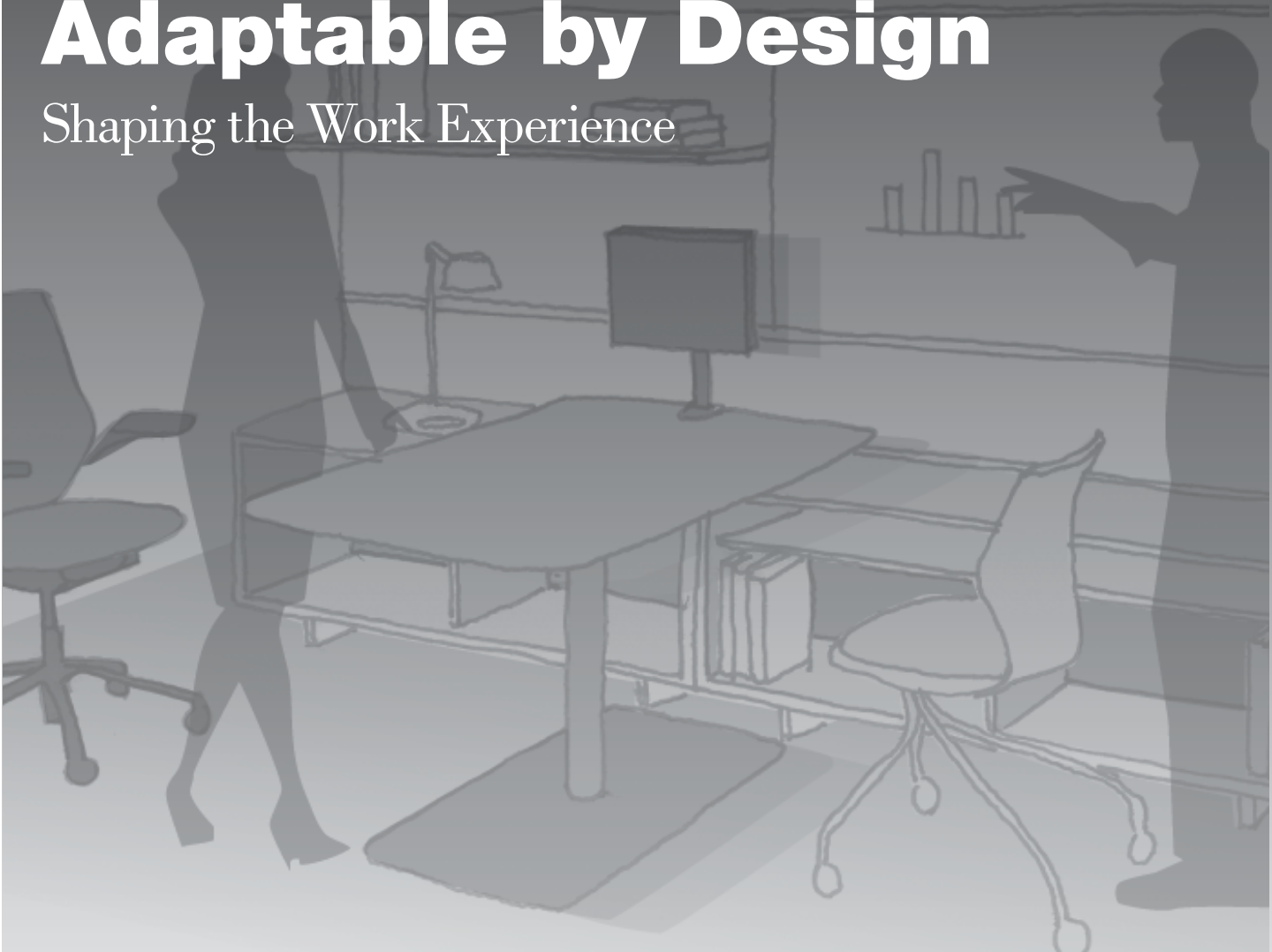


Knoll Workplace Research

Adaptable by Design

Shaping the Work Experience



Dr. Michael O'Neill
Senior Director, Workplace Research
Knoll, Inc.

