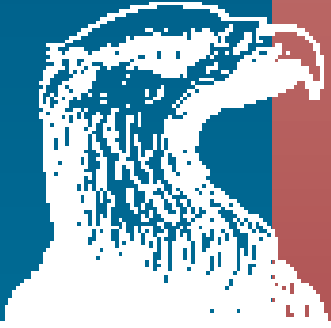


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Policy



*Amor Patriae
Ducit*



Workplace Evaluation Study

*Introducing the
Cost Per Person
Model*

November 1999

Office of Real Property

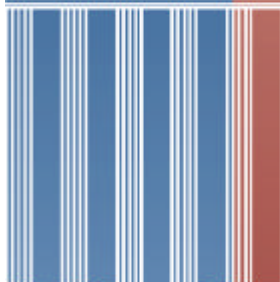


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Workplace Evaluation Study



November 1999

**U.S. General Services Administration
Office of Governmentwide Policy
Office of Real Property
Evaluation and Innovative Workplaces Division**

Foreword

The Office of Governmentwide Policy is pleased to issue the *Workplace Evaluation Study*. In June 1998, we published the *Governmentwide Real Property Performance Measurement Study*. In the study, we developed seven key performance indicators to assist Federal agencies assess the performance of their real property assets. The *Workplace Evaluation Study* expands our focus beyond the traditional ways of measuring facility or real estate performance. For example, it is important that other costs beyond the traditional real estate be considered in comparing and evaluating real property performance. Costs that may be considered include telecommunications, information technology, furniture and alternative work environments. We also believe that an agency's realty performance can benefit by measuring the traditional workplace in non-traditional ways. This would be accomplished by moving beyond cost and utilization rate and looking at the benefits of improvements in quality, productivity and employee satisfaction.

I would like to recognize David Bibb whose Office of Real Property undertook this research effort. With the guidance of Marjorie Lomax from the Evaluation and Innovative Workplaces Division and under the leadership of team leader Stan Kaczmarczyk, the project team of Chris Coneeny and Ron Whitley produced this collection of the latest information on measurement issues dealing with the workplace. Additionally, we would like to recognize the contributors from the real property community and to express our gratitude to the "benchmarking partners" that reviewed and commented on the Cost per Person Model. Without your dedication and participation, this analysis would not have been possible.

The Office of Governmentwide Policy presents this information to the Federal real property community with the hope that it leads to more informed decision-making and improved asset management. Organizations throughout the world in both the private and public sectors have made performance measurement, benchmarking and strategic planning part of their cultures. We want to lead the Federal real property community down this same path, consistent with the recommendations and expectations of the National Partnership for Reinventing Government and the Government Performance and Results Act of 1993.



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

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Executive Summary

The *Workplace Evaluation Study* collects some of the latest information on measurement issues dealing with the workplace. The study expands our focus beyond performance measurement of facilities or real estate. We do this in two different ways. One is the expansion of administrative cost considerations beyond real estate to include other components such as telecommunications and information technology. Another way is to consider the measurement of traditional workplaces in non-traditional ways, such as moving beyond cost and utilization rate to improvements in quality, productivity and employee satisfaction.

The *Workplace Evaluation Study* consists of three parts. In Part One, we release the **Cost per Person Model**. This model will help you estimate your total cost per person, including other administrative cost components in addition to real estate. The model is simple to use and allows the user to fill in missing information gaps by accepting default values from the “base case” model. The actual model is an Excel spreadsheet that we will provide to you at no cost upon request.

We hope that the Cost per Person Model will serve as an educational tool and expand your thinking about cost per person beyond traditional real estate measures, which have tended to be simple variations on cost per square foot and utilization rate. The model can also serve as a benchmarking and planning tool, allowing organizational units to compare costs across the organization or to compare the cost implications of various workplace scenarios within

organizational units. Finally, we hope that we can use the model to collect more reliable data on the Cost per Person metric in support of our second edition of *Real Property Performance Results 1999* (the 7 Governmentwide real property performance measures) to be issued in December 1999.

Part Two of our study is devoted to a discussion of **Innovative Performance Measures**. Here you will find information that goes beyond the usual material on traditional real estate performance measurement. The information is a combination of original work and collected research. Topics include productivity, employee satisfaction, financial measures, and alternative cost per person models.

Finally, Part Three is devoted to **Case Studies** where you can see how innovative performance measures support and evaluate actual workplace transformations. In addition, there are two appendices providing considerable resource and reference material.

The *Workplace Evaluation Study* presents many of the latest, most useful concepts, research and tools in the growing area of workplace performance measurement. We hope that you will find the study challenging and rewarding.



Introduction

In December 1998, we published *Governmentwide Real Property Performance Results*, the first-ever attempt to gather performance data from across Federal agencies with independent real property authorities. We estimated the baseline for seven key performance measures. The process by which we derived these seven measures was documented in the June 1998

Governmentwide Real Property Performance Measurement Study. A review of the December 1998 baseline shows that the 7 measures can be classified into three groups: descriptive statistics, measures based on sampling, and measures based on available data.

Employees Housed and *Total Square Feet* are descriptive statistics and not true performance measures as we usually understand the term. We provided this information as a context for the other five measures. We obtained the baseline data from the President's Budget and the Worldwide Inventory, which the Office of Real Property annually updates and maintains for the Federal Government.

Cost per Square Foot Owned, *Vacancy Rate*, and *Cost per Square Foot Leased* are measures based on sampling. We estimated the baseline for these fundamental real estate measures using actual inventory data submitted by various Federal agencies as part of our 1998 voluntary benchmarking effort. We are repeating this exercise in 1999 and will collect data on these same three measures.

Cost per Person and *Customer Satisfaction* are measures based on available data. We did not collect data for these measures as part of our voluntary benchmarking effort. These are

newer, undeveloped indicators that are not measured extensively or consistently across either the public or private sectors.

We estimated the baseline for Cost per Person based on limited published data and our own internal analysis. In this study, we develop this measure further in Part One where we introduce a Cost per Person Model. We offer this model as a tool to help Federal agencies (as well as other organizations) begin systematic measurement of Cost per Person as defined in our series of studies.

We estimated the baseline for Customer Satisfaction based on the groundbreaking customer satisfaction survey developed by GSA's Public Buildings Service (PBS). In this study, we discuss recent efforts to expand the PBS customer satisfaction measurement initiative.

The *Workplace Evaluation Study* consists of three parts:

First, we offer the Federal real property community (and others) use of a Cost per Person Model that we developed with the assistance of Chesapeake Consulting, Inc. We define Cost per Person as the sum of fully serviced real estate cost, telecommunications costs, information technology costs, furniture costs, and alternative work environment costs. Employee salaries and benefits are excluded because of the variability in these costs. We developed a base case estimate for Cost per Person using data collected in an in-house study. The model provides the user with an opportunity to extrapolate from the base case to a situation closer to the user's work environment.

Introduction

Using appropriate adjustment factors, we hope that the model can provide the user with an estimate of the organization's approximate cost per person, as defined. Alternatively, the model can be used as a planning tool to perform sensitivity tests on various proposed work arrangements. We provided an early version of the model to seven "benchmarking partners" - four Federal agencies and three private sector firms, - and requested comments on the approach and the data.

The second part of the *Workplace Evaluation Study* presents an overview of various "innovative" real property performance measures. Broadly speaking, we define "traditional" performance measures as measures of real estate (e.g., cost per square foot) and "innovative" performance measures as measures of the workplace (e.g., productivity). We believe that successful public sector real property asset managers will need to focus on a set of core measures that include both traditional and innovative indicators in order to derive maximum value from both the real property asset and the people working in the facility. Our goal in this part of the study is to facilitate thinking outside of the traditional real estate box.

Part three of the *Workplace Evaluation Study* presents various case studies of organizations that have implemented innovative workplace changes. This will enable the reader to see innovative real property performance measures set in the context of actual workplace situations.

Finally, Appendix A contains an annotated selected literature review and Appendix B provides references and a resource guide listing helpful individual contacts, organizations, documents and web pages that provide guidance on performance measurement, innovative workplace measures, and alternative work environments.

Part 1.

Cost per Person Model

Background

The concept of measuring cost per person is relatively new. Some organizations use a cost per person measure that is limited to the real

estate cost per person. This measure is essentially a derived measure, generated from cost per square foot and the utilization rate (square feet per person):

$$\text{Cost per Person} = \text{Annual Cost per Square Foot} \times \text{Square Feet per Person}$$

When you stop to consider the different ways that people work today, and how the “workplace” has expanded to take in more than the traditional office building setting, this definition of cost per person is too narrow. In order to measure cost per person in a changing workplace, we need to expand our focus to other administrative costs beyond real estate. For an in-depth discussion of these issues, refer to the *Office Space Use Review*, published by our office in September 1997. In that landmark study, we suggested that real property asset managers consider cost measures in addition to utilization rate, and we particularly singled out cost per person as a useful measure in the new workplace environment.

