Office Environments to Support Future Organizations

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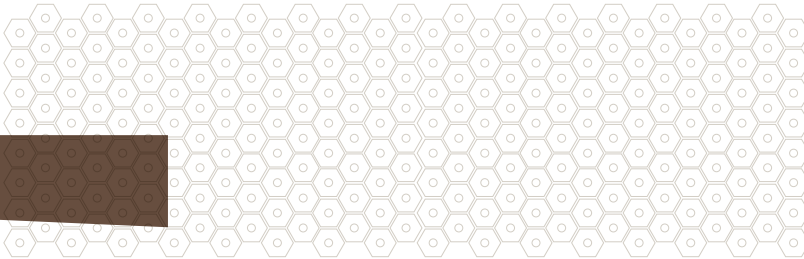
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Organizations must not only optimize their office work environments for their employees, they must also plan for future contingencies. Painting with a very broad brush, this paper outlines the most important trends that must be considered as companies develop a future vision.

Background and Introduction

Due to the inordinate number of influences impinging on office design, including economic conditions, architectural and design trends, vendor development, client needs and interests, and relevant standards and regulations, trying to predict the "office of the future" can be extremely risky. Temptations to be merely descriptive and provide critiques of current practice, or to be merely prescriptive and spin interesting stories in support of design solutions looking for a problem, must be transcended to capture and integrate the relevant societal, technological, and organizational trends.

This paper will attempt to arrive at as concise an estimate as possible for the kinds of office environments that will be needed by organizations of the future. To reach that goal, a much abbreviated overview of the history of offices will be followed by an outline of the often competing interests that currently influence office design, as well as the role of research in design. Next, organizational and work trends will introduce a discussion of the developments that must be accommodated by future office design, followed by some speculation about the form of such offices. Finally, a recent consortium has accepted the task of optimizing office design within particular corporate contexts through subjective and objective measurement of the environment and defining problems and solutions directly in terms of occupants rather than building performance or facilities needs. The consortium thus concentrates on integrating "design for potential" with "design for economic constraints."

A Brief History of Office Trends

As the saying goes, to understand where you're going, you must understand where you've been. Some historians have likened the development of modern offices with the railroad industry. As the contracts governing the distribution of manufactured goods by rail burgeoned, clerks became necessary for timely processing. These early offices tended to be vast rooms containing row after row of free-standing desks, with only a few private offices for sparse management layers. Thus, status-based distinctions concerning privacy and space accompanied the earliest models of corporate offices. As service industries grew to supplement manufacturing and distribution, more managers needing office space joined the workforce.

Although the point could easily be debated, only two developments have significantly altered these earliest office environments from the perspective of occupants: 1) The Bürolandshaft ideas of the Quickborner team; and 2) Bob Propst's Action Office. While the landscaped office included most if not all the elements of the green movement in design, both it and the modular components of the Action Office were almost immediately corrupted to support technology and save space. In large measure, the "white-collar factory" metaphor for offices remains with us — for better or for worse — into the 21st century.

Competing Constituencies

Currently, the desire of architects and designers to be creative and innovative, the interest of organizations for a productive, satisfied workforce, and the need for real estate savings all compete to determine the outcome of corporate office projects. Until recently, the economic metrics have invariably curtailed the creativity of architecture and design firms, and the pseudoscientific "new ways of working" solutions offered by cubicles have placated corporate clients' commitment to productivity. However, even in times of economic belt-tightening, recruitment and retention are always concerns, and corporations planning for the future have begun to explore job satisfaction issues in earnest — along with their economic implications.

Valuing Knowledge Worker Productivity

The struggle among interested constituencies in corporate office projects frequently revolves around what each of them accepts as evidence of success. One can easily demonstrate the value of a proposal to increase density and eliminate design enhancements through a bottom line-motivated business case. However, since profit is the ratio of income to overhead, an increase in income can be just as salient as a decrease in costs for maximizing profit. However, very few hard numbers exist for pursuing knowledge worker productivity with design, so cost-cutting strategies often prevail.

