



# Innovative Workplace Strategies



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# Innovative Workplace Strategies

U.S. General Services Administration  
GSA Office of Governmentwide Policy  
Office of Real Property

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# Foreword

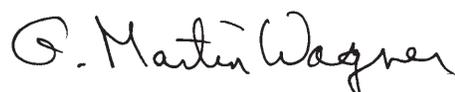
# Foreword

The Office of Governmentwide Policy is pleased to issue “Innovative Workplace Strategies.” The purpose of this publication is to provide tools and solutions for meeting the challenges in creating today’s productive workplaces.

A workplace is more than just real estate. It represents a merging of the disciplines of human resources, facilities design and management, and information technology. Properly understood and applied, it also can be a strategic tool for attracting and retaining skilled employees to the Federal Government. Our task in the Federal Government is to create the best work environment and provide the right tools for today’s knowledge-based workforce.

From its inception, the Office of Governmentwide Policy has shared information throughout the Federal community on best practices concerning high-performance workplaces. I would like to recognize David Bibb, whose Office of Real Property has been instrumental in bringing new perspectives and approaches to the workplace.

This publication was produced under the leadership of Stan Kaczmarczyk, Director of the Innovative Workplaces Division, whose staff compiled the articles highlighting the cutting-edge work in which the Division is involved, and edited by Joanne Shore and Jonathan Herz. In addition, we would like to recognize the contributors from the private sector, the Federal Government and the academic community. Without their participation, this publication would not have been possible.



G. Martin Wagner  
Associate Administrator  
Office of Governmentwide Policy  
U.S. General Services Administration



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# Preface

# Preface

The President has outlined a bold agenda for transforming the way we manage Federal agencies and assuring we have the best talent to deliver service to the American people. As his strategic advisor for human capital management, I am keenly aware of the challenges we face in making the Federal Government an employer of choice. The competition among employers for the best and the brightest of this new generation is intense, and the Federal Government must be able to compete energetically for a high-quality workforce.

In order to attract and retain a skilled government workforce, we need to offer a workplace that provides the type of environment where people can be most productive. Technological advancements, electronic government, flexible workplace arrangements, and security issues require new ways of thinking about the workplace. Given the volume of work and complexity of issues facing us today, we must use every strategy and tool available to make the Federal Government an attractive and exciting place to work.

By incorporating the strategies described in this publication, we can help to create such workplaces.

Of course, recognizing the workplace as a strategic tool requires a paradigm shift in the way we think of the traditional office. However, I see this not as a challenge but as an opportunity - an opportunity to reshape the federal workplace into one that can help us compete effectively as an "employer of choice."



Kay Coles James  
Director  
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*Director James is the President's principal advisor in matters of personnel administration for the 1.8 million members of the Federal civil service.*



# Executive Summary

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# Summary

## The Importance of the Workplace

Today's Federal Government is seeking ways to remain competitive and stay ahead of the rapid changes caused by reorganization, technological advancements, and workforce attrition. The workplace is a strategic tool that the Federal government can use in dealing with change, accomplishing business objectives, and attracting and retaining a skilled workforce. Research has shown that an integrated approach to developing workspace and workplace services may result in improved productivity for your organization, improved employee job satisfaction and well-being, better management of limited resources, and even increased customer satisfaction. However, many agencies are still unaware of strategies that can address these objectives, let alone guidelines for developing such innovative workplaces.

## The Value of This Publication

In *"Innovative Workplace Strategies,"* we present new approaches and alternatives that the Federal Government can use to improve the quality of its workspace. As

you will see, resistance to new ways of working and developing space must be overcome. And, both employees and managers need to be made aware of the ways in which their workspace can be a factor in increasing satisfaction and productivity. This report describes ways in which agencies can plan more effective and productive workplaces that support their workforce and business objectives.

**The Integrated Workplace** is one such strategy, addressing the Government's need to provide better and more cost-effective workspace. Rather than using traditional guidelines for office space design, the Integrated Workplace considers how three elements of the workplace - People (human resources, work processes, and organizational culture), Places (work locations), and Tools (information technology, connectivity) - act together to support business goals. The Integrated Workplace is a multi-disciplinary approach that involves management, information systems, the workplace occupants, organizational and human behavior experts, facility managers, and design professionals. This approach can result in such benefits as increased productivity, improved job satisfaction, and better use of limited resources - people, space, time, and money.

The Integrated Workplace allows organizations to:

- Address strategic business goals.
- Quickly and inexpensively, adjust to changing requirements.
- Promote healthy, high-performance environments, using environmentally responsible materials, methods and principles.
- Allow employees to work wherever and whenever they can be most effective.

The Integrated Workplace centers on the people and the ways in which they work - the work processes - in order to achieve the organization's mission and objectives. These work processes can often take place in different locations, and it is important to identify which locations and strategies will best support particular processes.

Some workplace strategies may make use of existing office space while applying alternative work strategies, such as desk-sharing. Other options may not require that employees come into the office on a daily basis, instead working from home, a satellite center, customer site or even on the road. We call this **the Virtual Workplace**. Technology has provided the means for people to work anywhere, anytime; however, core business processes remain the same no matter where one works. In the Virtual Workplace, work is what you do and not a place you go to.

The Integrated Workplace addresses the need for a workplace that supports the

health and comfort of its occupants. Research has shown that people must be able to rely on having good indoor quality to avoid illness and fatigue. In addition, they must have control of their environment and space in order to maintain personal comfort and avoid injury. Applying the principles of sustainable design can result in a workplace that improves occupant health and performance, improves the environment, maximizes human capital investment, and creates a more efficient organization. We call this **the Sustainable Workplace**.

In our publication, *"The Integrated Workplace: A Comprehensive Approach to Developing Workspace,"* we provided a framework to assist in developing Federal workplaces that best support the mission and goals of the people using them. In *"Innovative Workplace Strategies,"* we present two of the newest techniques that Federal agencies can use to create innovative workplaces - **The Virtual Workplace and The Sustainable Workplace**.

## Who We Are:

The Innovative Workplaces Division in the Office of Real Property, Office of Governmentwide Policy, seeks to encourage development of Federal workplaces that embrace innovative design, operation and management by developing innovative strategies to mainstream integrated design, sustainability, telework and performance measurement in the Federal workplace.





# Acknowledgments

# Acknowledgments

The publication that follows represents the efforts of individuals within the Federal Government, academia, and the private sector. We appreciate everyone's contribution in providing innovative workplace strategies that can be used to create a supportive environment for an organization's most important asset - its people.

We would like to specifically acknowledge the following individuals and organizations for providing their insights in promoting new approaches concerning today's workplace.

Dr. Gina Vega	Merrimack College
Dr. Martin Hanlon	Queens College/CUNY
Cynthia Froggatt	Froggatt Consulting
Michael Bell	Gartner, Inc.
Dr. Judith Heerwagen	J.H. Heerwagen & Associates, Inc.
Crawford Beveridge	Sun Microsystems
Rob Obenreder, AIA	U.S. General Services Administration
Jonathan Herz, AIA	U.S. General Services Administration
Joanne Shore	Federal Acquisition Institute

We would also like to thank the publishers of "Facilities Design & Management" magazine for their permission to reprint the article, "Feel Good Facilities."

Our appreciation is given to the members of GSA's Office of Governmentwide Policy. Without their contribution, this publication would not have been possible

Mike Atkinson, AIA	Integrated Workplace Team
Cherie McClam	Integrated Workplace Team
Shirley Morris	Team Leader, Performance Measurement
Dr. Wendell Joice	Team Leader, Telework
Theresa Noll	Telework Team
Glenn Woodley	Telework Team



# Introduction

# Introduction

*“Strategic planning for the agency’s mission or core business and planning for administrative services are tied together.”*

*“Strategic Planning: Aligning Workplace Services Creates Value”*  
U.S. General Services Administration

Innovative workplaces are those that integrate business processes and individual work practices with work strategies and office space, resulting in healthy, high-performance workplace solutions. New ways of thinking can tie together the facilities, information technology and human resources components of the workplace to support changing business practices with the growing awareness that “work” is no longer simply a “place.”

Each year, the Federal Government spends millions of dollars providing workspace for its employees; unfortunately, many of these work environments are based on old concepts that do not adequately support the management strategies and collaborative workstyles of an information-based workforce. These workspaces do little to incorporate new approaches to improving the way people work and reducing operational costs. By taking a more innovative approach, we can leverage the cost of workspace to improve organizational performance and increase the productivity of the Federal Government’s most important asset - its people.

Over the past seven years, the Office of Real Property, part of GSA’s Office of Governmentwide Policy, has been focusing on strategies that the Federal Government can use to effectively manage its real

property assets, making them a basic part of an agency’s strategic business plan.

In 1997, the Office of Real Property published its *“Office Space Use Review: Current Practices and Emerging Trends,”* which encouraged Federal agencies to go beyond the traditional thinking in providing office space - that is, simply housing employees and support spaces. The *“Office Space Use Review”* also advocated that Federal agencies include administrative costs such as real property and human resources in their strategic plans.

The *“Office Space Use Review”* pointed out that many agencies were employing outdated concepts in providing workspace to their employees - a practice that continues today. However, in today’s competitive market, agencies must provide a range of workplace options to support their employees and their workstyles. In 1999, the Office of Real Property published *“The Integrated Workplace: A Comprehensive Approach to Developing Workspace.”* This report advocated a multi-disciplinary approach to the design of high-performance, adaptable workplaces that have the flexibility to accommodate the changing needs of the occupants and the organization. *The Integrated Workplace* identifies and promotes leading-edge workplace concepts that can result in cost-effective, efficient office environments that

enhance productivity and help to attract and retain a quality workforce.

The Integrated Workplace differs from more traditional space design in that, while it gives consideration to the physical space, special emphasis is placed on individual needs and the organizational culture or working environment that defines that organization. Rather than characterizing the workplace as just “space,” the Integrated Workplace considers three components: **People** (human resources, work processes, organizational culture), **Places** (work locations), and **Tools** (communication and information technology, connectivity, design processes, measurement) and how they interact to produce more productive, cost-effective workplace environments. A “real-world” example of an Integrated Workplace project, implemented by GSA’s Office of Real Property, is presented in Section III of this publication.

In the Integrated Workplace approach, organizations consider a variety of options for performing their work. This approach involves a process of determining how, when and where people work, and matching these needs to a range of workplace solutions. Some alternatives may make innovative use of existing office space, such as, by using shared workstations to free up space for a community room. Other options may allow a person to work elsewhere and come to the central office location on an occasional basis - what we call the “Virtual Workplace.” Think of the virtual workplace as not replacing the traditional office, but expanding it.

Increasingly, a large proportion of employees work outside of the traditional office — perhaps at home, on the road, or at a customer’s office. In the virtual workplace, employees are provided with the tools, technology and skills to perform their jobs anywhere they can be their most

productive. This can have a positive effect on organizational performance. The virtual workplace demonstrates that safe, healthy and productive places to work can exist inside and outside the office environment. It is an innovative strategy that can transform an organization’s thinking about the workplace. In this new perspective, work is what you do, not the place you go to.

The growth of the virtual workplace in the Federal Government can be attributed to a number of factors: the emphasis on E-Government, the proliferation of new technologies that allow for more collaborative and distributed ways of working, the need to attract and retain a “worldclass” workforce, and the increased focus on continuity of operations. To effectively meet these challenges, organizations need to develop strategies to support moving work to where people are, rather than moving people to where the work is. One example that addresses this challenge is the Spouse Telework Employment Partnership (STEP), which allows agencies to utilize telework in addressing the career and employment needs of spouses of Federal employees who have been relocated to different geographical regions. The virtual workplace offers organizations an opportunity to reduce costs, increase productivity, attract and retain employees and lower environmental pressures.

**Section I** of this publication, *The Virtual Workplace*, explores important aspects of working outside of the conventional workplace and its impact on the Federal workforce. The article “Leveraging the Virtual Workplace” demonstrates that both managers and employees need to obtain the necessary skills to perform effectively in a distributed work environment. In any work environment, the people factors such as communication, leadership and trust have the greatest impact. “Virtual Teams”

highlights the use of this workstyle as an innovative approach for Federal agencies that are increasingly faced with a dispersed work environment and talent pool, and presents ways in which Federal agencies can take advantage of the opportunities offered by the virtual workplace. For agencies that want to learn more about implementing a virtual workplace, we include an article on Sun Microsystems' virtual workplace program, called "iWork," in **Section III** of the publication.

As part of the Integrated Workplace approach, workplace professionals strive to create workspaces that avoid environmental damage; that are green, smart, productive, comfortable, attractive, secure and flexible – in short, as discussed in **Section II**, that are truly sustainable. A sustainable workplace integrates the total building environment: facilities, technology and human capital. It focuses on providing a high-performance work environment for an organization's key asset - its people.

*"The Sustainable Office: Links to Worker Health, Well Being and Productivity,"* supports the finding that satisfaction, retention and productivity in both the private and public sectors are linked to the physical features of a building. Providing healthy indoor environments, daylight, outdoor views, sensory variability, and ergonomic tools can support worker well-being.

The steps toward, and advantages of, creating a sustainable workplace are described in greater detail in the article *"The Sustainable Workplace: An Overview."* When a workplace is designed, built and

maintained for sustainability, less money is needed to accommodate work practices and organizational change, and less productivity is lost in the process. In addition, a sustainable workplace is valuable in attracting and retaining talented workers, since it demonstrates an organization's commitment to providing healthy, supportive work environments. An important first step is the creation of sustainable facilities, discussed further in the "Feel-Good Facilities."

The Virtual Workplace and the Sustainable Workplace tell us where today's workplaces are headed in the future. But where is the thinking today among managers and employees? As you will see in **Section IV**: Follow up to *"Productivity and the Workplace,"* much work remains to educate those who use the workplace everyday. By focusing almost exclusively on the "people" factors that currently dominate workplace satisfaction, the proven benefits of alternative work environments and sustainable practices are being overlooked. Few employees or managers are conscious that their workspace can be a factor in increasing satisfaction and productivity. Research however, is showing just that.

