerpt 15 provides an example of a critical conflict, in which the DPM offers a personal, emotional account of the problems that she has had with the line management of the company.

This is an example of a critical conflict.

Excerpt 15 (Site A)

DPM: ... but now it seems that the line management more and more interferes with ...

Researcher: What kinds of things does the line management handle, then, that aren't their responsibility?

DPM: Well, everything.

Researcher: Can you give an example?

TW/LA: Error management!

DPM: Well, yeah ... they seem to think that error management is entirely their

responsibility and that the DPM can't ... shouldn't ... can't do anything about it.

Can't even know about it. Errors. That go into the documents.

Researcher: Why is that?

DPM: It is not the DPM's task. It's a line management task. That's what my superior yelled at me last week ... . [sighs, laughs]

Researcher: But how does that work, then, in practice, because they affect the contents of documentation ... .

DPM: Well, exactly.

Researcher: So how do they think you should get the information?

DPM: Well, I shouldn't. It is secret information. It is not for the DPM to know.

The critical conflict in Excerpt 15 further illustrates a secondary contradiction between the object of the activity and the division of labor between the technical communicators and the line management. The technical communicators at both sites felt that the responsibilities between line and project management should be more clearly defined and that the current situation is unfair to the employees. The case company officially had a matrix organization, in which line and project management tasks were separated. This separation did not seem to work, however, because line managers frequently also handled project tasks. The DEng at Site B brought up the same issue as the Site A personnel:

Excerpt 16 (Site B)

DEng: But the organizational structure should be clearer, the responsibilities and power issues. Who does what. We now have this ... our line managers are not competent, they don't manage people, they try to manage projects instead. It's like

they have mixed identities, and the responsibility for the problems in the projects then falls on the employees' shoulders, on our shoulders.

The data also show that there were problems in the way the company managed documentation projects. Line managers and project managers had guidelines, but these were not followed by the management at Site B. During the interview at Site A, the participants said that they were misunderstood by their line management and that the line management did not grasp or care about technical communication:

Excerpt 17 (Site A)

DPM: I really wish we had some line management personnel who had actually done this work, so that they would understand it better. There's nobody there that has gone through the same path as us, nobody that understands that this is an actual profession, for which there is training and education, and we exist all over the world! They've just gotten their jobs as professional line managers, and they have no background in technical communication whatsoever.

TW/LA: Yeah, I've often gotten this urge to tell them to switch jobs with me for a month, just to see what it really is like in here.

Despite their different educational and work backgrounds, the technical communicators in both sites voiced a similar concern about the line management. This concern may be interpreted as a secondary contradiction between the object of technical communication (requiring substantive understanding) and the division of labor that separated work execution from management, leading to constant conflicts and critical conflicts of the kind exemplified in Excerpt 15.

This contradiction pertained more broadly to the different job descriptions in the division of labor. In Excerpt 18, a rhetorical question (“But how can you correct a technical text if you don’t understand...?”) signals a double bind, which is followed by the participants talking simultaneously and emotionally about the problem at hand. The TW/LA’s final remark crystallizes the double bind: “It just seems hopeless sometimes.”

Excerpt 18 (Site A)

TW/LA: And then we have these, what do we call them ...

DPM: Editors.

TW/LA: Yeah, editors. Who have a language background.

Researcher: And they ...

DPM: Editors know the language and engineers write. But on the other hand, this whole job description of the editors, the line management understands it to mean that they just put the articles in place and correct the punctuation ... .

TW/LA: But they don’t even fix those.

DPM: Well no, no. But it’s like technical writing has nothing to do with that job either.

Researcher: So it’s an editorial task?

DPM&TW/LA: Yeah.

TW/LA: But how can you correct a technical text if you don’t understand ...?

DPM: Yeah, yeah. And this is what our line management doesn’t understand, I’ve fought with one of our managers about this many times, that you can’t edit and you can’t write if you don’t understand the contents. It’s a fact. And then they just laugh

at me.

TW/LA: I've tried so many times to explain ...

DPM: ... what it should be. We get this now, that the writers ask the SMEs what to write, and then they just copy-paste it, directly from the specs sometimes ...

TW/LA: Directly from the specs! I've just had to remove ...

DPM: ... without editing at all ...