Knoll

Adaptable by Design

Shaping the Work Experience

There is no “big picture” perspective on how to design healthy and effective workplaces

Because of rapidly changing technology and complexity of workstyles, organizations increasingly struggle to create effective workplace strategies and workspaces. The stakes are high, since decisions about the workplace can affect employee retention, performance, satisfaction, and facilities costs. Implementing a successful solution is challenging because there is no unifying design principle to direct planning, other than the broad charge to provide workplace “flexibility.” Conventional wisdom suggests flexibility is linked to desirable performance outcomes for employees and organizations. Beyond that there is little guidance for organizations hoping to better their work environments.

But there is hope. From the early 1980s to the present, many studies have identified specific workplace design features linked to employee satisfaction, health and performance outcomes. We have synthesized this fragmented research and identified a singular planning principle that can guide the creation of successful workplaces—directly linked to improved health and performance outcomes.

There is a simple underlying theme: planning and furnishings that let people and groups shape their work experience contribute to a healthy and effective workplace. “Shaping” the work experience occurs when people manipulate elements of their physical environment, choose their work location or type of space, or select their time of work. Shaping is a capability conveyed through workplace programs, planning, furnishings and technology.

Organizations offering a “shaping” capability may realize greater business success than those lacking this competence

This strategy is influenced by Robert Karasek’s “job/demand control” theory (Karasek and Theorell, 1990). He found that employees in “high-strain” jobs—those with low control over decision-making and limited autonomy, paired with high work load and demands—suffer from higher stress, health and performance problems. Workers with “active jobs” (those with high demands, but with high control) have fewer health problems and better performance than those in high-strain jobs. The risks of low job control are not trivial. Karasek’s large-scale studies directly connect high-strain jobs to increased stress, higher incidence of coronary heart disease (CHD) and higher mortality rates. He also found implications for job satisfaction and work performance.

Related to Karasek’s work, a growing body of research shows the benefits provided by one’s ability to shape the work experience by choosing the type and location of workspace, and capability to modify workspace features: lower psychological and physiological stress, higher individual and group performance, faster business process time, and greater employee satisfaction (Carayon and Smith, 2000; Gifford, 2007; Lee and Brand, 2005; O’Neill and Evans, 2000; O’Neill, 1998, 2007, 2010; Sundstrom, Town, Rice, Osborn, and Brill, 1994).

In this paper, we have omitted detailed discussion of the underlying quantitative research links to health and performance, to focus on the rationale, model and application to design.*

**A detailed empirical review of the research foundation behind this discussion can be found in O’Neill, M. (2010) “A Model of Environmental Control and Effective Work”, Facilities, Vol. 28, No. 3/4, Emerald Publishing Limited.*