In this publication, we have included both our own perspectives and those collected from experts in the private and public sectors, including the academic community. Our goal is to advocate innovative workplace strategies that can be used to provide high-performance environments wherever people work. We believe that the workplace is critical to the success of the Federal Government and its most important asset - *its employees.*



# Section I: The Virtual Workplace

# Section I: The Virtual Workplace

## Leveraging the Value of the Virtual Workplace

By Cynthia Froggatt

*Cynthia C. Froggatt, author of **Work Naked: Eight Essential Principles of Peak Performance in the Virtual Workplace** (Wiley, 2001) and principal of Froggatt Consulting, advises business leaders on leveraging the value of the virtual workplace. Currently based in New York City, she studied environmental psychology and organizational behavior, earning a bachelor's degree from Penn State and a master's degree from Cornell, and worked for architectural firms for nine years before starting her own consulting practice in 1994.*

Is your organization using the freedom that technology has given us to work in ways that optimize individual and team performance? Are you using a wide array of technology tools and workplaces to their best advantage? If not, you are wasting some of the valuable potential of your people, real estate, technology, and financial resources. And you are not alone.

I am disappointed to observe that even in the United States, hailed as “the land of the free,” relatively few leaders are brave enough to let their employees make basic choices about where, when, and how to work. Let's face it - we have knowledge workers of the 21st Century following routines of factory workers of the 19th century. We have the technology to work from anywhere at anytime, but millions of people make long commutes during rush hour to centralized locations where they put in an eight-hour day, five days a week.

The choice is not whether to be part of the virtual workplace or not. The choice is whether to thrive or barely survive in the virtual workplace. A recent survey by the American Business Collaboration found that working over a distance affects more than 80 percent of today's workforce. Given the trend toward mergers and acquisitions, the increasingly global nature of customer relationships, and heightened concern about continuity of operations, it is simply impractical to organize work and the physical workplace around one location. All employees need to know how to master distance rather than see it as an obstacle or a temporary hurdle to overcome. When your workforce knows how to lead, manage, or collaborate from a distance, it makes sense for employees to have the freedom to work from home, a satellite center, a hotel, or on the road as well as from an office building. These workstyle changes are affecting and will continue to affect both the private sector and the public sector.

## What Does It Mean to Leverage the Value of the Virtual Workplace?

The full value of the virtual workplace can only be enjoyed in corporate cultures where:

- Business leaders see value in unleashing the creative problem-solving skills of the workforce;
- Managers are willing to give employees more autonomy;
- Employees want more freedom and are willing to accept the responsibility that goes along with independence; and
- The infrastructure allows people to compute and communicate from wherever they work best.

Compare this with the alternative to the virtual workplace: the traditional workplace, where:

- Leaders expect employees to perform routine tasks in a predictable, prescriptive way;
- Managers need to visually monitor the attendance and performance of employees;
- Employees prefer to follow a routine, be given explicit instructions, and be closely supervised; and
- It is most cost effective to have people work at centralized workplaces with fixed equipment.

While there are still jobs that are well-suited to the traditional workplace, many of those functions performed by today's knowledge workers could be accomplished in a virtual workplace environment.

## What Does This Mean for the Federal Government?

The following examples give a sense of how it looks and feels to be a Federal Government employee who is thriving, rather than barely surviving, in the virtual workplace. While these examples focus on working at home, remember that this is only one form of the virtual workplace.

- **Department of Labor:** Jerry Schreppe is a 49-year-old attorney adviser for the Employees' Compensation Appeals Board in the Department of Labor. Since 1994, he has been working from his home in Arlington, Virginia three days a week. On those days, he writes draft decisions on workers' compensation issues (with fewer distractions at home, he has more uninterrupted time to write) and maintains contact with his manager and colleagues through e-mail and phone conversations. He also takes time out during the day for physical activity, doctor's appointments, and other errands that are easier to accomplish when the roads are not crowded with rush-hour traffic. Two days a week, Jerry makes the 45-minute commute to his downtown Washington, DC office (where he uses a shared office) for face-to-face collaboration with his manager and colleagues and to perform some of his responsibilities as a union steward for the American Federation of Government Employees Local 12. This work routine allows Schreppe to do high quality work, avoid the hassles of traffic, and spend more time with his wife who has a very flexible schedule as a realtor.
- Even though Jerry's manager goes to the office five days a week, she reaps the benefits of telework, too. Valerie Evans-Harrell, division chief supervisory attorney, manages a group

where eight of the nine employees work from home three days a week. Because telework boosts the productivity and morale of her employees, Evans-Harrell's own stress level is lower, which has a positive impact on her performance.

- Immigration and Naturalization Service:** Bob Wieman, Director of the Administrative Appeals Office of the Immigration and Naturalization Service, finds that options such as telework have had a very positive impact on recruiting. Offering potential employees the option to work from home four out of five days a week has helped him attract higher quality candidates. Fully 16 of Wieman's 31 employees now take advantage of this option, and he teleworks from time-to-time as well. Wieman asks the teleworkers to be accessible between 8:00 a.m. and 4:30 p.m. (and has always been able to reach people when necessary), but he does not require that they perform all their work during those hours. Better self-management and more effective time utilization, he believes, contribute to teleworkers' high performance.
- Department of Justice:** Renee Wohlenhaus, Deputy Chief of the Disability Rights Section in the Civil Rights Division of the Department of Justice, observes that telework, "has become an increasingly attractive alternative to attorneys and other staff as housing has become less and less affordable within reasonable commuting distances, as commuting becomes more difficult in a growing metropolitan area, and as the events of September 11th have made employees more nervous about coming to work downtown." Because her Section has experienced significant growth in the past ten years, employees are not only located on different floors of the building, but are also dispersed across several buildings. According to

Wohlenhaus, "We find that with staff connecting instantaneously from home with connections through the JCON computer system and email, they are often no more difficult to reach than employees working downtown, and frequently they are easier to reach. Without exception, employees working from home rave about their increased productivity as a result of fewer distractions, and less stress from time lost to commuting and tension from the commute as well as anxiety about terrorism."

Unfortunately, these stories represent the exception rather than the rule. Only roughly 4 percent of federal employees are teleworking (performing some work from home or a telework center during normal work hours). Yes, it is true that not all federal employees should be teleworking, but there is a lot of room for improvement. Look at the figures for the Department of Justice, for instance. According to Kathryn Wolf, the Department of Justice's Worklife Program Manager, roughly 68 percent of their 129,000 employees would be clearly ineligible to telework due to job responsibilities (including correctional officers, border patrol agents, etc.). That leaves 32 percent (more than 41,000) who could be eligible to perform some of their work from home, a telework center, or other location. Today, only about 1,500 Department of Justice employees are counted as teleworkers. This agency and others are woefully underutilizing the value of the virtual workplace.

Wolf advises that, "The Department of Justice, like many organizations, continues to face the challenges of management apprehension about telework and job redesign to allow grouping of tasks that can be accomplished remotely one or more days per week. Those obstacles will take time and continuing effort to overcome. Progress is being made on an incremental

basis through pilot programs, management training, and marketing of the many organizational benefits of telework.”

Leveraging the value of the virtual workplace demands significant cultural change. Mindsets need to change before actions change. Outdated notions such as “the more time you spend at the office, the better your chances for promotion” or “if you look busy, even frantic, you must be very productive” are just two of the mindsets that need to change. Everyone must take responsibility for changing the culture into one that supports working anywhere, anytime. I have described the roles and responsibilities that both leaders and employees have to play in being able to fully exploit the advantages of the virtual workplace in *“Work Naked: Eight Essential Principles for Peak Performance in the Virtual Workplace”* (Jossey-Bass/Wiley, 2001). The following discussion summarizes these responsibilities in terms of the eight principles.

**Principle #1, Initiative:**  
*Shedding the layers of complacency, fear of change, and resistance to new ways of working.*

Leaders need to help their employees challenge the status quo by recognizing that people will follow leaders’ actions, not their words. If a leader sees value in changing the way their employees work, the leader should change his or her own workstyle. Being a good role model is the most important contribution he or she can make.

All employees should adopt a more positive attitude toward change, in general, and be willing to help develop and test new ways of working.

**Principle #2, Trust:**  
*Shedding the layers of management control, outdated performance measures, and mistrust.*

Many leaders and employees still rely on attendance and the appearance of productivity to know if someone is being effective — they think that coming to work early, staying late, skipping lunch, and putting in a lot of hours are signs of high performance.

Leaders need to develop environments and relationships where trust can flourish even when they don’t see the other person every day. Typically, these are relationships where the goal is clear, deliverables are agreed upon, performance is reliable, and communication is good.

Employees need to re-define how they judge their own performance - to focus on results, not on attendance. They need to trust themselves that they will be able to make smart choices about how, when, and where to work. They also need to trust that management will evaluate them fairly.



**Principle #3, Joy:**  
*Shedding the layers of overwork, high stress, and sleep deprivation.*

Leaders have relatively few options for changing employees' lives outside of work, but they have a great deal of power to change the way work is structured. The goal should be to create jobs that people can and do love. Leaders can also help their employees by demonstrating through their own choices that they are more effective when they are well rested, well fed, physically fit, and generally happy.

Employees need to raise their expectations beyond work-life balance and be willing to talk with leaders about how their work could be more enjoyable. They need to take responsibility for making choices that enhance their morale and performance.

**Principle #4, Individuality:**  
*Shedding the layers of conformity, one-size-fits-all routines, and fixed work hours.*

For years, most workers have conformed to a routine that assumes that one-workstyle-fits-all — that commuting to the office, sitting side-by-side with colleagues from 9 until 5, five days a week, brings out high performance in all workers. I urge leaders and employees to talk with each other about where they studied when they were in school and why they chose these places. This gives them a way to understand that people are distracted and energized by different things. For instance, individuals who found a busy café or other public place to study will say that background noise helped them focus. Library-studiers, on the other hand, needed absolute quiet to their best work. What does this mean for the virtual workplace? Former library-studiers typically do their best solo work from home. All others perform their best solo work from a setting outside the home. Employees need to be aware of their workstyle

preferences; leaders need to support these preferences rather than impose their choices on others.

**Principle #5, Equality:**  
*Shedding the layers of hierarchy, status symbols, and dress codes.*

Leaders need to evaluate which status differentials add value and which ones do not and, therefore, should be eliminated. For instance, would the money that is spent on real estate where office space is allocated by rank be better invested in technology that enabled people to work from anywhere? Leaders should help employees view workspace as a tool rather than as an entitlement.

Employees need to give up their attachment to workspace as a status symbol. You can't expect to have the freedom and the technology tools to work from anywhere AND keep a dedicated workspace in a traditional workplace.

**Principle #6, Dialogue:**  
*Shedding the layers of one-way communication, misunderstandings, and idea hoarding.*

Open, honest, two-way communication is the key to collaboration - which is essential for high performance in a traditional or a virtual workplace. Dispersing workers geographically rarely hinders collaboration, but may exacerbate existing communication problems. Business leaders unintentionally inhibit the flow of information when they are afraid to give or receive both positive and negative news. Leaders have to be good role models by being willing to talk about mistakes, ask for constructive criticism, and then take action based on this feedback.

Employees have to be willing to ask for, listen, and give both positive and negative feedback. They need to resist the urge to

go into the office simply because they miss getting updates from the office grapevine.

**Principle #7, Connectivity:**  
*Shedding the layers of geographic boundaries, reliance of co-location, and misuse of technology.*

Leaders should set an example about choosing the right communication tool for different types of interaction; face-to-face communication, e-mail, and phone, for instance, need to be selected consciously and used strategically. Remember that mastering distance (and the tools that help mediate distance) should be a core competency for all workers because it improves chances for disaster recovery, reduces travel costs, allows people to stay closer to internal and external customers, and emphasizes self-management over micro-management.

Employees need to make the effort to stay up-to-date on technology tools that could help them communicate effectively with a broad network of colleagues. They need to be open to interacting with people in different ways and avoid assuming that face-to-face interaction is the best way to communicate and that all other methods are just cheap substitutes for in-person conversations. They need to understand and respect the preferences for how others want to give and receive information.

**Principle #8, Workplace Options:**  
*Shedding the layers of unproductive work environments, dreary home offices, and long commutes between them.*

Leaders need to believe that if they provide access to a wide range of workplace options, their employees will use their time more effectively and be well supported for both solo and collaborative work.

They need to provide flexible, healthy work settings that respond to the needs of all of

the stakeholders in their “web of work.” This may require collaboration between non-traditional providers of workplaces. For instance, where there is value in providing wireless access to the Internet in public places such as parks, public/private partnerships may be necessary. Finally, leaders need to consider how their organization’s work habits impact traffic, the environment and the community, and make decisions accordingly.

Employees need to take responsibility for finding or creating safe, comfortable places to work at home or other places and help their leaders provide workplaces that support their needs. They should choose workplaces that enhance their performance and use natural resources wisely.

## What Is the Role of Those Involved in Creating Today’s Workplaces?

Real estate and facilities management professionals, designers, architects, engineers, and other workplace planners and providers have important roles to play in helping their organizations leverage the value of the virtual workplace. First, they must recognize how dramatically the nature of work is changing. The needs of their clients are increasingly centered on geographical distribution rather than co-location. This is good news for the workplace professional. When workers are no longer tethered to their desks, adjacency relationships and location drivers can be rethought. In some cases, this may free organizations from a requirement for a large amount of space in expensive, downtown real estate.

As people become more comfortable with mobility, there is generally less need for dedicated workspaces in traditional office

environments. When there are fewer individual workspaces than there are workers, the overall space requirement declines. The use of space also shifts from individual workspaces to collaborative work areas. These collaborative work areas often require more sophisticated technology for videoconferencing and web-based conferencing.

While the amount of space the workplace professional is managing may decrease, the importance of the workplace design increases. When workers are fully leveraging the value of the virtual workplace and they are allowed to make smart choices about where to work, the traditional workplace loses its captive audience. If people choose to use a workplace based on how well it accommodates their solo work and their collaborative work (rather than being mandated to go there everyday), workplaces look and feel much different - and the utilization rate is an ongoing measure of how well workplace professionals are doing their jobs.

When the mission of workplace professionals is defined as, "enabling the high performance of employees in a geographically distributed environment," they must work closely with their colleagues in information technology and human resources to make smart trade-offs about the best use of financial resources. They must understand which factors have the most impact on individual, team, and organizational performance and approach solutions in an integrated way. For workplace professionals, these trends may push them out of their comfort zone and require them to master new skills in information gathering, analysis and relationship-building.



## Conclusion

Whether they like it or not, most knowledge workers in the Federal Government are already part of the virtual workplace. The choice is whether to be an active participant or a passive (or even resistant) one. Incorporating the eight principles described in this article and taking responsibility for changing attitudes and work practices will allow the Federal Government to leverage the value of the virtual workplace.



