

Design for Integrated Work

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

Tracy Wymer
Senior Director, Research, Strategy, Media
Knoll, Inc.

Introduction

Knoll has introduced a new conceptual model of workspace that can be used to help organizations improve their performance. This model can be used to optimize space and furnishings to support different work modes, and movement of people and flow of work among those modes.

Knoll started developing this model in early 2005 and began presenting it in dialogues with customers in 2006. From that point to the present, the model has evolved. This model has two main components: work modes, and, work flow between the modes and workspaces. Central to the model is the notion of “workspace integration” which is the ease with which work can flow between the various work modes. The model and the research presented in this paper provide strong evidence that better workspace integration leads to enhanced performance of employees.

Structure of this Paper

This paper includes:

- + Discussion of business drivers of workspace change
- + Literature review
- + Review of the components of our model of work modes and workspace integration
- + Exploratory study of the model conducted with 40 organizations across 8 industries
- + Summary of three research projects that assessed the benefits of workspace integration on key employee behaviors and other outcomes.

The paper concludes with design recommendations to support workplace integration in creating high performance environments.

Business Drivers of Workspace Change

Work is becoming an organic activity. We are seeing a shift away from the “Roman Army” model of work organization. Most large post-World War II companies were organized in a pyramid structure with a small group of decision-makers at the top, a large middle layer of managers to manage the activities of a larger group of workers below. This classic “command and control” model originated millennia ago with the Roman army and was also used with great success by the US and its Allies in World War II. The veterans of this war became the leaders of American business and they employed this organizational model in their organizations. It worked well in an era of limited communication technology with mass marketed products intended for a homogenous consumer base. The unit of work and productivity was with the individual, and the focus of work activity was within the individual office. However, markets and the workspace have evolved over the last few decades.



Today, work occurs in a less structured manner



Organizations are driven by group work

The collective wisdom of the group has become the driving source of innovation and decision-making. Companies are breaking down internal, organizational silos, and encouraging teams to cross pollinate ideas and to take a multi-disciplinary approach to problem solving. The team or work group is the basic unit of work. Work and work products are ever-more knowledge based and the focus of work activity is no longer a specific location, such as a private office. Using the Internet and telecommunications technology, work now occurs in a variety of individual and group modes and spaces throughout, and without, the facility.

Literature Review

There is a significant body of theory and research on white collar professional work, team work, problem solving, workspace culture and social identity, learning, mentoring and many other issues related to effective work in business organizations (Turner, 2001). There is a notably smaller body of research that seeks to model the role of workspace in supporting the individual, group, social and technology components of work.

A series of conceptual models strive to bring coherence to the intersection of work and workspace

Some organizations, including Knoll, have developed conceptual models of work styles and workspace design with the desire to bring coherence to the complex intersection of work and workspace. In this review, we evaluated existing models based on the way they conceptualized categories of work and the relationships between those categories. In a few cases, the research was used to create conceptual models of work and workspace, and implications for organizational effectiveness. In other cases, the models were applied in a pragmatic sense: to identify and categorize work styles and develop related technology and workspace design solutions. This literature review is limited by the small amount of workspace research pertaining to work styles that has actually been published. Thus, this small disclaimer—there may be other models and approaches in use that we are unable to include in this review.

Unisys (Jacobson, 2008; ComputerWorld Magazine, 2008) and Vodafone (InDesign Magazine, 2005) used a model of work and workspace that is strongly influenced by the impact of technology. This model identifies categories of work based on a continuum of mobility needs, and is used to specify technology and workspace requirements that support each category. These work style categories include: “homers,” “roamers,” and “zoners.” A homer is permanently office based, a roamer may be working at client sites, home or the office, and a zoner is predominantly based at another location besides the office.

In this model, each worker is viewed as having a work style that fits primarily into one of the categories. In that sense this is a static model that assumes one primary work style and type of workspace. While this static approach limits this model, it has the advantage of being broad—that is, it includes work styles that exist within the office facility—and it considers distributed work and telecommuting issues.

The distributed workspace model developed by DEGW (Harrison, Wheeler, and Whitehead, 2004) focuses on the convergence between physical and virtual work environments and the impact that information and communications technologies have had on work process. In their model, the workspace is divided into three categories according to the degree of privacy and accessibility they offer. The three categories of place used in the model are “public,” “privileged” and “private.” Each of these places is composed of different types of work settings. In this model, public space is suited for informal interaction, sharing and touchdown for relatively short periods of work time. Privileged space supports longer term collaborative project team and meeting spaces as well as space for concentrated individual work. Private space also contains both

individual and collaborative work settings but with a greater emphasis on privacy and confidentiality, and defined boundaries. This model assumes that people will choose the type of place that suits their current work needs. Thus this model does not attempt to categorize people—and the workspace they will use—by a single work style.

