

Knoll Workplace Research

Creating Collaborative Spaces that Work

A Performance-based Approach to Successful Planning

Knoll

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Organizations recognize group work is central to success, but struggle to offer effective collaborative spaces

Historically, most collaboration occurred through formal, scheduled meetings having many participants. As a result, organizations have had years of experience building conference rooms and other formal meeting spaces. These spaces were designed to facilitate large group work processes, efficient exchanges of information, and decision making.

However, two elements of collaboration have fundamentally changed, both from the perspective of employees, and their organizations. First, employees increasingly desire social connection and engagement as part of their collaborative experience.¹ Second, organizations need both operational excellence—and innovation—to succeed. Operational excellence is related to process efficiencies such as speed of group decision making. Innovation is nurtured through informal, social, creative interactions. This combination of shifting employee expectations of group work experience and emerging enterprise needs is driving

the charge towards a greater variety of collaborative workspaces.

In response, the workplace is increasingly shifting from a “me” to a “we” work environment in which a wide assortment of technology-rich² group spaces are offered.^{3,4} *But the collaborative solutions are often hit-or-miss. Organizations are largely operating in the dark as they struggle to offer workspaces that successfully respond to these complex demands.*

Most organizations consider the social component of work separate from “work” spaces. To foster social interaction, some copy the obvious characteristics of successful public spaces (the café, bar, market, lounge, etc.) mistakenly hoping that the variety of social interactions occurring in the public versions of these spaces will translate to a business setting.

Innovation can be fostered by building connection between people and the organization, integrating new, differing perspectives, and other social interactions. However, organizations have few insights into supporting innovation other than to encourage as much interaction as possible and “wait for the magic to happen.”



Key Take-Aways

This study spans nine industries and 38 organizations that support more than 300,000 employees.

- ▶ The need for innovation and speed of decision making are the principal drivers behind the charge towards collaborative work.
- ▶ Organizations offer a wide variety of spatial options for group work. This study discovered 32 kinds of group space; most study participants offer at least seven types.
- ▶ Today’s collaborative spaces fall short of expectations, driven by a lack of spaces to support the most valued types of collaboration, and a lack of adaptability of both furnishings and technology within the spaces.
- ▶ While the most highly prized collaborations are informal in nature, they need to be supported with the right design characteristics such as convenient location, support for social and small group work interactions, and casual look and feel.
- ▶ The types of collaborative spaces offered continue to evolve; the most rapidly growing categories support brainstorming, small unplanned meetings, videoconferencing and project team work.
- ▶ In the future, most collaborative spaces will offer features that facilitate connection to technology, sharing of visual information, adaptability to changing work process and amenities that nourish the spirit (food, beverages, and daylight).

Two types of information exchange are central to effective collaboration

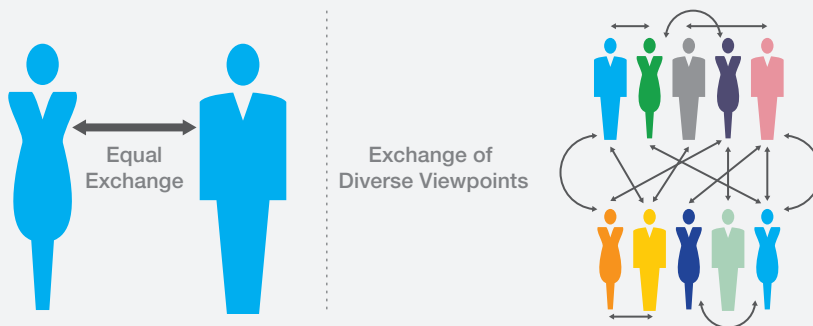


Figure 1. The first element is the “equal exchange” in which the contribution by each party proves mutually beneficial. The second is the exchange of diverse viewpoints, which drives acceptance and understanding, leading to a richer perspective. Together, these exchanges increase the quality of collaboration, and lead to better connection between people, cooperation towards common goals, and sense of community.

Thus, many organizations recognize their group spaces are underperforming, but do not know how to respond other than to add more variations.

Effective group spaces support equal sharing, and diverse social exchanges

The demands on collaborative spaces has bifurcated to support not only good work process but also “soft” issues such as creativity and innovation, increasing social connection and diversity of thought, and perhaps even building a sense of community (Figure 1).

In this paper, we offer insights gathered from 38 leading organizations across nine industries on the nature of successful collaboration. This study presents a view into the future for creating and planning successful spaces that encourage productive exchanges, connection between people and technology, cooperation and sense of community.

Knoll engaged Ratekin Consulting, a leading workplace research firm, to gather information on world-class collaborative environments. The study used an electronic survey and interviews with corporate real estate and facilities directors to explore the planning, design and use of collaborative spaces and technologies. Participating organizations were selected based on their leadership in creating effective collaborative spaces, providing a diversity of perspectives.

1. Organizations Offer a Wide Variety of Spaces for Increasingly Casual Exchanges

The search for competitive advantage through innovation and effective decision-making has led many organizations to highly value group-oriented work, and workspaces. Innovation occurs through less structured socially-oriented exchanges. Quality decision-making is a component of more structured, formal group interactions.

In the planning model that is emerging to meet these needs, office workers no longer lay claim to just a small square of individualized real estate but also share ownership of a wide variety of group workspaces. These spaces reflect organizations’ desires to attain goals that address needs, innovation and business process efficiency.