# Virtual Teams

# Virtual Teams

## A Conversation with Michael Bell

By Joanne Shore

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Michael Bell is a vice president and research director of Gartner, Inc. His research focuses on workplace transformation, virtual teaming and e-real estate applications, including leading a major workplace research project in conjunction with MIT and 22 industry sponsors entitled: *"The Agile Workplace: Supporting People and Their Work,"* released to the marketplace in early 2002. Prior to joining Gartner, Mr. Bell worked for 30 years in operations and corporate real estate and held executive positions at Xerox and Dun & Bradstreet. He earned a bachelor's degree from Brown University, a Master of Arts degree from Colgate University and a master's degree in business administration from the Simon School at the University of Rochester.

Technology has changed the way we, work, communicate and deliver products and services. It has also served as a key driver in the development of virtual teams. Virtual teaming is an innovative workplace strategy that can respond quickly to changing organizational needs. In addition, properly done, it can be cost-effective, since much of the work may be done electronically.

In November 2002, members of the U.S. General Services Administration's Office of

Real Property participated in a discussion with Gartner Research Director Michael Bell to gain a better understanding of virtual teams, the benefit of virtual teaming, and the challenges that organizations face in implementing this workstyle. The following article is adapted from that interview.

### Characteristics of a Virtual Team

For the purposes of this discussion, a "virtual team" is one that's formed to accomplish a particular mission, then disbands and moves on. We have virtual departments and virtual sales teams; however, they don't really fit the definition that we're using here. In those cases, any of the members of the team can accomplish what they need to accomplish without depending on others within the team.

A virtual team is interdependent and cannot succeed without each member making his or her particular contribution to the effort. As with other teams, virtual team members are focused on a singular purpose. Typically, team members work out-of-sight from each

other 99 percent of the time and will meet face-to-face two or three times during the life cycle of the team.

## Drivers Behind Virtual Teams

Based on research conducted by Gartner, we've concluded that there are four key drivers behind the virtual teaming phenomenon:

- **Globalization:** Companies are organizing more and more around global teams. Procter & Gamble is a good example of this. About three years ago, the company organized around global business strategies involving marketing, product development, and brand management. In globalization, organizations must assess the ways in which people of different geographies can collaborate with each other.
- **Sources for talent:** In a tough economic situation such as we have today, organizations need to find talent wherever they can. Virtual teams provide an innovative way of meeting the need for specific skills.
- **The economics of travel:** There are costs involved with bringing people together. In addition, people have become more reluctant to make long trips, especially international ones, due to the current geopolitical environment and threat of terrorist attacks.
- **Flexibility:** Virtual teaming is a very efficient way of doing work. A virtual team can be assembled quickly, respond to the situation, do its work, then disband and move on.

## Key Factors for Effective Virtual Teams

Gartner, Inc., has developed 10 basic principles that organizations should address for virtual teams to succeed. What's interesting about the 10 principles is that only one of them involves technology. Of course, technology - information technology, communications, software applications, and remote access - is fundamental to virtual work. But it's really only one factor. My approach to virtual teaming is that it's 90 percent about the people, process and leadership, and 10 percent about technology.

### The Ten Principles Are: 1. Leadership Imperatives

Virtual teaming is more about leadership than management. Virtual team leaders need to have skills such as coaching, facilitating and enabling rather than those of managing and controlling. While management certainly is important to the process, it's really leadership skills that are paramount in forming a virtual team — in selecting the members, motivating them to join, and helping to build a culture of trust and accountability within the team.

The leadership role can also change during the course of the team project, depending on the particular project that you're working on. At the first phase of the team process, you might want a leader who's really good at data analysis. If the team is moving from an analytical phase into the proposal phase, you may want somebody with those skills to lead that part of it. Usually, however, the designated team leader doesn't relinquish control.

## 2. Power of Purpose

It's very important that the team leader and the team members are very clear on why the team has been formed and what they're intending to accomplish. Purpose is important because it becomes a kind of "glue" that ties everybody together. It links individual tasks and accountabilities through what Gartner refers to as the virtual team "value chain" - from purpose to mission to goal to objectives to task. It keeps everybody focused on how they can individually contribute to the overall team purpose. It acts as a compass. It keeps people oriented around what they're trying to do at any point in time and their role in that mission.



## 3. Trust

Virtual teams live and die on whether the team leader and the team members can really develop a rapport that's grounded in a fairly strong sense of trust. Gartner has identified four foundation principles for developing trust.

- **Dependability.** This is really about predictability and certainty; for example, meetings that are scheduled for at 9:00 am every Friday will actually start at that time.
- **Consistency.** Consistency is equity and fairness - a level playing field. Virtual teams really need to divest themselves of rank and hierarchy. People have to think that they're colleagues, partners and co-equals. If the team leader doesn't build that notion of fairness and equality in the team, trust is very hard to achieve.
- **Congruency.** Team members need to "walk the talk." It's especially important, again, for the team leader to be vigilant about promises kept - that statements made are backed up with actions, without any hidden agendas. The information should flow transparently within the team.

- **Mutuality.** The team must have a feeling of shared benefit and reciprocity. People must feel as if they're going to contribute to the team purpose and that they will be rewarded equally.

Those are some of the foundation principles concerning trust that we've identified for virtual teaming. While probably true for other aspects of management, it is particularly crucial in the context of virtual team leadership.

## 4. The Startup Process

If you fail to follow the fundamentals of the startup process, chances are the team will not be successful. Gartner has developed a number of steps to consider as part of the start-up process.

- **Step 1** is identifying the stakeholders of the team. For example, you'll need someone at the executive level who will provide political support and sponsorship; you'll also need a team champion - the same person may serve in both roles. Typically, the team members are coming from different organizations and reporting to different bosses, so there's the potential for



conflict. The executive-level sponsor or the team champion can help in resolving such conflicts. The team champion can also help in identifying other stakeholders for the team; for example, the customers who are going to be the beneficiaries of the team's output.

- **Step 2** is establishing a sense of purpose; that is, being very clear with your constituents, your executive sponsor, and the other people who will be beneficiaries of this team about what the purpose is, the boundaries of that purpose, and how that purpose will be manifested in terms of the output of the team effort.
- **Step 3** is recruiting the team members. Team leaders should be diligent in recruiting team members based on their skills, disposition, and propensity to work in this type of work environment. Some people don't collaborate well in a virtual context. You need to consider not only the skills you need on the team, but also the personalities of team members.

- **Step 4** is setting up the team infrastructure and resources. This is where you determine what support you'll need, both technological and administrative. You need to consider any resources that you'll need to make this project successful. Team leaders should avoid trying to perform both leadership and administrative duties such as keeping the minutes of the meetings and maintaining the website. A team member other than the team leader should be assigned these tasks.
- **Step 5** is bringing the team together to meet up front, face-to-face. This is hard in the world of virtual teaming. In fact, most of the failures in virtual teams result from the fact that people never had a chance to meet each other and build good rapport.

## 5. Team Linkages

When people think about linkages in the context of virtual teams, they think principally about the technology, the connectivity, and the various applications that you might use to link people. However, experts in this field say that you have to focus on building relationships, rather than technology. This gets back to this notion of trust. The team leader must work to help the team members build those relationships over time, because only then will people truly share, take risks, and truly depend on each other to get the work done.

## 6. Communication Protocols

Virtual teams have a number of protocols to work out. It is important for the virtual team's progress to develop a template that will guide each meeting - one that includes time allocation and how they will work through a particular agenda. They will also need protocols for what media you use depending on the situation. For example, a complex problem, a controversial issue, or a negotiation should not be resolved using e-

mail but, instead, through a conference call. Depending on the sensitivity or the complexity of the problem, the team leader may need to meet face-to-face with team members. You'll want to look at protocols for conflict resolution. How do you get through an impasse? Whether it's a vote process or elevation to the team sponsor, you really need to get a consensus around major points that the team is working on for things to move forward.

In virtual teaming – in fact, in any virtual communication – control of the communication process shifts from the sender to the receiver. When you're in a face-to-face session, the person who has the microphone typically controls the communication. In the virtual mode, this is not always the case. Based on the literature, Gartner has come up with some basic rules of virtual communication.

- All of the team members should define their standards for availability, such as when they can take calls, when they can participate in group meetings. Many virtual teams are international teams. You need to have some understanding of when and what day members can meet. This goes back to the issue of dependability.
- You need to address the culture factor. The biggest barrier to virtual teaming is culture - company culture, enterprise culture, and, in many cases, international culture. Consider language differences as well as cultural propensities in how people communicate. For example, Southern Mediterranean countries are very visual in the way they communicate and prefer more face-to-face communication. Virtual collaboration, therefore, can be very hard for people in France and Italy. Eighty percent of human communication is non-verbal, and it's particularly true in certain European cultures.
- Team members should try to communicate synchronously as much as possible. This includes phone calls, conference calls, and web-based conferencing. If possible, try to communicate in real time and avoid these long, endless e-mail threads.
- Finally, the sender needs to take responsibility for prioritizing communication - such as "urgent, important, retain, informational, and read only."

## 7. Operational Agreement

Gartner suggests that if the team is going to exist for more than nine months, if the output of this team is mission critical to the organization, or if you have outsiders — and many teams do bring in consultants and other third parties — you need to work out the rules of engagement in some type of agreement. It doesn't have to be a legal agreement, but a document that puts everybody on the same page. When you have 10 people, all from 10 different organizations, it is pretty important to have the protocols pretty much spelled out.

## 8. Team Culture

The four foundation elements of a good virtual team culture are: purpose, trust, empowerment and accountability. Purpose and trust were discussed previously. Team members really do have to be empowered to discharge their particular responsibilities. Virtual teams have to be empowered to do 80 to 90 percent of what they need to do without a lot of checks and balances or reviews. Accountability is also extremely important - people really do have to fulfill their promises and follow through on their responsibilities. The team leader has to be vigilant in coaching team members. When things get out of whack, when people start slacking off, or when they're not delivering, the whole team begins to become

dysfunctional. These four points — purpose, trust, empowerment, accountability — are the foundation of a good team culture.

## 9. Teams and Communities

Virtual teams are often thought of in conjunction with virtual communities, but there are some subtle differences between the two. Virtual teams are usually thought of only as production units - they are in the business to get things done. Virtual communities (community of practice, community of interest) tend to be more socially oriented - they don't put pressure on people to do things. Virtual communities are a place to investigate new ideas, to innovate. Gartner has over 35 research communities, most of which meet each week on an hour phone call. They incubate ideas for research in the communities, but actually do the research in teams. So it's the team that actually gets the work done. It's the community where the ideas are vetted and batted around and where you debate. Gartner predicts that if companies are moving more and more to virtual teaming, it will be essential to also have these virtual communities to replace some of the arrangements (e.g., water cooler, cafeteria) found in the traditional office operation where you can maintain those friendships. A virtual community doesn't solve all the problems, but it does solve many about maintaining those relationships and that social connection back to the enterprise.

## 10. Technology

The biggest mistake people make about technology is getting too complex - picking an application or functionality that is more than you need. Simplicity really is the rule. Typically, teams go through a natural four-step process.

- At the beginning of a team's life-cycle, you're in a planning or design phase. Since at this point it's fairly open-ended, you need applications that are more non-linear, such as Quickplace, Sametime, Groove, and eRoom.
- Typically, you next move into a data collection and research phase. Here, you'll need document-centered applications. Some of the typical ones are iManage, eMatrix, and IDweb. You'll need an application that has good document management capability.
- In the processing phase, you'll need to organize that data into a useful form- a business proposal or some type of document that needs to be vetted with other constituents. Typically, some type of web-enabled meeting application is used at this time - Net Meeting, PlaceWare, WebEx. This usually goes hand-in-hand with an audio teleconference function. Between audio teleconference and the web-enabled meeting application, you've got it pretty much covered in terms of synchronous meeting requirements.
- If the team is going to move from design to research to processing and finally to implementation, you'll need a project management application such as MSPProject, Niku, or Primavera.

The good news is that we're seeing more and more of these applications beginning to come together into an enterprise suite. Within the next year to two years, you'll see companies like Open Text provide a strong document management, collaborative workspace and meeting capability. We're seeing the major project management applications like Primavera and Niku bringing in collaborative capabilities, which offer not only scheduling, but also more of an open-ended virtual workspace capability.

## Barriers to Virtual Teaming

We've already referred to one of the major barriers - culture. The challenge in dealing with different international cultures is the most obvious example. In addition, some enterprises are very individualistic. Michael Bell used to be a member of a major real estate company, and real estate brokers are very protective of their information. Says Bell,

*"They're not terribly prone to collaborate.*

*"Team leaders also face the "people risk" - those issues of skills and temperament. "You have to consider not only whether team members have the ability to get the work done and fulfill their accountabilities, but also if they have the temperament to work in a virtual team environment.*

*"Of course, you have to obtain the appropriate baseline technology to do virtual teaming. People have to be able to access the application remotely. You need both the telecommunications and data communications capabilities to do this kind of collaboration. And some organizations are very strict about firewalls — if you're not inside the firewall you just can't do it. You certainly have to have the authentication and other protections available so that people can get through the firewall and do what they have to do without compromising company or enterprise security requirements."*

## Virtual Teams in the Federal Government

Bell cites one Federal example, in particular. The Department of Defense (DoD) used to perform an audit by flying everybody into the Pentagon for a six-week exercise. Now

they do it virtually, and they've been able to cut the whole process down by 60 or 70 percent in terms of time. They've also cut the cost of this audit, and they've improved the quality of the audit by a huge percentage. "So we see a lot of the virtual teaming in the military. Actually, for any work that requires a diverse level of skills, that has a fairly high need for speed and quick cycle time, and that relies on talent that must be recruited from different geographic areas, virtual teaming is the answer."

## The Future of Virtual Teams

Gartner predicts that by 2006, the virtual team will be the fundamental organizational structure for knowledge work. We're now beginning to see a virtual workforce emerge at the grass-roots level, Bell notes:

*"You know, entry-level or first-line type people. So the virtualization of work is happening, and that's because we have the tools. For example, we have broadband access in the home, cable modems, DSL - it's all beginning to proliferate. We're quite confident that this support style will continue to grow and become mainstream for enterprises over the next three to five or eight years.*

*"What should be emphasized is that the issues are now clustering around the question, "How do you do this well?" To do virtual teaming, virtual communities, and other "virtual" work forms, you're going to need a strong process design and good methodology. Then, and only then, should you consider getting the right technological application in place so that you can do virtual teaming effectively. You don't want to start with the technology. That's the last step. Start with the people - that's what's most important."*



## Section II: The Sustainable Workplace

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## The Sustainable Office: Links to Worker Health, Well Being and Productivity

Dr. Judith Heerwagen

*Dr. Heerwagen is an environmental psychologist whose interests focus on the psychosocial aspects of work environments and the human factors of sustainable design. She received her Ph.D. in psychology from the University of Washington, where she was a member of the faculty in the College of Architecture and Urban Planning for ten years. Her current research and writing concern the links between design, well-being and productivity.*

### Introduction

A guiding principle of sustainable design is to create places that are not only healthy and productive, but which also lift the human spirit. The premise is a simple one: healthy, happy people will be more productive and more engaged with their work and their organization. The purpose of this article is to look at what evidence exists to support this premise.