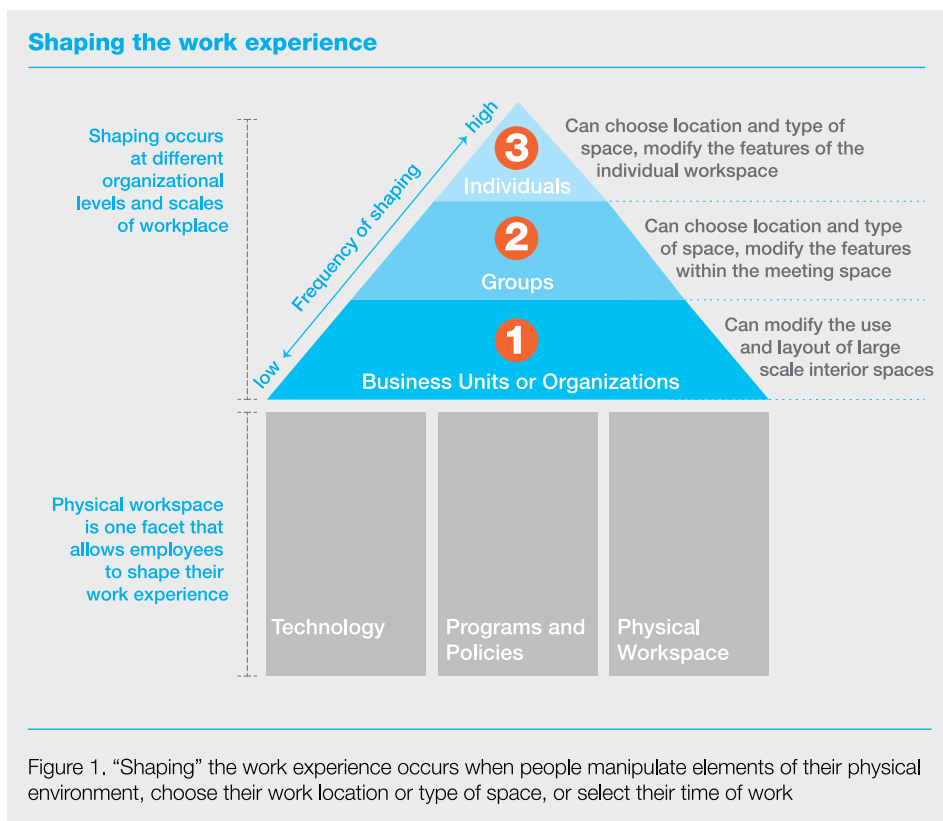


Figure 1. “Shaping” the work experience occurs when people manipulate elements of their physical environment, choose their work location or type of space, or select their time of work

The planning approach should emphasize the social and collaborative components of work and a wide variety of choice in workspace type and location