Gensler (2008) developed a model that includes four modes of work: “focus,” “learn,” “collaborate” and “socialize.” Like the DEGW model, the work modes are not used to categorize employees into one type of work style or workspace; rather it assumes that employees will use the type of workspace that best fits their current work process requirements. Their research also found correlations between the quality of workspace support for these work modes, and various measures of organizational effectiveness. Like the DEGW model, the Gensler model recognizes the informal sharing of cultural and organizational information as an important part of the work process, in fact calling it out as a separate work mode (socialize).

In a similar fashion, HOK (2007) developed a model of work categories that include: “rover,” “sitter,” “teamer” and “walker.” These work profiles are based on levels of collaboration and mobility, and consider other elements of the work process (analytical versus transactional work) and privacy needs. Like the other approaches we have reviewed, the HOK model emphasizes categories of work and also recognizes the social component of work.

While defining tangible facets of work, the models reviewed to this point put less emphasis on the dynamic aspect of work—the flow of ideas, work process and people between transient work modes, nor the potential impact of optimizing physical movement or work flow between these modes, on work performance. The primary focus of these models remains on the importance of the work modes and having the right space to support each of them, with the explicit or implicit intention of enhancing the resulting quality of work.

Summary of the Knoll Model

The Knoll model has two components: work modes, and, the dynamic work flow between the modes and workspaces. Related to work flow is the notion of “workspace integration”—the ease with which work can flow between the various work modes. Work modes (rather than static work categories), include: “focus” (individual) work, “share” (exchange of ideas between small numbers of people), and “team” (goal directed group work).

The better the quality of workspace integration, the better the work performance of employees

In addition to these work modes this model includes “activity,” the set of informal behaviors that provide social connection—the link that binds people and the organization. As part of activity,

cultural norms, the “life ways of the organization” are conveyed between employees. Thus, activity is a fundamental characteristic of the fabric of work, and is completely integral to the three work modes.

As noted earlier, we use the term workspace integration to define how well the design of space (and technology and business process) supports the flow of information and people between work modes. The model proposes that the ease and efficiency of information flow and physical movement between work modes is critical to organizational effectiveness—at least as important as supporting the individual work modes themselves. Thus, the model suggests that better the quality of workspace integration, the better the work performance of employees.

Model of Work Modes and Integrated Workspace

The model has two components: work modes and activity (and the spaces that support them) and, the temporal flow of people and information between these work modes (see Figure 1).

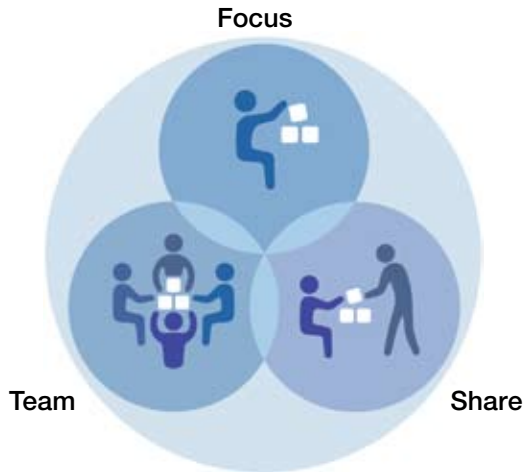


Figure 1. Primary work modes

Description of Model

The model incorporates the notion of three primary work modes (which are dynamic work states, rather than fixed work categories), including: focus (individual) work, share (exchange of ideas between small groups), and team (goal directed group work) (see Figure 1). In addition this model includes “activity” behaviors, which are an integral part of all work modes and workspaces. Through activity behaviors, the “cultural shorthand,” company norms, and information on “how things really get done,” are conveyed between employees through impromptu exchanges. Activity behaviors also provide social connection—the link that binds people and the organization, and are absolutely essential to organizational success. While activity behaviors happen everywhere, they can happen in spaces designed specifically to support it: coffee bars, stairwells, game rooms, and anywhere else people can casually come together.