At the present time, we know much more about the environmental and energy impacts of building design and operation than we do about the consequences for the building inhabitants. We also know more about what causes illness and discomfort than we do about what lifts the spirits and morale at work. However, an emerging body of research is beginning to show promising links between the physical features of a building and the lives of people who inhabit them. A large part of this research focuses

on air quality because of the important consequences for health. However, it is increasingly evident that the benefits of sustainability extend beyond indoor air to a wide array of building components and features that have functional, psychological, and social benefits.

Much of the interest in sustainable design is related to potential productivity benefits associated with improved interior environmental quality. Because people are the single greatest cost in any organization, building practices that enhance the human condition are likely to influence building investments, especially if the enhancements translate into valued outcomes such as increased productivity, improved morale, and improved ability to attract high quality workers. (See Figure 1.) Since productivity is of such great interest to many, it is useful to look at how it is measured and what productivity means for knowledge work.

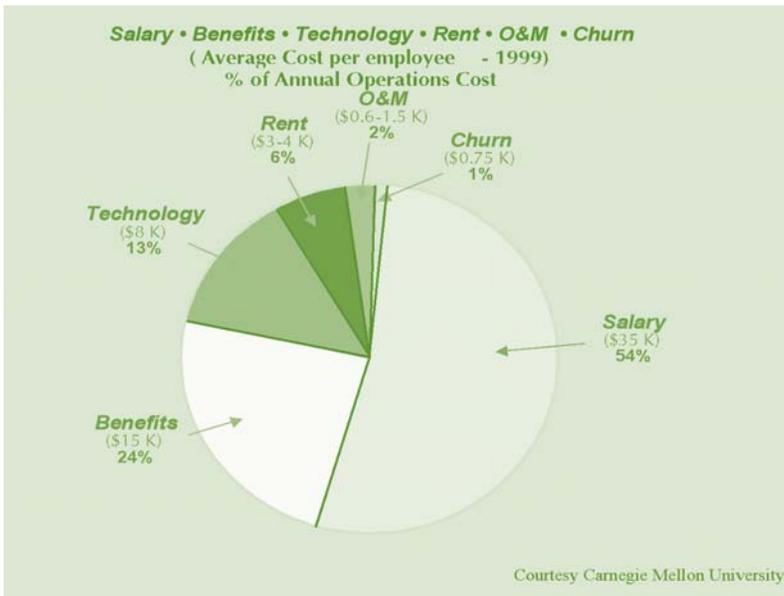


Figure 1: Annual Operations Cost (Leased Space)

## What is Productivity?

The American Productivity and Quality Center (APQC) defines productivity simply as “units per labor hour.” For knowledge work this is not an especially useful definition because worker outcomes are highly variable, often abstract, and difficult to document quantitatively. It is also not a good definition for many office tasks that do not have regular outputs, or in situations when quality, timeliness, and impact of work are more important than quantity, which is likely to be the case in most organizations.

For many organizations, the productivity of individual members is not as relevant to business success as is the productivity of groups or larger units. Demonstrating that some individuals can type 10 percent faster is not as compelling as demonstrating that a product development group has reduced time to market by 10 percent. Thus, in any productivity study the unit of analysis needs to be carefully considered.

Productivity indicators are highly specific to the organization’s context and business goals, and there are no general measures or indicators of productivity that are valid across organizations. For all of these reasons, “productivity” is not an especially useful term when applied to knowledge and information based work. However, the concept is firmly entrenched in the sustainability literature.

Given the problems with measuring knowledge work productivity, it is common for researchers to use different measures. Some have focused on the building blocks of productivity rather than specific work outcomes. At the individual level, these “building blocks” include mental skills such as attention, memory, reading comprehension, creativity, and logical thinking. Since these cognitive processes are critical to the kinds of work valued in office settings, it is assumed that by measuring the impact of the environment on these processes one can make inferences about productivity gains or losses.

Another way of assessing productivity is to use measures such as absenteeism and illness. However, by itself, absenteeism data are not always a useful substitute for productivity losses. High levels of absenteeism are likely to be indicative of other problems that can interfere with overall work effectiveness, such as building-related illnesses or low morale. Absenteeism as a measure of productivity may be most relevant to work that is based on individual output, such as forms processing or sales. In both of these instances, lost time may be more readily translated to productivity losses.

Self-ratings of productivity are also commonly used in building research. Self-measures tend to overestimate individual productivity; however, when the measure is used in a comparative manner to assess

responses to existing and new office environments, the self-assessments correlate well with expectations from the research literature.

A measurement using actual work output is used only in situations when the job involves repeatable tasks that can be quantified. These tend to be things like number of documents processed or calls handled in a call center.

A problem with many of these productivity measures, and one that creates skepticism among decision-makers, is their exclusive focus on individual performance. In many organizations today, work is done in groups, so that the collective outcome is often more important than the individual outcome. We clearly need a better understanding of how sustainable design practices can support group work processes, communication, and innovation. Sustainability will also be perceived as more valuable to organizations if it can be shown to have consistent, positive benefits on motivation, morale, organizational commitment, and other psychosocial processes that concern managers of human capital.

## Worker Productivity: What Evidence Exists?

There is a good deal of research on the links between the ambient environment and work performance, much of it in controlled laboratory conditions. Key environmental factors affecting performance include air quality, temperature conditions, lighting, ventilation, and personal control over environmental conditions. Despite the

heavy emphasis on laboratory studies, there have been sufficient numbers of field assessments in recent years to allow some conclusions to be made.

For instance, a review of occupant surveys over a 20-year period in England found that comfort and self-rated productivity are greater in buildings where occupants have more control over their work environment and in mixed mode buildings that have both natural ventilation and air conditioning. Two additional studies of more than 11,000 workers in 107 buildings in Europe also found increases in self-rated productivity when occupants have greater control over temperature and ventilation.<sup>1</sup>

Similar results are reported in a field experiment in Canada.<sup>2</sup> The study consisted of two groups of workers in a mechanically ventilated building. The experimental group was given control over the ventilation at the workstation with a hand-held infrared device that could regulate the amount and direction of air flow from four inch air outlets in the ceiling (similar to that on airplanes). Workers with control said their productivity had increased by 11 percent at 16 months after the study. In contrast, workers in the control group said their productivity had decreased by 4 percent. Sick Building Syndrome (SBS) symptoms also significantly decreased in the experimental group, but not in the control group.

In one of the few studies with objective measures of productivity, researchers using a pre- and post- methodology found that worker performance was higher in a new building that included many sustainable features, such as personal ambient

1 Leaman, A., and Bordass, B. 2001. Assessing Building performance in Use 4: The Probe Occupant Surveys and Their Implications. *Building Research & Information*, 29(2): 129-143. Preller, L. et al. 1990. Sick leave Due to Work Related Health Complaints Among Office Workers in the Netherlands. *Indoor Air '90*, Toronto, Vol. 1: 227-230.

2 Menzies et al, 1997. Effect of a New Ventilation System on the Health and Well-Being of Office Workers. *Archives of Environmental Health*, 52(5), 360-368.



## Health

The vast majority of health research has focused on Building Related Illnesses (BRI) and the relationship to indoor air quality and the thermal environment. Occurrences of Building Related Illness can be very costly to an organization, especially when symptoms are associated with reduced work performance, absenteeism, or temporary abandonment of the building. Not surprisingly, one of the driving forces behind the sustainable design movement is the improvement of indoor air quality.<sup>4</sup>

Symptoms associated with BRI include headache, lethargy, nausea, dizziness, lack of concentration, irritability, and irritation of eyes, throat, nose and skin. Environmental factors associated with these symptoms include chemicals from materials, furnishings, and cleaning products, dust, poor ventilation, poor maintenance of air handling systems, and moisture build-up. Unfortunately, there are no current studies that compare air quality in sustainable buildings with air quality in a control sample of standard practice buildings. As a result, we do not know the extent to which interior air quality is actually improved and what impact the improvements have on illness symptoms. Such research is greatly needed.

A widely cited paper by William Fisk and Arthur Rosenfeld<sup>5</sup> proposes that, for the United States as a whole, improved air quality could result in significant reductions in illness and absenteeism associated with respiratory disease, asthma and allergies, and sick building syndrome symptoms. They

controls, increased access to daylight, and views to a natural setting. Productivity increased by 16 percent overall, of which 3 percent was attributed to the personal controls and the remainder to a general improvement in environmental quality.<sup>3</sup>

Field studies of lighting have focused on the computer environment, especially design strategies to reduce the negative effects of glare from ceiling lights and windows. These problems are greatly resolved with the use of flat panel screens and laptop computers. These newer computers are also more energy efficient, more portable, and take up less space than older models.

The combined results from these studies show that improvements in the ambient environment and provisions of personal control can have noticeable positive effects on worker productivity.

3 Kroner, W. et al. 1992. Using Advanced Office Technology to Increase Productivity. Rensselaer Polytechnic Institute, Center for Architectural Research.

4 Heerwagen, J. 2000. Green Buildings, Organizational Success and Occupant Productivity, *Building Research & Information*, 28(5/6): 353-367.

5 Fisk, W.J. and A.H. Rosenfeld, 1997. Estimates of Improved Productivity and Health from Better Indoor Environments. *Indoor Air*, 7:158-172.

estimate productivity gains of \$17 billion to \$164 billion annually associated with improved air quality. They also estimate improved worker performance from enhancements of the thermal environment and lighting to be in the range of \$12 billion to \$125 billion annually.

## Well-being

Well-being is a psychological state characterized by positively toned moods, low levels of stress, a sense of pride in and commitment to one's work, and optimism about the future. As noted above, most of the research on the health effects of sustainability has focused on building related illnesses. Much less attention has been paid to how sustainable design can provide a health-promoting environment through improvements in psychological and social well-being.

Although there is not as much research on this topic, it appears that illness and well-being are influenced by different building features and conditions. Just getting rid of building problems may be a necessary, but not sufficient, way to promote states of well-being.

There is growing evidence that the presence of particular "spirit lifting" features in the interior environment may promote positive emotional functioning and serve as a buffer to discomforts or stresses. These features include daylight, interior sun patches, window views, connections to the natural environment, and spatial design and amenities that encourage sense of community. Numerous studies in office buildings have found that people value daylight and prefer to be near windows.<sup>6</sup>

Furthermore, there is growing realization that being near a window can be psychologically and physiologically beneficial, especially if the view contains natural features such as trees and flowers. Studies by Roger Ulrich and Rachel Kaplan show that visual contact with nature through window views enhances mood, reduces stress, and promotes higher quality of life.<sup>7</sup> Given the high cost of work stress today, efforts to reduce stress through the incorporation of positive features would be beneficial to workers and to organizations.

There is also evidence that daylight and views have positive impacts on work attitudes and experiences.<sup>8</sup> A pre-and post-occupancy analysis of a new green building in Holland, Michigan, found that workers in the new building had more positive attitudes and work experiences compared to their experience in the previously occupied building. The building is a combination manufacturing plant and office for Herman Miller, Inc., a manufacturer of office furniture. The new building has extensive daylighting in both the manufacturing and office areas, an internal day lit "street" lined with bamboo plants, and operable windows throughout the building. The old building, in contrast had high ribbon windows that were inoperable, no skylights, and no interior street or similar gathering place. The study found that workers in the new building felt more positive about coming to work and rated the new building much more positively overall. They also rated job satisfaction, work spirit, and sense of belonging much more positively in the new building. The analysis also showed differences across the manufacturing shifts, with workers in the daytime shift showing more positive attitudes and

<sup>6</sup> Heerwagen and Orians, 1986.

<sup>7</sup> Ulrich, 1993; Kaplan, 1992.

<sup>8</sup> Heerwagen and Wise, 1998; Heerwagen, 1998.

experiences than those in the afternoon and nighttime shifts.

In addition to these psychological benefits, there is also a growing recognition that sustainable design can influence social relationships at work in ways that have benefits both to individuals and their well-being and to the organization at large.

## Social Well Being

The social context of work environments consists of many different kinds of relationships that form the interconnecting web of information, knowledge and trust that support individual and group work. Most research on social processes focuses on organizational policies and culture. However, research in environmental psychology shows that the features and attributes of space also affect social relationships, including informal communications, friendships, sense of community, collaboration, and the development of trust. Although social behavior has not been a target of sustainable design research, there are links that need to be more fully explored. Social behavior is influenced by the characteristics of walls, furnishings, enclosure, work technologies, spatial flexibility, location of amenities, and the overall circulation pattern of a building - all of which are components of sustainable design.

The physical environment influences the potential for interactions and allows

workers to maintain an on-going awareness of what is happening at any given time.<sup>9</sup> These processes, in turn, influence information flow and communications patterns within an organization. High levels of intra-organizational communication are a contributing factor to innovation and productivity in many work settings. Not surprisingly, one of the key goals of contemporary office design is to increase communications and interactions among employees through spatial design and furniture systems, with the ultimate goal of improving productivity and the potential for innovation. Building design elements that increase internal communications include: a centralized and integrated circulation system, location of services on the well trafficked hallways, high levels of visual access into surrounding areas from individual workstations, visual openness in the environment as a whole, the presence of internal viewing places, reduced distance between workspaces, and layouts determined by need to interact rather than by organizational hierarchy. These spatial features influence the potential for seeing people and increase the likelihood of having "useful conversations."

In addition to communications processes, the physical setting at work can also influence the development of work relationships and friendships. Regular social interaction and exchange of information is crucial to the development of shared vision, which, in turn, is essential for successful collaboration.<sup>10</sup> The increased knowledge of others and the ability to interact in many different kinds of situations is also critical to the development of trust that underlies

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<sup>9</sup> Serrato, MG 2001. *Building Based Communication Research*, Tradeline, Inc. [www.tradelineinc.com](http://www.tradelineinc.com);

Katz, R. and Tushman, 1979. *Communications patterns, Project Performance, and Task Characteristics: An Empirical Evaluation and Integration in an R&D Setting*. *Organizational Behavior and Human Performance*, 23:139-162.

<sup>10</sup> Jarvenpaa, S.L. and D.E. Leidner, 1999. *Communication and Trust in Global Virtual Teams*. *Organizational Science*. 10(6): 791-815.

