

Memory loss? Corporate knowledge and radical change

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An organization's ability to collect, store and use knowledge it has generated through experience can have important consequences for its performance. Storing and using stored knowledge effectively can buffer the organization from the disruptive effects of turnover, facilitate co-ordination, contribute to the development of innovative products, and may even serve to rebuild an organization (Olivera, 2000, p. 811).

Seeking ways to keep their firms viable and sustain or enhance profitability, organizational leaders are making changes in how their organizations are run, paying closer attention to customer needs, and restructuring whole divisions and business lines. Many are using voluntary early retirement options, and reductions in force to balance the ratio between the work and staffing levels that may have grown to unprecedented levels during the late 1990s. These initiatives have a direct impact on bottom-line expenses in the current and near-term fiscal quarters. However, few leaders look at the long-term implications these initiatives will have on their organization. Many times these initiatives create unintended problems.

One such problem is the loss of organizational memory (the knowledge and information from the organization's past which can be accessed and used for present and future organizational activities). As long-tenured staffs begin to leave, they take with them their knowledge, skills, and other valuable job-related information – components of the organization's memory that may become inaccessible to the organization. Additionally, this loss may disrupt organizational memory systems as these components are part of organizational knowledge that may be dispersed across actors, systems, and interactions in organizations. Organizational leaders are realizing that more of what is valuable about how to do the work resides in people's heads. Olivera (2000) found turnover had an impact on accessibility of the experiential knowledge within social networks. The organizational knowledge literature posits the importance of knowledge to an organization's ability to make decisions, solve problems, meet competitive challenges, and ultimately be successful.

The study

This case study was intended to expand our understanding of what happens to elements of organizational memory systems during, and in the aftermath of, radical change initiatives (a significant shift in structure, function, values, culture, strategy, power distribution, and control systems). Specifically this study explored the tacit and explicit knowledge aspects of organizational memory systems.

The impetus for this inquiry began with the events of September 11, 2001. With the terrorist attacks and subsequent collapse of the World Trade Center towers, significant numbers of employees were lost. One organization, the bond-trading firm Cantor-Fitzgerald, lost approximately 700 employees, almost three quarters of its workforce. In a few hours, successful organizations were catastrophically subjected to an event that violently eliminated many of their physical and intellectual assets, creating a crisis of such

magnitude that their continued existence was questionable. How could these organizations conduct business with many of their employees – along with the stored knowledge or memory – gone?

Exogenous environmental factors where the environment overpowers the organization can impose change on an organization. However, endogenous initiatives can also change the conditions for survival. For example, relocating a significant part of a business to remote locations, voluntary early retirements, reductions in force, restructuring, and other initiatives can significantly change how work is done.

The primary research question for the study was, what happens to organizational memory systems when radical organizational change occurs? Related research questions were:

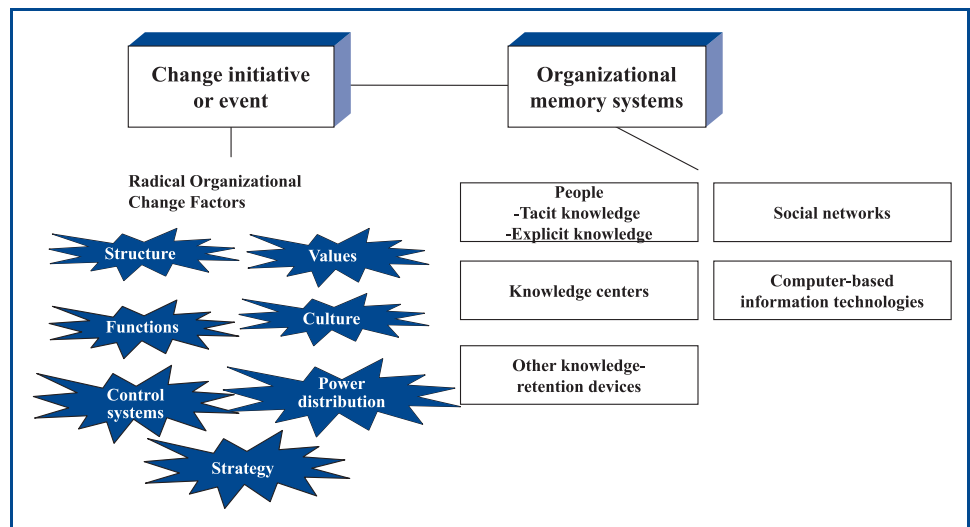
- What aspects of organizational memory systems are accessed as an organization undergoes radical change?
- What aspects of organizational memory systems are accessed in the aftermath of radical change?
- How is tacit knowledge accessed and shared as an organization undergoes radical change?
- How is tacit and explicit organizational knowledge accessed and shared in the aftermath of radical change?