TW/LA: Yeah, "there should be a connector like this here," things like that are put directly into customer documents ... Oh well, it just seems hopeless sometimes.

### Support From SMEs and Customer Feedback

SMEs are the information sources needed by technical communicators during writing and in the review phase. The interface between the two groups is a common source of tensions in the activity that our participants described (Lee & Mehlenbacher, 2000). A background in engineering did not necessarily make the interaction with SMEs easier. In Excerpt 19, this tension came up in the form of a dilemma:

#### Excerpt 19 (Site B)

DEng: Well, close ties with the R&D are essential. I'm fortunate, because my colleagues in the R&D are close, but there isn't an established process for ... collecting information from the SMEs takes a really long time sometimes.

The participants also commented that they lacked feedback from customers. Feedback is generally recognized as a crucial element in producing high quality technical communication. In

Excerpt 20, the DEng at Site B raised the issue of inadequate feedback, pointing to a conflict with the multiple use of “no”:

Excerpt 20 (Site B)

DEng: Well, we get no results for testing docs the way we get for software and hardware ... so there are no problem reports, no official data. We don't really get feedback. And because we have very little official data, it is difficult to prove the results of outsourcing, for example, or if there's a quality problem.

This lack of feedback and customer contact is bound to affect both the document contents and the way that other stakeholders view the technical communication team (Hackos, 2005, p. 274).

Despite their differences, technical communicators at both sites agreed that customer feedback is an essential element of a technical communicator's work (Schriver, 1997; Van Laan & Julian, 2001), but that only a few of the documents they produced were actually read and appreciated by the customers:

Excerpt 21 (Site A and Site B)

DPM: And then we get this customer feedback, “We don't use your documents, we create our own.” They use parts of our documents and copy–paste what they need.

TW/LA: Yeah, I just saw this installation guide in French that had some of our stuff and then a lot of extra information, too.

DEng: Our customers only have interest in a couple of the documents we produce. We should implement some sort of data gathering so that we could see which documents are read, counting the doc views on our site or something like that.

Thus, the participants viewed key customers as potential temporary members of the company's pool of expertise, having valuable information that could improve the products. Their difficulties in getting information from SMEs and feedback from customers constituted a variation of the secondary contradiction described in the preceding section, in this case between the object of technical communication, which required multifaceted substantive understanding, and the division of labor which fragmented the expertise at the company, causing technical communicators to feel isolated.

#### Cost of Technical Communication

The case company needed to produce documentation for each product release as required by law, but the costs had to be manageable, and the work was not prioritized. This secondary contradiction between increasing output demands (outcome in the activity system) and decreasing human resources (community in the activity system) manifests itself in the data quite directly, in the aggravated forms of critical conflicts (Excerpt 22) and double binds (Excerpt 23):

##### Excerpt 22 (Site A)

TW/LA: That's exactly it. You get this feeling that you're banging your head against the wall—"produce quality"—and at the same time you have to do it quicker and quicker and cheaper and cheaper ...

DPM: The cycle is getting shorter and shorter—more content on a tighter schedule, more concurrent releases. There is just so much work.

The participants at Site A described a situation in which they could not develop things meaningfully because they did not have the support of their management, but they also felt that they must persevere:

Excerpt 23 (Site A)

DPM: But it's not like, we are not the core competence area in this company, we are in the [technology] business, not in the technical communication business. So it's like we have to put out this documentation, but it's pretty low priority. And I could also say that as long as the line management ... as long as they feel that everything is going fine, we have nothing ... because they are our feedback channel upwards.

Outsourcing

The outsourcing trend has fundamentally transformed the profession and activity of technical communication in recent years. The general view in the field is that in-house technical communication is higher quality than outsourced technical communication for various reasons, such as writers having easier access to information. The current in-house technical communication setup at the case company is quite different from when the vendor model was still in place. But the vendor model had its advantages in that everyone was more likely to follow the same rules. The expressions of helplessness (e.g., "So there's nothing we can do") shown in Excerpt 24 are typical signs of a double bind, signifying an aggravated secondary contradiction within the activity that has occurred after the company stopped outsourcing:

Excerpt 24 (Site A)

DPM: The issues we are having now are different. With collaborators, we could

issue sanctions if things were not progressing well. We could say that if you don't get this done as planned, there will be money issues involved. But now, we have nothing—because the issues we're having, the line management stands up for the writers and doesn't think there are any problems. So there's nothing we can do.