<sup>11</sup> Baumeister and Leary, 1995. Toronto

successful group work. Friendly work relationships also contribute to the sense of belonging and organizational commitment.<sup>11</sup>

Increases in communication, however, often come at the cost of increased noise and distractions that have negative consequences for high-level cognitive work, such as writing and analysis. As a result, there needs to be a careful balance between design that encourages interaction and design that provides sufficient enclosure and privacy for quiet, reflective work and for work requiring confidentiality. This balance is an issue for sustainability because open plan workspaces have many environmental benefits. Open plan designs use less material overall, they are more flexible and easy to reconfigure without taking down or building walls, and they allow daylight and views to be shared by all, not just the few who have offices on the perimeter of the building. The problems created by increased openness can be resolved by improved work analysis, careful attention to the location of noise generating behaviors relative to quiet work, and more effective ways to allocate people to space by taking into consideration the nature of their work.

## Summary

Sustainable design can have far reaching impacts on the health, productivity, and well being of workers if it takes into consideration the psychosocial environment as well as the physical environment. Clearly, ridding buildings of problems and discomforts is a necessary first step. But to be truly beneficial, the building needs to also provide psychological and social sustenance. Many of the highly valued

aspects of buildings, particularly daylight, views, and personal control, are not equitably distributed to all staff. Yet, the research cited here suggests that these amenities can have highly positive effects on workers. These benefits can have cascading effects on organizations through improved morale, commitment, and sense of belonging, as well as improved health.

Perhaps a component of the social contract between organizations and their workers should be the right to have a work environment that fully supports them, not only in a functional sense, but also emotionally, socially, physically and mentally. Many believe that sustainable design can meet these needs more effectively than traditional practice.





# The Sustainable Workplace: An Overview

# The Sustainable Workplace: An Overview

By Jonathan Herz

*Jonathan Herz, AIA, is a registered architect with experience in both the public and private sectors. Since joining GSA's Office of Governmentwide Policy in 1998, he has been an active contributor to its Integrated Workplace Program, as well as the leader of the Office of Real Property's Sustainable Development Initiative.*

## Introduction

We all know that sustainable development is important, but do we really know what it is and how it applies to our work and our workplaces?

Sustainable development is an integrated decision-making process that builds on the creativity of all your employees across your organization, so that every decision is made with an eye to the greatest long-term benefits. In other words:

The Hannover Principles, developed in 1992 by architect William McDonough, FAIA, and the chemist Michael Braungart, were among the first to comprehensively integrate the fundamental ideas of sustainability with the built environment. The Principles encourage all of us - you, your organization, your suppliers and customers - to link environmental considerations with ethical responsibility and to recognize our mutually dependent relationship with nature and our responsibilities to protect it. When you make decisions in your organization, remember these essential ideas from the Hannover Principles:

- **Recognize interdependence.**  
Everything you do interacts with and depends upon the natural world, at every scale, both locally and across the globe.
- **Eliminate the concept of waste.**  
Consider the full, life-cycle consequences of what you create or buy.
- **Understand the limitations of design.**  
Nature is a model, not a thing to be evaded or controlled.

Using the ideas of sustainable development, we can create safe, healthy and productive workplaces inside and outside of the traditional office and maintain and operate them at the lowest, real cost. Sustainable workplaces can answer today's needs - more productive and healthier work environments - and respond to today's needs without imposing additional costs upon future users.

An important first step is the creation of sustainable facilities. The Minneapolis Federal Reserve Bank, designed by HOK, and completed in 1998, minimizes its impact on the environment by emphasizing energy conservation, low maintenance landscaping, water conservation, indoor air



quality, environmentally preferable materials selection, and construction waste recycling.

The 618,000 square foot facility's material selection was based on source sustainability, the amount of embodied energy, recycled content, ability to be recycled, and effect on indoor air quality. Materials with enhanced durability, low maintenance and from predominantly local sources were used, reducing transportation impacts. Exterior materials include stone quarried less than 100 miles from the site and local brick. Interior materials include low-VOC (volatile organic compounds) paints and adhesives, formaldehyde-free wood products, and many products with high-recycled content. All wood used in the building is from certified sustainable sources. About 70 percent of the construction waste materials were separated and recycled.



Sustainable development is a fundamentally optimistic concept. Sustainable development doesn't mean giving up the paint that protects and enhances our buildings. It means reexamining 100-year-old formulas and replacing toxic ingredients with more environmentally friendly ones. It doesn't mean giving up the carpet and furniture that presently enhance our offices and eventually end up in landfills. It means leasing carpet and furniture and the services they provide, rather than simply buying them for a finite period, disposing of them, and starting all over again. Leasing the services of products such as carpet, furniture, elevators, and cooling means that your real needs are met and—since the products themselves remain the manufacturer's property—that they will be designed to be recycled at the end of their useful lives.

**Photo credits: HOK, Don Wong**

## How Do We Begin to Transform Our Way of Thinking?

Sustainability will come as an evolution, not a revolution, and will be achieved through a series of steps. What are the critical factors involved in implementing a sustainable development strategy?

- Executive leadership must understand sustainability and commit to its principles.
- Establish a vision and mission and translate it into specific long-term improvement objectives and targets with high-level visibility throughout all levels of the organization.
- Implement a formalized process for identifying the environmental aspects and impacts of an organization's operations, products and services.
- Provide training to raise awareness, skills and knowledge for transforming the organization into a sustainable development culture.
- Measure progress by incorporating metrics into day-to-day management systems.

The most successful organizations have an established vision and mission that gets translated into specific long-term improvement objectives and targets, with high-level visibility throughout all levels of the organization. Ray Anderson, a pioneer in sustainable development, describes how his entire company, Interface, Inc. (the world's largest manufacturer of commercial floor coverings) was transformed. Anderson changed his company's way of doing business by shifting the paradigm of what the customer wants and what a business can provide.

In his 1998 book, "Mid-Course Correction," Anderson developed a comprehensive set of

guidelines to move every aspect of his company toward sustainability. Through a detailed set of principles around "People, Product, and Place," he brings together ideas for living and working sustainably and uses them to define the company's mission. For example:

### People

- **Employees and Management:** Engage the creativity of all employees. Educate them on the corporate sustainability vision and ask them to commit to improving environmental impacts of their job. Establish top management commitment to long-term environmental strategy.
- **Customers:** Provide honest information about the known environmental impacts of your company.
- **Suppliers:** Share your corporate vision for sustainability with suppliers.
- **The Public:** Develop auditing mechanisms open to public disclosure.
- **Metrics:** Measure all material and energy flows in physical and monetary units.
- **Keeping the enthusiasm:** Set reasonable goals and always celebrate your accomplishments.

### Product

- **Design and Marketing:** Redesign products to use fewer raw materials while delivering the same or greater value. Rent the service component of your products, e.g., warmth and light not electricity.
- **Packaging, Manufacturing and Purchasing:** Redesign packaging. Research and adopt alternative energy sources. Adopt a zero waste mentality. Establish a "Buy Sustainably" policy.

*“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”*

The Brundtland Commission (“The Hannover Principles,” 1983 United Nations’ World Commission on Environment and Development)

## Place

- Facility: Design for maximum long-term flexibility and efficiency. Maximize use of natural ventilation, heating and cooling. Design with the natural flows of the site in mind.
- Landscape: Leave as much habitat and vegetation as possible undisturbed by construction.
- Maintenance: Invest in high quality systems maintenance to extend life and maximize efficiency.
- Transportation: Favor local products. Buy alternative fuel vehicles. Allow employees to telecommute or work alternative hours.

As part of the \$2 billion overhaul of Ford Motor Company’s Rouge River Plant in Dearborn, Michigan, William McDonough looked beyond the 1,212-acre complex to consider the entire \$150-billion company. Ford asked him to talk to all the top executives, scientists, engineers and car designers to see how they might think differently about design of their cars, trucks, factories and office buildings. New metrics are being developed that consider the multiplier effect, creating the tools to measure things like: reduction of contingent liabilities, community relations, regulation costs, and marketing benefits. Every project should have goals such as these:

- Worker retention,
- Improving employee attendance,

- Reducing injuries and worker compensation claims, and
- “Celebrating” people as the company’s most valuable asset.

## How Do You Track Your Progress Towards Sustainability?

So how do we measure sustainable progress in the workplace? Today, we require new measurement paradigms, new performance models. As real property professionals have broadened their focus, providing not merely space, but providing “workplaces,” our approach to measurement must also change.

The concept of the “workplace” is the result of the merging of the disciplines of facilities management, information technology, and human resources. GSA’s Office of Real Property publication, “The Integrated Workplace: A Comprehensive Approach to Developing Workspace,” advocates a process to address the planning and design of innovative workplaces that encompass all of these ideas.

In our “Governmentwide Real Property Performance Measurement Study,” we developed seven key performance indicators to assist Federal agencies assess the performance of their real property assets. Subsequently our “Workplace Evaluation Study” expanded our focus beyond the traditional ways of measuring facility or real estate performance, such as telecommunications, information technology, furniture and alternative work environments.

Performance measures will help managers to compare their operations to similar organizations in the government and private sectors; identify if the organization is

meeting its goals; and address customer satisfaction issues.

Public Works and Government Services Canada (PWGSC), has developed and implemented management strategies that analyze, evaluate and report on real property program performance. Housing 167,000 government personnel is a major cost item to Canada; with approximately 3.98 million square meters of office space in 4,000 different sites, PWGSC uses an Asset Management Plan (AMP) to manage real property assets over their economic life. The plan provides the strategic framework for Canada's real property asset investment decisions.

Supplementing the AMP is an Asset Performance Management Policy (APMP) that provides measures on financial, operational and functional performance. The APMP looks annually at Return on Investment, unit costs, unit revenues and vacancy rates for Crown-owned properties. Other items include operational and functional performance. PWGSC's measures include:

- Cost per square meter for leased/leased purchased space and imputed rates for Crown properties.
- Space per person, that compares rentable space to persons housed.

We hope to add "green" metrics to the growing list of productivity measures. The fastest growing building metric is the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) Green Building Rating System™. The Navy, Department of State, and GSA have adopted the LEED Building Bronze™ as their building standard. LEED™ provides guidance in the areas of building development and design. Points are given for design features that lead to a truly sustainable building, including:

- Building commissioning, erosion control, indoor air quality, energy efficiency and thermal comfort, water conservation and quality, and a system for recycling occupant's trash.
- Building Materials, including low levels of volatile organic compounds (VOC's), use of local materials, advanced resource reuse, recycled content, eliminating persistent toxins, and construction waste management plans.
- Energy Efficiency, natural ventilation and advanced systems.
- Landscaping, including reducing heat islands, shade cover, and reflective roofing materials.
- Siting and Site Development, including infill and brownfields development.
- Water Conservation, including water-conserving fixtures and cooling towers, gray water recovery system, water efficient landscaping, surface runoff control, and biological waste treatment.

### Other Established Environmental Metrics Include:

- ISO 14000 - ISO (International Standards Organization) enables an organization to control the impact of its activities, products or services on the environment, using a structured approach to setting environmental objectives, to achieving these and to demonstrating that they have been achieved.
- World Business Council for Sustainable Development (WBCSD) has a multifaceted Eco-efficiency Project that lays out general components of eco-efficiency connected to broad goals of pollution prevention and reduction of materials and energy use. They also include reducing and eliminating toxic dispersion, maximizing use of

renewable resources and enhancing recyclability and durability.

## What Are the Benefits To You and the Environment?

A healthier indoor environment, including the presence of natural light as well as fresh air, can greatly affect the health, safety and productivity of those who visit and work in your facilities every day. Commonly used furniture, carpeting and cleaning products often contain dangerous chemicals that “off-gas” directly into our workspace, contributing to an unhealthy indoor air environment.

At the Inglewood Center in Largo, MD, two Prince Georges County Government office buildings exhibited high rates of employee complaints and absenteeism. The building’s indoor air quality was found to be a problem. Through a “Green Housekeeping Program,” cleaning products were changed and training was provided to the janitorial staff on how to use the new products to clean more effectively. HVAC systems were also cleaned and balanced as part of the on-going scheduled maintenance program. The situation has significantly improved.

A facility manager, owner and building professional’s first priorities are safety and health. Sustainable practices can make the job easier, simplifying decisions and reducing costs. How and what you build and the manner in which you operate and maintain your facilities have a tremendous impact not only on the environment, but also your bottom line. Applying sustainable development principles will reduce waste and lower long-term maintenance and operating costs.

Equally important is the impact on your most valuable resource - your employees and your tenants’ employees. In 1997, the Federal Facilities Council reported that, over the typical 20-year life of a facility, 90 percent of its cost can be attributed to the salaries of the people working there, while only 5 percent is attributed to initial construction costs and another 5 percent to operation and maintenance costs.

The greatest opportunity for workplace gains is in improving the performance of the people in the space, not in cutting the cost of building, operating and maintaining the workplace. If the cost of providing important facility attributes can be shown to provide even a modest increase in productivity, they can be more easily justified.

Conversely, a short-sighted approach of cutting the first cost by providing the wrong kind of space, inadequate space, or installing systems, furniture, and technology that only meet minimum standards and thus hamper work performance can have disastrous long-term effects.

Successful businesses know that environmental management and environmental functions are integral parts of their everyday operations and strategic plans. They are successful because they understand the environmental implications of their business functions. Environmental issues are considered essential components of business processes, rather than consequences of those processes.

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1 Federal Facilities Council, “*Federal Facilities beyond the 1990’s*,” National Academy Press, Washington DC, 1997, p. 4.

## Conclusion

What can you do to be more sustainable? Think about what today's leading companies and Government agencies are doing to position themselves for success in the new century, and ask yourself, your superiors, your co-workers and your employees to consider some of these important questions.

### Are You:

- Providing leadership in your organization, demonstrating commitment to sustainable principles, and providing training to your employees?
- Establishing long-term improvement objectives, throughout all levels and measuring their effectiveness by examining your mission statements and strategic plans to identify the environmental aspects and impacts of your operations, products and services?
- Reducing building operations costs and lowering liability from potentially hazardous construction and cleaning materials and practices in the workplace?
- Creating livable environments, reducing negative transportation impacts, and enhancing your community's quality of life?

These steps will start you on your way to creating sustainable workplaces and sustainable business enterprises. You are probably already using some of the building blocks of sustainable development, including buying "green" products and services, using materials with recycled content in construction and managing construction waste. You may be using alternative fueled vehicles, Energy Star® equipment, and alternative energy sources. Finally, you may be ahead of the curve by implementing waste prevention strategies, increasing office waste recycling and the amount of property reused or donated, and training employees to think "sustainably." Reaching and maintaining sustainability is a continuous process of reexamination and re-learning.