We subsequently proposed to define cost per person as the sum of real estate, telecommunications, and information technology costs. An interagency working group selected cost per person as one of 7 key performance measures that the Federal Government should pay attention to. This process is summarized in the *Governmentwide Real Property Performance Measurement Study*, published by our office in June 1998. That study derived the 7 measures (listed in the Introduction) and proposed a voluntary benchmarking effort among Federal agencies to estimate Governmentwide performance on the selected indicators.

The results of the voluntary data collection were published in *Governmentwide Real Property Performance Results* in December 1998. This publication established the baseline measurements for the 7 key real property indicators. In our discussion of Cost per Person, we were able to provide limited data estimating the indicator according to our expanded definition. We estimated the 1998 Governmentwide baseline for this indicator to be in the range of \$10 to \$12 thousand per person.

In the present *Workplace Evaluation Study*, we offer a model to help estimate an organization’s Cost per Person. The model serves several purposes:

- The model will expand the thinking of Federal real property professionals and encourage them to look at other costs beyond traditional real estate cost when making decisions about the workplace.
- The “base case” model provides reliable data on key variables. This allows you to fill in any missing data that you may have trouble accessing in your own organization.
- The model demonstrates one way that the costs of alternative work environments can be measured and compared to arrangements that are more traditional.

Part 1. Cost per Person Model

- The model provides a tool by which we can obtain benchmark data from other organizations in both the public and private sectors. This will be particularly helpful as we reassess Governmentwide performance on the 7 key measures in *Real Property Performance Results 1999*.
- The model allows managers to perform sensitivity testing to gauge the cost implications of different configurations of traditional versus alternative workplace settings. We provide an example to show how this can be done.

For the present iteration of the Cost per Person measure, we have expanded the 1998 definition. The Cost per Person indicator as estimated by this model now consists of the sum of five components:

- A Real Estate**
- B Telecommunications**
- C Information Technology**
- D Workstation Furniture**
- E Alternative Work Environment**

The model generates two outputs: Cost per Person (year 1) and Cost per Person

(years 2-3), to differentiate between start-up and ongoing costs. The three-year timeframe coincides with the life cycle of computer equipment factored into the Information Technology component.

The following base case analysis represents a cost per person estimate for a hypothetical government organization in Washington, DC. While the case is hypothetical, the components consist of a mix of empirical data from our research and policy targets. The purpose of the base case is to provide a real world starting point for the adjustments, benchmarking and sensitivity testing that we envision our customers will use the model for. The base

case is not purported to be the precise Governmentwide cost per person or to represent any specific agency.

The base case costs for telecommunications, information technology, and workstation furniture are based on GSA cost data and derived from knowledgeable sources within the agency. The base case real estate cost is based on comparable market value. Variables for space per person, hotelling, and number of teleworkers reflect current policy guidance or include adjustments made to enhance the illustrative value of the base case scenario.

The Cost per Person Model is an Excel workbook with two sheets. The first sheet is the actual Cost per Person Model. The second sheet is a chart of representative rental rates in selected U.S. cities and submarkets. The base case is presented here in hard copy format. The rental rate listing is simply a chart, and does not have to be used in Excel. However, in order to use the Cost per Person Model (to make changes for your own organization), you will need access to the actual Excel spreadsheet. If you would like a copy of the spreadsheet, please fill out and send us the Publications Survey at the end of the study. Be sure to mention that you would like a copy of the model. We will mail you the file on disk. Please include your mailing address. We can also send you the file via electronic mail. Send your request to chris.coneeney@gsa.gov

The following sections present the model in hard copy, a component-by-component discussion of the base case, and guidance on how the model can be used to develop your own cases.

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Typical Federal Agency - "Base Case" Headquarters, Washington, DC

Full Time Equivalent (FTE)	1,008	
Number of Workstations	1,000	
Component A:		Real Estate
Space per Person	230	230 rentable square feet (rsf) is based on the 200 usable square feet per person published in MP's Office Space Use Review adjusted upwards by 15% to reflect rentable sq. ft.
Rental Rate for Building/Facility	\$30.50	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate.
Real Estate Cost:	\$7,015,000	# of workstations x Space per person x Rental rate.
Component B:		Telecommunications
Instrument Cost per Workstation	\$877	For Analog use \$877; for ISDN use \$1,293.
Telecommunications Cost:	\$877,000	# of Workstations x Instrument cost per workstation.
Component C:		Information Technology
Annual IT Cost	\$3,337	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment.
IT Cost:	\$3,337,000	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$3,954	System type design furniture
Furniture Cost:	\$3,954,000	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	101	For "base case" we assumed 10% of total FTEs telework.
No. Working at Home	70	For "base case" we assumed 69% of teleworkers work at home part time.
No. Working at Telework Center	31	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$5,259	Average annual cost to support teleworker at home part time.
Daily Telework Center Cost	\$47.78	Average daily cost per employee for a Federal telework center.
Avg. No. of days/wk at Telework Ctr	2	
Alternative Work Cost:	\$522,173	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$15,705,173	Total Components A + B + C + D + E
Cost per Person (year 1):	\$15,581	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$10,929	Deducts Start-Up (year 1 only) costs

Part 1. Cost per Person Model

Office Rental Rates (Weighted Average)

LOCATION	CLASS A		CLASS B	
	CBD	NON-CBD	CBD	NON-CBD
Boston	\$39.28	\$17.65	\$31.84	\$16.93
Hartford	\$22.25	\$18.75	\$16.25	\$13.25
NYManhattan	\$45.27	\$38.83	\$27.05	\$27.60
Newark	\$26.46	\$24.79	\$18.88	\$20.28
Baltimore	\$22.00	\$16.50	\$13.50	\$15.25
Philadelphia	\$24.15	\$22.00	\$16.30	\$19.40
Atlanta	\$22.99	\$23.79	\$18.25	\$19.17
Memphis	\$15.80	\$18.00	\$12.50	\$14.50
Chicago	\$31.13	\$25.75	\$24.07	\$20.61
Minneapolis	\$25.50	\$27.00	\$19.00	\$18.00
Kansas City	\$19.69	\$21.81	\$13.75	\$17.00
St. Louis	\$19.07	\$22.12	\$14.12	\$18.51
New Orleans	\$17.50	\$22.00	\$11.00	\$14.50
Houston	\$21.93	\$21.57	\$17.36	\$16.70
Denver	\$22.00	\$17.50	\$16.50	\$17.50
Salt Lake City	\$19.85	\$18.00	\$15.38	\$15.53
San Francisco	\$48.00	\$32.16	\$30.60	\$32.28
Los Angeles	\$22.50	\$22.56	\$17.50	\$17.26
Spokane	\$16.50	\$16.75	\$13.00	\$12.75
Portland	\$21.40	\$20.46	\$17.49	\$16.86
Washington DC	\$44.50	\$28.50	\$30.50	\$21.50

Source: 1999 Comparative Statistics, Society of Industrial and Office Realtors

Basic Information

- The model is very straightforward and designed to be easy to use. Like any model, this is a simplified version of reality. The model was created to be an educational tool and a mechanism to exchange benchmarking information.
- Note that all costs in the Base Case are in fiscal year 1999 dollars.
- You can overwrite the title information for Agency or Organization, Facility and Location in order to differentiate your case. Remember to save the file under a different name.
- We used the Government term FTE (Full Time Equivalent). The more generic term is number of employees. The user will need to decide whether and how to include part-time employees, temporary help, and contractors in the analysis.
- The model asks for number of workstations. As we go through our discussion of the model's components, we will always specify whether inputs or outputs are derived based on employees or workstations.
- If your organization has been able to reduce the number of workstations in the main facility due to the use of alternative work environments (hotelling, hot desking, workstation sharing), you can model this situation by entering a lesser number of workstations than employees. Component costs will be calculated based on workstations, but cost per person will be based on employees. In this way, an organization that has realized a savings in workstation cost due to alternative work environments will show a lower cost per person than an organization with a one-to-one ratio of workstations to employees (FTE).

- If your organization provides workstations for the exclusive use of on-site contract workers, you can model this situation by entering a greater number of workstations than employees. This hypothetical organization will then show a higher cost per person than an organization that doesn't need to provide additional workstations to house contractors.
- You can also model the carrying costs of vacant space by entering a greater number of workstations than employees. This hypothetical organization will show a higher cost per person due to the inefficient space utilization caused by carrying vacant space.