When the DPM was asked how she would compare the current situation with outsourcing, she offered the following summary (Excerpt 25):

Excerpt 25 (Site A)

DPM: I mean, we used to complain about the vendors when we still had them, but the good thing about them was that they were interested in technical communication, they wanted to do this work. And their competence grew. They understood what technical communication is. The problem with the vendor model is the wall between the companies, it sometimes seemed unsurmountable. When you didn't even have database access, no access to anything on the other company's side, not even their phonebook or direct contacts to the SMEs. But the current situation, it just seems so hopeless sometimes. There's no interest in technical communication, they don't even want to know what it is. How things are done in other companies, anything like that. And we had no training either, when we started, but we were interested in things and found out about them. There is no technical communicator identity anymore.

As we mentioned, the vendor model has benefits over the in-house model in certain cases.

Indeed, the vendor model at the case company seemed to be such a case. Thus, the theme *outsourcing* in our data somewhat paradoxically contains manifestations of contradictions that

primarily pertain to the situation after the outsourcing model was dropped, comparing the outsourcing model favorably to the current in-house model.

### The CM System

The CM approach to documentation is one of the major trends in technical communication. The case company has used several CM systems over the years, but its current system had only limited CM capabilities, causing various problems. But at the time of the interviews, the company was implementing a new system that was expected to fix most of these problems. A long-lasting secondary contradiction between the demanding object and the dysfunctional instrument was, then, being resolved at the time of the interviews. But as Excerpt 26 shows, this contradiction was tightly intertwined with the previously discussed contradiction between the outcome and the community, that is, between increasing output demands and decreasing labor resources: “Well, it’s the costs again ... costs, costs, costs. Save money, save money, save money, that’s like the answer to everything.”

#### Excerpt 26 (Site A)

TW/LA: The current system just doesn’t work. It’s not a content management system, it’s more like just a place for storing information. It doesn’t understand branching, for example. If we produced linear documentation, it would be fine, but it’s not suited for modular documentation. It makes reuse impossible.

PM: For modular documentation ...

TW/LA: Yeah, not at all suitable for modular documentation, not at all.

Researcher: So who decided on this tool then?

DPM: Well, we have this [board name], where all the line managers ... they invite technical experts there when needed. But it's always the cost that decides.

TW/LA: But it wasn't cheaper in the end!

DPM: No!

TW/LA: So it's like they didn't tell us something, they were hiding some facts ... like the cost of support, there was so much support that it made it really expensive.

Researcher: And you've had this system now, for how long?

DPM: About four years, I think.

TW/LA: Yeah, it was about four years ago when I had this training ... this is such a hideous system that it takes four days to train! [laughter] And there's like no possibilities for reuse, anything like that. I was just so desperate when it came, like this cannot be true ... .

Researcher: So how have you handled reuse then?

TW/LA: Well, we just have had many versions. There are these conditions that you can sort of use, but they're like "You can do this but never do that or you'll mess up the entire production system!" I had to start an e-mail folder just for tips and hints, just to try and keep the system going.

Researcher: OK, so it was a very ...

DPM: Sophisticated system! [laughter]

Researcher: Why do you think it has taken so long for you to get the new system?

DPM: Well, it's the costs again ... costs, costs, costs. Save money, save money, save money, that's like the answer to everything. And the funny thing is, all the

previous systems that we've had, that have been fine and worked and developed for modular documentation, or topic-based writing, those we've only ever had a couple of years, and now this monster, this we've had the longest time!

The mounting pressures to change the current system are now being resolved with the implementation of a new system that has been “customized” to suit its users:

Excerpt 27 (Site B)

DEng: Well, like I said, the old system is not good. It's not stable. You have to have the content ready weeks before the publication ... it's not possible, I mean it's impossible. And then when the [customer training department] created the training material, we realized that we need real reuse possibilities and not this ... copy-pasting. So, reuse and safety are the main benefits of the new system. It's much more flexible, modern ... it's got good references from existing customers. It's a ... like an over-the-counter product that you can buy but we have customized it for our needs. So the current system is not very good but we've been involved in the specification of the new system from the start. So it will be better, more suited for us.

