It's Here Somewhere

The Effects of Storage Methods on Job Performance

Every day, office workers are inundated with a tidal wave of information. A recent report by a business research firm declared information overload "the problem of the year" for 2008. The research firm, which specializes in studying the way knowledge workers use technology, estimates that the problem is costing U.S. companies $650 billion a year in lost productivity. The report quotes an Intel engineer who says his company figures that time lost to information overload costs each knowledge worker up to eight hours a week.[1]

While new collaboration technologies such as e-mail, blogs, wikis, and instant messaging compete for people's attention, the "old" method of disseminating information—paper—still contributes to the deluge at a growing rate. Experts estimate that workers in London offices churn out three and a quarter million tons of office and printing paper a year.[2] In the U.S., projections are that federal government employees will use nearly 115 million tons of paper in 2008, roughly the weight of 72,000 midsize cars.[3]

Meanwhile, personal office spaces have been shrinking as companies dedicate a greater portion of their real estate to collaborative space. Between 2002 and 2007, the amount of space devoted to training, conference, and break-out areas has increased over 17 percent.[4] The trend toward smaller individual spaces and more work taking place in shared areas or off-site—at home or at the local coffee shop—creates new problems for managing and storing information. And, as work life and personal life become more enmeshed, personal items like gym bags, shoes, and snacks increasingly make their way into the office, further compounding

the problem of how to make room for all the things that must be organized and stored in the workplace.

This paper explores the effects of information overload and increased collaboration on materials storage and work process. It proposes research-based methods for structuring the office environment to help workers improve their effectiveness in the face of these trends.

Individual Space: Active Storage

In the individual office or workstation, storage is a process in which paper and other media are organized, retrieved, displayed, staged, shared, presented, stored, and discarded. Personal, active storage happens at the workstation's center of activity—the zone within reach of the seated worker. The activities people engage in with active storage include developing complex relationships between items, temporary labeling, and frequent stowing and retrieving. They prefer to have these materials easily accessible, so much so that they may be indistinguishable from the work process.

Research shows that knowledge workers tend to gravitate toward one of two tried-and-true methods for dealing with paper documents: piling or filing. Filers maintain neat desktops and systematize their paper archives in hanging files or in binders on shelves. Pilers have messy desktops and make little effort to organize their stored information. Conventional wisdom has it that filers have the superior method of paper processing, one that should result in quicker, easier retrieval of specific documents.[5]

In fact, however, observational studies have shown that filers tend to amass more information of

questionable value and to access their paper documents less frequently than pilers. Researchers from AT&T Labs found that filers, in their zeal to keep their desktops pristine, archived information before they were sure it was something they needed to keep and before they had determined how and when they might use the information. Without a clear idea of why they might eventually access documents, filers tended to categorize them in ways that later made it difficult to retrieve them. Pilers, on the other hand, had easier access to information they needed because frequently used information tended to move to the tops of their piles; less relevant material moved down and was eventually discarded.[6]

To learn more about pilers' conscious and unconscious strategies for storing and retrieving information, Herman Miller commissioned a study of 25 "Work Masters," people identified by their employers as exceptional workers. Researchers found that Work Masters share three tendencies in the way they use their workstations and work surfaces to support their work.

1. Piling is the preferred and natural organizational system.

For Work Masters, piling is filing; it is the way they organize their papers and projects. These people subscribe wholeheartedly to the old adage "out of sight is out of mind" and agree that essential documents and references have to be visible to be useful (and used). The study subjects use piles to represent multiple projects or to organize different stages of a single project by time period or type of activity. The particular arrangement of the piles on desktops or other surfaces always has significance to these people. "For our study participants," the researchers wrote, "piles are a normal aspect of a visual organization system. The placement on the work surface, where a pile is located, is as important as what the pile contains or represents."[7]

2. Proximity is closely tied to use.

Researchers observed that their subjects preferred to have important items within easy reach, and that items outside of arm's reach obviously required more

effort to access and use. "Part of the problem with filing," the researchers concluded, "may be that bending is generally required for access. Bending may be a health issue for some participants and a speed issue for other participants. Since bending requires additional body movement, it may break concentration or pull a person's attention away from other tasks."[8]