“Feel-Good Facilities”

## “Feel-Good Facilities”<sup>1</sup>

By Craig Miller

**JANUARY 01, 2003** — Even before Woodsy the wise old owl told us to “give a hoot, don’t pollute,” facilities professionals have wanted to create green, sustainable, healthy workplaces. The difficult part was convincing the head office; traditionally it took more time and money to recycle than discard, to build greenfield than brownfield.

Driven by disparate forces including knowledgeable architects and builders, employee demands, lower costs for green building materials, and government regulations, sustainability is slowly but surely permeating the workplace-but sometimes without the client’s complete comprehension.

“In corporate America, some companies are naïve about it,” says Pam Light, senior vice president, Hellmuth, Obata + Kassabaum (HOK), Los Angeles. “The first time they’ve heard about sustainability is when we mention it, and they say ‘As long as it doesn’t cost me anything more.’ “

Sustainable development encompasses a range of laudable goals for facilities design and operations including comfort, health, flexibility, environmental responsibility, and technological foresight. It means making facilities decisions with an eye to long-term

benefits, eliminating the concept of waste, and understanding how our actions interrelate with the natural world.

Says Light, “In some cases, like Los Angeles, sustainable design is a requirement. We’re noticing more government groups-be they cities, states, or counties-asking about it. All buildings going up now that are funded or initiated by, or in the interest of the city, need to incorporate some form of sustainability.”

### Sustainability Measures Up

The U.S. General Services Administration (GSA) has been a proponent of sustainable development for more than a decade. GSA’s long-term ownership of properties allows it to see how sustainability eventually overcomes its potentially higher construction costs. But getting the private sector to follow suit requires education.

“Executive Order 13123 says that the government will build sustainably, but unless there’s logic behind that, it won’t catch on,” says Jonathan Herz, AIA, a

<sup>1</sup> Reprinted with permission of FACILITIES Design & Management magazine, copyright January 2003.

design and construction program expert in the GSA's Office of Governmentwide Policy, Washington, DC. "Sustainability is growing as a business idea because it makes sense. Sustainable design lowers operating costs through energy and water conservation. It also creates healthier workplaces, thereby increasing productivity. And people like to work for organizations that consider these aspects in a positive way, so we get people that might not consider working for the government otherwise."

Herz says companies such as IBM, Ford Motor Company, and Nike are following sustainable development principles, "maybe not on every project, but they're seeing it as a good business strategy."

He adds that companies benchmarking their facilities' construction as well as operations will be able to quantify improvements in lifecycle costs, air quality, absenteeism and hiring/retention, and facility maintenance. "We have a large construction waste recycling program that saves money as well," says Herz. "Things like that are easy to look at."

One way to measure a facility's sustainability is to use the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) Green Building Rating System, which the GSA will adopt for all projects starting this year. The system awards points for design features that cover site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Although LEED™ provides a complete framework for assessing building performance and meeting sustainability goals, proponents note you don't need to go all out to initiate sustainable workplace processes. Small measures can help, such as having the building's air filters cleaned, providing lighting controls for separate work areas, or using new cleaning supplies. Herz asks, "If people are using toxic materials to clean

buildings, what does it say about what employees are inhaling?"

Employees also must be educated so they don't defeat the purpose of high-tech sustainable design elements. A space heater under the desk may not be the best way to control the individual work environment (or the electricity budget). Waterless urinals can be damaged if they're maintained incorrectly. "We have a new federal building in San Francisco with operable windows," says Herz, "but it's also designed with a sophisticated HVAC system, so people need to understand when windows should be opened."

## The Learning Curve

Herz says a new relationship based on education and communication is required between architect and client to maximize the benefits of sustainability. "Usually at the end of a (construction) job, you give the building manager the keys and hope you don't hear from him again. But you should have an ongoing dialog. Building managers need to know what questions to ask designers because they're going to be maintaining the facilities for many years. The label on a candy bar says what's in it, but building products don't have that. If you don't use hazardous materials, you don't have to pay for hazardous waste disposal down the road. It's one of many considerations that can add to costs."

For corporations who are interested in sustainable design and operations, there's a growing base of knowledge among architects, builders, and design consultants. The U.S. Green Building Council was expecting 1,800 to 2,000 attendees for its recent international conference and exposition. As it turned out, the Council closed registration a few weeks prior to the event and welcomed closer to 3,500 people.

“It was like a pep rally, there was so much energy,” says Monica Green, AIA, CSI, CCS, associate, van Dijk Westlake Reed Leskosky (VWRL), Cleveland.

Green says her firm is being asked to address environmental responsibility more often in requests for proposals, whether for corporate or government contracts. “Green is trendy, and many manufacturers are using that terminology to promote products, but we as design professionals have to be more educated. I think the issue is, we need to stop and reexamine the way we’re managing and moving projects forward.”

While Green admits that reexamining building methods affects the schedule and budget, she adds that the education curve depends on the designer’s experience. “There’s an education process, like when we went from hand drawing buildings to computer drawing. That added time and cost, but the next project went quicker. Sustainable design is overwhelming for clients, design professionals, and architects alike when you’re doing it for the first time, but you can build on that experience with each project.”

Whether a project formally follows the LEED™ rating system or not, Green says the tool can help everyone involved develop goals for a project. Those goals can be simple, like keeping the construction site clean and recycling waste on the site, or as complicated as using renewable energy sources and alternative construction methods. “There are people out there always pushing the limits,” Green adds, “and that inspires us.”

VWRL designed a new facility for the U.S. Geological Survey (USGS) near Flagstaff, Arizona. Designed to house the scientists of the United States Astrogeological division, the 27,000-sq.ft. facility combines private offices, a public exhibit area, and a library and resource center. Given the client (USGS

and its contracting entity GSA) and site (a mesa at the base of the San Francisco peaks), Green says a lot of thought was put into environmental responsibility, as well as energy efficiency and thermal comfort.

The building sits on an east-west axis to take advantage of solar gain in winter and ventilation throughout the year. It has operable windows, clerestory glass, and overhangs that minimize heat gain while maximizing natural lighting by allowing the use of clear glass. The building also has a reflective metal roof and well-insulated concrete masonry unit (CMU) walls resulting in high thermal mass.

The project offers an example of “multi-disciplinary thinking,” a term Green says she’s hearing more often. “In the past, architects would hand off plans to engineers, who would circuit the lighting and design the HVAC. But building systems are so much more sophisticated now that each design decision affects the total building performance. Architects and engineers need to work more closely to see how daylight affects building controls, or how wall and floor coverings retard vapor. Everyone on a project needs to communicate better; it’s more important than it used to be.”

## Sustainable and Affordable

Clients that exhibit an interest in sustainable development may find that being a good corporate citizen offers rewards beyond good public relations. HOK’s Light says sustainable design doesn’t have to cost more. “Green products are coming down in cost because more people are using them, so we can specify them more often.

“There are things that are no charge to the client and better for the environment,” Light adds. She notes that 4.5 billion pounds of carpet go in landfills every year. Yet two of the largest manufacturers of nylon for carpet, DuPont and Solutia, will take old carpeting for reclamation and charge no more than what the general contractor would pay for landfill costs. The client merely needs to note in the specifications that the carpeting should go to reclamation.

A little flexibility on the part of the client can help keep costs down on sustainable design projects. When Game Show Network was looking for a new space, HOK suggested a facility recently vacated by another client, IBM e-Business. “Although it wasn’t exactly what they were looking for, it was still very nice, and they took it,” says Light. HOK worked with the client to retain 80 percent of the existing space (including carpeting, hardwood floors, stone counters, millwork, and lunchrooms). “We just added a few more private offices, and changed some lighting and the interior color palette. We got them in the space for 25 percent of the expected cost. And they took the existing furniture, cutting that budget to 10 percent of what it would have been.”

The project also kept a lot of building materials from going to a landfill.

Other companies have also found that less is more when it comes to sustainable, good-looking interiors. HOK designed a space for

Turner Feature Animation that used EnviroCoat paint in place of a ceiling. Says Light, “There was no additional cost to the client, it’s a great part of the design and good for the environment.” For the National Wildlife Federation, the firm designed a space that included a wall made of plants, a solution that provides natural air purification and suits the group’s mission.

FMs may feel as green as Kermit but face trouble selling their sustainability ideas to corporate management and shareholders. Light suggests showing a cost savings on electricity, or on lowering absenteeism with better air. Support your data by enlisting the help of human resources. And seek out design firms that have worked on sustainable projects before. In addition to their own expertise, they can provide information from design consultants and product manufacturers.

Sustainable development depends in part on new technologies, making a thorough knowledge of sustainable products key to a project’s success. Light once specified a floor made of recycled tires for a forward-thinking client. She recalls that long after it was installed, the floor retained a slight rubbery smell.

“Luckily, the client loved it,” Light says, “but I warn clients now. In this case it was artsy people, but if it had been a stuffy corporate group, who knows?”





## Section III: Case Studies in Innovative Workplace Strategies

*Photo credit: Hoachlander Davis Photography*

# Section III: Case Studies in Innovative Workplace Strategies

## The Office of Real Property Integrated Workplace Pilot

Office of Governmentwide Policy  
General Services Administration (GSA)<sup>1</sup>

By Rob Obenreder, AIA

*Rob Obenreder is a registered architect with 21 years experience in the public and private sectors. He has worked for the General Services Administration for the past 11 years in varied capacities, including architectural design, construction documents, design review, contract preparation, and project management. He is currently leading the Office of Governmentwide Policy's Integrated Workplace Program*

The Federal Government spends millions of dollars each year providing workspace for its employees, often using 19th Century methods and solutions to support 21st Century knowledge work. We believe this money can be better leveraged to not only improve aesthetics, but also the performance of the space and the productivity of those using it. Better space can also reduce long-term operational costs and minimize waste. To test these ideas, the Office of Real Property has renovated our offices using Integrated Workplace (IW) principles, which were developed by this office and presented in our publication “The Integrated Workplace: A Comprehensive Approach to Developing Workspace.”

**Design Challenges:** The old workspace for the Office of Real Property consisted of systems and freestanding furniture of various vintages and sources, awkwardly arranged in poorly lighted, confined spaces. “Amenities” included a poorly located and confusing executive suite and staff administrative area at the mid-point of a noisy public corridor, and a large conference room with a library whose use was restricted by the conference room schedule. The office space was gloomy at best, with inflexible, inequitable workstations and limited opportunities for staff interaction.

The features and furniture of our workspace did little to support the business process or

<sup>1</sup> Adapted from article, “Integrated Workplace Pilot Leads the Way at GSA!” by Robert Obenreder. The original article appeared in the U.S. General Services Administration’s Real Property Policysite, Winter 2002/2003.

mission of a knowledge-driven, collaborative, changing organization. Cubicles were similar to those portrayed in the comic strip “Dilbert.”

As is typical in a small project like this, the limited scope and budget precluded using extensive consultant help. A workplace change professional was brought in at the

### **The Workplace Design - From Vision to Reality through Dialogue:**

The staff and management defined our workplace needs. We wanted a workplace that “fosters innovation and communication, provides a healthy and satisfying environment, and supports high-quality work.”

Using a series of two-bay-wide suites that accommodate 4-5 people in open workstations surrounding a common area, the final space configuration is more in keeping with the original building layout of private offices along a public corridor. This arrangement moved the secondary internal circulation of the old open-plan office back into the original corridors, picking up needed usable space and creating opportunities for staff interaction. The result is a more intimate, collegial atmosphere than the previous open-plan “cubicle farm,” so much maligned in recent years.

Existing space was reconfigured to make better use of it. As a result, wasted space was recaptured to create 3 small meeting rooms and a community room in the same rentable area. In total, over 900 square feet (12 percent of the total space) has been recaptured.

**Just the Facts:** The Office of Real Property is housed in 852 rentable square meters (9,167 rentable square feet) of space on the sixth and seventh floors of the historic General Services Building, built in 1917 in Washington, DC. The newly renovated space was fully occupied in June 2002, and provides offices and support space for 46 people, resulting in a utilization rate of 18.5 square meters (199 square feet) per person, including joint use and conference spaces. Average workstation size is 7.2 square meters (78 square feet).

**A More Collaborative Process:** Through team meetings, staff workshops, focus groups, surveys, and interviews, we defined written goals for our new workplace. The



*The Integrated Workplace allows an organization to use the workplace as a strategic tool to accomplish its mission and improve employee performance. It provides a context for examining needs and resources to be translated into appropriate work strategies and space solutions. It supports a sustainable approach to federal facilities by focusing on solutions that provide more healthy, productive, and flexible workspace and work strategies that help attract and retain valued staff, simplify reorganization and space reconfiguration, and reduce downtime and waste.*

beginning to conduct a workshop that helped define work processes, workplace strategies, and office space needs. We then held a design charrette with in-house staff. It could be said that, in large part, we the tenants, designed our space.

In-house architects and designers provided design and project management expertise and building support staff carried out furniture procurement and much of the construction.

Once the easily movable furniture we selected was in place, the tenants themselves completed the design process by arranging common elements and workstations to best suit their individual work tasks and style.

three most important issues were: privacy and noise, more user adaptability, and improved day-lighting and temperature control. The staff also identified ergonomics, team meeting space, and storage as priorities. Management also wanted increased opportunities for staff interaction, team collaboration and telework support.

**Design Solutions:** Specific solutions linked to project goals include:

**More privacy/less noise.** Division of the larger, open spaces into smaller 5-person “suites” maximizes the distance between workers, helping to reduce noise and distractions. Moveable partitions allow tenants to vary the degree of visual privacy. Protocols for noise control are being developed.

**User adaptability and mobility.** All furniture and space screens are easily moveable. Heavier pieces are on wheels. Each person can adjust their workspace to suit their own work style - open or closed, right or left handed, facing in or out, and so on. A new phone system allows easy call

forwarding to any number for seamless mobility.

**More daylight.** We took advantage of the narrow depth of the suites to increase natural light in the spaces. Existing suspended ceilings were cut back at the windows and door transoms. Translucent panels were also used to separate workstations. Overhead storage was eliminated, with equivalent storage provided below or adjacent to the desktops, reducing shadows on the work area.

**Temperature control.** The budget only allowed for simple changes. Existing window air conditioners, which allow for some local control, were located more uniformly in the spaces. Ceiling fans in each office improve air circulation and can be controlled by temperature if desired.