- + **Focus** is an individual work mode that occurs within a primary workspace that requires concentration and reduces interruptions. Colleagues’ geographical proximity is not as important. The individual initiates any required collaboration which can be virtual (networked based), telephonic, or face to face.
- + **Share** is a collaborative work mode that can occur in individual or group spaces and centers on the casual exchange of ideas with a small number of colleagues. Sharing occurs through concentration on a single computer screen, reviewing a document, or exploring divergent thoughts with others—circling out before circling back. Sharing is a means of transferring intangible knowledge between employees.
- + **Team** is a group work mode applied to specific work goals that occurs in formal and informal meeting spaces. The team work mode is typically project work. The characteristic of the team can flow from formal to casual and the facilities that support this work should match this flow.

Focus



Share



Team



Workspace Integration

Central to our model is a dynamic component, the temporal flow of people, work process, and information between the three work modes and activity behaviors. The ease and efficiency of information flow and physical movement between work modes is critical to organizational effectiveness—at least as important as supporting the individual work modes themselves. We use the term workspace integration to define how well the design of space (and technology and business process design) supports the flow of information and people between work modes.

- + The quality of workspace integration is the degree to which the workspace facilitates the seamless flow of people and information across the work modes. Thus, the model suggests that the better the quality of workspace integration, the better will be the work performance of employees.

There are two types of workspace integration:

Horizontal workspace integration is the ease of information and people flow between work modes located within different areas of a facility (and external to the facility) (See Figure 2). Thus:

- + Each work mode can occur at a different location in the facility.
- + There is an ongoing shift between the work modes through physical movement to different spaces as the work process demands. For example, shifting from focus to team work by moving from the primary workspace to a nearby meeting room.



Figure 2. Horizontal Integration

Vertical workspace integration is the ease of individuals being able to shift from one work mode to another (such as focus to share activities) within their primary workspace. (See Figure 3.)

Thus, the worker:

- + Stays in the same workspace but shifts between work modes as part of the work process within that one space. For example, shifting from solo work (focus) to a quick interaction with another person (share) in the primary workspace. This could happen by sitting in spatial proximity to that colleague and sharing technology, information or materials.

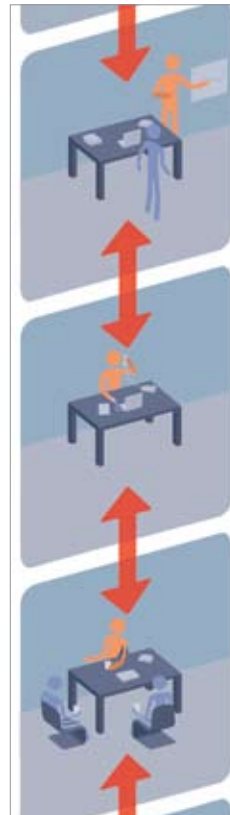


Figure 3. Vertical Integration

Research Program

Approach

As part of a larger program of research, we integrated the models and tested their benefits through two concurrent research projects, described in the following sections.

Research Project: Exploration of the Model

We conducted this research to study the existence of the work modes and workspace integration, and their characteristics. We assessed how the proportion of work conducted in each work mode might change over time and frequency of work mode activity across eight industries. We investigated similar questions about workspace integration. We conducted this study through structured interviews with real estate, facilities and design leaders within 40 organizations and across eight industries.

Case Studies: Impact of Workspace Integration on Employee Performance

We conducted research with three leaders in financial service, education and consulting organizations. We examined the effects of workspace design features thought to be related to vertical and horizontal integration on employee behavior and performance. The results and recommendations from this project are described in a case study format within this paper.

Research Project: Exploration of the Model

Research Questions

1. We propose three primary work modes (focus, share, and team). There is also “activity,” which is a component of all three work modes. Do these work modes, and activity, exist and in what proportions across a range of industries?
2. How will the proportions of the work modes shift over time?
3. To what degree does each work mode contribute to business success?
4. The shift of work between modes occurs vertically (within a single workspace) and horizontally (across different workspaces). Do these vertical and horizontally integrated work modes exist across a wide range of industries? What are the proportions of vertical and horizontal shifts within and across organizations in different industries?

Methods

Participants

Forty real estate, facility management and design leaders from eight industries participated, for a total of 5 interviews per industry. The typical respondent was a director or vice president level facilities or corporate real estate professional with responsibility for 10,000 employees in North American and international locations. Most participants had greater than 20 years experience in their profession. These companies are

recognized leaders in the way they think about workspace effectiveness and reflect a range of industries including:

- + Financial
- + Education
- + Retail
- + Consulting
- + Energy
- + High tech/communications
- + Healthcare
- + GSA

We conducted an in-depth structured interview of about 1 hour in length with each participant. Each interview process used a 15-question interview protocol that included open-ended comments.

Results

Key Finding 1

Work modes and activity behaviors are universally accepted as the major ways of working, regardless of industry.