A. Innovation and speed of decision making are the leading reasons for offering collaborative workspace

The business imperative to foster innovation and the need to increase the speed of

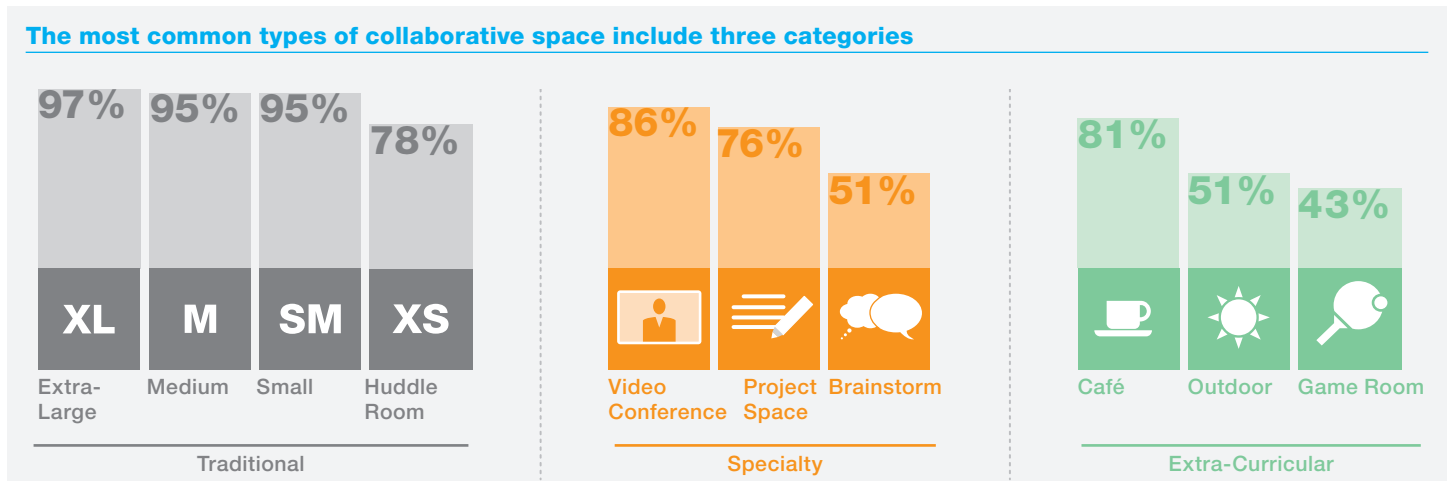
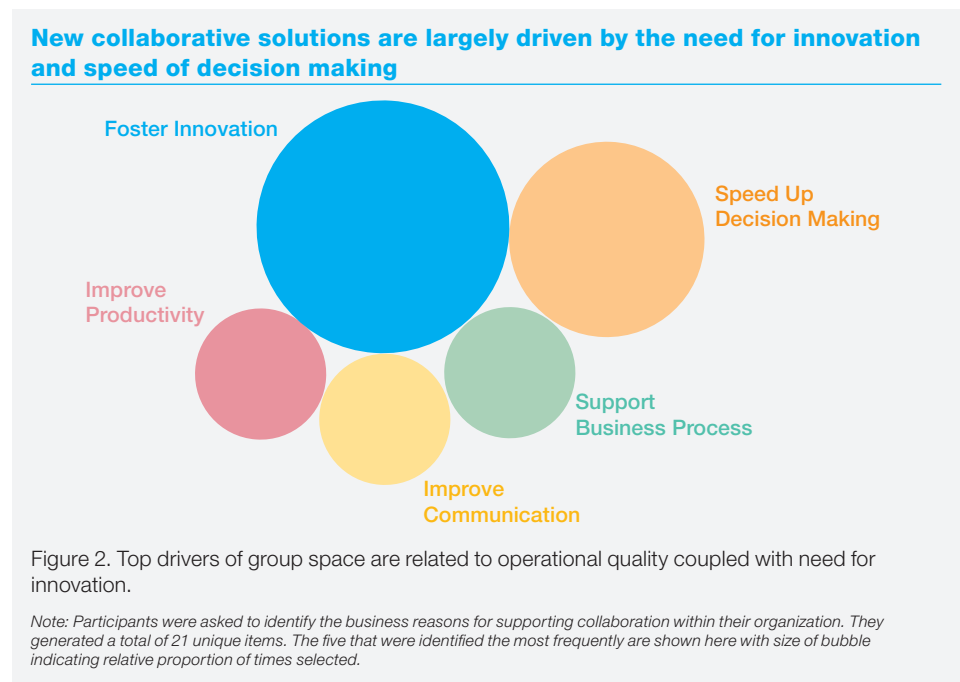


Figure 3. Three quarters of participating organizations offer at least seven types of group space, including the newer categories of videoconference and café spaces.

Note: Participants were asked to indicate which types of collaborative space exist within their current standard from a list that included ten spaces plus an “other” category to which they could add new types. Figure 2 shows the percentage of respondents indicating their use of each workspace type within their current planning model. The “other” category was selected by 27% of respondents and included 22 additional types of space: scrum room, gym, kitchenette, library, satellite coffee areas and 17 other types.

decision-making are the two most important reasons for organizations' support of collaboration (Figure 2).

The third most cited reason for encouraging collaboration is to better support business process. Without collaboration, most businesses would struggle to bring together the expertise of individuals and teams required to deliver best results within acceptable time frames.

These results confirm the assessment of other business leaders, that businesses today are driven to promote company-wide innovation and that the workplace is an important part of the solution.

B. Current workplace strategies offer a wide variety of collaborative space

Organizations provide a significant breadth of open and enclosed space types to support collaboration. Study participants identified 32 unique types of collaborative space in use today, and three-quarters of participating organizations offer at least seven types of group space in their current planning standard (Figure 3). While traditional large, medium and small meeting areas remain the most prevalent collaborative spaces, other spaces are also offered. These include videoconference and café spaces and relatively newer concepts, including huddle rooms, "brainstorming" space and game rooms.

Half of all respondents report having brainstorming space as part of their current standard (Figure 3). These areas are usually supplied with display technology, whiteboards, chalkboards, writeable or "tackable" walls, lounge furnishings, specialized lighting and other casual elements to spark creative thinking. Of the ten spaces shown in Figure 3, the game room is the least common. Game rooms tend to be used more frequently in certain industries (such as high tech).