Component A: Real Estate

- Enter your average space use per person (sometimes called utilization rate). Include all building space in your average, not just the space associated with the primary workstation. The number in the base case reflects the recommended Governmentwide average developed for the *Office Space Use Review* published in September 1997.
- Enter the rental rate for your office space. Note that in the base case, inputs for space per person and rental rate are expressed in units of rentable square feet. Make sure your inputs for these two variables are in the same unit of measurement. We recommend using rentable square feet. Rental rate calculations will carry over into years 2-3.
- If you don't know the rental rate, or you own your facility and would like to account for the opportunity cost of the market value of the space, you may be able to find a suitable rental rate on the accompanying chart "Office Rental Rates."
- For the base case, we chose the Class B,

Part 1. Cost per Person Model

CBD, Washington DC rental rate to represent the economic opportunity cost of a Government-owned facility. This adds an economic cost for imputed rent over and above actual expense to the analysis. For a Government-owned building, you should consider both this analysis and an analysis of actual expense. In an owned situation, your cost per rentable square foot for the latter analysis will consist of services and utilities. See *Governmentwide Real Property Performance Results* for the definition of Cost per Square Foot (Owned) and use that number in your analysis.

Component B: Telecommunications

- Enter the telecommunications cost per workstation for your organization. If you do not know the cost for your organization, use one of the figures provided in the base case. We derived the data in the base case from our internal study. The base case assumes analog use, but the cost for digital service is also noted.
- If you enter a different cost for telecommunications, be aware that the model subtracts \$300 from the year 2 and 3 calculations (scroll to the right of your spreadsheet for year 2-3 calculations) as the cost of the telephone instrument is only counted in the first year. If your cost differs, you will have to change the formula in the year 2-3 column. Please note that this column is not printed in the hard copy version of the model.

Component C: Information Technology

- Enter the IT cost per workstation for your organization. If you do not know the IT cost for your organization, use the figure provided in the base case. We derived the data in the base case from our internal study.

- If you enter a different cost for information technology, be aware that the model subtracts \$200 from the year 2 and 3 calculations (scroll to the right of your spreadsheet for year 2-3 calculations) representing the cost of workstation set-up (cable pulls), and another \$200 as the cost of LAN set-up (cable pulls), both of which are first year (start-up) costs. If your cost differs, you will have to change the formula in the year 2-3 column. Please note that this column is not printed in the hard copy version of the model.
- The data are based on GSA's "Seat Management" contract and represent the total annual cost for equipment, licenses and service. The seat management contract is based on a 3-year life cycle.
- The base case cost of \$3337 reflects economies of scale for a large organization and excludes the cost of in-house staff support, additional moves and changes, and training.
- The recommended adjustment factor of up to 30 percent for enhanced IT is the estimated variance between the cost for purchasing standard level Information Technology services (PC, software, and maintenance) versus enhanced level IT services. Under the enhanced service, the user gets a more powerful (megahertz) PC with larger disk space, more options in the types of software included in the IT configuration, and shorter contractor response times to service and correct hardware and software problems.

Component D: Workstation Furniture

- Enter the cost for workstation furniture. If you do not have this information, use the figure provided in the base case. We derived the data in the base case from our internal study.

Part 1. Cost per Person Model

- The model includes furniture cost in year one (as a set-up cost), then omits it in years 2 and 3. We chose the 3-year life cycle for the model to correspond to the IT seat management contract, as explained above. The actual useful life for workstation furniture is estimated at 10 years.
- The base case scenario assumes ownership of workstation furniture. If you lease office furniture, enter the annual rental cost in the model as well as in the years 2-3 scenario (scroll to the right and overwrite the zero for year 2-3 furniture cost).
- Please note that the Cost per Person definition we established earlier does not include the cost of workstation furniture. We provided this additional data because the information was readily available. When comparing cost per person data generated by the model to previously published figures in *Governmentwide Real Property Performance Results* (such as the established baseline of \$10 to \$12 thousand per person), remember to back out this additional cost for the sake of comparison.
- If you enter a different cost for home office, be aware that the model subtracts \$300 from the year 2 and 3 calculations (scroll to the right of your spreadsheet for year 2-3 calculations) as the one time cost of the telephone instrument and \$200 as the cost of LAN set-up (cable pulls). If your cost differs, you will have to change the formula in the year 2-3 column. Please note that this column is not printed in the hard copy version of the model.
- The home office costs assume part-time home-based teleworking (i.e., not working at home every business day).
- The daily telework center cost is based on actual average cost in the metropolitan Washington, DC area.
- Enter the average number of days that the employees who telework at a center are working from the center.

Outputs

- The Total Annual Cost (year 1) is the sum of the five preceding components: real estate, telecommunications, information technology, workstation furniture, and alternative work environment.
- The Total Annual Cost (year 1) divided by the number of FTE (employees) yields the Cost per Person (year 1).
- We realize that the Year 1 cost per person calculation includes set-up costs as well as ongoing expenses. Therefore, the model also calculates the recurring costs as the Cost per Person (years 2-3). The following deductions are made from Total Annual Cost in order to calculate the Cost per Person (years 2-3):
 - The instrument cost from Component B (Telecommunications).
 - The cost of cable pulls (LAN and workstation) from Component C (Information Technology).

Component E: Alternative Work Environment

- Enter the total number of teleworkers. Of this number, enter the number who telework from home. The model subtracts from the total and assumes the balance work from a telework center.
- The actual number of GSA employees that telework is higher than the base case, while the actual Governmentwide average is lower. We selected the 10 percent figure for the base case as a realistic short-term goal for other Federal agencies.
- The annual home office cost includes the cost to equip the employee's home with IT and telecommunications hardware and access.

Part 1. Cost per Person Model

- The entire cost of Component D (Workstation Furniture).
- The portions of annual home office cost attributed to LAN cable pulls and telephone instrument from Component E (Alternative Work Environment).
- The output for Cost per Person (years 2-3) is in fiscal year 1999 dollars. In other words, the model does not account for inflation in years 2-3.
- **Note:** In the Seat Management environment, GSA pays an annual cost to lease, maintain and service IT equipment and software. Therefore, the only set-up costs that are incurred in year 1 over and above years 2-3 ongoing costs are cable pulls for both LAN and workstation set-up. There is no first year computer instrument cost that is deducted from years 2-3, as in the case of telecommunications. For more information on Seat Management, contact our office or the GSA information technology contact provided in Appendix B.

Comparison to Governmentwide Baseline and Additional Examples

As we mentioned earlier, we have added additional components to the 1998 definition of Cost per Person that we established as one of the 7 Governmentwide real property performance measures. We used the model to generate a run that approximates the 1998 definition of real estate plus telecommunications plus information technology. The following spreadsheet shows that the estimated cost per person (even in 1999 dollars) falls within the \$10 to \$12 thousand per person range established in the 1998 baseline measurement.

The validation of the 1998 baseline measurement for cost per person is a valuable application of the Cost per Person Model. Now that the baseline has been verified, we hope to continue to track the cost per person measure. We encourage Federal agencies to submit examples from their own organizations using the model so that we can roll up the data into the *Real Property Performance Results 1999* publication due in December 1999.

We present the baseline analysis next, followed by a theoretical before-and-after example that illustrates the model's use in an alternative work strategy analysis.

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Compare to FY98 Baseline, FY98 Baseline =
\$10 to \$12 thousand per person, Washington, DC

Full Time Equivalent (FTE)	1,208	
Number of Workstations	1,208	
Component A:		Real Estate
Space per Person	230	230 rentable square feet (rsf) is based on the 200 usable square feet per person published in MP's Office Space Use Review adjusted upwards by 15% to reflect rentable square feet
Rental Rate for Building/Facility	\$30.50	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate
Real Estate Cost:	\$8,474,120	# of workstations x Space per person x Rental rate
Component B:		Telecommunications
Instrument Cost per Workstation	\$877	For Analog use \$877; for ISDN use \$1,293
Telecommunications Cost:	\$1,059,416	# of Workstations x Instrument cost per workstation
Component C:		Information Technology
Annual IT Cost	\$3,337	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment
IT Cost:	\$4,031,096	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$0	System type design furniture
Furniture Cost:	\$0	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	0	For "base case" we assumed 10% of total FTEs telework.
No. Working at Home	0	For "base case" we assumed 69% of teleworkers work at home part time.
No. Working at Telework Center	0	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$5,259	Average annual cost to support teleworker at home part time
Daily Telework Center Cost	\$47.78	Average daily cost per employee for a Federal telework center
Avg. No. of days/wk at Telework Ctr	0	
Alternative Work Cost:	\$0	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$13,564,632	Total Components A + B + C + D + E
Cost per Person (year 1):	\$11,229	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$10,529	Deducts Start-Up (year 1 only) costs

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Example - Southern California Company, Traditional Office Environment, Los Angeles, CA