3. Neatness and organization are not the same thing.
Each person in the study had developed a personal organization system for tracking and locating information quickly. This process of organization is ongoing. On the other hand, the report found, "Neatness tends to happen, if at all, when there is a prolonged break in the action, for example, after lunch, before leaving for the day, or when projects end."[9]

The Work Masters study concludes that knowledge workers who are really good at what they do want to be able to see their work. The piles on their surfaces serve as visual reminders of "what they are working on now, what they worked on previously, and what they need to work on tomorrow."[10]

Of course, even hard-core pilers need places to store items not currently in use. A recent Herman Miller survey of more than 500 office workers found that over 95 percent of them stored files, manuals, and bound documents in their personal workspaces in locations that were not immediately visible (such as in drawers, bins, or cabinets). Other items frequently stored in personal workspaces include stationary and supplies, electronics and media, and a variety of personal items such as food, dishes, coats, and souvenirs.[11]

Another survey found that the two most reported storage problems in the primary work area were the lack of ability to "easily and intuitively organize non-paper items" in workstation cabinets and drawers, and a place to store "long, tall, or odd-sized items."[12] In addition to paper, workers frequently need to store media such as CDs and DVDs, chargeable electronic devices, and large blueprints or binders that do not fit well in traditional workstation storage.

Having adequate individual storage can also give employees an increased sense of privacy. A study conducted by Herman Miller found that when workers have the ability to organize and handle confidential materials (along with control over interruptions and ways to have confidential conversations) they report a positive impact on their feelings of privacy. The more control of and discretion in organizing and handling materials, the greater the sense of privacy they reported.[13]

Group Space: Collaborative Storage

In spaces where people work together—conference rooms, project spaces, teaming areas, war rooms, training rooms and breakout areas—storage also serves a highly dynamic function. In these areas, where collaboration and communication are the primary goals, the display of thought processes, raw data, and work-in-progress plays an essential role in helping to document, reinforce, and focus group members on a shared project or idea and encourage participation.[14]

In these collaborative areas, storage is intermediate. Its function falls somewhere between the active storage an individual requires in his or her work area and the bulk, archival storage that people retrieve materials from intermittently. This intermediate storage holds, displays, and mobilizes information that a variety of people can access—sometimes simultaneously, sometimes individually. Shared storage supports collaborative work and other types of creative interaction by offering a location where team members can meet casually and display information relevant to their goals and their identity as a group.

Community Space: Archival Storage

Community space outside the immediate work zone includes archival storage of bulk supplies or files that are accessed infrequently. These areas are much more static than active or collaborative storage areas. Density and labeling are high priorities, to conserve space and ensure that people who work in different areas of the organization can easily find and access information and materials.

While this high-density storage supports organizing, retrieval, display, and staging, these activities are occasional. Its primary function is to contain bulk supplies or files that people access infrequently.

On-site, archival storage usually consists of banks of files in central locations that sometimes, like architecture, define space and set boundaries. Off-site, archival storage is typically housed in warehouses staffed by professional records managers who are responsible for retrieval.

Increasing Storage Effectiveness

There are several ways that the design of office environments can help individuals, groups, and organizations manage, use, and store information to foster collaboration, productivity, and creativity.

1. Support natural ways of working

As the Work Masters study suggests, allowing and supporting individuals' unique organizational methods and categories is essential. For people who value being able to understand a body of knowledge and to generate new information from it, the "messy desk" is an essential characteristic of their activity.[15]

Knowledge workers create categories as they manipulate information—and these categories become more complex as understanding increases. They then have to find ways to make their information space—their desktops and immediate surroundings—intelligible. Giving them the space, the accessories, and the permission to use a variety of tactics—labels, piles, sticky notes, tackable panels, document holders, and clipboards—can help them be more productive.

The consistent recurrence of a specific organizational pattern on the primary work surface indicates that the location of active storage is of central importance. The benefit of active storage is that it allows people to display significant documents in an organized fashion. Flexible organizational systems that exploit what people recall about the visual and spatial

attributes of documents could cut down considerably on the time spent rifling through file drawers and desktop piles.