The conceptual framework for this study involved two constructs – radical organizational change and organizational memory. Radical organizational change refers to a significant shift in values, behavior, and how the organization performs the work required to meet organizational needs. Radical change differs from routine changes experienced by organizations in that routine change occurs through normal revisions or improvements to work processes or efficiency initiatives over time. Radical change attempts to redefine the organization's structure, functions, values, culture, strategy, power distribution, and control systems. Organizational memory is the knowledge and information from the organization's past, which can be accessed and used for present and future organizational activities. Figure 1 shows the relationship between the two constructs, where radical organizational change moderates organizational memory.

Organizational memory systems are defined as:

Sets of knowledge retention devices, such as people and documents, that collect, store and provide access to the organization's experience (Olivera, 2000, p. 815).

Figure 1 Radical organizational change and organizational memory



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Tacit knowledge is knowledge residing in the individual mind that is personal, undocumented, learned through experience, intuitive, and difficult to articulate or codify. Explicit knowledge is codified knowledge that can be put on paper, formulated in sentences, or captured in drawings. Explicit knowledge can be found in files, notebooks, on bookshelves, in computer databases and e-mails. Knowledge is important because people in today’s organizations contribute to organizational success through their knowledge, ideas, judgment, and collaboration. Employee knowledge that contributes to the formation of organizational memory is needed in order for judgment in problem solving, idea generation, and development of new products or services that lead to higher levels of organizational performance. Becerra-Fernandez and Sabherwal (2001) view the knowledge possessed individually and collectively by employees as perhaps the richest resource the organization possesses. Effective knowledge management is a key to organizational success.

Until this study, research was limited to the impending loss of memory when one technical expert retired from an organization or when a few people left an organization. Most research does not take into account the impact of the loss of memory from many individuals leaving concurrently. Even the literature that looks at the effects of radical change neglects to focus on the impact on organizational memory when many individuals leave concurrently. This study explored what happened when many people left the organization.

Research methodology

The research was conducted in the operations division of a mid-sized financial services organization with approximately 2,500 employees. This organization had undergone radical organizational change (significant shifts in structure, functions, values, culture, strategy, power distribution, and control systems) over a five-year period (1999-2004). Voluntary early retirements, layoffs, and restructurings resulted in over 450 people in the operations division leaving the organization.

Data collection and analysis methods

Three sources were used to collect the research data – individual interviews, observation, and review of archival documentation. This ensured triangulation and contributed to the trustworthiness of the research. All interviews were conducted at the research site, taped and transcribed. The 16 interview participants all had deep knowledge of the organization’s past and present structures, routines, processes, and culture. The second data collection method was personal observations at more than 30 meetings and events (departmental staff meetings, talent review meetings, employee survey results sessions, town halls, succession planning meetings, business continuity meetings, six-sigma meetings and award ceremonies, director and officer meetings) at the case study site. Observations took place over a seven-month period (May-November 2004). Archival documentation in the form of annual reports, employee and customer newsletters, organizational restructuring memos, internal memos, announcements, industry articles, presentation and training material, and results of past employee and customer surveys, produced between January 1999 and November 2004, were used.