Full Time Equivalent (FTE)	4,000	
Number of Workstations	4,000	
Component A:		Real Estate
Space per Person	230	230 rentable square feet (rsf) is based on the 200 usable square feet per person published in MP's Office Space Use Review adjusted upwards by 15% to reflect rentable square feet.
Rental Rate for Building/Facility	\$22.50	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate
Real Estate Cost:	\$20,700,000	# of workstations x Space per person x Rental rate
Component B:		Telecommunications
Instrument Cost per Workstation	\$877	For Analog use \$877; for ISDN use \$1,293
Telecommunications Cost:	\$3,508,000	# of Workstations x Instrument cost per workstation
Component C:		Information Technology
Annual IT Cost	\$3,337	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment.
IT Cost:	\$13,348,000	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$3,954	System type design furniture
Furniture Cost:	\$15,816,000	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	0	For "base case" we assumed 10% of total FTEs telework.
No. Working at Home	0	For "base case" we assumed 69% of teleworkers work at home part time.
No. Working at Telework Center	0	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$5,259	Average annual cost to support teleworker at home part time
Daily Telework Center Cost	\$47.78	Average daily cost per employee for a Federal telework center
Avg. No. of days/wk at Telework Ctr	0	
Alternative Work Cost:	\$0	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$53,372,000	Total Components A + B + C + D + E
Cost per Person (year 1):	\$13,343	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$8,689	Deducts Start-Up (year 1 only) costs

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Example - Southern California Company, 500 full time home workers,
1000 pt home workers share 500 workstations, Los Angeles, CA

Full Time Equivalent (FTE)	4,000	
Number of Workstations	3,000	
Component A:		Real Estate
Space per Person	230	230 rentable square feet (rsf) is based on the 200 usable square feet per person published in MP's Office Space Use Review adjusted upwards by 15% to reflect rentable square feet.
Rental Rate for Building/Facility	\$22.50	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate
Real Estate Cost:	\$15,525,000	# of workstations x Space per person x Rental rate
Component B:		Telecommunications
Instrument Cost per Workstation	\$877	For Analog use \$877; for ISDN use
Telecommunications Cost:	\$2,631,000	# of Workstations x Instrument cost per workstation
Component C:		Information Technology
Annual IT Cost	\$3,337	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment.
IT Cost:	\$10,011,000	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$3,954	System type design furniture
Furniture Cost:	\$11,862,000	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	1500	500 full time + 1000 part time home workers
No. Working at Home	1500	see previous
No. Working at Telework Center	0	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$5,259	Average annual cost to support teleworker at home part time
Daily Telework Center Cost	\$47.78	Average daily cost per employee for a Federal telework center
Avg. No. of days/wk at Telework Ctr	0	
Alternative Work Cost:	\$7,888,500	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$47,917,500	Total Components A + B + C + D + E
Cost per Person (year 1):	\$11,979	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$8,301	Deducts Start-Up (year 1 only) costs

Part 1. Cost per Person Model

As you can see from comparing the preceding two spreadsheets, the organization was able to realize savings on the cost per person by transforming from an exclusively traditional work environment to one that makes use of appropriate alternative work environments. In this theoretical example, the “Southern California Company” made the following changes in the workplace:

- 500 employees became full time work-at-home staff. The need for 500 workstations in the main office is eliminated.
- Another 1,000 employees were set up to work at home part time in combination with workstation sharing in the main office on a 2:1 ratio. Another 500 workstations can be eliminated in the main office.
- These changes enable the organization to reduce size of the main office by 25 percent.

The question is: will the 25 percent reduction in real estate, telecommunications, information technology and furniture more than offset the additional expenditure associated with setting up 1,500 employees to work at home? The analysis indicates that the decision to transform the workplace in this manner yields economic benefits to the organization.

The following two examples are included thanks to the participation of our “benchmarking partners.” Organization “A” is a straightforward application of the model in a situation where there is no telework and information on cost components other than real estate is not readily available (so the default values are accepted).

Organization “B” shows the impact of carrying vacant space on cost per person. The organization may achieve reductions in cost per person by more efficient space utilization, space consolidation and/or implementation of alternative work strategies. Note that the actual data supplied for Information Technology and Workstation Furniture closely approximate the data in the Base Case.

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Organization "A"

Full Time Equivalent (FTE)	634	
Number of Workstations	634	
Component A:		Real Estate
Space per Person	162	162 rentable square feet per person reflects total actual space use.
Rental Rate for Building/Facility	\$18.25	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate
Real Estate Cost:	\$1,874,421	# of workstations x Space per person x Rental rate
Component B:		Telecommunications
Instrument Cost per Workstation	\$877	For Analog use \$877; for ISDN use \$1,293
Telecommunications Cost:	\$556,018	# of Workstations x Instrument cost per workstation
Component C:		Information Technology
Annual IT Cost	\$3,337	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment.
IT Cost:	\$2,115,658	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$3,954	System type design furniture
Furniture Cost:	\$2,506,836	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	0	For "base case" we assumed 10% of total FTEs telework.
No. Working at Home	0	For "base case" we assumed 69% of teleworkers work at home part time.
No. Working at Telework Center	0	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$5,259	Average annual cost to support teleworker at home part time
Daily Telework Center Cost	\$47.78	Average daily cost per employee for a Federal telework center
Avg. No. of days/wk at Telework Ctr	0	
Alternative Work Cost:	\$0	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$7,052,933	Total Components A + B + C + D + E
Cost per Person (year 1):	\$11,125	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$6,471	Deducts Start-Up (year 1 only) costs

Part 1. Cost per Person Model

Average Cost per Person for Fiscal Year 1999

Organization "B"

Full Time Equivalent (FTE)	2,114	
Number of Workstations	2,577	
Component A:		Real Estate
Space per Workstation	335	335 rentable square feet (rsf) is based on actual space divided by number of workstations
Rental Rate for Building/Facility	\$18.00	Select the appropriate rental rate for the area, building class and type. Use current rental rates from the Society of Industrial and Office Realtors (SIOR) provided or plug in the agency rental rate
Real Estate Cost:	\$15,539,310	# of workstations x Space per workstation x Rental rate
Component B:		Telecommunications
Instrument Cost per Workstation	\$200	Actual cost
Telecommunications Cost:	\$515,400	# of Workstations x Instrument cost per workstation
Component C:		Information Technology
Annual IT Cost	\$3,600	IT cost includes workstation and LAN interface. Use up to 30% adjustment factor for enhanced IT environment.
IT Cost:	\$9,277,200	IT cost x # of workstations
Component D:		Workstation Furniture
Workstation Furniture	\$3,370	System type design furniture
Furniture Cost:	\$8,684,490	Workstation cost x # of workstations
Component E:		Alternative Work Environment
Total number of Teleworkers	0	For "base case" we assumed 10% of total FTEs telework.
No. Working at Home	0	For "base case" we assumed 69% of teleworkers work at home part time.
No. Working at Telework Center	0	Total # of teleworkers - # working at home.
Annual Home Office Cost	\$0	Average annual cost to support teleworker at home part time
Daily Telework Center Cost	\$0.00	Average daily cost per employee for a Federal telework center
Avg. No. of days/wk at Telework Ctr	0	
Alternative Work Cost:	\$0	(Home office cost x # working at home) + (Daily telework center cost x Average # of days/wk at telework center x 52 weeks/yr. x # working at telework center)
Total Annual Cost (year 1):	\$34,016,400	Total Components A + B + C + D + E
Cost per Person (year 1):	\$16,091	Divide annual cost by the number of FTEs
Cost per Person (years 2-3):	\$11,495	Deducts Start-Up (year 1 only) costs

Other Feedback

The Cost per Person Model received a unanimously positive response from our benchmarking partners. Some of them could not submit data in time for the publication of this study. That data will be collected later and rolled up into *Real Property Performance Results 1999*. Some organizations were not able to participate due to reasons such as time constraints, competing priorities, or agency reorganization. One major corporation reported that the model was valuable, but the corporate real estate division just did not have easy access to data on cost components other than real estate. Working with the Cost per Person Model brought to light the value of using this expanded definition of the measure. Bringing this message to other organizations is one of the major reasons we developed and are providing the Cost per Person Model.



Part 2. Innovative Performance Measures

When we researched various sources and organizations to find examples of innovative performance measures, we found that most innovative approaches were confined to the area of alternative work environments. Most of this information is captured in Part 3 (Case Studies).

The other innovative measures that we found meaningful information on fell into three categories:

- **Productivity**
- **Financial**
- **Customer/employee satisfaction**

The References and Resource Guide in Appendix B includes leads on other innovative measures that cover a broader area than just the workplace (such as sustainability, social accountability, environmental, information technology, and energy).

Productivity: Linking Knowledge Worker Outputs to Goals

Traditional measures of real property performance concentrate on cost and ignore the benefit side of the equation. Underlying this one-sided view is the fact that the primary benefit we obtain from workplace advances and improvements would seem to be an increase in productivity. In the case of knowledge workers (a description that fits a large portion of Federal workers housed in primarily office-type space), the question of how to measure their productivity is just beginning to be studied.