C. The most important collaborations skew towards informal exchanges—but supporting formal project team work is still important

Informal interactions are the most valued, topped by brainstorming, which more than

half of all respondents said is *the* most important collaborative behavior for business success (Figure 4). It is a safe forum for idea generation dependent upon a diversity of exchange. While three out of four of the most important interactions are informal, structured group work (orange bar, Figure 4) is also considered highly important.

“Our kitchen bar is heavily used by employees for breakfast and lunch. It is not considered a leisurely place. Work takes place there that could not take place anywhere else.”

- FACILITY DIRECTOR, TECHNOLOGY COMPANY

2. The Nature of Collaborative Space Drives Its Use

The nature of collaboration is making a broad shift towards small, unplanned informal meetings and away from lengthy formal interactions having many participants. Today, the spaces built to support group work are also starting to reflect this trend—in particular the social component of work. Spaces once thought of as having a purely social function, such as cafés and lounges, are being

Casual interactions and formal project team work are the most highly valued interactions

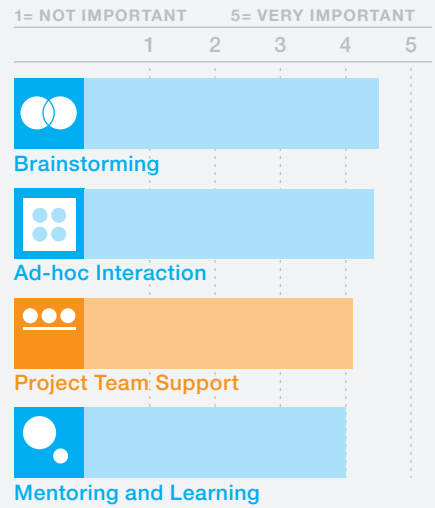


Figure 4. The most important collaborative behaviors support creativity and ideation, unplanned interactions, and sharing knowledge – but formal group work is also important

Note: Participants rated the importance of eight types of collaborative behavior on a scale of 1 to 5. The eight types included brainstorming, mentoring, short unscheduled meetings, ad-hoc meetings and social interactions, to more formal project team work, training activity and long duration scheduled meetings.

Popular spaces support informal, social, small group interactions



Figure 5. The most popular types of spaces emphasize the casual, social nature of small group interactions – not long formal meetings for large groups. The four most popular spaces, as shown above in order of popularity, are café, extra small, small and medium size meeting rooms.

Note: From a list of ten types of spaces, plus an "other" category, participants indicated which space types their employees are most drawn to use. Participants could indicate as many space categories as applied.

understood as legitimate places to work (while retaining the social aspect of interactions).

A. The most highly used spaces support social, small group interactions

Workers are not drawn to different types of collaborative spaces in equal numbers. Rather, they choose based on the attributes of the space and how well it fits the work at hand. In addition to café area, collaborative spaces that range from extra-small to medium in size are the most frequently used (Figure 5). Some of the least popular space types are game rooms and outdoor meeting areas. Although these do support social interactions, game rooms and outdoor areas may not be as well suited for group work activities and be culturally acceptable only in certain industries and business cultures.

The popularity of smaller meeting spaces reinforces the notion that a greater proportion of meetings today includes a smaller number of people, taking place in less formal settings. As detailed in the following section, furnishings, technology, ambiance and

amenities play an important role in creating attractive group space.

B. The most popular group spaces offer the right technology, close proximity and offer a sense of privacy

Having the right technology is a leading ingredient in the recipe for a successful collaborative space (Figure 6). Technology must support people's abilities to connect devices to power and Wi-Fi, and ultimately, to each other. People should be able to use whiteboards and laptop or larger screens or projectors to display and share visual information. The technology should be adaptable, reliable and easy to use. Accessing the technology should not diminish the ability to quickly meet, share information and interact.

But the answer is more than just technology. Inside, collaborative spaces must offer visual and/or auditory privacy for people to feel comfortable creating and sharing content or

"We live in a BYOD [bring your own device] world. Employees bring their own devices— computers, tablets and smart phones into the workplace and expect the IT department to make them work."

CRE DIRECTOR, PHARMACEUTICAL COMPANY

having frank discussions. The space has to be the right size and conveniently located. The search for far-flung meeting spaces can waste time, and discourage their use. Other research concurs, noting that collaborative spaces must be open and readily accessible to employees.⁵

Meeting spaces that are too large make small groups feel uncomfortable and reduce space utilization rates. To support informal interactions in small groups, meeting spaces should also offer a playful or relaxed sensibility. Our research confirms this perspective, revealing that "casual feel" is one of the more important characteristics of successful space (Figure 6).

Technology is the key feature of highly-used collaborative space

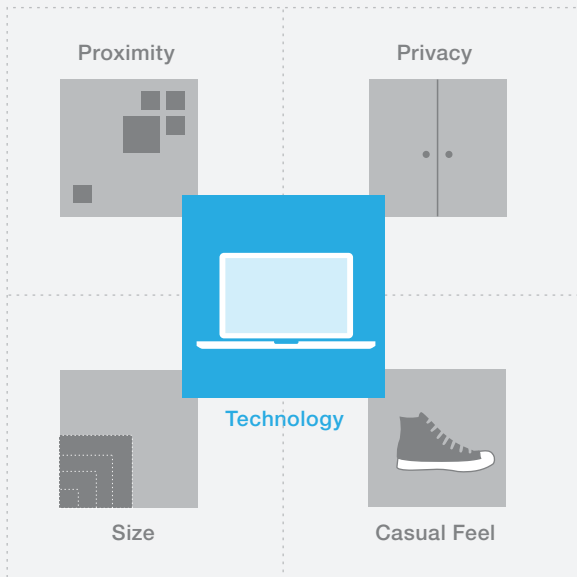


Figure 6. The five meeting space characteristics that drive high space utilization emphasize technology and include planning and design issues.

Note: Participants allocated "votes" to a list of 13 characteristics that they felt positively influence the popularity and use of meeting spaces. This figure shows a proportional weighting of total votes for each of the top 5 features. The most important feature is technology followed by proximity, privacy/enclosure, appropriate size of space, and casual feel of space. Other attributes identified include whiteboards, videoconferencing, food, daylight, seating options, décor and openness.