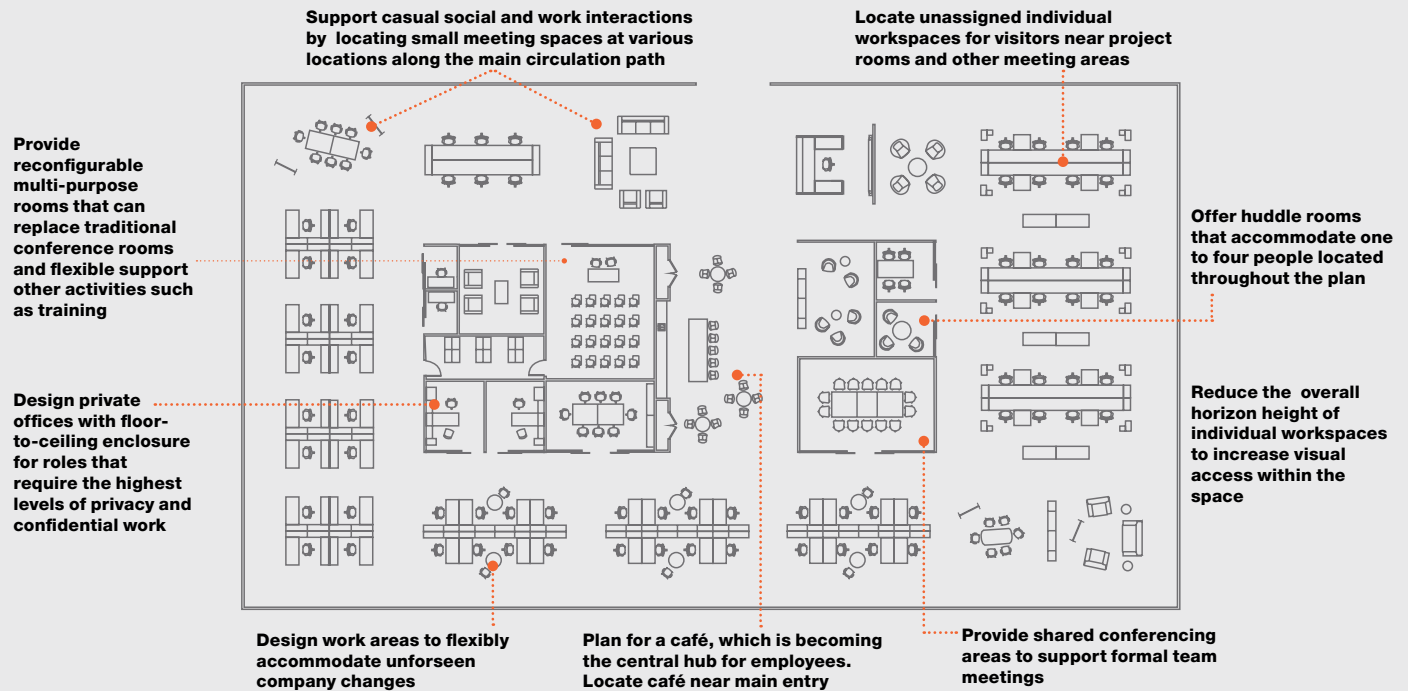


Figure 2. In planning, provide a variety of both individual and collaborative workspace types, and locations for these workspaces. Providing choice over workspace type and location will enhance the potential for people to shape their work experience.

Workspace plays a leading role in providing the “shaping” capability

Shaping is a process of self-managed adaptation to work needs that is direct and immediate; people modify physical features themselves or move to different types of workspaces when needed based on their perceptions about ongoing business and work process demands (O’Neill, 2007, 2010; Marken, 2005). Thus, the process of shaping is a feedback loop – it is a constant re-alignment of the workspace based on work needs.

Technology, programs and policies, and the workspace itself are all required components to deliver the workplace shaping capability (Figure 1):

- ▶ **Technology.** Individual and collaborative technology widens the options for time and location of work.
- ▶ **Programs and Policies.** Programs that offer flexible work options; policies that provide “permission” for flexible work; training on how to use workplace capabilities; jobs designed for greatest control and autonomy.

▶ **Workspace.** A wide range of workspace types, locations and adaptable interior workspace design features that enhance choice and let individuals, groups, or business units “shape” their environments.

Research shows that ability to shape the workspace is a key mechanism explaining why some workplaces are more healthful and productive than others

Organizations, groups and individuals “shape” their work experience at different scales of the workspace, and at different rates

To keep their work in alignment with changing objectives, individuals, groups and organizations must be able to access the type of workspace needed and shape the configuration of that workspace. Shaping can manifest itself in different ways depending on the scale of the organization (Figure 1). At the smallest scale, the level of the individual, shaping happens with the greatest frequency, followed by groups and organizations, which act on the environment less often. For instance,

individuals may adjust the features within their workspace on a daily or even hourly basis, to fit their needs. Conversely, organizations may make major changes at the facility planning level only every few years. The capability to shape the work experience can be provided through planning and furnishing elements

that offer **flexibility** (through easily movable, freestanding furnishings), **adjustability** (chairs, monitor arms, worksurfaces, task lights, etc.) **access** (“plug and play” connectivity to power and data wherever work activities occur), and **expression** (furniture and design elements that reflect culture and values, and facilitate communication and idea sharing) (see blue box, following page).



Level 1: Organization
Plan to help organizations shape their work experience

Most leading-edge workplace strategies are intended to improve outcomes such as quality of individual and group work process, attraction and retention, and space

utilization and costs (O'Neill and Wymer, 2010). These programs reallocate space to support increasingly social and collaborative workstyles, and provide a wide variety of options in workspace types, sizes and locations (O'Neill and Wymer, 2011; Ouye, 2011). The surface intent of these programs is to offer a “flexible work environment.” However, the real, underlying mechanism that makes these programs successful is that their key elements enhance employees’ abilities to shape their work experience.

Planning strategy. At the organizational level, let employees choose from a variety of conveniently located workspace types. Enhancing the ability to select the type of individual or group workspace needed allows people to more effectively shape their work experience (Figure 2).

Keys to shaping the organizational work experience

ZONING AND DISTRIBUTION OF SPACES

- ▶ Plan the primary circulation path on the perimeter to share outside views. Circulation should take people past shared services, and unassigned individual and group spaces.
- ▶ Use storage elements to define zones or boundaries between departments or work groups. Storage elements are relatively easily relocated or reconfigured as the needs of the organization evolve.
- ▶ Position fixed elements, such as private offices, near the building core.

INDIVIDUAL SPACES

- ▶ Reduce overall horizon height of workstations and other furnishings to increase visual access within the space.