- + All participants recognize the existence of focus, share and team work modes and the notion of activity as an integral part of each of these modes.
- + After listening to all the interviews and combing through written comments it became obvious that participants perceived the model as comprehensive and intuitive, and felt it could be easily applied to their organizations.

“This is spot on. We have people that fall into all these categories. They have defined it well here.”

— Director of Facilities,
Energy Company

Key Finding 2

The largest proportion of work today is focus work, but in three years the amount of focus work is expected to drop and collaborative work will increase.

Figure 4 shows the relative proportion, today and three years in the future, of work modes and activity behaviors across all 40 organizations that we interviewed. The largest proportion of work activity is in the focus (individual) work mode (41%) followed by team work (27%) and share (19%). In addition, activity occurs about (13%) of the total time. Importantly, participants anticipate the proportion of focus work will drop by 25% (from 41% to 30%) over the next three years, but the amount of team, share and activity work will all increase.

Key Finding 3

The largest investment is in workspaces that support focus (individual) work but focus work is perceived to have the relatively smallest impact on business success.

Figure 5 shows the percentage of all study participants for each work mode, and activity, who rated the work mode or activity as “important” or “very important” in terms of its relevance to business effectiveness (grey bars). Thus, the majority of respondents (85%) feel team work has the greatest impact on business success, followed by share (76%), activity (63%) and lastly by focus (solo) work (56%).

“We certainly promote [share] mentoring but our office space design is on focus.”

— VP of Real Estate, Healthcare
Organization

Figure 4.
Proportion of time spent in each work mode and activity behaviors, today and three years in the future

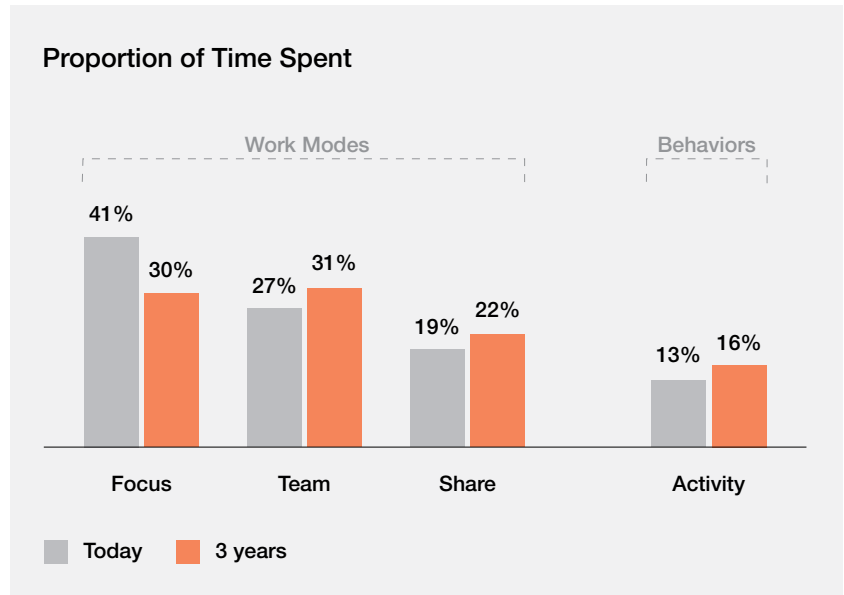


Figure 5.
Contribution to business effectiveness compared to investment in workspace