The "scrum room" is an emerging collaborative setting

The scrum room is a collaborative space dedicated to a specific core team of cross-functional experts whose purpose is to rapidly complete one specific project. The concept was developed to support agile software development. Agile teams have been reported to produce stronger, higher quality results in a third of the time of conventional project methodologies, but they require a meeting room for the duration of a project.

Core team members use the scrum room as their primary workspace for the life of the project while extended team members come and go as needed. Scrum rooms collect and display information that describes project goals and objectives, typically posting storyboard processes and project progress on the walls so that all team members and customers can instantly engage in the work at hand. Teams hold regular "scrums" to discuss yesterday's accomplishments and reset new goals.



Together, these features can lead to an engaging environment that supports equal exchanges and provides a comfortable setting for people to share different viewpoints. Spaces that support these exchanges can help employees learn from each other and cooperate towards a common goal.

If the intention is to draw more workers to the types of collaborative spaces associated with innovation, it makes good business sense to consider increasing the quantity of brainstorming, project and smaller casual spaces and their distribution throughout the workspace. Transforming larger spaces into different, smaller types of collaboration settings could prove a good strategy for planners seeking to maximize their collaborative workplace performance.

3. The Most Vital Interactions Are the Least Well Supported

Even as organizations offer a breadth (32 reported) of collaborative space types, they are largely unsatisfied with the success

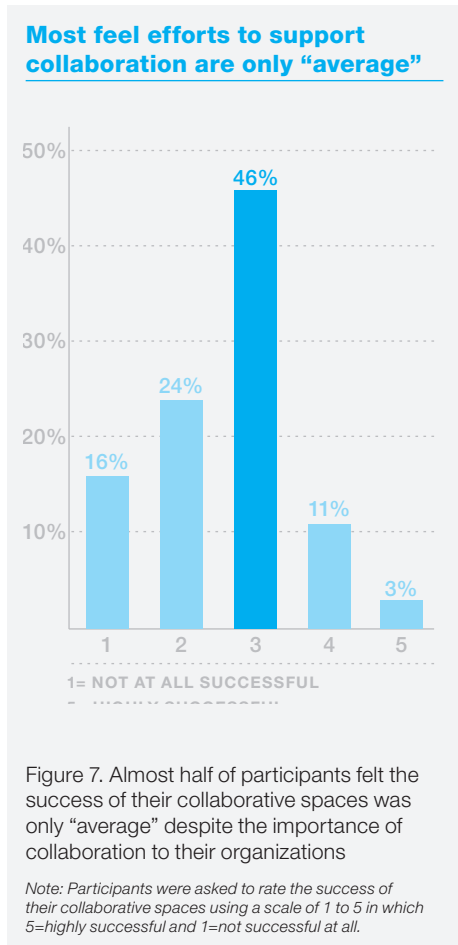


Figure 7. Almost half of participants felt the success of their collaborative spaces was only "average" despite the importance of collaboration to their organizations

of their efforts. The time lag between recognizing an emerging collaborative need, and offering the right space and technology, is part of the challenge. But the issue might go deeper. Because organizations lack insights into the true nature of collaboration they copy the obvious characteristics of successful public spaces (the café, market, lounge, etc.) hoping that the positive social interactions within these spaces will translate to a business setting. By better understanding the distinction between purely functional (traditional spaces), specialty and extracurricular spaces, organizations could better support collaboration.

A. Workplace leaders feel their collaborative space falls short of expectations

The organizations participating in this study were chosen because they are perceived to have high quality, leading-edge collaborative spaces. Yet, only two in five participants rated their group spaces as "successful." Almost half of participants rated their spaces as only "average" in terms of success (Figure 7).

B. There is a gap between the most important collaborative behaviors and employees' abilities to engage in those behaviors

We found a disconnect between the four types of interactions rated most important to business success, and employees' abilities to engage in these collaborative behaviors (Figure 8). This shortfall suggests either there are insufficient numbers of the types of spaces best suited to support these high-value interactions, or that the spaces themselves are lacking the design or technology features required to effectively support these behaviors.

We compared the ratings of the four most valued collaborative behaviors—brainstorming, ad-hoc interaction, project team and mentoring and learning—with the rated ability of employees to actually engage in those behaviors. In all cases, the ability to work collaboratively was rated significantly lower than the importance of each behavior (Figure 8). These responses highlight the opportunity for investment in spaces targeted to support these highly valued activities.

Spaces fail to support the most important interactions

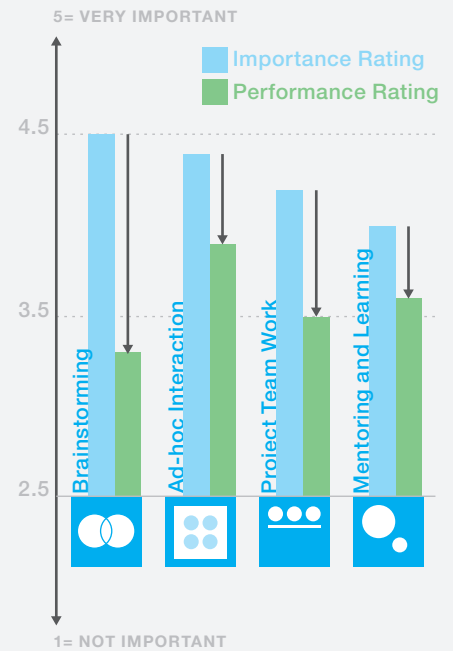


Figure 8. A comparison between the most valued forms of collaboration, and rated ability of employees to engage in these behaviors, reveals a performance gap

Note: This chart compares the importance ratings of the four most valued collaborative behaviors with the rated ability of employees to actually engage in those behaviors. Participants rated both importance and performance using 1 to 5 scales (5= very important/highly successful in engaging in the behavior and 1= not important at all/not successful at all in engaging in the behavior).