The advances in CM tools sometimes result in routine, low-level content production that is easily outsourced and offshored, involving little or no interaction with users or even SMEs (Andersen, 2014; Carliner, 2009; Dicks, 2009; Giammona, 2011; Hackos, 2005; Slattery, 2007). The technical communication activity at the case company showed some of these characteristics although the work was now done in-house. These characteristics were perhaps more associated with the company's approach to documentation than with outsourcing or offshoring. Although the

case company had been using CM for years, the approach had not led to the type of content strategy described by, for example, Andersen (2014) or Hart-Davidson (2009). According to the participants, they did not have a content strategy.

Excerpt 28 (Site A)

DPM: There is no strategy for any of this ... We spend so much time on discussing some little things ... Our strategy is that we do not need one for content because we have a business-level strategy. Our [department head] has said explicitly that they have no interest in strategic leadership, they're just interested in the operative side of things.

On the other hand, the company produces customer-specific documentation sets (Dicks, 2009), and parts of the content are dynamically updated on the customer-documentation portal. The company's customers do not go "directly to Google" (Andersen, 2014, p. 125) because user guidance for business-to-business products is usually not available in the public domain. In this sense, the technical communicators could have a larger role in making the information accessible and useful than do technical communicators who create content for consumer products.

According to Hart-Davidson (2009), in the information economy, writing tasks will be distributed across the organization and just be assigned to a few technical communicators. At the case company, the writing is distributed: A multitude of functional specifications, use cases, product descriptions, white papers, release notes and other documents are produced in the different departments of the company. While these may be published through other channels, the technical communicators also use many of them as background material in their own content creation (Slattery, 2007). But the CM system is currently used only by the technical

communication department.

### Discussion and Conclusions

In this study, we have explored and analyzed ongoing changes in the technical communication industry through interviews with practitioners. Although we collected our data in Finland, the challenges encountered by the participants in this study mirror the challenges outlined in similar studies conducted in North America. This suggests that high-cost countries such as Finland face similar challenges regarding the impact of globalization and content-management solutions.

Further studies that gather experiences and best practices of technical communicators are needed in order to find ways to overcome these challenges and bridge the gap between academics and practitioners (Andersen, 2014).

This study has addressed two research questions: (a) How do technical communication professionals articulate their experiences of the current challenges in their profession? and (b) What kinds of developmental opportunities can be identified from the ways these professionals articulate such experiences? We approached the first research question by analyzing the manifestations of historical contradictions in the data from our interviews with the technical communication professionals who participated in this study. We used the conceptual model of an activity system as a tool in the open-ended interviews to explore the root causes of the tensions experienced by the participants. We identified two key secondary contradictions that pertained to the activity systems of both Site A and Site B in the case company. The first one is the contradiction between increasing output demands (the component of outcome in the activity system) and decreasing human resources (the component of community in the activity system).

This contradiction permeated the data in three substantive themes: different practices at Site A and Site B, the cost of technical communication, and the CM system. The contradiction manifested itself in expressions of dilemmas, critical conflicts, and double binds concerning production and cost pressures that hampered efforts to develop the quality of the work.

The second contradiction that we identified was between the object of technical communication, which required substantive understanding, and the fragmented division of labor which isolated the technical communicators from potential sources of support, expertise, and information in the organization. This secondary contradiction permeated the data in two substantive themes: relations between technical communicators and line management and support from SMEs and customer feedback. The contradiction manifested itself in expressions of conflicts, critical conflicts and double binds, particularly with regard to relations with the line management.

We also identified an important quaternary contradiction between Site A and Site B. There was a tension between the two sites, particularly in the ways in which rules were conceived and implemented in practice. This quaternary contradiction aggravated the secondary contradictions—especially at Site A. Figure 1 diagrams show the three contradictions that we identified in and between the two activity systems.

INSERT FIGURE 1 ABOUT HERE

Analyzing these discursive manifestations of contradictions helped us to look beyond surface

complaints and problems to uncover the roots of these tensions. It was productive to analyze the data in terms of both the types (dilemma, conflict, critical conflict, double bind) and the substantive themes of the manifestations. Using the activity system model allowed us to specify the characteristics and locations of the contradictions in a systemic context, which in turn should allow practitioners, managers, and researchers to focus on the crucial issues in their future developmental efforts.