One idea currently under discussion is to link the outputs of knowledge workers to goals in the strategic plan. For example, a particular

unit of an agency may be responsible for a certain policy or regulatory function. If this function is significant enough, and if the agency has a well-conceived strategic plan in place, then the function should directly support an objective in the strategic plan. Since the plan should include performance goals and measures associated with each objective, we can link knowledge worker outputs to how well we attain strategic goals as measured.

While this method does not provide a direct measure of knowledge worker productivity, it is perhaps a solid step in the direction of eventually solving this workplace puzzle.

Productivity: Impact of Utilization Rate Standards

Facilities professionals almost all agree on two points. First, the quality of workspace directly impacts an employee's productivity, morale and job satisfaction. Second, utilization rate standards are a good idea up to a point. There comes a point beyond which squeezing average space per person will adversely affect productivity and morale and more than offset any savings in real estate cost attributable to using less space.

While almost everyone agrees on these points, very little data exist to empirically verify professional intuition. In a subsequent section, we suggest an initiative to address the issue of measuring productivity as it relates to the workplace. Perhaps the space per person issue can be addressed as part of that effort. In the meantime, we offer the following two graphs to illustrate the concepts involved.

The first graph (average utilization rate) is based on the 200 usable square feet per person average that we derived in the 1997 *Office*

Part 2. Innovative Performance Measures

Space Use Review. We assume that employees are most productive when they have sufficient space, and that the 200 usable square foot average meets the definition of sufficient space. Productivity in this case is relative productivity, that is, just that portion of productivity attributable to the physical work environment.

Some comments and notes on the first graph are:

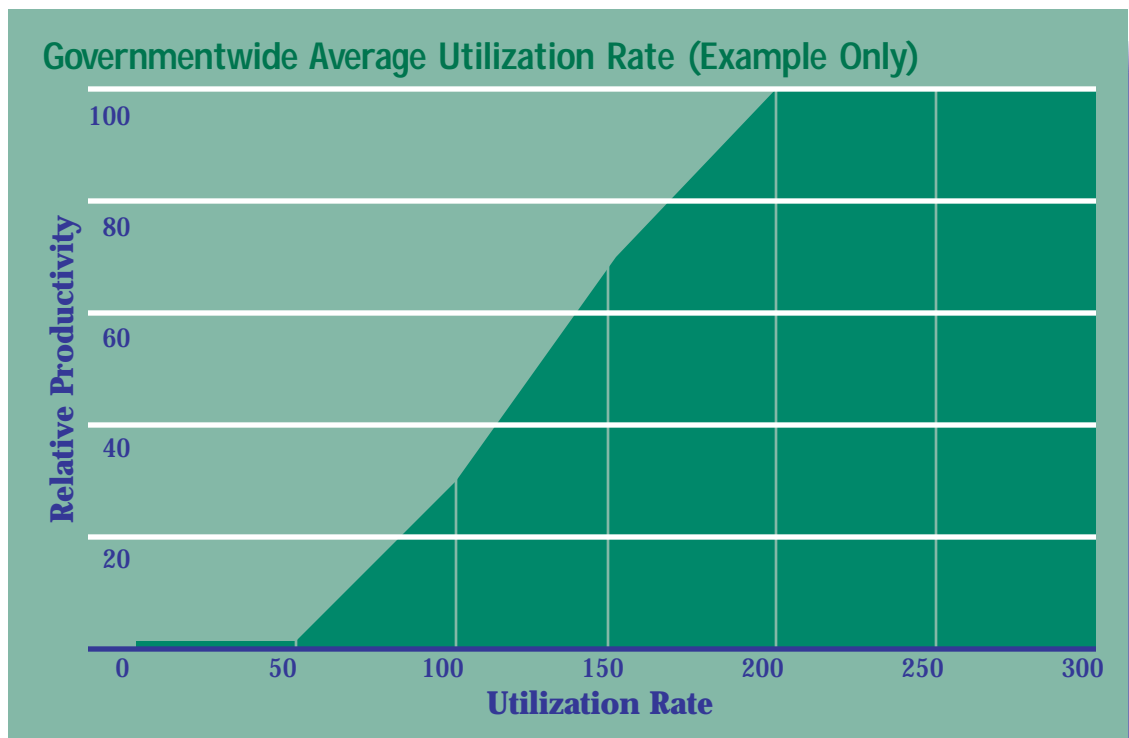
- We assume that after a certain utilization rate is attained, the provision of additional space per person does not increase productivity any more in and of itself. We assume that optimal productivity is reached at 200 usable square feet per person.
- We assume that there is a threshold, greater than zero, below which the space is not functional and no productivity can occur. For the sake of illustration, we selected 50 usable square feet per person as this threshold.
- The other data points are also theoretical. The graph merely illustrates the intuitive

relationship between productivity and space per person.

We recognize the fact that the 200 usable square feet per person benchmark is a Governmentwide average. Agencies will have mission-specific space needs. The second graph shows the relationship between productivity and space per person for an agency with greater-than-average space requirements (they need more private offices for confidential conversations, more conference or file space, etc.). The same notes as above apply to the second graph, which is a hypothetical case of the space requirements of the XYZ agency. In this example, we assume that optimal productivity is not reached until employees are allocated 250 usable square feet per person.

Productivity: Activity-Based Costing (ABC)

Activity-Based Costing (ABC) is an accounting system that assigns costs to products based on the resources they consume. The costs of all activities are traced to the product they support. Overhead costs are also traced to a



Part 2. Innovative Performance Measures

particular product rather than spread arbitrarily across all product lines. The true cost of a product can be determined more accurately compared to a traditional accounting system. An ABC system highlights how effectively resources are being used and emphasizes that all activities contribute to the cost of a product. Overhead costs that contribute proportionately more value to products in relation to their cost can be said to be more productive.

The information from an ABC system can be used to:

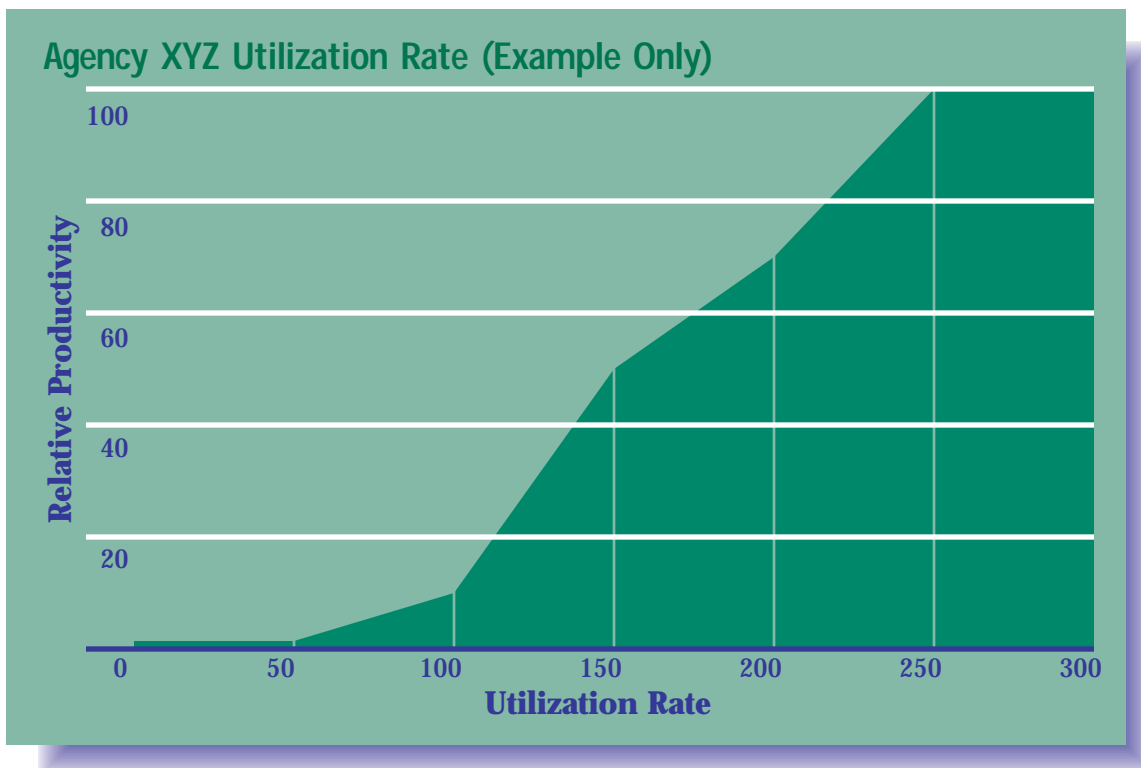
- Determine a competitive price for a product
- Develop budgets
- Estimate future costs
- Measure performance

Although the Government Performance and Results Act envisions a Federal Government that will eventually transition to Performance Budgeting, applying an ABC accounting system approach to an organization that produces services, policies, regulations and oversight is

much more challenging than dealing with an organization that produces, for example, consumer products. Nevertheless, ABC accounting can be an important part of an overall performance management system for agencies that have the desire to excel and the ability to effect organizational change.