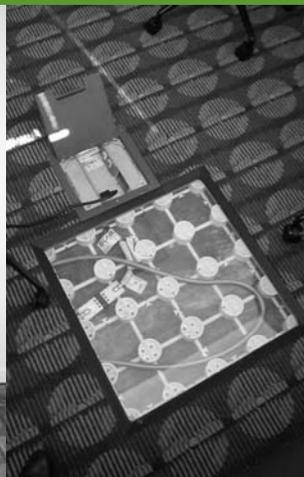
**Storage.** Workstation storage includes towers, file pedestals, and bookshelves, all on wheels for easy mobility. Additional storage is provided in a common lateral file in each suite, the community spaces and library. A long-term file area is located on an adjacent floor.



**Typical Workstation**



**Mobile Storage**



**Access Panel in Community Room**



**Community Room**

**Ergonomics.** Each person was given the opportunity to test four different ergonomic task chairs and select the one that worked best for them. Other improvements include new adjustable keyboard trays with an integral mouse pad and the ability to orient

lamps in the desk lights, separate switching of light fixtures, and power strips with motion detectors to shut off lights, computer monitors and other equipment when workstations are unoccupied.

**Flexibility features.** Because furniture and partitions are freestanding, with heavy pieces on wheels, occupants have the ability to personalize their workstation configuration. This minimizes downtime and reconfiguration costs, and simplifies maintenance. New conference room tables are modular, allowing easy rearrangement. The community space utilizes a low-profile access floor and modular wiring. All spaces use modular carpet tiles that are easy to replace if damaged.

**Alternative workplace strategies.** In addition to the physical workspace changes, the Office of Real Property utilizes telework, telework centers, and desk sharing. The new workplace provides touchdown space for employees who work full-time outside the office, call forwarding and cell phones, laptop docking stations, and remote e-mail and computer network access.

**Project Cost:** The cost of providing flexible space using Integrated Workplace strategies was comparable to that of a conventionally planned space, even with some increased planning costs. We believe that this approach resulted in fewer construction changes. Fit-up costs can be tailored to meet any reasonable budget. Total “move-in” cost for this space, including design fees, space renovations and furniture, was \$49 per rentable square foot, or \$9,800 per person.

**Measurement:** A survey will be conducted to poll the users on workplace performance. This information will inform future workplace changes. The GSA-wide Gallup Q-12 survey will also be used to assess general workplace satisfaction.

*“The MP space redesign was delivered on time, within budget, and the result is an environment that is a dramatic improvement over the way we used to work.”*

Stanley Kaczmarczyk,  
Innovative Workplaces Division Director

computer monitors to avoid window glare. Overhead light fixtures were reduced in number and equipped with non-glare parabolic diffusers. Task lighting provides increased illumination at the desktop.

**More collaboration/teaming.** All staff are now located in contiguous space. A small meeting area in each suite and the ability to open up workstations to each other help support collaborative work. A community room, three small meeting rooms, and use of common circulation provide more opportunities for both formal and informal discussions.

**Sustainable features.** “Green” materials and practices for the project include sorting and recycling of paper during pre-construction moves, use of paper recycling wastebaskets, recycled content in all furniture, fabrics and carpet, and use of 100 percent recycled vinyl flooring in the kitchenette. Overhead lighting fixtures were reduced by over 30 percent and replaced with energy-saving parabolic types that are needed less because of the natural light filling the space. Other energy-saving features include the use of Energy-Star rated ceiling fans with a dimmable fluorescent light, compact fluorescent

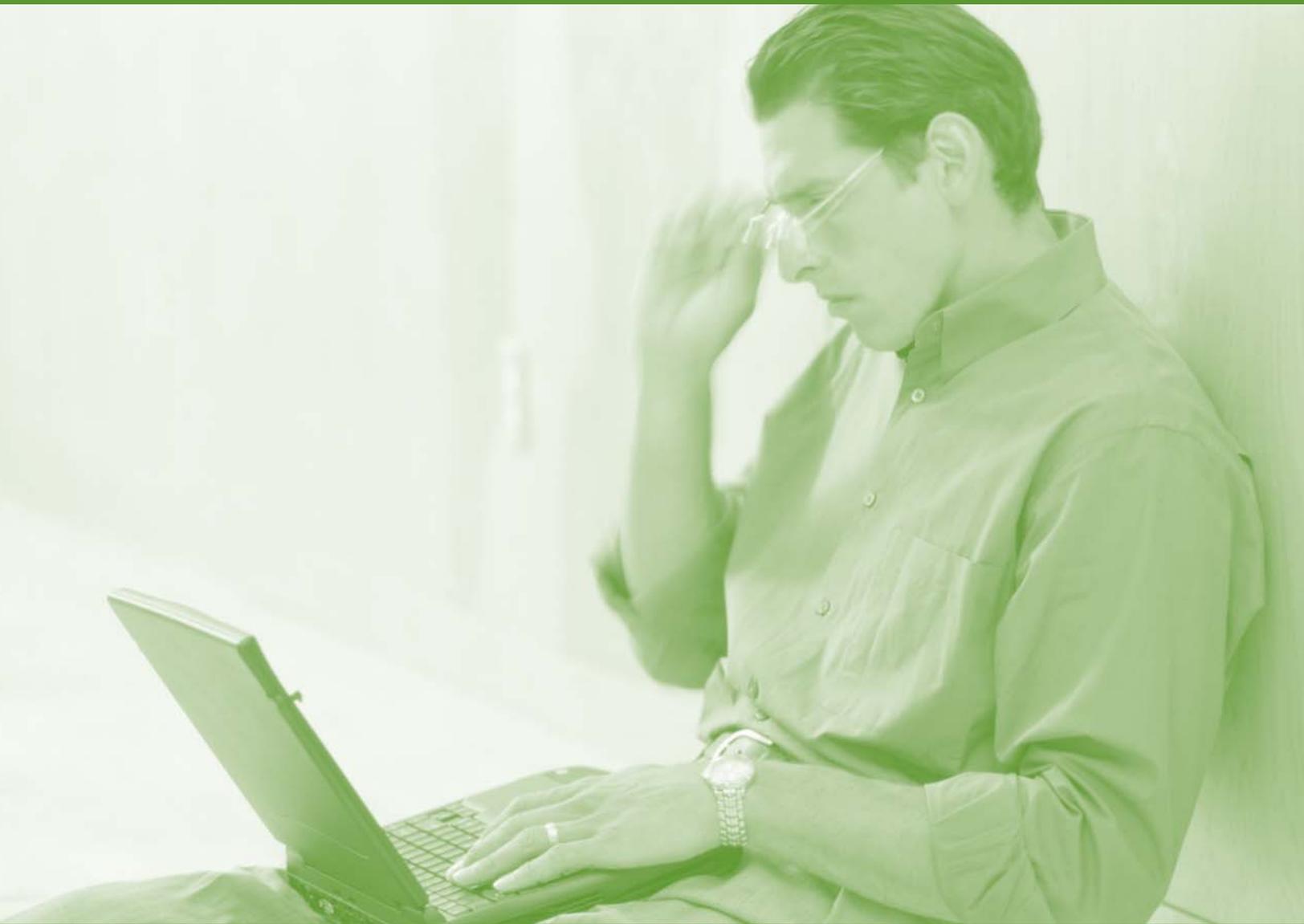
**Conclusion:** The Office of Real Property Integrated Workplace demonstrates that a greatly improved work environment can be created on a limited budget. Our new workspace provides completely mobile workstations that have already proved their worth. Each occupant has made changes to the workstation to better suit how he or she works. In two instances, damage to the building and furnishings from piping leaks were avoided because the furniture could be relocated in minutes to give repair crews access.

When staff move to a different workstation, they merely have to roll their fully-loaded storage units to their new location, saving hours of packing and unpacking, and saving both moving and down-time costs. Workstations are more equitable, with each person getting the same size space and access to daylight.

The new community room, carved out of old circulation space, serves as the heart of the office, where staff can prepare and eat lunch, get their mail, make copies, log-on to the internet, read, work, meet, and exchange ideas. Small meeting rooms support more collaborative and intense individual work.

The “front office” is now located adjacent to the elevator lobby for better visibility and visitor access, increasing the Office of Real Property’s presence in the building.

Using Integrated Workplace concepts, the Office of Real Property has developed a more responsive workplace that can be adapted and improved, meeting today’s needs and tomorrow’s challenges.



# Sun Microsystems iWork Program

## Sun Microsystems iWork Program

By Crawford Beveridge

*Crawford Beveridge is chief human resources officer and executive vice president in charge of people and places for Sun Microsystems, Inc.*

If you look around, you may discover (as we did) that 30 to 35 percent of your people aren't in the office on any given day. The reasons are not surprising — classes, conferences, customer visits, sick days, vacations, meetings at other locations. But the data you gather is likely to bring home a salient point:

Your work force is already more mobile than you think.

Today's knowledge workers have widely varying needs that stem from different kinds of job and work tasks, personal and family situations and workstyles. This has a major impact on our assumptions about the workplace, and Sun's iWork program can be traced to these changing assumptions (Fig 1). What is iWork? It is Sun's internal system of workplaces, work practices, and technologies designed to support an increasingly mobile workforce.

Yesterday	Today
Serve regional customers	Markets are global
Hire local workers	Hire the best talent
Expect employees to be "here"	Workforce is anywhere
Manage by walking around	Manage through leadership
Work in a single space	Work locations are multiple
Work mostly is individual	Work activity is more team-dependent
Major work constraint-rules	Major work constraint-time

**Figure 1. Changing Assumptions Concerning the Workplace**

Several years ago we thought it would be great to give employees secure access to their e-mail from home or on the road, but we quickly realized that what we really needed to give them was access to everything: Mail, calendar, address book, expense reporting, benefits management — you name it.

That was the start of a significant shift for us. What we used to refer to as real estate and facilities became Workplace Resources. That may seem like a subtle semantic distinction, but it really broadened our perspective. iWork considers the work infrastructure not as a static resource “assigned” and “owned” by an individual or group but as a set of resources “available” and “served up” on demand to those who need them when they need them - resources available “anytime, anywhere, to anyone.”

Once we got the right Web-based tools in place, we could be a lot smarter about the kind of work environments we offer: Drop-in centers closer to where our employees live and flexible zones on our main campuses, where some seats are available on a first-come, first-served basis and some can be reserved. (That way, if you have to go to another campus for a meeting, you can get some work done afterward without having to return to your home base.) For example, we've determined that 1.8 users per office is about right, given the amount of time they spend out on sales calls. You have to find the ratio that makes the most sense.

Here I think it's important to note that companies such as ours, with large, globally dispersed workforces, typically have a vacancy rate in their buildings of 10 to 15 percent. Some of that is planned (to accommodate growth and periodic restacking of the organization in response

to shifting market opportunities) and some of it would have to be considered unavoidable. Because of the iWork program, we believe that, by the end of 2003, we can achieve a vacancy rate of zero. The iWork program has already helped Sun reduce real-estate holdings and lower operating costs by \$50 million a year, and we believe it has the potential, through cost savings and cost avoidance, to have a bottom-line impact of \$140 million a year when fully implemented. A summary of the applications and benefits of the iWork program to date is shown in Figure 2.

One of the side benefits of iWork is that it enhances our ability to attract and retain the best talent available. In fact, we estimate that, so far, the work-from-home aspect of the program has enabled us to keep 680 employees who otherwise would have left the company.

We have started to think of our main campuses as town halls or community centers— places where groups can gather to foster team spirit and tackle specific tasks. In the cafeteria of our Menlo Park campus, we even opened a prototype iWork Cafe, with networked lunch booths, countertop stations, and other casual, open work settings for individuals and small groups. As always, we'll monitor usage and collect feedback to determine whether we want to extend the café option to other campuses.

By providing flexible workplaces, where all people need is a Java smart card to bring up their personal desktop, we make it easy for them to reorganize themselves, to form and reform groups — a real advantage in a constantly changing business environment.

Mobility is already a fact of life. The new workplace needs to reflect that.

Applications	Impacts	Benefits
Flexible Field Offices -65 locations worldwide, would occur 11,000 employees	<ul style="list-style-type: none"> <li>• Enabled rapid sales and service growth with no lead time in knowing where that growth</li> <li>• Post 9/11 enabled 250 World Trade Center employees to become fully productive within one week of disaster.</li> <li>• Employees trade their assigned offices for priority access</li> </ul>	<ul style="list-style-type: none"> <li>• \$40M annual operational savings</li> <li>• 69 percent employee satisfaction today, with continued improvement every year over the past 4 years</li> </ul>
Drop-in centers in Bay area, Washington, DC, Boston area, 5000 users	<ul style="list-style-type: none"> <li>• Individual employee productivity gains</li> <li>• Strong indications of improved hiring and retention</li> </ul>	<ul style="list-style-type: none"> <li>• 90 minutes of employee time saved per average 54 minutes given to Sun</li> </ul>
Work from home (US only so far), 2,000 employees registered to date	<ul style="list-style-type: none"> <li>• Enabled an estimated 680 employees to remain with Sun so far</li> <li>• Post 9/11 enabled many WTC employees to be immediately productive.</li> </ul>	<ul style="list-style-type: none"> <li>• Average commute savings of 3.1 hours per week per participant, 58 percent of commute time returned to Sun</li> <li>• 54 percent average productivity gain</li> </ul>
Flexible Office and Team Enterprise Server Products Group (current pilot), 280 in	<ul style="list-style-type: none"> <li>• Improved team collaboration between San Diego, Bay Area, and Burlington, MA teams</li> <li>• Catalyst for change/increased team activity in Bay Area</li> </ul>	In process

**Figure 2: Applications and Impacts of iWork**



Section IV:  
Follow Up to “Productivity  
and the Workplace”

# Section IV:

## Introduction

As you have read, the Virtual Workplace and Sustainable Workplace are important strategies that can help in the creation, operation and management of healthy and productive workplaces. They tell us where today's workplaces are headed in the future. But what is the level of awareness today among those who use the workplace: managers and employees?

The Office of Governmentwide Policy's conceptual Workplace Performance Model, discussed below, is the first attempt to assess employee satisfaction with the workplace, with an eye to determining the relationship between employee satisfaction with each workplace component, and employee productivity. Our December 2001 publication, "Productivity and the Workplace," introduced the Employee Satisfaction Pilot Study, which uses this Workplace Performance Model.

The sample size is relatively small and the sampling method was driven more by practicality than statistical theory. Our objective for collecting the survey data was to reinforce the integrated "Workplace" concept through measurement. Instead of asking people about satisfaction with the workplace as a whole, we measured separate satisfaction scores for the People, Places and Tools components.

The results, as Drs. Gina Vega and Martin D. Hanlon write, are illuminating - workers do not yet recognize the effects of "Tools" and "Places" on their job satisfaction and are almost completely focused on "People" factors.