Findings

Nine themes emerged from the data:

1. Since the radical change initiatives began in 1999, leaders and managers at this organization intentionally looked for ways to access the tacit knowledge that individual employees possessed and convert it into explicit knowledge that could be shared and retained. The leaders and managers used various forms of interaction to unfold tacit knowledge and make it explicit.
2. People remained the primary source of information and knowledge during and after the initiation of radical organizational change. Because of the staff reductions, the amount or depth of expert knowledge and experience had decreased which caused people to seek out multiple different staff members to obtain the information or knowledge required.
3. Use of internal and external social networks increased in the organization. Some social networks had been disrupted; however, many of these social networks have regenerated over time.
4. The increased use of computer-based information technologies increased.
5. Knowledge centers were created.
6. Other explicit or codified knowledge-retention devices – documents, manuals, internal operating procedures, files, training manuals, etc. also flourished. Computer-based information technologies, knowledge centers, and explicit knowledge retained in documents and manuals have become more prolific and in many cases helped the organization become more efficient.
7. Time to access information needed to solve problems increased. The number of resources and length of time to obtain all the needed information and knowledge to solve problems and make decisions in specialized situations has increased.
8. While there was some loss of specialized, historical, or experiential knowledge, the organization was not handicapped. The data showed that a solid base of information and knowledge still exists in the organization. There has been some loss of specialized, historical knowledge because of people leaving or being transferred to other areas, but according to the interview respondents and people in attendance at meetings and events observed, the loss has not had any material impact on organizational performance or effectiveness.
9. Some of the knowledge lost was obsolete. The data show that some knowledge was in decay, obsolete, and no longer needed by the organization. Archival documentation reviewed for this study shows organizational performance and effectiveness is strong. In fact, according to financial documents in the annual reports, the organization is more efficient and profitable than in its history.

Conclusions and recommendations

This study provides organizational leaders, human resource practitioners, and scholars with a greater understanding of how knowledge is accessed, shared, and retained when an organization experiences radical change.

What happens to the tacit and explicit knowledge aspects of organizational memory systems (OMS) during, and in the aftermath, of radical change? The OMS morphs – it takes

“Radical change attempts to redefine the organization’s structure, functions, values, culture, strategy, power distribution, and control systems.”

on a new shape. The OMS components (individual people, social networks, computer-based information technologies, knowledge centers, and other knowledge retention devices) do not change. The OMS components that were used to access information and knowledge while the organization was experiencing radical change are the same ones in existence in the aftermath of the radical change initiatives. What has changed is the degree or proportion of use of each of the components. For example, while social networks were in use before, during, and after radical change initiatives, there was an increase in the active use and frequency of social networks.

Moreover, the nature or makeup of organizational memory has changed as the organization intentionally set out to specifically access and make more of the tacit knowledge explicit and codified for use by the whole organization. In the aftermath of initiatives such as voluntary retirement, layoffs and restructuring that resulted in the loss of many employees, the degree of dependency on one component shifted to other components. The usual social interactions or structurally coupled relationships were disrupted, changing the dynamics and communicative action venues and patterns previously established. Using a puzzle metaphor, Figure 2 illustrates how the configuration of OMS devices morphed in the aftermath of radical organizational change.

As the organization was experiencing radical change, managers accessed tacit knowledge through verbal communications and interaction by asking questions and bringing people together to work on items, projects, or problems. Through the social interaction of working together and the ensuing discussion, people became conscious of their tacit knowledge and began to articulate this knowledge, thereby making it explicit to others.