- ▶ Ensure that work areas with individual workspaces can flex to accommodate unforeseen organizational changes.
- ▶ Use private offices with floor to ceiling enclosure for roles that require the highest levels of privacy and confidential work.
- ▶ Locate unassigned individual workspaces for visitors near project rooms and other meeting areas.

GROUP SPACES

- ▶ For groups to effectively shape their collaborative work experience, the workplace needs an array of conveniently located, differently sized open and enclosed meeting spaces. The space should provide an agile, active experience that flexibly supports the need for informal and formal group work.
- ▶ Provide shared conferencing areas to support formal team meetings.
- ▶ Consolidate support areas for storage and copy to centralized locations.
- ▶ Offer enclosed huddle rooms and small open meeting spaces (2 to 4 people) located along main circulation routes.
- ▶ Instead of extra-large traditional conference rooms, offer multi-purpose rooms which can support a wider range of group activities and thus will have greater utilization. Design these spaces to flex in size, possibly through moveable walls.

SOCIAL SPACES

- ▶ Plan for a café, which is becoming the central hub for employees. It serves as community space, supports chance encounters, provides overflow meeting space and creates individual workspace for those who like to be in the middle of the action.



Level 2: Groups **Plan to help groups shape their work experience**

Formal and informal collaboration continues to increase as the overall proportion of work within organizations (O'Neill and Wymer, 2009).

Planning strategy. Group effectiveness can hinge on the ability to isolate certain activities from outside interference, such as problem solving meetings or other sensitive activities. Both these integrative and differentiating requirements can be enhanced by group control over internal configuration of these

Shaping the workspace with furniture and accessories

Furniture and accessories provide four key components of workspace capability: flexibility, adjustability, access and expression. These capabilities, in turn, are the means by which the workspace offers employees, groups and entire organizations the ability to shape different aspects of their work experience, which is linked to greater health and productivity.

Flexibility

Flexibility can be offered through easily movable, freestanding furnishings. These elements can be used to define the boundaries of an individual or group space, and offer ease of rearranging and movement of furnishings within those boundaries. Boundaries such as a systems storage wall or a freestanding spine can be shifted more easily than built walls as work groups expand, contract or disband over time. Within those boundaries, the location of table desks, nimble seating, freestanding storage and mobile whiteboards can be changed by users, as needed, for individual or group work.

Adjustability

The adjustability of furniture to fit user needs is becoming more important as workers shift activities more frequently within their primary workspace, and during interactions with others in meeting spaces. Chairs, monitor arms, worksurfaces and task lights adjust to let shared work areas meet the ergonomic needs of users of different sizes or needs. Adaptable work chairs like Generation that let users shift position, or a display on the Sapper monitor arm that can be rotated, tilted or elevated instantly, can also enable a rapid shift from individual work to shared work. All these elements offer employees greater control over their work process.

Access

Ubiquitous technology means a need for “plug and play” connectivity to power—and in some cases, to data—wherever work activities occur. This means accessible outlets in public and social spaces, in meeting rooms and lounge areas as well as in individual workspaces. Systems furniture, storage walls and table top power accessories can be solutions to positioning outlets in the right place for the work at hand.

Expression

Furniture and other design elements enable the workspace to reflect the culture of the organization, the identity of the group, and the personality of the individual. The choice of materials and finishes can shape the perception of the workspace, or distinguish individual from group spaces. Features like tackable fabric surfaces, whiteboards, and open shelves let users express their identity. Adaptable furniture and accessories like whiteboards and displays on movable monitor arms create an environment that facilitates communication and the casual exchange of ideas.

Meeting spaces should provide features that support expression of group identity and communication, adjustable components, flexible furnishings, and power and data access, to support a range of casual to formal interactions.