In this regard, distinguishing among description, explanation, and evidence can be very important. For example, descriptions of how particular products or environments support new ways of working do not constitute evidence that those particular products or environments are necessary for these new ways of working to emerge, nor do they provide evidence that the new ways represent any improvement over the old ways of working. Likewise, even explanations of how or why particular products or environments relate to new ways of working do not provide evidence for any unique efficacy. Only prospective, predictive studies with suitable control groups can provide evidence of any unique occupant value inherent in the design of products or environments.

Organizational Trends

While more research investigating the impact of office design on individual occupants is needed, some broad, qualitative generalizations at the higher organizational and macroeconomic levels can be made. Based on secondary research, a convenience sample of ten high-tech executives, and a representative sample of 100 facilities executives, we have uncovered some underlying dimensions of change that are currently impacting corporations. We feel that these change continua

will continue to be relevant into the foreseeable future. Although change along these dimensions broadly conceived seems to be uniform, no doubt individual organizations would find themselves at various points along each continuum.

Changing Corporate Strategies

Internal to External Focus: Until recently, internal considerations such as core competencies, personnel, suppliers, products and services, distribution, process engineering, and other outside-in factors could be focused on to improve a business. Increasingly, external considerations such as market share, customer interests and behavior, societal and cultural trends, generational trends, and other inside-out factors figure prominently in strategies that position organizations for future success. Almost any technique that can reduce cycle time to understand customer issues and meet their needs with timely new products and services will be a great investment. Corporations of the future will keep their businesses current by maintaining an external, inside-out focus.

Process to Trends Orientation: Echoing the general internal-to-external-considerations theme, corporations will need to do more than just design, implement, and monitor efficient internal processes and their interactions. They will also need to anticipate, understand, and address the broader societal trends that influence their customers and their customers' desires, positioning their product and service offerings to take advantage of this advance knowledge.

Fixed to Flexible Strategic Planning: The once-vaunted IBM managed to reinvent itself several times from mainframe computer hardware to PCs to e-commerce applications. In so doing, it has scrapped fixed strategic plans that make rigid assumptions about revenue streams and market share. In fact, their horizon for a relatively permanent strategic plan reaches only two years

ahead. Beyond that, they remain flexible by generating responses to a number of different alternative scenarios. Owens-Corning's move to fiber optics represents another example of this broader shift from fixed strategies based on linear extrapolation of current trends to the nimble embrace of change and the flexibility to meet unpredictable opportunities as they arise.

Executive to Customer Driven: Since speed in acquiring customer intelligence, product design and development, product shipping, customer service, and many other areas represents a primary competitive factor, whatever can be done to decrease cycle times will improve business prospects. Future organizations will figure out how to outsource their strategic planning to their customers. Many retail companies now collect customer knowledge at the point of sale, and this information immediately informs supply chains and distribution channels without the need for executive oversight.

Regardless of how gifted the executive team, if they're interpreting and responding to information filtering up and down within a hierarchy, their company will not match the pace of competitors. A market research > executive decision > company response chain can never be as short as a customer-response chain.

Corporate Culture to Society: We are still learning about corporate culture — how it arises, how to influence it, and how it relates to corporate success. However, savvy businesses have already supplemented considerations of their own corporate culture with investigations of the cultural trends within the broader society. This is particularly true of global organizations which must respond to a number of different cultural imperatives to ensure their continued growth and success.

Physical to Mental Environment: Corporate executives, facilities managers, and designers have all begun to recognize the impact of the physical environment on the mental functioning

and capabilities of employees. We can no longer afford to evaluate design and building performance issues independent of the preferences, responses, and needs of occupants. Organizations of the future will manage design projects in terms of occupant-centered definitions for problems and their solutions. While customers will drive the front end of these businesses, employees will drive the back end, and both constituencies will be accepted as critical for long-term survival.

Changing Organizational Structures

Status to Performance Based: Not "How long have you been here?" but "What have you done for me lately?" will determine space and resource allocation standards for companies of the future. However, the human resource implications of paying such ruthless attention to creative, innovative productivity will figure just as prominently — if not more so — in any successful transition to performance-based standards for space, resources, incentives, and promotions. Change-management strategies will largely determine whether this procedural shift spells success or disaster for first movers.