Participants cited three factors for lackluster performance of meeting spaces

Budget, space availability and change management issues are important contributors to lackluster performance of group spaces.

- ▶ **Budget issues:** creating these spaces takes time and funding, which are not always available, and budget constraints limit investment in required technology
- ▶ **Space issues:** organizations say they don't have enough room to create collaborative workspaces because there are "too many standardized cubes"
- ▶ **Change management issues:** although the "open collaborative" concept has been out there for some time, the business reasons and advantages to employees have not been well-communicated

Fastest growing types of space are “specialty spaces” that foster a mix of creative and process work



Brainstorm



Huddle



Videoconference



Project Room

Figure 9. Brainstorming is the fastest-growing type of collaborative space

Note: Participants rated the likelihood of a change in the number of spaces create in the next three years for ten types of spaces including open/enclosed huddle rooms, brainstorming space, dedicated project space, videoconference space, open/enclosed small, medium and extra-large meetings rooms, café, outdoor and game rooms. Rating was on a categorical scale where 1=significant decrease, 2=decrease, 3=no change, 4=increase and 5=significant increase. The four space types in this figure received the highest proportion of “increase” or “significant increase” ratings.

4. Emerging Spaces Reflect Duality of Creative Work and Process Efficiency

The key drivers of collaboration in organizations are the need for innovation and speed/quality of decision-making and business process. There is an innate tension between these goals as one implies creative activities, and the other, business process efficiency. In response, the fastest growing categories of space are also bifurcated, supporting creative/ideation activities and small casual meetings on the one hand, and formal face-to-face and virtual group work on the other. Group spaces are now more bespoke to a specific purpose than the off-the-rack fit of a typical conference room.

To address these goals, future meeting spaces will need to offer connectivity and adaptability through technology and furnishings. These capabilities will be coupled with the ability to display and share visual information.

A. Specialty spaces will experience the greatest growth

We found that a mix of spaces supporting face-to-face and virtual interactions, creative

“We find more and more that the work patterns of our employees are unpredictable. Thus, we are building more types of meeting spaces to give people choice over where to work. In those spaces, we are specifying technology and furnishings to provide as much flexibility as possible in how employees use the space.”

GLOBAL REAL ESTATE EXECUTIVE, MEDICAL TECHNOLOGY MANUFACTURER

Brainstorming spaces offer a casual setting that emphasizes sharing of ideas

These spaces have features that allow employees to display a wide range of work materials. The intention is to spark new ideas and insights in employees from other areas of the organization.

- ▶ Shelves or tables on which reference or other written materials or work artifacts can be displayed. These items may trigger an idea when viewed by others.
- ▶ Wall-sized blackboards, whiteboards, or tackable surfaces on which to leave work problems, display ideas, and share project information.
- ▶ Casual lounge seating and tables to promote a range of postures and groupings, reflecting the informal nature of preferred exchanges.
- ▶ A large flat screen mounted on a monitor arm to display information during a work session.
- ▶ A “toolbox” with colored pencils, scissors, and tape used in creativity and brainstorming exercises.

work such as brainstorming, and structured group work are projected to grow most rapidly in the near future (Figure 9). Brainstorming spaces are the fastest growing categories of group space. However, in the rush to create such spaces, organizations should be aware that some workplace experts are openly critical of the effectiveness of formal “brainstorming” sessions.⁶

B. Future meeting spaces will help people connect to technology, share visual information and adapt to changing work needs

Successful high performing group spaces will highlight four capabilities that help people connect to technology and to each other, effectively share visual information, adapt the workspace and technology to their ongoing needs, and civilize the work experience, through amenities such as beverage service and access to natural daylight⁷ (Figure 10):

- ▶ Employees increasingly supplement their desire to connect with others by using technology, starting with the fundamental need for basic power and online access, to use of sophisticated videoconferencing tools.

- ▶ Collaboration now frequently involves displaying and interacting with visual information using a range of small handheld devices to large mounted screens and whiteboards.
- ▶ Changing technology, coupled with a fluid business climate, requires employees to unpredictably adjust their work activities. This requires adaptability of furniture and workspace—for instance by offering more effective choice over space type used and flexibility within the space itself.
- ▶ Environmental amenities including beverage service and access to daylight.

C. Adaptable furnishings could make technology easier to use—enhancing collaboration

A body of research shows that more flexible and adaptable work environments improve employee performance and health.^{6, 9, 10} In the present study, we found that the potential for user adaptability of both furnishings and technology, regardless of type of space, was mediocre. Only one in four ratings was above average (3.0 on a 5-point scale, see “average” line, Figure 11). Improving the adaptability of furnishings used in these spaces could dramatically improve the usability of the technology, and, thus, quality of group work.

The low ratings of technology adaptability may be due to the poor performance of the furnishings used within those spaces. Specifically, the furnishings may do a poor job of allowing people to manipulate and interact with the technology elements in the space. Thus, to improve the overall adaptability of group spaces, the best approach may be to provide adaptable furnishings that allow people to easily interact with technology elements.

The chance to improve the flexibility and adaptability of furniture—especially in the newer space types where higher-value creative and project work is occurring, could greatly enhance organizational effectiveness. Thus, if their adaptability could be improved, these spaces offer the greatest potential gains for effective collaborative work.