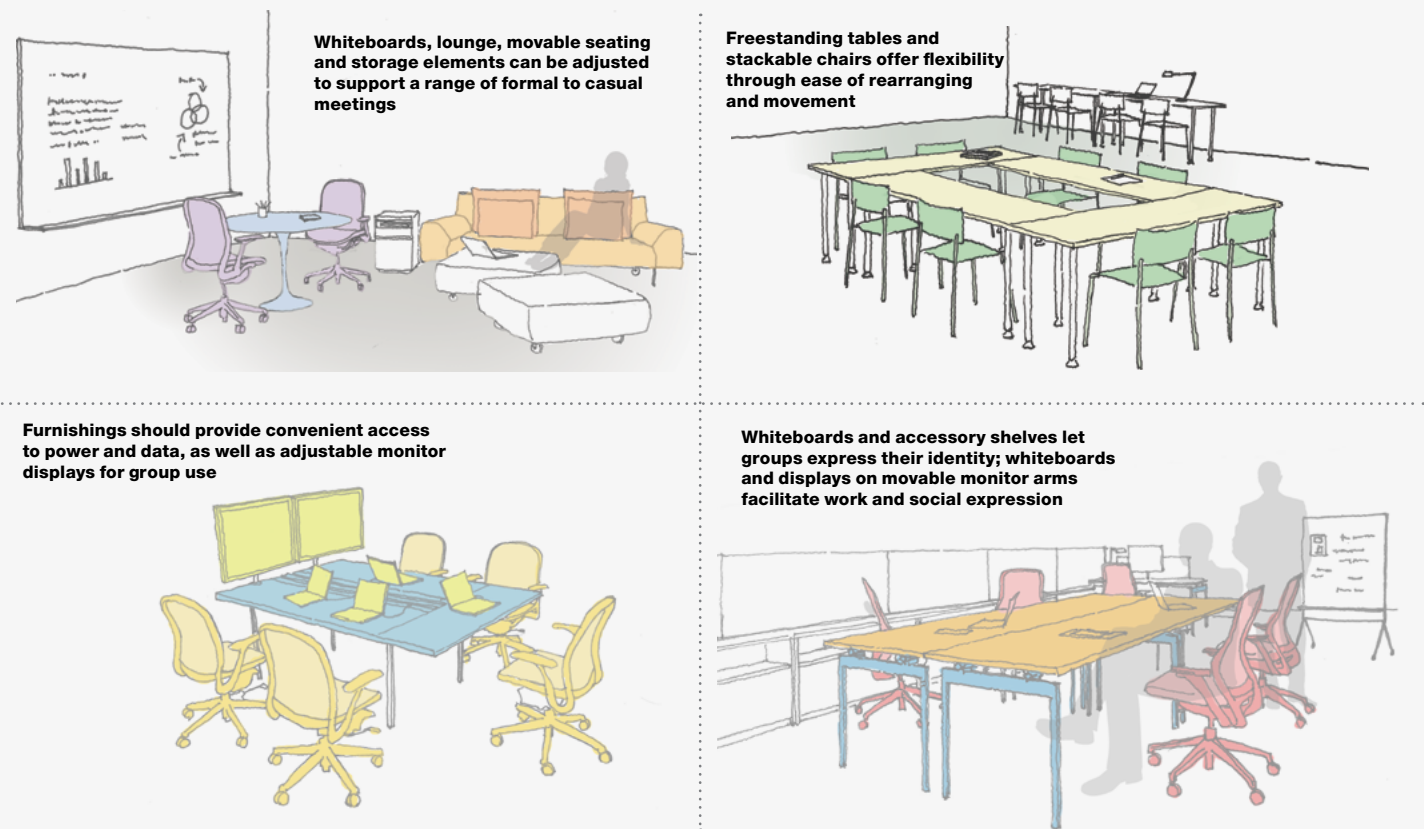


Figure 3. Create a wide range of differently sized collaboration spaces with flexible interior components. Increase utilization of group space through moveable walls or storage elements that flex size of space to meet needs, and offering technology that best supports collaboration.

spaces, and easy access to a variety of collaborative space types (Figure 3).

Keys to shaping the collaborative work experience

- ▶ Extra-large multi-purpose rooms can be used as project spaces, training rooms or team rooms. Ensure the furniture used within can be reconfigured by occupants.
- ▶ Freestanding storage elements can be used to define the boundaries of an open meeting space, bring cabling and electrical connections, and thus, convenient “plug and play” interaction by group members.
- ▶ In addition to serving to demarcate a meeting space, storage provides a flexible range of private to public storage options, and a means for team members to organize and display work materials.
- ▶ Offer all of the technology required for employees to effectively collaborate within meeting spaces. Although it carries

a higher initial cost, having the right technology in meeting rooms is critical to effective work and higher utilization.