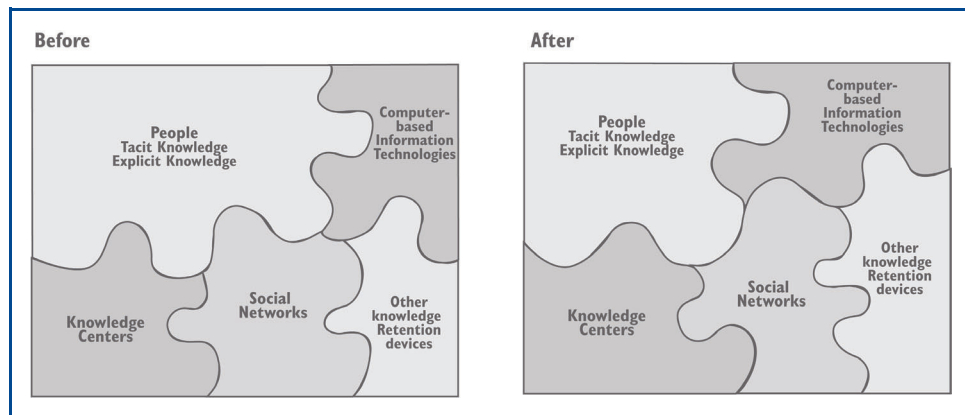
Results of this study suggest that organizations undergoing radical organizational change can successfully manage the process in order to retain the wealth of information and knowledge that exists in the organizational memory. The findings showed that the subject organization of this research study followed three key management practices throughout the entire change process (ongoing communications, senior management commitment, and planning) that enabled it to access, share, and retain its organizational memory while undergoing radical change. These practices are reminiscent of Barnard's (1938) *Functions of the Executive*.

Ongoing communications

This is perhaps one of the more important aspects in the implementation of radical change that helped maintain the organizational memory.

Use of clear, continuous, personal communication on a face-to-face or small group basis is one of the primary characteristics of effective change programs (Goodman *et al.*, 1996, p. 121).

Figure 2 Morphed OMS devices



“People remained the primary source of information and knowledge during and after the initiation of radical organizational change.”

The findings demonstrate how constant communication can help an organization manage change and the message about change so that the change and the rumors around it have less of a negative impact on staff and customers.

The organization produced print materials on a regular schedule that kept people informed. There was one publication devoted entirely to communicating what was happening with the integration, the organization's structure, merging of departments, the mission, vision, and values. The publication talked about the culture, employee survey results, and action teams. Progress was reported in each issue along with any new items of interest for employees. As each change in structure was made, organizational change memos were issued to all employees. These materials were provided to employees not just in print form but also using computer-based information technology so they could be accessed from and retained in the organizations' memory for future use.

A regular publication to customers was also created and distributed detailing the organization's changes. Customers were notified of any changes that may affect how they were served and who would serve them. New products and services were explained in the publication. Information sessions were presented at industry conferences. Customer surveys and focus groups were conducted to obtain feedback. These also became part of the organizational memory system by being distributed and stored using the organizations' computer-based information technology and knowledge center devices.

Senior management commitment

The chairman, senior management, and other members of management were strongly committed to implementing changes and providing the resources necessary to prepare and transform the organization. They were intimately involved in overseeing the staff reductions in a way that would maintain the tacit and explicit knowledge aspects of the organizations' memory through the implementation of cross-training initiatives and investment in training designed to access, share, and store knowledge. They invested in delaying the departure of individuals eligible for voluntary early retirement to ensure specialized knowledge was transferred to others and became part of the organizational memory. This management team invested heavily in the enhancement of the technology and knowledge centers necessary to support the access, sharing, and retention of organizational memory.

Planning

Planning is another key lesson scholars and practitioners can take from this research study. The organization planned each of the changes it was going to encounter. A transition team of senior managers was put in place to purposely reflect upon and manage each step. They were held accountable for meeting the deadlines and moving the ball forward. Where responsibilities were changing, management planned the lead-time to make the switch.

Senior management put a great deal of thought and effort in the eventual reduction in staff and took the precautions to ensure smooth transitions would be made. The organization provided fair and equitable packages to displaced employees including outplacement counseling, regardless of level. So that no department or unit would be caught short of knowledge or expertise, due diligence was done prior to each staffing action. Where an individual had specific knowledge valuable to the organization, that individual was held, sometimes up to a year or more, until others could learn the job, function, or become part of the individuals' network. These actions provided purposeful access to and sharing of experiential, historical, and specialized knowledge, which was then retained in the

organizational memory system devices for future use by the organization. The result was an organization that successfully managed radical change while retaining the relevant organizational memory.