Our second research question concerned developmental opportunities that could be identified from the ways the technical communication professionals articulated their experiences of the current challenges. According to Engeström (2008), working life is moving toward coconfiguration, in which the key to quality—itsself a historically evolving concept—lies in the dialogue and interaction between a company and its customers. The products and services are created as a joint effort. If technical communication really were defined as “any effort that makes it possible for people to get the most from the technology in their lives” (Rainey, 2005, p. 200) and not as low-level content production in a highly standardized CM environment, then technical communicators could be an invaluable asset in this type of work (Andersen, 2014; Dicks, 2009; Faber & Johnson-Eilola, 2002).

Customers’ lack of appreciation for technical communication, as the participants pointed out, is bound to affect the way the activity is seen within the company, making it more difficult to find room for development. The solution suggested by the DEng (see Excerpt 20), gathering Web analytics, could be one way to gather specific feedback on documentation products and influence the way the activity is perceived at the company. According to Andersen (2014), companies often only rely on Web analytics to understand user behavior; at the case

company, however, analytics were not collected or analyzed. Andersen pointed out that analytics alone do not provide any deeper knowledge about the content's relevance to users, but as a basic first step to gathering user data, they are relatively cost-effective and easy to implement. The technical communicators at both sites could then use the data as a way to join forces in transforming the activity and devising a more meaningful object for it. As the participants emphasized, they faced a constant pressure to control costs, so focusing on the documents that the customers actually use could help technical communicators to reduce costs by removing unnecessary information. Such cost savings, then, might make it easier to justify a development project in a tight financial environment.

The technical communicators at the case company could also benchmark any solution they created against those of other companies in the field, providing the technical communicators with a stronger argument in discussions with their management. Because the newly implemented CM system at the case company is already changing certain parts of the activity, this might be an opportune time to introduce more profound changes into the work process. According to Dicks (2009, p. 53; Hackos, 2005), those employees who communicate effectively with customers and add value to their experiences are deemed "important to retain." The longer the technical communicators stay on the fringes at the case company, the more difficult it will be for them to prove their value to their organization. According to Andersen (2014), organizations that view content as a critical asset encourage user participation in the creation of content. If the case company were to take this route, it would boost the technical communicators' status and make the content more relevant to the customers. Currently, however, CM is viewed as a cost-reduction technique rather than a method of critical asset management.

Spinuzzi (2000) suggested *organic engineering*, in which technical communicators continually update and augment dynamic documentation in collaboration with users, as a way to create documentation that is directly relevant to each user. This model would correspond quite well to the needs of coconfiguration work, and it would also resolve some of the feedback and relevance-related issues the participants faced; currently, the content created does not correspond to the users' needs and the technical communicators suffer from a lack of feedback.

Developing content strategy has been suggested as another way forward for technical communicators. Andersen (2014) has encouraged us to move into leadership positions allowing us opportunities to “orchestrate, coordinate, and negotiate content management tasks and practices” as a clear distinction from merely creating content chunks in a CM system (p. 143). In his interview, Hill brought up the in-depth information that technical communicators often have about a company's operations:

Excerpt 29

Hill: One thing that we can do to add value is that, I've had the experience many times that the people in tech comms are often one of the few people who know what's happening in the entire company. Because we have this broad perspective, we have to bring together information about that unit, the other unit, the other unit and the other unit, we actually know what's going on. I mean what's really going on and not what it says in the slide ware. So we can leverage our internal knowledge... knowledge management is a term that got burned out in the IT boom, but we're actually the people who know that kind of stuff.

At the case company, the lack of strategic leadership seemed to hinder the development in this direction. Content management was seen as a commodity, the CM system was used only by the technical communication department, and the main focus was on developing tools instead of content strategy.

Technical communicators should be aware of the trends that shape their profession so that they can take advantage of them rather than be controlled by them (e.g. Dicks, 2009). The question is, What practical steps do we need to take to facilitate the transition from content production to organic engineering, content strategy, or knowledge management? The participants in this study suggested closer ties with SMEs, clearer division of labor, efficient feedback loops from users, and networking as ways to overcome some of our current challenges. Although writing and editing will probably remain tasks of technical communication, they will increasingly be seen as “commodity activities” that add questionable value and therefore candidates for outsourcing and offshoring (Dicks, 2009, p. 54). These tasks are unlikely to return to high-cost countries, and they are probably not a sustainable business option in lower cost countries, either.