Hierarchical to Strategic: Many have highlighted the increasing shift from the military-inspired command-and-control organizational structures to the flexible, flat corporate structures of today and tomorrow. This change parallels the gradual shift from products to services within even core manufacturing companies such as GE or 3M — which have both managed to remain competitive through unforgiving business climates. While these two organizations may not have completed the switch from hierarchies to flat structures, they have been increasingly influenced by this general trend. What's more, a layer of managers thinking and making decisions and at least one additional layer of employees carrying out those decisions costs more than one layer of employees thinking and making good decisions, not to mention the decreased cycle times that may result.

Top-down to Local Control: Although somewhat similar to the last continuum, the trend to move decision making and resource allocation down to lower levels in the hierarchy has been important even within organizations who have retained an otherwise rigid, hierarchical structure. Increased response speed represents a primary advantage, along with ensuring that empowerment for making critical decisions remains closer to customers, allowing them to have a timely impact on most if not all internal processes and initiatives.

Organizational Chart to Functional Alignments: Also reflecting the shift from rigid, fixed strategies to fluid, dynamic arrangements, this trend allows companies to change focus and direction much more quickly than the hierarchies of the past would allow. This change continuum has a number of salient office design implications, since the important behaviors and interactions that must be supported and leveraged within corporate office environments cannot be understood simply by studying the official organizational chart. Ideally, programming approaches include observational and other indirect methods to understand exactly where to draw the line between relatively unchanging business sectors and the dynamic recombination of teams and processes.

Departmental Silos to Integrated Solutions: This represents the need to develop new metrics for evaluating returns on assets and investments that link traditionally separate operations. For example, if a company saves $1.5 million by increasing density 35 percent, but employee turnover has increased 10 percent as a result — representing costs for recruiting and training replacements or relocating and retraining other employees of $5 million — the company has lost $3.5 million.

Office Facilities as Overhead to Strategic Investment and Incentive: Regardless of the economic environment, recruitment and retention of highly productive employees remains of paramount importance. In economic and historical terms, unemployment rates remain relatively low throughout the developed nations — particularly in the telecommunications and technology sectors — and there are at least 30 million fewer Gen-Xers than Baby Boomers to replenish the workforce in the United States.

The Changing Nature of Work

Independent to Collaborative: Although researchers such as Michael Brill have noted that, at least in the United States, about 60 percent of office workers still spend approximately 60 percent of their time working alone, there has been a gradual, steady shift away from independent, heads-down work to more collaborative, team-based activities — even in conservative sectors such as banking and finance. Generational differences and changes in the delivery of educational services that supply the workforce have contributed to this trend, and it appears it will continue into the foreseeable future.

Management Directed to Self Directed: As corporate strategies embrace flexibility and hierarchies crumble, individual workers become more responsible for their own contributions from start to finish. Leveraging this knowledge work represents the most important challenge facing future organizations according to management guru Peter Drucker. Meeting this challenge requires an integrated approach that includes adjustable, movable, reconfigurable, yet dedicated environments; performance-based incentive structures; group-level performance evaluations and rewards; and adaptable perks such as flextime and access to technology.

People as Interchangeable Parts to Critically Unique: When workers simply implemented processes planned by others, their value involved only their brawn. As job descriptions widen and the variety of responsibilities that each job entails increases, workers' brains increasingly determine their effectiveness. The unique social network and other tacit knowledge acquired by each employee during their tenure represent advantages that sagacious corporations crave and exploit. The most conservative estimates of the costs to replace one employee start at 1.5 times their salary.

Repetitive to Creative: Repetitive work ruled in the past, and for the most part speed and accuracy equaled productivity. However, the quality of ideas rather than the quantity of activity has become the new path to success.

Observable and Measurable to Serendipitous and Abstract: Repetitive work can be easily observed and measured, while creative innovation rarely corresponds in any meaningful way to a unit of time. What's more, the source of important creativity less frequently reflects the isolated contributions of single employees. The best ideas integrate several levels of abstraction within the corporation and cut across various sectors and processes, making them almost impossible to attribute to a single individual.