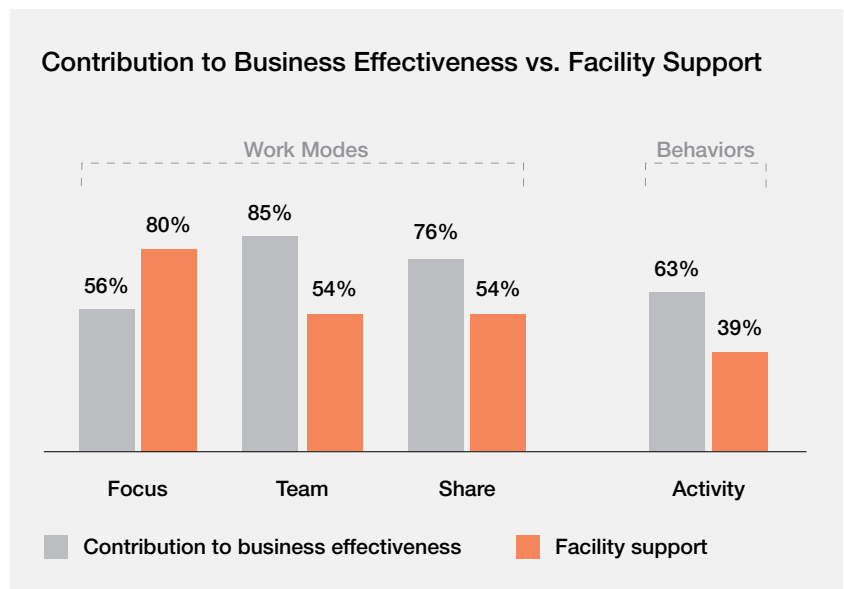


Figure 5 also shows the percentage of all study participants who rated their facility workspace as being currently “optimal” in terms of support for each work mode (red bars). Thus, the majority of respondents (80%) feel their workspaces are optimized to support solo (individual) work, followed by team and share (each 54%) and last by activity behaviors (39%).

Figure 5 shows that while the team and share work modes are most important to business success, the greatest current investment is in spaces to support focus work. Thus, the opportunity is to shift some investment away from individual spaces, to spaces that support interaction and collaboration.

Key Finding 4

Horizontal and vertical integration occurs in roughly equal amounts. However, five of the eight industries surveyed had large differences in the proportions of horizontal and vertical integration (see Figure 4).

+ The terms vertical and horizontal integration are useful way of describing movement between work modes in the workspace. They are validated for companies within all the industries we surveyed.

“I hadn’t heard of these terms before but it’s a good way to understand how work happens.”
–Director of Facilities,
Healthcare Company

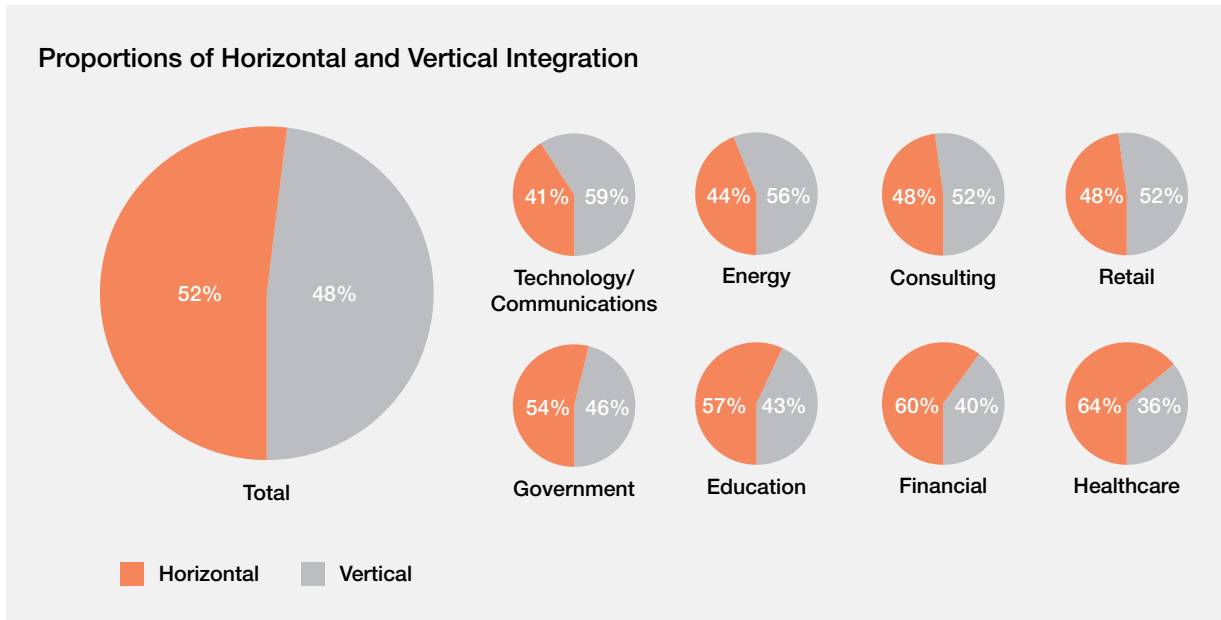


Figure 6. Relative proportion of horizontal and vertical integration across industries

Figure 6 shows the results summarized across industries for the percentage of work that is horizontally integrated (52%), and the percentage of work that is vertically integrated (48%). On average, there is about an equivalent proportion of work mode integration across all industries. However, the education, technology, financial, energy and healthcare industries have relatively large differences in the proportion of integrated work (Figure 6). There are a variety of reasons for these differences, largely driven by the nature of the layout of space and the predominant type of work performed by industry. For example, healthcare facilities have almost double the amount of horizontal work flow compared to vertical work flow because these facilities tend to have a large footprint and frequently are spread out over several buildings on a campus setting.