Other notable observations about ABC accounting are:

- When costs are broken out to a detailed level, cost drivers can stand out. This enables an organization to identify activities with disproportionately large cost and little value added so these activities can be eliminated or reduced.
- ABC accounting allows a company or agency to decide if resource consumption for a particular product or service is consistent with its business or mission objectives.
- When fully integrated into an organization, all employees fully incorporate ABC into their work practices and use it as their



Part 2. Innovative Performance Measures

primary source of business information. Performance measurement systems and all incentive systems have to be tied to the ABC accounting numbers.

Productivity: The Integrated Workplace Perspective

In May 1999, the Office of Real Property published *The Integrated Workplace: A Comprehensive Approach to Developing Workspace*. This publication includes a discussion of performance measurement. While acknowledging the difficulties inherent in measuring the productivity of knowledge workers, the authors conclude that any measurement is better than no measurement at all. They offer the following examples of indirect measures of employee productivity:

- Turnover - retention of employees, cost of retraining
- Absenteeism - sick leave, annual leave
- Self-assessment of workplace effects on one's own productivity
- Time-tracking devices - log books, overtime, project hours
- Customer demand for products or services
- Observed downtime for modifications, complaints, interruptions
- Anecdotal evidence on workplace suitability - people's perceptions of workplace suitability are still a viable measurement, especially when captured from a "grassroots" perspective.
- Churn costs - employee downtime, space move costs, time to execute a move and get a person back up-and-running (phone, computer, etc.)

Financial: Return on Investment

In the *Governmentwide Real Property Performance Measurement Study*, we included

a case study on the National Council of Real Estate Investment Fiduciaries (NACREIF) and reproduced their generally accepted formula for measuring return on investment:

$$\begin{array}{r} \text{Net income} \\ + \\ \text{Capital appreciation} \end{array} = \text{Total return}$$

Weighted average equity

Attempts to use this private sector formula to derive a comparable public sector equivalent measure of return on investment usually require multiple assumptions and substitutions, and can very quickly become unusable. It is clear that the public sector could benefit from some standardized measure of return on investment based on something other than income, which does not usually apply in the case of government real estate (with the notable exception of GSA's Public Buildings Service).

From various discussions elsewhere in the *Workplace Evaluation Study*, we can see that the issue of how to measure the productivity of knowledge workers is another ongoing need in the real property performance measurement area. Possibly, the two issues can be linked. If we could agree on how to measure productivity, increases in this indicator could be the measured return on government real estate investment that has eluded us so far.

We propose to form an interagency working group in the spring of 2000 to look at the issue of measuring productivity and return on investment in the public real estate sector. This initiative will build upon work already being done by Carnegie Mellon University's Advanced Building Systems Integration Consortium and the Workplace Productivity Consortium (see Part 3 for more information on these groups). GSA is a participant in both ongoing efforts. The spring 2000 project will try to derive a few

Part 2. Innovative Performance Measures

key measures of the effect of the Federal workplace on productivity. If you are interested in participating in this challenging initiative, please contact Stan Kaczmarczyk at the Office of Real Property at (202) 501-2306 or e-mail to stan.kaczmarczyk@gsa.gov

Financial: Workpoint Accounting and Cost per Person

The Workpoint cost approach goes beyond both traditional accounting practices and Activity-Based Costing by identifying employee Workpoint costs wherever they exist. Proponents of the concept argue that as organizations grow to become more global, automated and service-oriented, the traditional ways of measuring and analyzing financial information become less relevant.

Workpoint Accounting quantifies the direct and indirect costs associated with an increasingly diverse workplace. Ideal candidates are business organizations transitioning to new, non-traditional work processes, organizational arrangements, and work settings.

Companies well suited for Workpoint Accounting are those with:

- A flat, non-hierarchical organizational structure
- A mobile work force
- Team-based organizational structures
- Network-based systems, including the Internet
- A global marketing and customer-service presence

Workpoint cost measurement looks at five layers of costs associated with the individual worker:

- Direct space
- Direct support and equipment
- Connectivity

- Indirect space
- Indirect support and equipment

Potential uses for Workpoint Accounting include:

- Measuring a business unit's performance relative to specific Workpoint cost items
- Refining allocation of an organization's financial, human and other assets
- Comparing occupancy costs with comparable business units in other companies and industries
- Weighing alternative ways of deploying business strategies

A recent presentation on the benefits of using Workpoint Accounting included sample cost per person data compiled using the system:

- A consulting firm used Workpoint Accounting to estimate cost per person across different facilities and found a wide range of costs (\$17 to \$29 thousand).
- The consulting firm was surprised to find that the cost per person in a downtown, traditional office building (\$17,000) was less than the cost per person at a suburban location where a hotelling concept was applied exclusively (\$21,000). Higher costs in the latter location were accounted for by a large amount of conference and training space, as well as poor space layout.
- A recent study of 36 financial firms showed that annual savings of \$4,000 per person could be achieved when a work at home strategy was paired with hotelling in the main office.
- If the cost per person definition is limited to the sum of real estate, information technology and connectivity costs - and you only know the real estate costs - a short cut estimate for cost per person is three times the real estate cost.

Part 2. Innovative Performance Measures

The International Development Research Council (IDRC) developed the Workpoint Cost Model. Another approach to cost per person that parallels the IDRC model is the Gartner Group's Total Cost of Ownership (TCO) Model. TCO focuses on measuring what the model's proponents claim is the most expensive component of cost per person - information technology.

The Gartner Group estimates that 60 percent of businesses are in the discovery phase regarding the measurement of information technology costs. Often, when companies discover how much they are spending per person on information technology, they advance through the denial, anger and acceptance phases.

Workpoint Accounting is a more comprehensive and detailed analysis than our Cost per Person Model, but the concept is the same. If you want to expand your cost per person tracking to include as many administrative costs as possible, you may wish to go beyond our model and look into Workpoint Accounting or Total Cost of Ownership. However, unlike our Cost per Person Model, these more extensive models require that you purchase proprietary commercial software.

Financial: Linking Budget to Performance

The General Services Administration's Public Buildings Service (PBS) instituted a unique

program that links its budget to performance measurement goals in each of PBS's eleven regional offices. This process allows PBS to focus on providing the best service for its customers while achieving the maximum return on investment, and indicates how PBS is performing and the areas where improvement can be made.

In 1997, PBS Commissioner Robert A. Peck established a group to develop the "linking budget to performance" initiative. The mission of the team was to "devise a means of allocating a portion of the budget to regions that rewards success in meeting performance measures." The Performance Management Oversight Committee, with representation from several PBS business units and regional offices, made recommendations for defining outcomes, identifying performance measures, establishing budget allocation levels, developing performance targets, monitoring actual performance and rewarding success.

The measures, known as the "Big 9," are:

Funds from
Operations

Customer
Satisfaction

Indirect
Costs as a
Percent of
Revenue

Impact of
non-revenue
Producing
Space

Lease
Costs

Cleaning
Costs

Maintenance
Costs

Construction
Costs within
Budget

Construction
Costs within
Schedule

Part 2. Innovative Performance Measures

In September 1998, the PBS Office of Business Performance sent the targets for the nine performances measures to the regional offices. For each of the 9 measurement categories, a target was set for the regional office to achieve based on PBS national goals and the regional baseline measurement from historical data.

Each regional office received a budgetary allocation in each of the categories based on its ability to exceed or meet the targets previously set. In addition, a bonus pool of money was established for those regional offices that exceeded the national performance goal for each of the measures.

The linking budget to performance initiative demonstrates PBS's commitment to the Government Performance and Results Act. The initiative also shows how organizational goals can be met in an efficient, cost-effective manner while providing optimal customer service.

Financial: Intangible Assets

The Brookings Institution developed the concept of intangible assets. Under this concept, certain costs that contribute to the firm's long-term viability and competitiveness, that are normally treated as expenses, would instead be capitalized and treated as assets on the firm's balance sheet. Examples of intangible assets are:

- Research and development expenditures
- Product development costs
- Investments aimed at brand development and customer-base enhancement
- Restructuring and reorganization costs

Under this concept, intangible assets would be capitalized when specific future benefits can be attributed to them. In order to capitalize intangible assets, it would also have to be probable that the discounted value of expected benefits exceeds their cost in current dollars.

Exactly how intangible assets can be capitalized in a systematic way is the subject of future research.

See the References and Resource Guide in Appendix B for more information on the Brookings Institution's work on intangible assets.