Saving organizational memory

This research study did not seek to create or establish a new theory on memory. It sought to understand what happens to organizational memory systems in an organization that is or has undergone radical change initiatives. What was uncovered is different from what one would expect from reading most of the literature that precedes this case study.

Much of the literature on memory, talks about the problems organizations had when people left an organization and took the tacit knowledge they possessed with them. One study, however, conducted by Casey (1994), showed that memory remained in the organization even though there was a high turnover in staff. Similarly, in exploring this organization's experience, no one interviewed felt the loss had any detrimental impact to the operation or that the knowledge that was lost caused the organization to "skip a beat." And this was the operations division of an organization that lost over 800 people in the past five years – almost 25 percent of its staff. The findings showed that they did not lose much knowledge when people left and the knowledge that did leave was not critical to the organization. The organization has transformed itself from a "sleepy" industry utility to a fast moving, product driven, customer-centric organization.

Additionally, management was persistent in its efforts to sustain organizational memory by accessing tacit knowledge within the organization and, for the most part, codifying and sharing or disseminating the knowledge within specific work units or departments and, in some cases, making the knowledge explicit through documentation and training initiatives.

Preventing knowledge loss

Looking at these results causes one to wonder, how did this organization manage to lose significant numbers of people and knowledge and have that loss have little or no impact on the organization's memory system? The answer lies in the industry type, degree of automation, organizational forgetting, and planning for change.

Industry type

Most of the literature discusses manufacturing, pharmaceutical, consulting, or entrepreneurial organizations. This study examined a niche organization within the fast paced securities industry. Trillions of dollars worth of trades are made every day and processed at lightning speeds. The technology to handle those trades has to be cutting edge and capable of handling ever-increasing peak volumes. Redundancy in system capability is part of the infrastructure, and these duplicate systems function on real time. The organizations in this industry are not the cottage industries of the past that manufacture and sell automobiles, lumber products, airplane parts, household goods, or food products. These organizations do not provide medical or drug research, social services, or government services. These organizations are a totally different breed, and they are indeed unique.

One area where they are different may be the number of people performing identical functions. In the operations areas of the organizations that make up the industry (brokers, dealers, money-center banks, exchanges, clearinghouses, and transfer agents) there are many employees who perform the same function. A dividend area might have 30 or 40 people doing the exact same work, and a deposits area may have upward of 50 or 60 people doing the exact same work. Work routines follow specific steps – there are specific procedures to allocate dividend payments, process deposits, or handle a global corporate action. The procedures for processing the work or transaction are the same each time, whether the dividend payments are for a few million dollars on a regular day or for 5 to 6 billion dollars on a peak day. This may be one factor that explains why, when this organization lost a portion of the staff performing the job, the loss of memory was insignificant. A department may lose five people or more, but there are still 25, 35, 45, or 55



still on the job, performing the same functions. The work is still being done – there are just fewer people performing the job.

Degree of automation

Another key factor is automation. The financial and securities industries had the most risk as the year 2000 approached. Many of the advances in automation and legacy systems can be attributed to the potentially economic cataclysmic event of Y2K, which necessitated the redesign or elimination of some legacy platforms and systems. To anticipate Y2K and to mitigate risk, the organizations that make up the financial and securities industries spent billions of dollars on computer system enhancements, hiring thousands of people to ensure that the industry's computer systems would be able to handle the change to Y2K. As a result, many computer system programs that handled financial and settlement transactions were updated with new capabilities or were totally rewritten. Each redesign, enhancement, or new system created requires less manual intervention to process transactions. This creates less need for people to manually process work and reduces the level of specialized or experiential knowledge required to perform the job. "Automation has helped get around the loss of a lot of people" one interviewee explained. Errors caused by variation are drastically reduced, which in turn requires fewer people to conduct research and correct error exceptions.

Organizational forgetting

When information or knowledge is no longer valuable, retaining it can be counterproductive. For example, suppose a team consists of only a few developers responsible for writing and developing a computer program for a particular system. As new and better systems are developed, the knowledge of the old system is no longer needed. As the developers of the old system leave the organization with their expertise and specialized knowledge, there is no loss to the organization – the old system had become obsolete and no longer served a useful purpose to the organization or the industry. In cases such as this, specialized historical knowledge and experience is lost, but since that specialized historical knowledge and experience no longer has value to the organization, it matters not.