“You need to have good solutions for both. It’s not an ‘either or’ situation. There is value to both modes of integration.”
–VP of Real Estate,
Financial Services Organization

Other interview data we collected showed that with vertical integration, most shifts occur between focus and share modes, as opposed to horizontal integration, where shifts frequently occur between all work modes (see Table 1). Participants felt that the idea of vertical integration—shifting between all work modes in a primary workspace—was an innovative idea worth considering (Table 1).

Horizontal Integration	
<p>Characteristics</p> <ul style="list-style-type: none"> + Changing locations to change work modes is conventional + For most organizations, horizontal shifts occur between all work modes 	<p>Benefits</p> <ul style="list-style-type: none"> + Accidental and unplanned sharing of ideas + Movement encourages unplanned conversations between different individuals and teams + Reduces risk of injury + Moving throughout the day provides enhanced circulation and can reduce the risk of musculoskeletal injuries due to static postures
Vertical Integration	
<p>Characteristics</p> <ul style="list-style-type: none"> + The ability to shift between work modes in one location perceived to be innovative + Few facilities are designed to support work flow between all modes, most shifts occur between Focus and Share 	<p>Benefits</p> <ul style="list-style-type: none"> + Efficient use of space Use less square footage + Efficient use of time Shifting between work modes in one location reduces travel time + Cross fertilization of ideas Spatial proximity of employees for easier interaction

Table 1. Characteristics and benefits of horizontal and vertical integration

Key Finding 5

Horizontal and vertical integration both help employees share ideas through various types of interaction.

Comments from the interviews also revealed that horizontal integration yields benefits such as unplanned sharing of ideas, and reduced risk of musculoskeletal injuries because employees avoid prolonged static postures by moving from location to location as work modes change (see Table 1). Benefits of vertical integration include efficiencies of space utilization because the work modes occur within one space instead of multiple locations, time saved in not having to move from place to place when shifting work modes, and easier sharing of ideas because the shift from individual to group work can happen more quickly (Table 1).

Key Finding 6

Horizontal integration is seen as conventional—vertical integration is seen as innovative.

Table 1 shows a summary of observations from participants about horizontal and vertical integration. For most organizations, all work modes occur at different locations, meaning they are horizontally integrated.

This is seen as a relatively conventional manner of work. The ability to shift between all work modes within one primary work location (vertical integration) is perceived as innovative, but most shifts occur between the focus and share work modes. Few participants felt their workspaces would support vertical integration between all work modes.

Conclusions

- + Focus, share and team modes, and activity behaviors, are present across all the industries that we included in this study. The results suggest that they may be applicable to knowledge workers across other organizations as well.
- + The disconnect between the high investment in spaces to support focus work, and the relatively small contribution of focus work to business success, is an opportunity to re prioritize investment and space allocation to support collaborative work modes.
- + Overall, horizontal and vertical workspace integration occurs with equal frequency—suggesting that both types of work flow play an important role in organizational performance.
- + Space concepts that facilitate vertical integration provide an opportunity to enhance employee performance while reducing costs through greater space efficiency.
- + Both horizontal and vertical workspace integration provide the opportunities for employees to increase casual interaction and innovation.

Research Program: Benefits of Workspace Integration

Purpose

In this section, we describe the high level results of three studies designed to explore the relationship between workspace features that support workspace integration, and employee outcomes such as quality of: communication, collaboration, employee engagement, learning and fixed facility costs. We conducted large scale surveys with three different organizations within the educational, consulting and finance industries, and analyzed over 52,000 completed questionnaires from the end-users within these organizations.

Participants

The organizations included three leaders in the financial services, educational and consulting industries. The types of facilities within this program include call centers, corporate headquarters, and regional offices located in the US and around the world. The job types include call center agents, professionals, managers and administrative jobs. The work styles range from highly mobile to traditional office work.



Case Study 1. Financial services arm of an automobile manufacturer



Case Study 2. School of public health within a large research university



Case 3. Global management consulting firm

Case Study 1: Financial Services Organization

In a recent research project with the financial services arm of an automobile manufacturer, Knoll studied the effects of workspace design features related to horizontal and vertical integration on employee behavior and performance (O'Neill, 2009a). Using regression analyses to examine data from more than 1,300 surveys, O'Neill found that three design capabilities significantly influence behavioral and performance outcomes. The first two design capabilities are related to quality of vertical integration (supporting flow of people and work within the primary workspace) and the third is related to horizontal integration (supporting the flow of work between work modes in different locations within the facility):

Impact of Vertical Integration

- + Better arrangement of worksurfaces, storage, chairs, computer displays, etc. in the primary workspace, led to significantly improved learning from co-workers, collaboration and group effectiveness.
- + Better work space design that allows the employee to make a smooth transition between solo and group work within their workspace, led to significantly improved communication, learning from co-workers and collaboration.