- ▶ Build in the ability to vary light levels by zones within larger meeting spaces, which will help support hosting several different activities concurrently. Furnishings in group spaces should let employees self-manage (or with minimal intervention) the reconfiguration of areas to immediate needs.



**Level 3: Individuals
Plan to help individuals
shape their work experience**

To best allow people to shape their individual work experience, the individual workstation or office needs to support two types of work transitions:

- ▶ Changes to the individual’s work process—for instance, transitioning from participating on a conference call, to writing a report.

- ▶ Change from performing individual work to an interaction or meeting in the office.

Planning strategy. The workstation or office should provide as much flexibility of interior components as possible to allow people to modify the interior layout of their workspace. This will better support changes in workflow and better support transitions between individual and collaborative work modes within their workstation (Figure 4).

Keys to shaping the primary work experience

- ▶ Specify furnishings and accessories that can be adjusted or moved by the worker (worksurface height, chair, storage and display elements, monitor arm, keyboard tray, etc.). This allows people to fine tune the space to suit their ongoing individual work process.
- ▶ Offer flexible task seating, light weight, easy to move visitor seating, collaborative worksurfaces, moveable markerboards,

The primary workspace needs to support transitions between individual work and informal interactions

Support employees' abilities to reconfigure the interior of their primary workspaces, allowing them to shape their work experience and suit their ongoing work process.

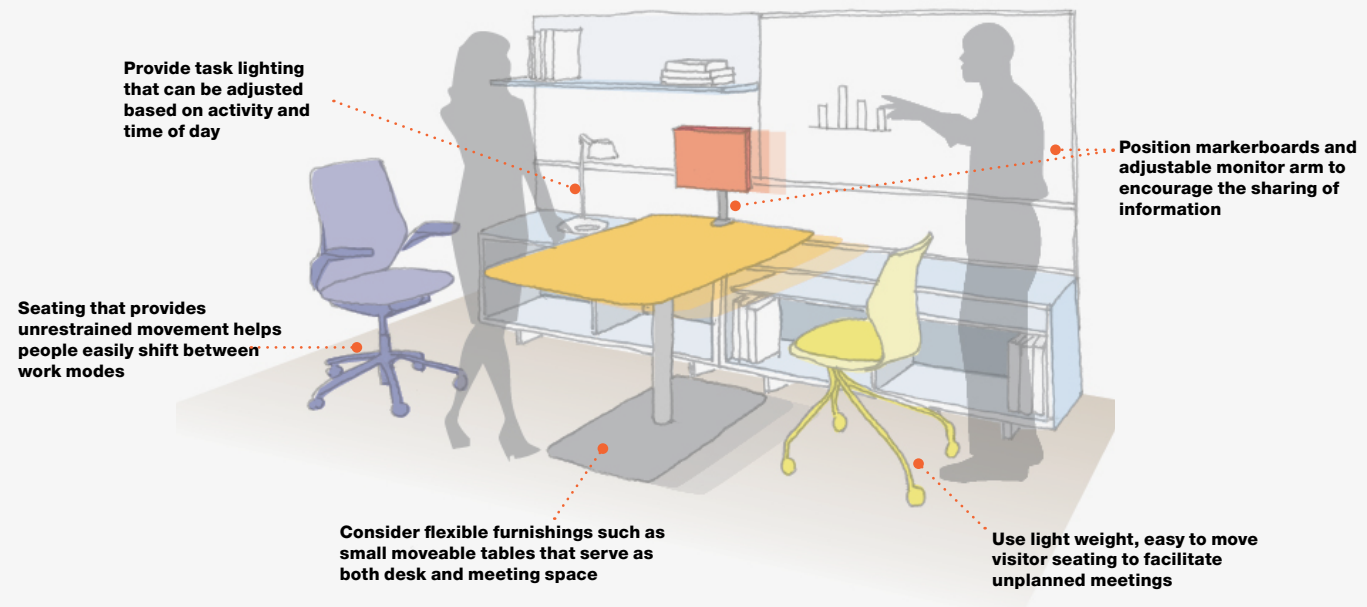


Figure 4. Furnishings and accessories should let individuals shape their immediate workspace and seamlessly transition between individual and group work.

small tables, etc. to support short term, unplanned meetings in the office.