Whichever route is taken for reshaping the field, practitioners need to join forces with their academic colleagues. Strengthening this relationship would have global significance and would help guide the “significant reform” (Spilka, 2002, p. 97) that the field needs.

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## References

- Abdallah, K., Haanpää, T., Hill, N., Ilveskallio, S., Orispää, K., & Suojanen, T. (2005). Technical documentation in Finland. In J. Hennig & Tjarks-Sobhani, M. (Eds.), *Technical communication—international: Today and in the future* (pp. 77-89). Lübeck, Germany: Schmidt-Römhild.
- Andersen, R. (2014). Rhetorical work in the age of content management: Implications for the field of technical communication. *Journal of Business and Technical Communication*, 28, 115-157.
- Anschuetz, L., & Rosenbaum, S. (2002). Expanding roles for technical communicators. In B. Mirel & R. Spilka (Eds.), *Reshaping technical communication. New directions for the 21st century* (pp. 149-163). Mahwah: Lawrence Erlbaum.
- Aspray, W., Moyadas, F. & Vardi, M. Y. (2006). *Globalization and offshoring of software: A report of the ACM Migration Taskforce*. New York: Association for Computing Machinery.
- Blakeslee, A. M., & Spilka, R. (2004). The state of research in technical communication. *Technical Communication Quarterly*, 13, 73-92.
- Boch, J. (2011). Glorified grammarian or versatile value adder? What internship reports reveal about the professionalization of technical communication. *Technical Communication*, 58, 307-325.
- Bosley, D. (2002). Jumping off the ivory tower: Changing the academic perspective. In B. Mirel & R. Spilka (Eds.), *Reshaping technical communication. New directions for the 21st century* (pp. 27-39). Mahwah: Lawrence Erlbaum.

- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. London: Sage.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101.
- Carliner, S. (2009). Computers and technical communication in the 21st century. In R. Spilka (Ed.), *Digital literacy for technical communication: 21st century theory and practice* (pp. 21-48). New York, NY: Routledge.
- Di Cicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education, 40*, 314–321.
- Conklin, J., & Hayhoe, G. F. (Eds.) (2011). *Qualitative research in technical communication*. New York: Routledge.
- Dicks, R. S. (2009). The effects of digital literacy on the nature of technical communication work. In R. Spilka (Ed.), *Digital literacy for technical communication: 21st century theory and practice* (pp. 51-78). New York, NY: Routledge.
- Engeström, Y. (2005). *Developmental work research: Expanding activity theory in practice*. Berlin, Germany: Lehmanns Media.
- Engeström, Y. (2008). *From teams to knots: Activity-theoretical studies of collaboration and work*. Cambridge, England: Cambridge University Press.
- Engeström, Y. & Sannino, A. (2011). Discursive manifestations of contradictions in organizational change efforts: A methodological framework. *Journal of Organizational Change Management, 24*, 368–387.

- Engeström, Y. (2015). *Learning by expanding: An activity-theoretical approach to developmental research* (2nd ed.). Cambridge, England: Cambridge University Press.
- Faber, B., & Johnson-Eilola, J. (2002). Migrations: Strategic thinking about the future(s) of technical communication. In B. Mirel & R. Spilka (Eds.), *Reshaping technical communication: New directions and challenges for the 21st century* (pp. 135-147). Mahwah: Lawrence Erlbaum.
- Giammona, B. A. (2011). The future of technical communication: How innovation, technology, information management, and other forces are shaping the future of the profession. In J. Conklin & G. F. Hayhoe (Eds.), *Qualitative research in technical communication* (pp. 49-81). New York, NY: Routledge.
- Hackos, J. T. (2005). The future of the technical communication profession: The perspective of a management consultant. *Technical Communication*, 52, 273-276.
- Hart, H., & Conklin, J. (2011). Toward a meaningful model of technical communication. In J. Conklin & G. F. Hayhoe (Eds.), *Qualitative research in technical communication* (pp. 112-142). New York, NY: Routledge.
- Hart-Davidson, W. (2009). Content management beyond single-sourcing. In R. Spilka (Ed.), *Digital literacy for technical communication: 21st century theory and practice* (pp. 128-142). New York, NY: Routledge.
- Hayhoe, G. F. (Ed.). (2005). The future of technical communication [Special issue]. *Technical Communication*, 52.
- Hennig, J., & Tjarks-Sobhani, M. (Eds.) (2005). *Technical communication—international: Today and in the future*. Lübeck, Germany: Schmidt-Römhild.