Facilitating the transition from solo to group work can improve communication and collaboration

Impact of Horizontal Integration

- + Design of the layout of the office space that makes it easy for co-workers to access each other, led to significantly improved collaboration and group effectiveness.

Case Study 2: Higher Education

In this case study we conducted research with a school of public health within a large research university (O'Neill, 2009b). We examined the effects of workspace design features thought to be related to vertical and horizontal integration on faculty teaching effectiveness and the quality of student learning. The study included 92 faculty and 300 graduate students. The results of this study show that the quality of the teaching and educational experience for students and faculty depends largely on characteristics that support vertical integration: classroom space that is flexible enough to support different teaching styles, the ability to reconfigure classroom furnishings, and the ability to reconfigure technology within the classroom space.

Impact of Vertical integration

- + Flexibility of classroom space in terms of supporting different teaching styles led to higher student engagement, greater communication between students and faculty, collaboration between students, student feelings of being valued and the school conveying the right image to students.
- + Ease of modifying classroom technology led to significant improvements in faculty ability to have meaningful conversations with students, improved working relationships with students, and reinforced a positive image of the school to students.

Quality of the teaching and educational experience for students and faculty depends largely on characteristics that support vertical integration

- + Ease of reconfiguring classroom furnishings led to significant improvements in communication between students and faculty, collaboration between students and student engagement with the school.

Case Study 3: Management Consulting Firm

Knoll conducted research with a global management consulting firm to investigate the impact of design features related to horizontal integration on fixed costs and employee engagement (O'Neill, 2009c). Other research has also investigated various design, technology and policy implications for supporting the flow of work and information within organizations that have a mobile workforce (Becker, 2004; Venezia and Allee, 2007; Venezia, 2007). An electronic survey was administered by Knoll research to employees at 194 office locations in 52 countries within the firm, resulting in 49,852 usable responses. The survey was administered in eight languages to ensure it was interpreted accurately, given its global context. Survey topics included assessment of: physical comfort, privacy, safety and security, access to appropriate meeting space, quality and accessibility of meeting spaces, and other factors. We also collected employee demographic data: job type, job level, and generational affiliation. The effects of demographics were removed in the analyses so we could exclusively understand the effects of design features on the outcomes.

Impact of Horizontal integration

- + The results show that an increase in quality of meeting space (availability, appropriate size, location, furnishings and technology), and quality of administrative reception capability, led to a small but statistically significant reduction in net facility costs (as a percentage of revenue). Thus, investing to improve elements that support horizontal integration (meeting space quality and effectiveness of reception) will actually reduce fixed costs, possibly because employees can more quickly make effective use of space in getting their work done.
- + The results show that an improvement in the quality of meeting spaces (availability, appropriate size, location, furnishings and technology), led to a small but statistically significant increase in employee engagement. Further, our financial model using this data showed that investing to improve meeting spaces (an element of horizontal integration) will increase engagement and reduce employee turnover costs.

Investments in horizontal integration can reduce fixed costs and improve employee engagement

Summary

For the sake of brevity, these case studies discuss only a fraction of the results that we found. However, the results consistently show that design elements related to horizontal and vertical integration significantly affect important behavioral and business outcomes.

Thus, the features and furnishings of the workspace can be specified to optimize horizontal and vertical integration and thus enhance key employee behaviors and performance.

Further, because of the wide variety of work settings (corporate headquarters, call centers, field offices and higher education learning spaces) and work styles (highly mobile through traditional office work) and the type of research design and analyses we employed, the results can be safely generalized to the broad population of office workers.

Design Recommendations

In this section, we present design recommendations based on the exploratory research at the start of this paper, the case studies, and our observations and other design research projects with customers. We have organized these recommendations to provide insights on how to design for both horizontal and vertical integration.