- ▶ Specify an adjustable monitor arm and wireless input devices to allow more than one person to view the flat screen display and interact with technology.
- ▶ Offer seating that provides unrestrained movement between postures to help people easily shift between individual work and interactions with others.

A strategy that emphasizes shaping can improve success

The workplace needs to evolve as a resource that offers employees the ability to shape their work experience.

Workplace planning, furnishings, technology, policies and training all can be deployed to enhance choice over how—and where— work occurs, as opposed to these elements being limitations on workstyle. “Shaping” should be part of a proactive strategy that encourages desirable behaviors such as collaboration and social interactions, which will ultimately improve work effectiveness.

The ability to shape the environment and subsequent work experience is a key capability that organizations should invest in through programs, policies, training, job design, technology, furnishings and work tools. These tactics should be integrated—that is brought to bear—in a coordinated fashion for the greatest and most cost-effective benefit. By making control a central component of strategy, organizations may enhance their competitive advantage.

References and Suggested Reading

- Earlywine, A. and Ratekin, J. (2010). "Distributed Work," Research Report #31, IFMA.
- Formway (2005). "Minds at Work." Formway Design Studio Limited, New Zealand.
- Karasek, R. and Theorell, T. (1990). "Healthy Work: Stress, Productivity and the Reconstruction of Working Life." New York: Basic Books.
- Kroemer, K.H.E. (1994) "Sitting (or Standing?) at the Computer Workplace," in Lueder, R. & Noro, K. (Eds.) 1994. *Hard Facts About Soft Machines: The Ergonomics of Seating*. London: Taylor & Francis. pg 187 –191.
- Marken, R. S. (2005). "A Model-Based Approach to Prioritizing Medical Safety Practice," in K. Henriksen, J. Battles, E. Marks & D. Lewin (Eds.) *Advances in Patient Safety: From Research to Implementation, Vol. 2, Concepts and Methodology*. AHRQ Publication No. 05-0-21-2. Rockville, MD: Agency for Healthcare Research and Quality, 409-424.
- O'Neill, M.J. (1998). *Ergonomic Design for Organizational Effectiveness*, CRC Press, Boca Raton.
- O'Neill, M. J. (2007). *Measuring Workplace Performance*. Taylor & Francis, New York, NY.
- O'Neill, M. (2010). "A Model of Environmental Control and Effective Work," *Facilities*, Volume 28, No. 3/4, pp. 118-136, Emerald Group Publishing Limited, UK.
- O'Neill, M. and Wymer, T. (2009). "Design for Integrated Work." White Paper, Knoll, Inc., New York, NY.
- O'Neill, M. and Wymer, T. (2010). "Implementing Integrated Work." White Paper, Knoll, Inc., New York, NY.
- O'Neill, M. and Wymer, T. (2011). "The Metrics of Distributed Work." White Paper, Knoll, Inc., New York, NY.
- Ouye, J. (2011). "Five Trends that are Dramatically Changing Work and the Workplace." White Paper, Knoll, Inc., New York, NY.
- Springer, T. (2010). "The Future of Ergonomic Office Seating." White Paper, Knoll, Inc., New York, NY.
- Vink, P., Porcar –Seder, R., Page de Pozo, A. and Krause, F. (2007). "Office Chairs are Often Not Adjusted by End Users." Proceedings of The Human Factors and Ergonomics Society 51st Annual Meeting. Santa Monica, California: HFES. P. 1015 –1019.

Through research, Knoll explores the connection between workspace design and human behavior, health and performance, and the quality of the user experience. We share and apply what we learn to inform product development and help our customers shape their work environments. To learn more about this topic or other research resources Knoll can provide, visit www.knoll.com/research/index.jsp



Follow Knoll research on Twitter [@AskDrMike_Knoll](https://twitter.com/AskDrMike_Knoll)