Good active storage allows movement and adjustment to fit individual work habits. It also requires the use of good information-handling strategies, including regular purging, limiting accumulation, and action-oriented labeling to reduce time lost during task switching.
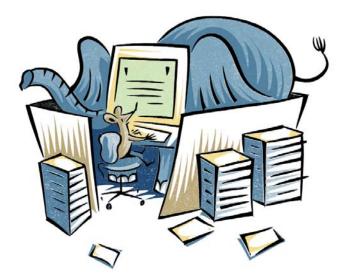
2. Reevaluate individual storage

If information in the primary work zone doesn't support work done today, tomorrow, or the next day, it may be better off somewhere else. Files, supplies, resource materials, and anything else that is not used on a daily basis can be organized and stored more efficiently in another location. Time management consultant Jeffrey Mayer says that 60 to 80 percent of the papers he clears from his clients' desks can be filed in the wastebasket with no ill effect.[16]

Some experts in the field of organizational behavior and design advocate a general rethinking of the office that includes relocating much of the filing that is duplicated from workstation to workstation into shared libraries or resource centers.[17] Many companies have developed information systems that give employees access to archival material through their computer, on shared servers, or an intranet. Others offer off-site archival storage.

3. Provide flexible and mobile group display and storage.

Today's workplace needs collaboration, and collaboration requires co-location. Knowledge sharing relies largely on the kind of social connections and informal interactions that happen only when people meet face-to-face. Studies have found that virtual communication alone is never "enough to spark effective collaboration among community members."[18]

    ⓜ HermanMiller

It's important to provide group work areas with storage and display tools that aid collaborative work. Tacking surfaces, white boards, and technological tools like projection and large video displays allow people to illustrate ideas and post thinking-in-process to make work visually accessible to the group, aiding memory and the organization of tasks and materials. Making visual display tools accessible and mobile helps support work wherever it occurs.

Recent research suggests that an important solution to information overload lies in collaborative storage of digital as well as paper-based information. A 2007 Accenture study found that most managers gather and store information using their individual computers and e-mail accounts, with only 16 percent using a collaborative workplace such as an intranet portal.[19]

Importance of a Balanced Approach

Whatever the approach to storage and retrieval, there is a need to balance what's good for the person with what's right for the organization. This is particularly important when a corporate "event" occurs—a move to a new facility, consolidating several sites into one location, a drive to alter work processes to boost productivity. When change happens, many organizations see it as the right time to alter how they store files and documents.

Herman Miller Workplace Consultants Tracy Brower and Holly Kriger confirm that nearly all the clients they engage with are changing their approach to storage. "In most cases," noted Brower, "individuals are getting less space for their storage, so their managers are asking them to not only purge paper but also to think differently about how they work and the materials they use for it, keeping only those that are essential close at hand and moving the rest to group storage or off-site facilities."[20]

The longer an employee has been with a company, the more traumatic this purging can be. "There are good reasons for going through the pain of taking a new, more efficient approach to filing and storage," added Brower, "everything from environmental concerns to the pride of ownership that employees can take in a tidy workspace. But for those with files they've accumulated over many years, rational arguments don't really relieve the stress,"[21]

Individuals, however, aren't the only ones being stressed. For organizations, the legal implications are significant. As Holly Kriger explained, "Businesses, particularly those in the U.S., operate in a climate where information security is a vital concern. Laws, such at the Health Insurance Portability and Accountability Act, establish national standards for

the security and privacy of health data. That's forcing organizations to enact comprehensive records retention policies that define what records get kept, for how long, and how they're disposed of."[22]

Disposing of the overload of information will not happen soon, however. "Information is becoming a burden on knowledge workers and will remain so until companies consolidate and streamline the stores and sources of intelligence," said Accenture's Greg Todd. "Doing so will enable them to give back part of the working day to staff, helped by better governance, delivery, integration and the archiving and retention of information."[23]

Notes

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7　Herman Miller, Inc. "Work Master: Qualitative Report Prepared by ddeasy inc.," October 2004.

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10　*Ibid.*

11　Herman Miller, Inc. "A Comprehensive Audit of the Storage and Filing Habits of Herman Miller Employees," Herman Miller, Inc., March 2007.

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13　Herman Miller, Inc. "Work Environment Design Improves Work Process and Business Performance," Herman Miller Workplace Research Report, 2000.

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20　Tracy Brower, Herman Miller, Inc., Workplace Consultant, personal interview, February 20, 2008.

21　*Ibid.*

22　Holly Kriger, Herman Miller, Inc., Workplace Consultant, personal interview, February 20, 2008.

23　"Information Overload Suffocating Managers," *Management Issues*, January 2007.