Another factor why the apparent loss of some knowledge, experience, or memory in this organization's case is not detrimental may be that some industry products and business functions are in decay and are disappearing or already obsolete. Again, as the people performing those antiquated processes leave, there is no longer any organizational value in the historical knowledge, experience, or expertise that people performing those functions possessed. The knowledge is no longer needed for the organization's survival.

Planning for change

As mentioned earlier, the senior management team of this particular organization purposefully planned its transformation from an industry utility to a product-driven, customer-centric organization. Senior management took the time to comprehend and plan the change initiatives that would impact people (the early retirements and layoffs, voluntary severances, and restructuring of departments and business units) and anticipated the impact on the operation and knowledge. For example, the lists of candidates eligible for the early retirement were reviewed and the information, expertise, and knowledge that they

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possessed were assessed. In certain situations where expertise or knowledge was at risk, the individual's date for leaving the organization was extended.

For reduction in force, each individual targeted for reduction was reviewed from a due diligence perspective. Questions were asked as to why a particular individual or group of individuals were selected for reduction. The subjects' knowledge and expertise were assessed along with the impact to the unit or department. When restructuring departments, an assessment was made to understand the impact that the action would have on the work and to ensure that the right profile of staff was in place to perform the functions of the department. These planning actions affirm that organizations that anticipate radical change and implement ways to store and use knowledge effectively are better prepared to minimize the negative effects of turnover.

Protention generates success and growth

Study results show that protention in thinking was a critical contributor to this organization's successful management of radical change and its ability to access, share, and retain information and knowledge in organizational memory. In describing present-time consciousness, Varela (2002) discusses protention, which has a future orientation and consists of anticipations of what is yet to come. Organizational awareness requires present-time consciousness. Data from interview respondents, archival documents, and observation presented evidence of management awareness and future-oriented behaviors. Consideration of time is important to organizational change. Croswell (1996) indicated that time invested is a variable that influences the development of organizational memory and subsequent organizational learning.

Organizational leaders took the time to plan for the changes, communicate with the staff, and develop the resources needed to generate the explicit knowledge needed for the future of the organization. This was accomplished through protention in thinking and an awareness of the present.

Awareness ... serves as a catalyst for planned change, transformational leadership, and sustainable development (Croswell and Holliday, 2004).

Through awareness and protention in thinking, organizations can counterbalance the potential negative effects of radical organizational change on organizational memory.

Implications for practice

This research provides information for practitioners who may be helping their organizations transform through radical change and are concerned about the potential loss of information and knowledge resident in organization memory systems. Organizations undergoing radical change can successfully manage the process in order to mitigate the degree of loss and retain the wealth of information and knowledge that exists in the organizational memory.

This case study points to some important practical lessons that may assist others as they embark on radical change initiatives. The following actions can be taken to create a blueprint or best practices for how to manage radical organizational change and preserve the tacit and explicit knowledge aspects of organizational memory:

- Have a senior management team whose collective present-time consciousness is oriented toward the future of the organization and who see the organization as generative in nature.
- Have a senior management team with strong commitment intentionally plan each aspect of the radical change, considering and anticipating the impact that each action will have on the organization and its people.
- Assess who possesses information or knowledge needed for the current and future activities of the organization, and take actions to access, share, codify, and retain that knowledge.

Keywords:
Change management,
Knowledge management

- Establish formal apprentice or mentoring relationships and training initiatives to help disseminate individual tacit knowledge among other individuals and convert the tacit knowledge into explicit knowledge.
- Leverage automation systems to increase the use of computer-based information technologies and knowledge centers.
- Use ongoing and frequent communications to manage expectations and keep employees informed.
- Prepare business continuity programs that result in replication of process, procedures, and systems.
- Assess what information and knowledge has decayed, is obsolete, and “let it go.”

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