Customer Satisfaction

As discussed in the December 1998 publication, *Governmentwide Real Property Performance Results*, the General Services Administration's (GSA's) Public Buildings Service (PBS) has conducted customer satisfaction surveys of the tenants in GSA space since 1993. Now, in an effort to be recognized as the best public real estate organization in the world, PBS is developing a new customer satisfaction survey that will focus on ordering officials and the leadership of Federal agencies. This survey will build upon the previous work and fine tune the PBS approach to customer satisfaction. In addition to top management at PBS's customer agencies, the survey focuses on individuals who have a daily relationship with PBS in leasing, reimbursable work, security, new construction, and billing, among other activities.

PBS is currently interviewing agency executives and ordering officials, as well as PBS leadership officials, to determine the best method for conducting the survey. PBS hopes to roll out its new customer satisfaction survey sometime in fiscal year 2000.

If you have any questions about this endeavor, please see the References and Resource Guide in Appendix B for contact information.

Employee Satisfaction

The Gallup Organization developed a unique method of measuring employee satisfaction. Gallup observed that certain employee attitudes consistently set apart the most productive workplaces. Gallup then investigated the link between these attitudes and improved business outcomes, such as

Part 2. Innovative Performance Measures

customer satisfaction, employee retention, productivity, and profitability. Through research on numerous employee satisfaction surveys, Gallup determined that there was a core set of 12 questions that was consistently related to improved company outcomes. These questions became the basis of Gallup's Q12[®] Impact Program and are an integral part of the Gallup Workplace Audit.

Gallup developed several ways for company employees to respond to the 12 questions, such as interactive telephone, Internet, and e-mail based systems. Gallup collects the information on the survey and produces a one-page Workplace Quality Scorecard that is distributed to managers at all levels of the organization. These scorecards rate the individual business units as well as the company as a whole, and benchmark the organization against other companies.

Part 3. Case Studies

Another way to gather information on innovative performance measures is to study organizations that pilot innovative workplace initiatives. In a successful initiative, clear objectives and measurable results are required from the beginning in order to assess the effectiveness of the workplace changes.

In this part of the study, we present a series of case studies of organizations that implemented an innovative approach to the workplace and we extract innovative performance measures from the case information. We found that most of the work in this area revolves around Alternative Work Strategies (AWS) such as telework, hotelling and virtual officing. In other words, most organizations think of innovative performance measures in terms of alternative work environments and not in relation to the measurement of traditional workplaces in non-traditional ways (for example, assessing productivity benefits instead of only cost effects).

Some common performance measures that we found in the case studies are:

Cost savings: There is some evidence that using AWS can result in office space reductions, resulting in concomitant reductions in leasing, parking, maintenance and utilities costs, as well as reductions in the cost of such amenities as the cafeteria and employee lounges. However, AWS will not save real estate costs in many cases. Organizations will nevertheless implement such strategies for other reasons, such as employee retention, productivity, or working closer to the customer.

Improved employee satisfaction: AWS greatly improves morale, resulting in higher retention and recruitment of workers. It allows

the employee to save the cost, time, and stress of commuting.

Increased productivity: A finding was that employees do not “call in sick” as often and they tend to be more productive due to less workplace distractions. When meetings occur in the home office or via teleconferencing, the participants are better prepared and the meetings generally are more focused.

Environmental savings: Companies and agencies have documented considerable energy/natural resources savings by reducing the number of employees that commute to work. This also results in less traffic and pollution in the cities.

Some common lessons learned in the case studies are:

- Jobs must be carefully selected for AWS. Hence, the company or agency must evaluate and classify the jobs most appropriate for AWS, examining requirements such as the need for face-to-face contact with customers.
- Employees must be carefully selected for AWS. The two key issues or questions are:
 - Does the employee have the self-discipline to work under minimal supervision?
 - Can the employee eliminate home distractions?
- Managers must be trained in the new concepts and accept AWS. This requires that managers and supervisors understand the purpose and benefits of AWS, plan their work, be able to manage by objectives, and be comfortable in not seeing their subordinates on a daily basis.

Part 3. Case Studies

- There must be guidelines for work. Managers must define clear objectives and performance measures for employees and set rules for when employees need to be available for phone calls or customer inquiries.
- There must be policy on AWS. The company or agency must publish policies on such matters as provision of technology (laptops, etc.) and the obligation of the employees to provide a safe office space at home.

Case Study: International Business Machines (IBM)

IBM is a leading information technology manufacturer and service provider company with operations in more than 160 countries. IBM ranks sixth on the Fortune 500 list of U.S. companies, based on revenues. In 1998, IBM reported revenues of \$81.7 billion and a workforce of over 290,000 employees worldwide.

IBM has been involved in mobile work initiatives in the United States since the early 1990s. The program was implemented worldwide beginning in 1998. The mobile work program includes telecommuters, mobile employees and mobility centers. At IBM, telecommuters are employees who primarily share work time between home and office. Mobile employees split work between home, a shared office, on the road and at customer sites. If an employee travels more than 50 percent of the time, he or she is considered a mobile worker. The mobility centers are located in the 62 largest IBM locations. These buildings offer shared office space at a ratio of four employees per workspace. The employee schedules office space using a system developed by IBM that assigns the temporary workspace and telephone extension using touch screen technology. Any IBM employee can use a mobility center. The company also developed improved communications software to increase the ability of employees to quickly receive messages and respond to customers. The software allows voice mail, messaging, call forwarding, paging, fax and e-mail using only one phone number.

Becoming a mobile worker is elective at IBM. To date, approximately 60,000 employees

participate, which represents about 20 percent of the total workforce. Of the 60,000 employees who are mobile workers, 30,000 are involved in sales and distribution and the remaining 30,000 are spread throughout the organization.

In addition to the mobile work program, IBM in the last year decided to transition from traditional office environments to an open office environment that promotes teaming and collaboration. The company executives believe that future success depends on the employees' ability to collaborate and work in teams, thus bringing together the best mix of people to work on a project or problem. To facilitate teaming and collaboration, IBM will make changes in space configuration within the building. Instead of many small, individual offices that tend to isolate employees from each other, the space will be more open and accessible to promote the collaboration process. The open office environment involves a mixture of cubicles, small group meeting areas, large conference rooms, small private areas for conference calls or confidential conversations, and a few individual offices.

Performance Measures

While there is no goal set for the number or percentage of mobile workers within the company, IBM executives feel that more employees can become effective mobile workers. Annual real estate savings from this strategy for 1998 were \$75 million. However, because the mobile work program has matured and is pervasive throughout the company, IBM does not expect significant *additional* annual

real estate savings. All real property decisions now factor in provisions for mobile employees as a matter of course.

In addition to the cost savings, the company uses “cost per person” as a type of performance measure. The measure is calculated using all real estate costs (rent, utilities, cleaning, maintenance, parking, security); communications costs (one time and recurring); and technology costs (set-up, hardware, software, connectivity, support/help). The “cost per person” for 1997 was reported to be \$9,000. It should be noted that over the years IBM has seen the cost of hardware and maintenance for the mobile worker decrease. However, the cost of both dial and voice software and services has increased steadily as technology and numbers of mobile employees have expanded.

The mobile work initiatives have resulted in 7,500 workspaces saved, which equates to 2 million square feet. The company has set a global target of 150 net rentable square feet per person (for all workers including the mobile workers). Given the variety, location and age of the facilities worldwide, this is an ambitious goal but one the executives at IBM feel can be attained in the future because of the mobile workforce and the transition to an open work environment throughout the company.

The benefits from the mobile work initiatives extend beyond the reduction of real property costs. There are benefits for everyone - the employee, the company, the customer and the environment. Work/life balance is a very important concept within IBM. Mobile workers have a degree of control over their work lives that allows them to make decisions on how, when and where they will work. The mobile workers tend to work more hours with less impact on their personal and family life. Employee satisfaction continues to remain high and workers exhibit higher morale and greater loyalty.

Benefits to the firm include substantial real estate savings, reduced overhead, enhanced productivity, lower absenteeism and turnover rates, and increased revenues. Satisfaction has increased for the customer because they have better access to the IBM team. There is more “face time” between the IBM employee and the customer. Employees are more productive at the customer’s site and are able to respond quickly to calls and inquiries. Finally, there are environmental benefits that are beneficial for the community as a whole. Fewer employees coming into an office means less traffic on the freeways, more energy efficiency and cleaner air.

The mobile work initiatives have elicited positive responses from IBM management. Managers’ original discomfort with not seeing their employees on a regular basis has dissipated significantly over time. Additionally, IBM found that meetings are now more effective since managers and employees have become more “time sensitive.” Recently IBM changed the performance review process to a process based on goal achievement. All employees must establish quantifiable yearly goals that are the basis of their performance reviews regardless of the work setting.