## Follow Up to “Productivity and the Workplace”

By Dr. Gina Vega and Dr. Martin D. Hanlon

*Dr. Gina Vega is Associate Professor of Management at the Francis E. Girard School of Business and International Commerce, Merrimack College, North Andover, MA. She is the author of “Managing Teleworkers and Telecommuting Strategies,” forthcoming from Praeger Publishers. Dr. Martin D. Hanlon is an associate professor in the Department of Urban Studies at Queens College of the City University of New York. He has published widely in the fields of organizational change, labor relations and human resource management.*

Conventional wisdom suggests that productivity and worker satisfaction are closely tied, and that we can “make” workers more productive through various workplace enhancements, ergonomic improvements, and increases in benefits. One white paper indicates, “When office workers are satisfied with their environmental conditions, when they can work in greater comfort and control, they will be more productive. Additionally, the cost of employment per worker will drop, and the cost of facilities operation will decrease.”<sup>1</sup> In the same context, “E.R. Tischauer, in his book *Biomechanical Basis of Ergonomics*, writes that a correct chair can add as much as 40 productive minutes to the working day of each productive individual. Easy to measure and tie to the bottom line.”<sup>2</sup> Proponents of telework in its various formats have provided data to support claims of increased productivity in the virtual environment.<sup>3</sup> But recent research conducted by the General Services Administration indicates that conventional wisdom may not always hold

true, particularly as they relate to worker satisfaction.

### Research Background

Over a period of approximately a year and a half, GSA’s Office of Governmentwide Policy carried out the Workplace Analysis Survey<sup>4</sup> under the leadership of Stan Kaczmarczyk and with the assistance of public employees, private sector companies, trade associations, and academic sources. The primary goal of the survey was to identify the key factors that influence productivity, based on the hypothesis that worker satisfaction in the areas of “People,” “Places,” and “Tools” would be closely connected with productivity.

- “People” included organizational culture, business processes, and organizational flexibility.
- “Tools” included information

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1 Lomonaco, Carol and Dennis Miller. “Employee satisfaction, personal control, and the positive correlation to increased productivity.” Johnson Controls: 2002 [www.johnsoncontrols.com](http://www.johnsoncontrols.com).

2 Chong, Ian. “Ergonomics, not a buzzword; A bottom-line contributor.” Seattle, WA: Ergonomics, Inc. 1997.

3 Davis, Donald D. and Karen A. Polonko. “Telework in the United States – Telework America Survey 2001. ITAC: October 2001, and Nilles, Jack. “Telework in the US – Telework America Survey 2000.” ITAC: October 2000.

4 U.S. General Services Administration: Productivity and the Workplace, Washington, DC: December 2001.

<b>People Factors</b>	<b>Government</b>	<b>Non-Government</b>
Mass transit subsidies	<b>48%</b>	24%
Mostly independent work	<b>48%</b>	22%
Competitive pay	37%	<b>59%</b>
Competitive benefits	53%	<b>79%</b>
Personal job security	<b>55%</b>	26%
<b>Places Factors</b>		
Work in a cubicle	50%	<b>70%</b>
Presence of exercise facility	<b>60%</b>	37%
On-site childcare	<b>49%</b>	18%
<b>Tools Factors</b>		
Laptop computer	<b>44%</b>	18%

**Table 1: Differences between Government and Non-Government Samples in the Presence or Absence of Specific Workplace Factors**

technology, connectivity, office equipment, and Internet usage.

- “Places” included specific work locations, office layout and design, furnishings and amenities, and building systems.

Data collected from over 250 public and private sector employees gave rise to conjectures about satisfaction and productivity in the virtual work environment.

## Major Findings

Overall, there are few differences between the government employee sample and the non-government employee sample in the degree of personal satisfaction with how well the workplace addresses People, Places, and Tools factors. Sixty-seven percent of government employees (107) were either satisfied or very satisfied with how well their workplace addressed People factors. The corresponding figure for employees in the non-government sector was 70 percent (76). For Places factors, 70

percent of government employees (121) and 76 percent of non-government employees (50) were satisfied or very satisfied with their workplace. Personal satisfaction with how well the workplace addressed Tools factors was very high in both samples: 86 percent of government employees (154) and 87 percent of non-government employees (62) indicated that they were satisfied or very satisfied in this area.

Table 1 indicates some significant differences between the government and non-government samples in the presence or absence of specific workplace factors. Overall, government employees enjoy greater job security and a broader range of employee benefits as well as more opportunities for independent work. Non-government employees enjoy higher pay and monetary benefits than their government counterparts.

An analysis of respondents' open-ended comments showed the same pattern throughout all the respondent subsets. Out of the 62 offered comments, 32 of them pertained to the importance of People

factors in the workplace. Respondents used language such as:

- “*Tools* and *Places* less of a problem than *People* issues.”
- “I think the greatest emphasis should be placed on *People* issues.”
- “Communication between staff members and management is extremely important to maintain productive employees.”
- “*People* overall are the most important factor. They need security, opportunity, and care.”
- “I feel if interpersonal communication is lacking, then productivity will be low.”

## Significance in Terms of Worker Satisfaction, Retention, and Productivity

These findings translate into an apparent reluctance to change jobs based on the offer of technological or location-related offerings in either the public or the private sector, regardless of the disparities in benefits noted above.

- It's no surprise that people who work in cubicles don't like it, but cubicles have no impact on the decision to change jobs.
- People are more satisfied when their work places are in new or renovated buildings, but this has no impact on the decision to change jobs.
- We might have expected that desk-sharing would have a negative impact on job satisfaction, but apparently, it does not. Proximity to a window has no impact on satisfaction either.
- Workers whose employers provide

them with laptop computers and cell phones are more satisfied than those whose employers do not provide such equipment, but these items have no impact on job-change decisions.

- Even the presence or absence of on-site childcare had no impact on job-change decisions, although childcare is clearly an important issue for significant numbers of workers.

The major finding of the study is that employee satisfaction has to do with *People* factors, rather than *Places* or *Tools*.

- The most satisfied (satisfied or very satisfied) workers among the survey respondents were those whose organizations practiced open communication (65 percent), those who received the right training (61 percent), and those whose organizations supported work/life balance (56 percent).
- Competitive pay also played a significant (although lesser) role in worker satisfaction, with 50 percent of those whose organizations provided competitive pay being satisfied or very satisfied.
- Despite the statistical significance of the presence of these *People* factors on worker satisfaction, none of them has an impact on the decision to change jobs.
- Although being organized into work teams does not have an impact on satisfaction, it does have an impact on the decision to change jobs.

We might have anticipated that other factors would play an important role in job satisfaction - such as work at home options, mass transit subsidies, or flexible work schedules - but the respondents indicated that these had no impact on their job satisfaction. The people who participated in this survey were pretty much happy with their jobs.

Interestingly, the *People* factors turned out to have the most significant impact on productivity, satisfaction, and the decision to change jobs. Fully 65 percent of the respondents felt that *People* factors would have a great or very great impact on their decision to “change jobs tomorrow.” This is the only category in which more than half of the respondents indicated an impact. In addition, there were differences between government and non-government employees in a number of important *People* factors in the workplace. Government employees were far more likely to feel a sense of personal job security and were much less likely to expect downsizing or frequent moves. Non-government employees were much more likely to note that their pay and benefits were competitive than were government employees.

Significantly, while half of government employees stated that their jobs gave them the opportunity to do independent work, only a quarter of non-government employees cited this as a characteristic of their job. One federal worker stated it succinctly: “Work has to be interesting and worthwhile.”

## ...In All the Wrong Places

The implication of these findings is that we are looking for worker satisfaction in all the wrong places if we focus on the Tools or location of work and ignore the importance of People factors in designing our workplaces. In the words of one respondent, “We need better managers who understand organizational structure.” This respondent suggested also that retention is not necessarily a worthwhile goal. This is something we need to consider. Are our efforts at retention worth the expense? If it



is true, as another federal employee wrote, “Most people here work hard to complete the mission of the organization as they understand it,” perhaps we should turn the mirror on ourselves and shift the focus to managerial effectiveness and human relationships in the workplace. The findings regarding human relationships in the workplace echo other recent studies. In August 2001, the AFL-CIO shared the results of its workplace opinion study in which “63 percent of those responding said they don’t trust employers to treat employees fairly.”<sup>5</sup> A CNN.com instant poll shows that 71 percent of the readers of the article (3379) agreed that they don’t trust employers to treat employees fairly.

Core processes remain the same no matter where one works, discounting the importance of location. And, without the appropriate equipment, work cannot take place, eliminating Tools as a meaningful factor in work satisfaction. Furthermore, there seems to be little or no connection

5 Anderson, Porter. “AFL-CIO releases ‘workers’ rights’ study.” <http://cnn.career> August 2001.

between workplace satisfaction and productivity, according to the data from this survey.

If we had the opportunity to “fix” one thing in the work environment, that item would relate to People factors: increasing open communication, providing appropriate training, and finding a way to enhance work/life balance. Building trust between employers and employees would be the first step in this process.

## Afterword

by Jonathan Herz, AIA

Not surprisingly, most respondents focused on People - the most familiar and important issue. Most are probably not aware of how Space and Tools can also provide opportunities for change and improvement.

Most of those surveyed were not working in new or “innovative” spaces, and there was no opportunity to learn how the workplace strategies discussed in this publication might have affected their perceptions.

GSA’s WorkPlace 20 20 program is attempting to remedy that situation through a systematic process of gathering and analyzing information on workspace and workplace needs.

While the results suggest little awareness of how the workplace influences worker satisfaction or productivity, many other studies are showing just that. What we do know is that, at a minimum, building owners and operators must learn a new definition of safe and healthy buildings and adopt sustainable practices.

As Judith Heerwagen writes, “Sustainable design can have far reaching impacts on the health, productivity, and well being of workers if it takes into consideration the psychosocial environment as well as the physical environment. Clearly, ridding buildings of problems and discomforts is a necessary first step. But to be truly beneficial, the building needs to also provide psychological and social sustenance.”





## Section V: Observations and Recommendations

# Section V: Observations and Recommendations

GSA is committed to implementation of integrated design, sustainability, telework and performance measurement in the Federal workplace. As educated design professionals learn how to create healthier workplaces, those who employ them need to be made aware of the available opportunities.

We are examining strategic goals, work processes, culture, and workplaces (both “virtual” and “real”) to develop solutions that will accommodate current needs, readily adapt to change and optimize operational expenses. GSA’s “Hallmarks of the Productive Workplace” and a sustainable approach to both development and operation of our workplaces are central to this program.

Based on the articles presented in this publication, we can make some observations concerning how to implement effective strategies for today’s workplace and the implications of these strategies for the Federal Government.

## Observations

- The idea of innovative workplace strategies as workplace tools has not yet entered into the thinking of most offices. Flexible workplace

arrangements, technological advancements and security issues require new ways of thinking about the workplace. Innovative strategies such as the Integrated Workplace, the Sustainable Workplace and The Virtual Workplace can assist the Federal Government in creating healthy, productive, and efficient workplaces both inside and outside of the traditional office. However, the majority of agencies have yet to take advantage of the benefits offered by these approaches.

- Many agencies still cling to outdated concepts in providing workspace to their employees. In today’s competitive market, agencies should provide a range of workplace options to support their employees and their workstyles.
- Without proper communication and training, people will have problems in accepting any new initiative, especially one that addresses changes in the way they work.
- The workplace can have an impact on organizational and employee productivity and performance. To be effective, workplace strategies should be linked to work practices, organizational culture, and business strategies.
- While Place factors (work locations) or Technology (information technology, connectivity, and Internet usage) are

## HALLMARKS OF THE PRODUCTIVE WORKPLACE

**Spatial Equity:** *The workplace is designed to meet the functional needs of the users by accommodating the tasks to be undertaken without compromising individual access to privacy, daylight, outside views, and aesthetics.*

**Healthfulness:** *The workplace is housed in a healthy environment with access to air, light, and water, and is free of harmful contaminants and excessive noise.*

**Flexibility:** *The workplace configuration adapts to typical organizational and work process changes but can also be readily restructured to accommodate major functional changes.*

**Comfort:** *The workplace allows workers to adjust thermal, lighting, acoustic, and furniture systems to meet personal and team comfort levels.*

**Technological Connectivity:** *Workplaces on site (e.g. team space, conference/multimedia space, hoteling space) and off-site (e.g., satellite office, home office) allow easy communication among distributed co-workers while allowing simultaneous access to data.*

**Reliability:** *The workplace is supported by state-of-the-art heating, ventilation and air conditioning (HVAC), lighting, power, security, and telecommunication systems/equipment that require minimal maintenance downtime and are designed with back-up capabilities to insure minimal loss of service.*

**Sense of Place:** *The workplace has a unique character, with an appropriate image and identity, enabling a sense of pride, purpose, and dedication for both the individual and the workplace community.*

important tools to improve the workplace, we should remember that successful management of the People factors (organizational culture, business processes, and human resources) are also related to worker satisfaction in both the private and public sectors.

## Recommendations for the Federal Government:

- Every Agency should adopt innovative workplace strategies incorporating Integrated Workplace and sustainable design principles, which can be used to create the type of work environments that can attract and retain a skilled workforce. Creating high-performing and flexible workplaces supports one of the key items on the President's Management Agenda: the strategic management of human capital.
- Both the virtual and sustainable workplaces are gaining acceptance, but training and education is needed to introduce these new ways of working into the mainstream.
- Federal agencies need to acknowledge that the mobile workplace already exists, and take advantage of the opportunities that it offers. Both managers and employees need to obtain the necessary skills that will permit them to perform effectively in a distributed work environment. Two of the key competencies for working virtually are establishing effective communication and developing a trusting relationship between employee and employer. These skills become even more crucial in a virtual teaming environment.
- When designing workspaces, consider the importance of amenities such as daylight, views, and individual comfort control, which can have highly positive effects on workers. These benefits can

enhance organizational performance by increasing employee morale, as well as improving their health.

- To increase employee satisfaction with existing work environments, Federal agencies should focus on the “People factors” - increasing open communication, providing appropriate training, and finding a way to enhance work/life balance.
- Agencies should provide both employees and managers with the opportunity to exercise choice as opposed to the imposition of specific types of work styles.
- Support from executive management and strong leadership commitment are essential for successful implementation of innovative workplace strategies. Employees and their supervisors must buy-in to the process in order for the strategies to be effective. Establishing a workplace “champion” can help in identifying key stakeholders and addressing potential conflicts that may arise in implementing new ways of working.





# Appendix

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*Smarter Solutions*

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