- Hsieh, H-F. & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*, 1277-1288.
- Kinkel, S. (2012). Trends in production relocation and backshoring activities. Changing patterns in the course of the global economic crisis. *International Journal of Operations & Production Management, 32*, 696-720.
- Kinkel, S., & Maloca, S. (2009). Drivers and antecedents of manufacturing offshoring and backshoring—A German perspective. *Journal of Purchasing & Supply Management, 15*, 154–165.
- Kotlarsky, J., & Bognar, L. (2012). Understanding the process of backsourcing: Two cases of process and product backsourcing in Europe. *Journal of Information Technology Teaching Cases, 2012*, 79-86.
- Kuutti, K. (1996). Activity theory as a potential framework for human-computer interaction research. In B. A. Nardi (Ed.), *Context and consciousness: Activity theory and human computer interaction* (pp. 17-41). Cambridge, MA: MIT Press.
- LaRoche C., & Traynor, B. (2013). Technical communication on life support: Content strategy and UX are the reclamation. *Proceedings of the Professional Communication Conference (IPCC), 2013 IEEE International*. (pp. 1-6). IEEE: Vancouver, BC, Canada. doi: 10.1109/ipcc.2013.6623941.
- Lee, M. F., & Mehlenbacher, B. (2000). Technical writer/subject-matter expert interaction: The writer's perspective, the organizational challenge. *Technical Communication, 47*, 544–553.

- Malone, E. A. (2011). The first wave (1953-1961) of the professionalization movement in technical communication. *Technical Communication*, 58, 285-306.
- Mirel, B., & Spilka, R. (Eds.). (2002). *Reshaping technical communication. New directions for the 21st century*. Mahwah: Lawrence Erlbaum.
- Rainey, K. T. (2005). Technical documentation in the United States of America. In J. Hennig & M. Tjarks-Sobhani (Eds.), *Technical communication international: Today and in the future*. (pp. 200-218). Lübeck, Germany: Schmidt-Römhild.
- Schriver, K. A. (1997). *Dynamics in document design*. New York, NY: John Wiley & Sons.
- Slattery, S. (2007). Undistributing work through writing: how technical writers manage texts in complex information environments. *Technical Communication Quarterly*, 16, 311-325.
- Spilka, R. (2002). Becoming a profession. In B. Mirel & R. Spilka (Eds.), *Reshaping technical communication: New directions and challenges for the 21st century*. (pp. 97-109). Mahwah: Lawrence Erlbaum.
- Spilka, R. (Ed.) (2009). *Digital literacy for technical communication: 21st century theory and practice*. New York, NY: Routledge.
- Spinuzzi, C. (2000). Genre ecologies: An open-system approach to understanding and constructing documentation. *ACM Journal of Computer Documentation*, 24, 169-181.
- Spinuzzi, C. (2007). Guest editor's introduction: Technical communication in the age of distributed work. *Technical Communication Quarterly*, 16, 265-277.
- Spinuzzi, C. (Ed.). (2007). Technical communication in the age of distributed work [Special issue]. *Technical Communication Quarterly*, 16.

- Starke-Meyerring, D., Hill Duin, A., & Palvetzian, T. (2007). Global partnerships: Positioning technical communication programs in the context of globalization. *Technical Communication Quarterly*, 16, 139-174.
- Sullivan, P., & Spilka, R. (2011). Qualitative research in technical communication. Issues of value, identity and use. In J. Conklin & G. F. Hayhoe (Eds.), *Qualitative research in technical communication* (pp. 3-23). New York, NY: Routledge.
- Suojanen, T. (2000). *Technical communication research: Dissemination, reception, utilization* (unpublished licentiate's thesis). University of Tampere, Finland.
- Van Laan, K., & Julian, C. (2001). *The complete idiot's guide to technical writing*. Indianapolis, IN: Alpha Books.