The features of future collaborative space will better support exchanges related to both information sharing, and diversity of viewpoint

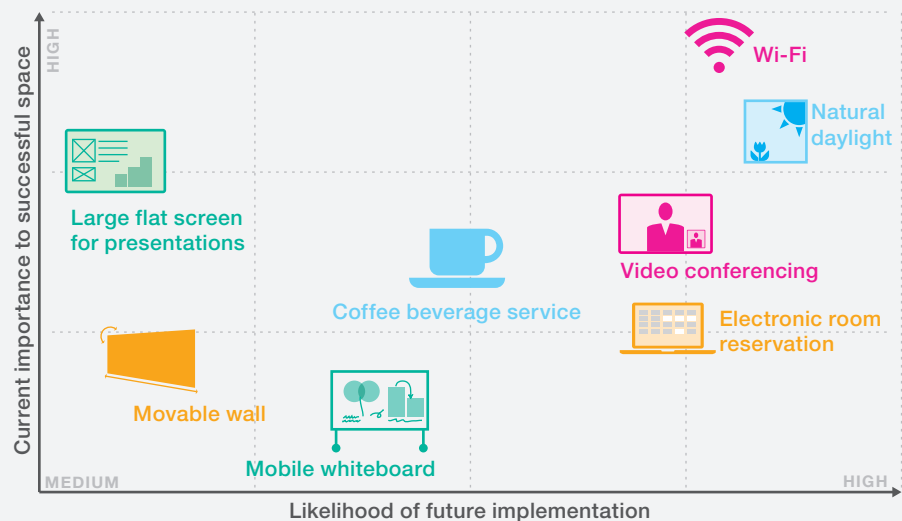


Figure 10. Future meeting space will highlight four high-performing capabilities: connectivity to people and technology, ability to display and share visual information, adaptable space and environmental amenities.

Note: Participants rated a list of 39 features by their importance today (vertical axis) and likelihood of implementing (“desire for the future”) three years in the future (horizontal axis). This figure shows the set of eight features emerged, rated as both highest in current importance and as “must haves” for the future.

Poor user adaptability of both technology and furnishings presents an opportunity to improve collaborative spaces

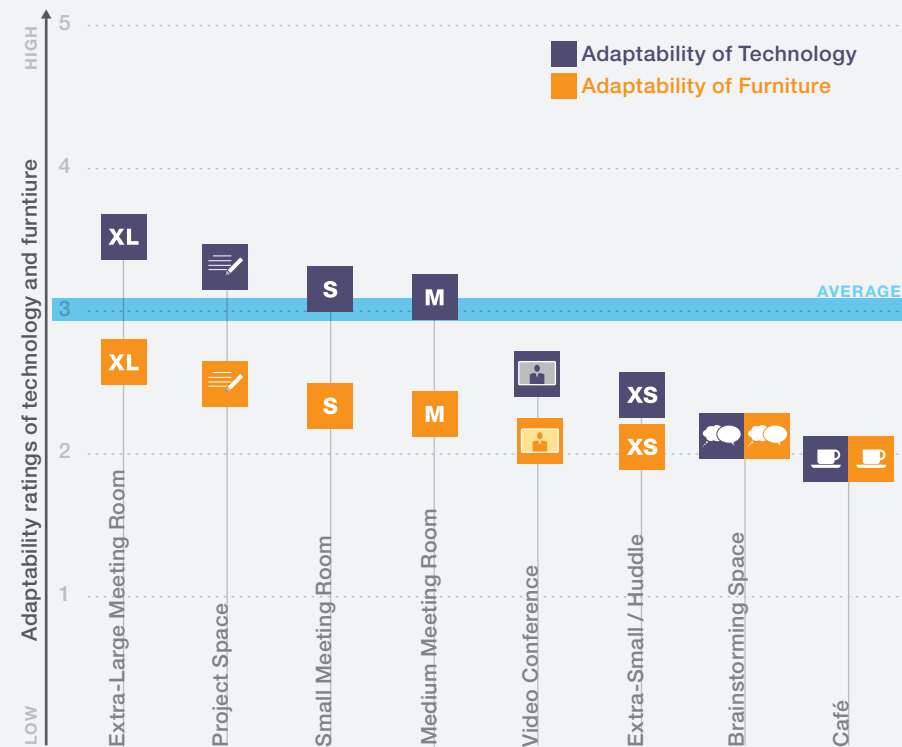


Figure 11. Ratings of user adaptability of furniture and technology components across eight types of space shows poor ratings in the majority of cases. Improvements in adaptability could favorably affect the quality of group work.

Note: Participants rated the adaptability of both technology and furniture elements on a five point scale in which 1=poor adaptability and 5=high adaptability. These ratings were plotted for each of eight types of group space. The blue “average” line shows where an average rating of 3.0 would lie on the chart.

5. The Evolution: From Collaboration to Cooperation and Community

The spectrum of group spaces being offered continues to widen. Specialty spaces are created to serve a narrow range of specific work activities. In some cases the array of space types denotes a shopping list more than a comprehensible story. As the variety of group spaces grows, the legibility of the overall workplace (how easily it can be understood and used) is diminished and the cost and difficulty of space management increases. Today, organizations lack a larger framework that connects group spaces as a meaningful whole, aligned with a broader purpose. Lack of clarity on how and when to use group spaces causes confusion with employees' understanding and acceptance of new planning models.¹¹

A. Organizations can support both elements of exchange through these guidelines

Collaborative spaces need to support exchanges across two ends of a continuum: *equal exchanges*—those related to work process efficiency, and *diversity exchanges*

that promote different viewpoints, broadened perspectives and perhaps innovation among employees (Figure 1).

Equal exchanges support effective group work process

Productive, equal information exchanges are more likely when three conditions are met: people can easily connect to the technology in the workspace, employees can express their ideas in multiple ways by sharing visual information through screens and whiteboards, and workers can adapt the space to changing work needs through flexible furnishings (Figure 12).

Diverse social exchange can broaden connections and enhance cooperation

Diverse social exchange can be supported through a variety of planning concepts (Figure 13). Employees have no obligation to use collaborative spaces and are free to come and go as they please. Anyone can access these spaces. These areas are “levelers”—all who

enter are equal. Effective diversity exchanges de-emphasize role and hierarchy within the organization. Think of a golf foursome in which two people are senior executives and two are professional people. The game is the leveler and people leave their job rank at the (clubhouse) door.

Conversation is encouraged, and is not restricted among employees at different levels within the organization or between people of different personal backgrounds. These areas offer a “homey” feel with amenities

“There is a need to provide an inspiring physical space that sets the stage for creative exchange. In our experience some of the best ideas are born when you are away from your desk.”