Horizontal Integration

Enhance office layout for ease of accessibility of co-workers

- + Optimize layout and location of workstations and offices to enhance visual access. The line of sight from person to person becomes key in connecting the individual to the group. This visual connectivity reminds individuals there are others around them and people monitor their behavior.
- + Reduce overall horizon height of the walls and furnishings to increase visual access and accessibility. This is not to say that a single horizon is the right solution. Instead, provide the balance of horizons to support the work at hand: low horizons support collaboration and mid-height panels assist focused work. Maintaining direct lines of sight to the window line are important as well.
- + Create a variety of work activity zones to enhance chance encounters. Providing a variety of settings to support a variety of work is a cornerstone of dynamic planning. Understand your work processes and provide appropriate settings to mirror the work flow. The rhythm of the workplace should match the work.

Support smooth transition between work modes

- + Create collaboration spaces of varying sizes. This tiered approach to meeting spaces should meet the varying needs of the engagements—formal to casual. Time is a critical planning criterion for these areas.



A variety of settings supports a variety of work



Thoughtful product specifications can make chance encounters more likely



Visual access between workstations and offices reinforces the connection of the individual to the group

A short meeting may only need a standing solution; more intensive sessions require space in which people can hunker down for longer periods of time.

- + Ensure that policies and technologies make it easy to assign collaborative and unassigned individual spaces as needed. The “culture of permission” is influential in the workplace. Are people allowed to use the resources and spaces provided? Is there a perception that resources are readily available and plentiful? Does the culture embrace the idea that work can occur anywhere, anytime?
- + Provide good quality administrative support that smooths transition to work at different facilities. Specifically for a very mobile workforce, a concierge approach keeps things clear: where to sit, where to print, where to find coffee, and how to connect.



Low horizons enable collaboration; mid-height panels assist focused work

Vertical Integration

Optimize arrangement of furnishings and technology in workspace

- + After observing the range of tasks and interactions occurring within the workstation, ensure the technology and work tools are arranged in a way that supports the flow of work tasks. If the flow of tasks makes it impossible to design an interior layout that supports all work, design so the furnishings and technology can be adjusted or moved by the employee.
- + Primary workspace should permit quick, informal meetings (nimble visitor seating, collaborative worksurfaces, marker boards, etc). The ability to scale is important. Having a second or third person accommodated in the primary workspace allows for the exchange of ideas and information in a fluid manner.
- + Ensure technology devices and furnishings are arranged to support collaboration. An adjustable monitor arm allows for more than one person to view the flat screen display, or wireless input devices make it easy for others to take command of the mouse and drive. Keep a strong group connection to technology.
- + Specify furnishings and technology that can be adjusted or moved by the worker. Personalization of the primary workspace by micro adjustments—worksurface, chair, storage elements,



Adjustable work tools let users personalize their space



Well designed workspaces ensure the smooth transition between individual and group work

and monitor—allows the user to modify the space to suit his or her needs. This also fulfils the occupant’s desire to shape their own space.

- + Workspace design should help the employee make a smooth transition between individual work and different types of interactions. The primary workspace should permit the associate to have quick, informal meetings within their workspace (perhaps through flexible visitor seating that permits “perching,” collaborative worksurfaces, etc.).

References

Becker, F. (2004), Offices at Work, Jossey-Bass, San Francisco, CA.

ComputerWorld Magazine. “*Teleworking: Is Home the 21st Century Office?*” August, 2008.

Gensler. *2008 Workspace Survey: United States*. Gensler, New York, NY, 2008.

Harrison, A., Wheeler, P. and Whitehead, C. The Distributed Workspace: Sustainable Work Environments. London; New York: Spon Press, 2004.

HOK Advance Strategies. An Introduction to Our Offering, 2007.

InDesign Magazine. *Homers, Zoners and Roamers*, Issue 23, November, 2005.

O’Neill, M. *Case Study: Financial Services Organization*, Knoll research white paper, 2009a.

O’Neill, M. *Impact of Classroom and Office Design on Teaching and Learning*, Knoll research white paper, 2009b.

O’Neill, M. *Research Case Study: Design Features that Reduce Costs and “Brain Drain” in Mobile Organizations*, Knoll research white paper, 2009c.

Jacobson, P. *Case Study: Homers, Roamers and Zoners—Putting Teleworking into Practice—Proceedings of Teleworking 2008—Creating a Location Independent Workforce*, November, 2008.

Turner, M. [Ed.] Groups at Work: Theory and Research. Lawrence Erlbaum Associates. Mahwah, NJ, 2001.

Venezia, C. and Allee, V. *Supporting Mobile Worker Networks: Components for Effective Workplaces*, Journal of Corporate Real Estate, (9)2, 2007.

Venezia, C. *The Voice of Mobile Workers: Translating Practices, Relationships and Components into Effective Workplaces*, Knoll research white paper, 2007.

Knoll research investigates links 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