Process Support to Knowledge Work: This continuum encompasses many of the previous points. In short, office environments to support future organizations must nurture knowledge work rather than large groups of workers simply implementing processes designed by management. Because factors external to the organization now provide the most meaningful insights to determine a company's future course, anticipating and designing the ideal environment to support these workers will become increasingly difficult. Flexible, adaptable office designs featuring seamless technology integration can minimize the costs and disruptions of change and transition. Investments such as raised flooring, easily moved wall dividers and partitions, and adaptable, reconfigurable technology access and support will become commonplace.

Offices of the Future

Generational Influences

A number of recent management books have outlined the essential distinctions among the Veteran, Baby-Boomer, Gen-X, and Gen-Next cohorts of workers. Since a lag time of approximately 30 years separates the peak changes associated with each of these generations, most corporations focusing on quarterly profits don't have the luxury of responding to this level of change. However, organizations planning for long-term viability must anticipate inevitable clashes among these generations, as for individual companies, the practical importance of resolving these disputes overshadows the impact of the wider trends linked with the passage of one generation to the next.

Regulatory Externals

Government standards and regulations will continue to have an important role to play in shaping office environments and workstyles going forward. Appropriations for road construction, zoning restrictions, air quality standards, and direct and indirect incentives for telework programs or public transportation may all have an important influence on the location, size, and design of corporate office facilities.

Technological Developments

Technological advances cannot be ignored when predicting the future of corporate office environments. Technology already supports the transaction of business in virtual environments on virtual documents. Wearable, wireless technologies might allow meetings among geographically displaced workers who can asynchronously participate in virtual conferences interspersed with more interesting and individually suited activities. However, just because

technology is available to support some futuristic vision of working does not mean it will be generally accepted and used.

Psychosocial Context

People are social animals, and the rate of change in their preferences regarding opportunities for social interaction does not match that of technology or the marketplace. Therefore, companies who eschew co-location and the biologically and culturally determined advantages of face-to-face communication to prematurely embrace virtual work environments will continue to be disappointed. Although the superior technological sophistication of Gen-Xers compared to Boomers, and of Gen-Nexters compared to Gen-Xers is undisputed, the replacement of actual locations for corporate office environments by various virtual work alternatives violates too many psychological imperatives to be viable in the foreseeable future.

A Promising Direction

Sponsored by a number of noncompetitive vendors of open-plan office products, the Open Plan Working Group (OPWG) is coordinated by a world-class product and environmental design consulting firm in Minneapolis, Orfield Laboratories. The group's charter involves optimizing open-plan offices by defining design problems and solutions in terms of occupants' experience. The OPWG has used a number of unique approaches to pre-planning and schematic design that have generally improved accepted practice. A few of these techniques are described here.

Perceptual Market Research

Because most workers do not understand how the physical

environment influences them, traditional programming techniques such as surveys and focus groups can fail to distinguish between subtle yet important design differences. Furthermore, quantitative measurement has been shown superior to qualitative measurement for predicting actual behavior. So perceptual market research, or indirect, quantitative measurement of occupants' subjective responses, represents an ideal approach.

Combining Subjective and Objective Measurement

In addition to the OPWG's work, other evaluations have documented some of the problems with many current open-plan office installations. These problems are rarely if ever strictly product-centered, but usually involve occupants' overall experience of the space over time. Therefore, defining design problems and solutions must include both objective assessment of the psychologically meaningful dimensions of the environment (such as acoustics, lighting, day-lighting, thermal conditions, aesthetics, human factors, ergonomics, and group identity) and subjective assessment of occupants' preferences and responses to various alternatives differing along these dimensions.

This approach features occupant-centered design, in the broadest sense of that term. Behavioral criteria inform building performance criteria to benchmark and demonstrate the value of particular designs experientially before and after installation. Success can thus be defined quantitatively in terms of objective engineering criteria and the subjective experience of occupants. As a result, this process can determine the value of a design investment — a persistent challenge for many other approaches that do not define success directly in terms of occupants.

Defining design problems and goals in terms of occupants allows clear comparisons among alternatives in objective and subjective terms. In the years to come, organizations will provide proper environmental support for knowledge workers, and occupant-centered design can help ensure they reach that elusive goal.