MANAGING DIRECTOR, INTERNATIONAL TECHNOLOGY COMPANY

such as beverage service, access to daylight, and visual connection to other work areas, encouraging people to feel ownership and connectedness to the space.

Finally, the problem with some overtly social spaces within a work context, is that they do not feel or look like places where legitimate work is conducted. Thus, employees may avoid using these spaces for fear of looking like they are not working. In these spaces, casual social interactions must be protected by offering a “seriousness” of the look and feel of the space that projects a place where work gets done.

B. The collaborative workplace can be the building block for a more cohesive organization

The planning of group spaces should go beyond simply providing isolated pockets of collaboration space. The opportunity is to use the types of spaces offered, and spatial relationships between them, to create a broader *sense of connection among workgroups, departments, divisions, and even disciplines* within the organization. If the overall cohesiveness of the work environment improves, it can lead to increased cooperation among groups, sense of community,¹² and a sustainable competitive advantage. ■

Equal exchanges are a key element of effective group work

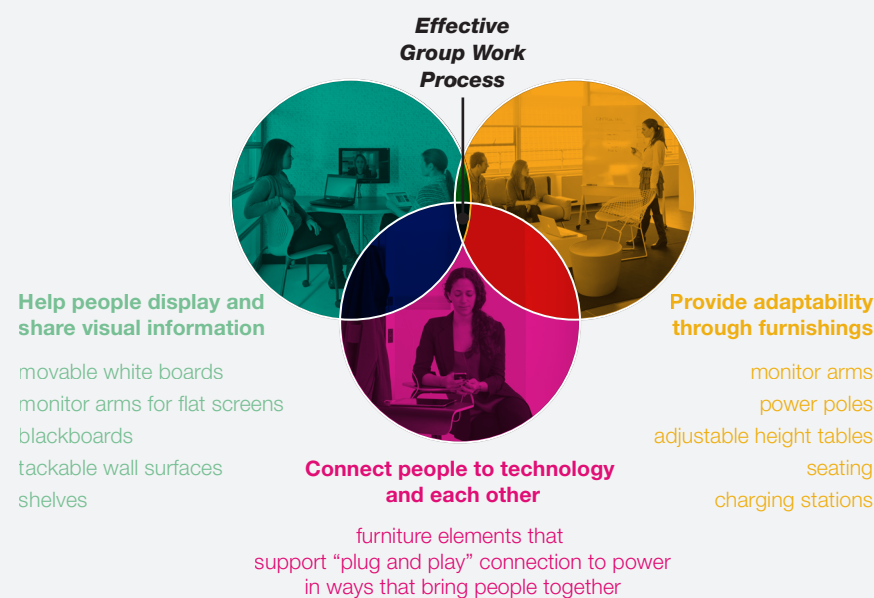


Figure 12. To promote equal exchanges that lead to effective group work, certain design capabilities must be present. People must be able to easily connect to the technology in the workspace, display and share visual information, and adapt the physical surrounds to meet their collaboration needs.

Planning elements can prompt a diversity of social exchange, broadening connections and enhancing cooperation