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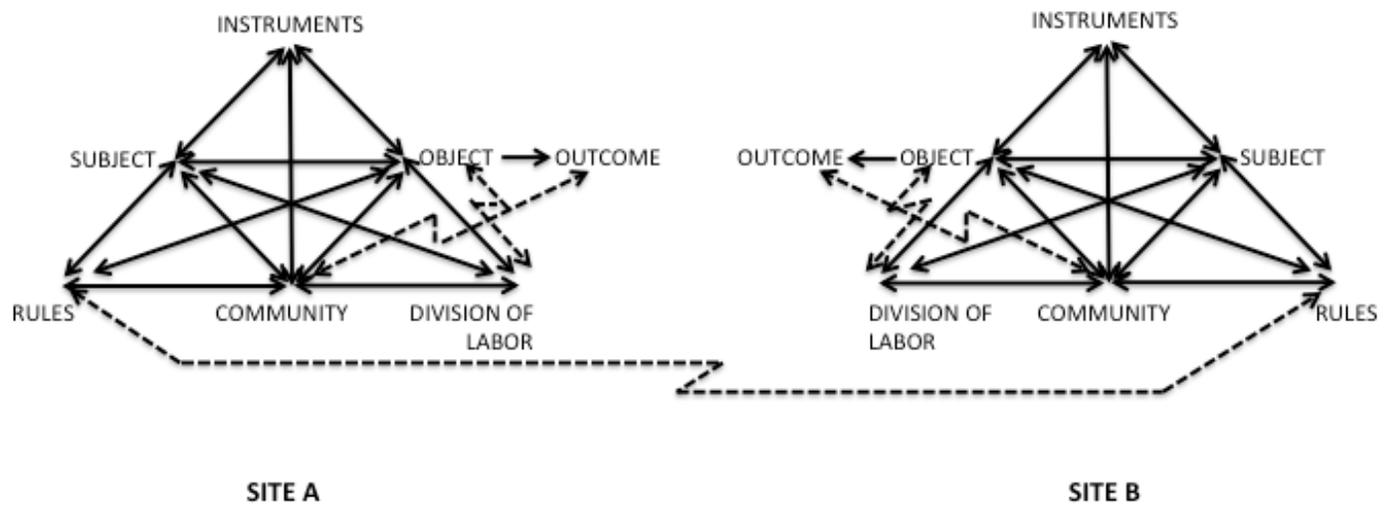


Figure 1. Contradictions in and between the activity systems of Site A and Site B

Key:

The straight arrows connect the components of the activity system

The dashed, lightning-shaped arrows connect the contradictions in and between activity systems

Table 1. Summary of Discursive Manifestations of Contradictions in the Data.

Substantive theme of manifestation	Type of manifestation				Total
	Dilemma	Conflict	Critical conflict	Double bind	
Different practices at Site A and Site B	Site A: 6 Site B: 3	Site A: 3 Site B: -	Site A: 3 Site B: -	Site A: 3 Site B: -	18 (27.3 %)
Relations between technical communicators and line management	Site A: 1 Site B: -	Site A: 4 Site B: 1	Site A: 7 Site B: -	Site A: 7 Site B: 1	21 (31.8 %)
Support from SMEs and customer feedback	Site A: 1 Site B: -	Site A: 1 Site B: 2	Site A: 2 Site B: 1	Site A: 1 Site B: -	8 (12.1 %)
Cost of technical communication	Site A: 1 Site B: -	Site A: 3 Site B: -	Site A: 3 Site B: -	Site A: 1 Site B: 1	9 (13.6 %)
Outsourcing	Site A: - Site B: 1	Site A: - Site B: 1	Site A: - Site B: -	Site A: 3 Site B: -	5 (7.6 %)
The CM system	Site A: - Site B: 1	Site A: 1 Site B: -	Site A: - Site B: -	Site A: 2 Site B: 1	5 (7.6 %)
Total	14 (21.2 %)	16 (24.2 %)	16 (24.2 %)	20 (30.3 %)	

Note. SMEs = subject matter experts.