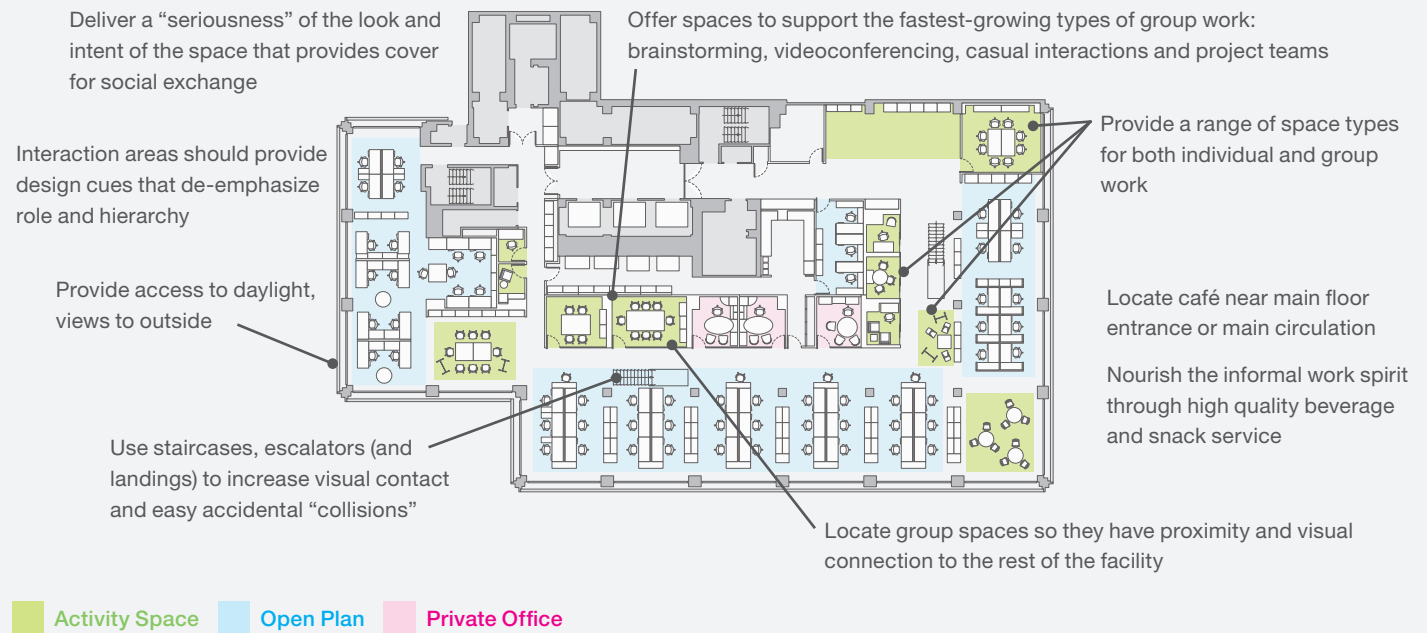


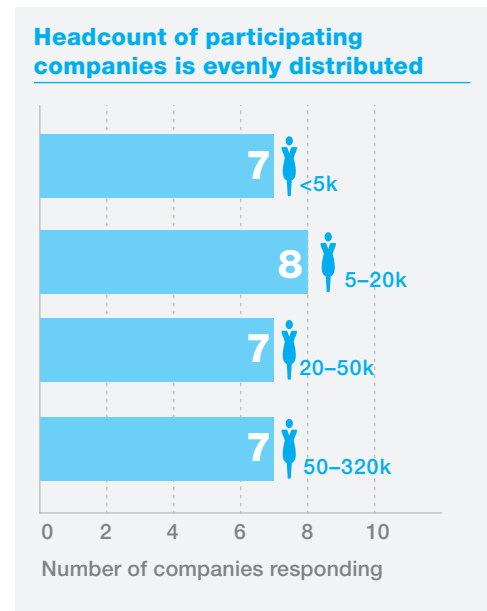
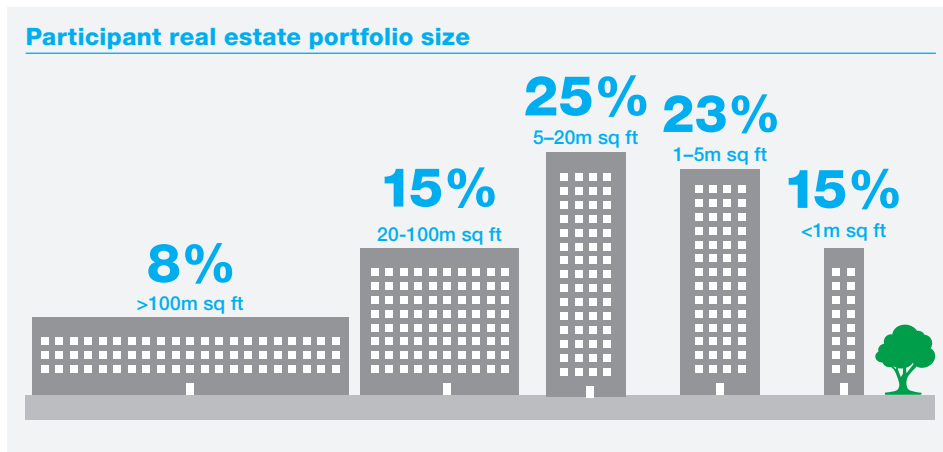
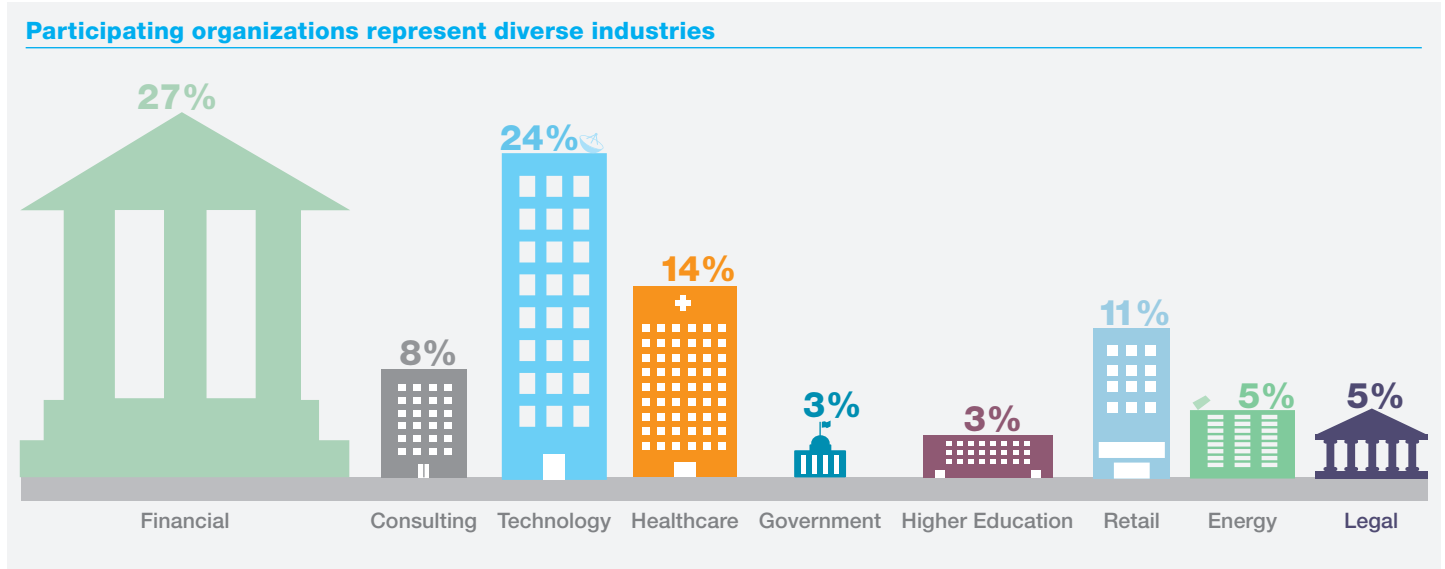
Figure 13. The overall workspace can be planned to support a broad diversity of social exchanges. While the space should have a casual feel, it must also look and feel like a place where work is conducted. Planning should offer a variety of locations where accidental “collisions” between people can occur, and spaces to support various types of individual and group interactions.

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Appendix

The 38 organizations included in the study reflect a broad assortment of industries, real estate footprint and population sizes. Participating organizations were solicited through Ratekin Consulting, Knoll contacts, and social media, representing a mix of Knoll and non-Knoll clients. Below we summarize the characteristics of participants' industries, real estate portfolios and sizes of employee population.



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

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