Lessons Learned

Change does not happen overnight. Employee and manager resistance must be overcome. Employees fear they will be “out of the loop” and managers do not know how to evaluate performance without seeing the employee daily. Executive and management education, training and ongoing communication are keys to overcoming the resistance.

Executive and management support for the program is vital to the success of a company wide effort. The support includes a major investment in technology and commitment to supply the mobile workers with the right software platform and tools to do their jobs effectively.

Part 3. Case Studies

IBM learned that the mobile work strategy cannot operate everywhere in the world exactly as it does in North America. There can be cultural and structural barriers to the implementation of a mobile workforce. For example, not all employees in other countries have the space in their homes to set up a

home office. Also, if the main mode of transportation is mass transit, the weight and bulkiness of a laptop and peripherals can be an issue. As a result, the company is exploring ways to implement programs and strategies that will better address the cultural and structural issues.

U.S. Cost & Savings Summary

(5-year Projection, Capital Spread Over 7 Years)

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(\$ in Thousands)	1994	1995	1996	1997	1998	1999/00	Total
Capital Cost for Mobile Work Program	4090	6526	8306	8306	8306	5996	41530
Infrastructure/ Maintenance	584	558	578	578	498	—	—
Home Printers	—	—	350	250	250	—	—
Communications Software Development/ Support	—	400	1100	1100	1200	—	—
Office Scheduling Software Development/ Support	1100	900	750	750	750	—	—
Dial Services Increase	—	4000	6400	8800	8800	—	—
Voice Services Increase	—	2200	3800	6700	6700	—	—
TOTAL EXPENSES	1684	8058	12978	18178	18198	—	—
REAL ESTATE SAVINGS	46875	69375	75000	75000	75000	—	—
Net Earnings Before Tax	45191	61317	62022	56812	56802	—	—

Source: IBM Presentation, 1999

Case Study: Texas Workforce Commission - Commission of Appeals Department

The Commission has 22 attorneys who handle appeals of unemployment insurance claims for the state in Austin, Texas. The Commission initiated a telecommuting program in 1991. Currently 19 of the 22 attorneys telecommute. There are three cubicles available for telecommuters in the main office. On Monday, each attorney picks up a box of 25 to 30 cases as a weekly case quota. The attorneys submit their case reports electronically by Friday via a digitized dictation system. Meetings of all telecommuting and office-based attorneys are held bimonthly at the main office.

Performance Measures

The Commission's Telecommuting Project has been very successful. In 1991, approximately 2,160 rentable square feet of office space was allocated to the 18 attorneys on staff. Currently, the agency requires only a total of 336 rentable square feet of space of which 168 rentable square feet are allocated for the telecommuting attorneys to share.

Productivity has greatly increased. The U.S. Department of Labor has set the criterion that 40 percent of case reports should be sent out within 45 days. In 1991, the average for the agency was 48 percent. The average rate is now 85 percent. Should an attorney not meet the required quota, he or she receives a warning that if performance does not improve in the next four weeks, the attorney must return to a headquarters workstation for a month. On the three occasions that the warnings were issued, performance

improvement occurred immediately.

In 1991, the average turnover of attorneys was approximately 25 percent per year. Since telecommuting, the average turnover is approximately 5 percent per year. Additionally, there is now a "wait list" of highly qualified attorneys who wish to join the agency to take advantage of the "telecommuting benefit." Prior to 1991, the agency experienced considerable difficulty in finding qualified applicants.

Costs for the program are minimal. The agency pays for the installation of a phone line and the monthly phone bill for this line. The agency also provides the attorneys with a personal computer and furniture (if desired) for their home offices. (The computer and furniture does not add to costs, since these would be required in an agency-based office.) The agency saves considerable overhead costs (electricity, office maintenance, etc.) since the vast majority of the workers telecommute.

Lessons Learned

Several lessons were learned. First is that managers must be able to manage by results or objectives. Therefore, they must be comfortable with not having employees under direct face-to-face supervision. Second, rules or guidelines for work must be published. For example, all calls from the home office must be returned within 30 minutes. Finally, clear performance measures, such as weekly case quotas, need to be established.

Case Study: Lucent Technologies

Lucent Technologies is a leading designer, developer and manufacturer of telecommunications systems, software and products. The company was spun off from AT&T in April 1996. Lucent is a Fortune 100

company with revenues in excess of \$30 billion and approximately 136,000 employees worldwide with office locations in more than 90 countries and territories. Lucent's real property inventory consists of 54.3 million

Part 3. Case Studies

square feet of owned and leased space.

Lucent has an active Alternative Work Strategies (AWS) program and is committed to promoting AWS as a cost-saving strategy to drive down real property costs. There are four full-time employees devoted to the promotion of AWS throughout the company. Each person has annual and monthly goals for the number of additional people added to the “virtual office” ranks.

The Alternative Work Strategies program consists of three components:

- **Virtual Office** - Employees who work at home or are travelling five days a week. No office space is maintained for them.
- **Hotelling** - Employees must schedule office space in advance.
- **Drop-In Sites** - Parts of offices are set aside for employees to use when they need the additional support of a full service office. Usually used by virtual office employees with heavy production needs or by employees who are traveling in the region.

There are many “casual teleworkers,” a term for employees who work out of their homes two or three days per week. Lucent does not count these employees as part of the AWS program because the firm still maintains office space for them. Therefore, the firm does not realize any associated real property dollar savings. Equally, Lucent does not count in the AWS program any building that is less than 90 percent occupied because the teleworker could be housed in the building. The purpose of the program is to maximize the use of the building inventory by moving workers into a virtual office mode.

Performance Measures

At Lucent, participating in the AWS program is elective. When the program was started with the active encouragement of top management,

the goal was to have 15 to 20 percent of the workforce involved in AWS. To date, participation has been limited to than 4 percent of the total workforce. Nevertheless, Lucent realizes some real estate savings as a result of the AWS program.

Lucent also reports an increase in employee productivity. Employees report working more hours. There is not enough information to determine if the increase in productivity is because the employees are working better or working longer.

Lucent uses many real property measures, including one for cost per person. The “cost per person” calculation includes all real estate costs (rent, utilities, cleaning, maintenance, parking, security); communications costs (one time and recurring); and technology costs (set-up, hardware, software, connectivity, support/help).

Since the inception of the company, real property costs have decreased from 5.7 cents to 2.6 cents of every revenue dollar. Many initiatives have contributed to this decrease, including the AWS program.

Lessons Learned

Lucent found that the success of the AWS program was contingent on a number of factors. First, managers must feel comfortable with not seeing their subordinates on a daily basis. Thus, managerial resistance must be overcome through training or orientation regarding supervising in a virtual office environment. Second, ongoing marketing of AWS and its benefits must be done. Finally, the organization must realize that AWS takes time since it is a fundamental change in how people relate to their work, co-workers and managers.

Case Study: An Anonymous High-Tech Company

This high tech company specializes in software development. The firm has revenues in excess of \$10 billion, approximately 27,000 employees and operations in over 150 countries. The company has large campus settings with multiple buildings and other offices located away from the campuses throughout the world. The campuses primarily house the product development functions while the off-campus offices house sales and customer support services. With millions of square feet either owned or leased worldwide, the company developed numerous alternative work strategies, including telework options and reconfiguration of space, both as a cost savings initiative and to allow employees to work better and more productively. To date, most of the alternative work strategies were initiated in the non-campus settings.

Over the last four years, the company transitioned 10 non-campus offices from traditional (one desk per person) offices to flexible hotelling space. In the new space an employee schedules or reserves space on a short-term or long-term basis as needed. There are fewer offices than employees. The concept has worked so well that the company will be transitioning all of the non-campus offices to this concept in the next year.

Currently the company is piloting five satellite centers in which an employee can "drop in" for short periods of time during the day. These centers are designed to help employees avoid difficult commutes and are located close to where clusters of employees live. The employee uses the center for two or more hours before commuting to his or her main office, before or after outside meetings, etc. While this concept may not reduce real property costs because space has not been eliminated at the main office, benefits are realized in employee satisfaction and productivity.

There is no formalized telework program focused on home-based workers. Currently, a small percentage of the workforce (around one percent) work out of their homes two or more days a week. The decision as to which job functions and employees can telework is an individual manager's prerogative. It is also the manager's decision as to the amount of hardware, software, connectivity and furniture the company supplies. While not considered regular teleworkers, many employees work from their homes one or two days a month. The company reimburses all employees for reasonable business related expenses incurred when working from their homes. The estimated annual cost to support a teleworker is approximately \$2,000.

Reconfiguring space to allow employees to work better is another strategy instituted by the company. The customer support centers house employees whose main function is to find solutions to customers' problems. The space and technology are configured to allow for a variety of work situations based on the complexity of the customer's problem. There is open space, semi-private space and quiet, technical space. The open space is considered the front line. A representative may be working in this space the majority of the time helping customers with relatively uncomplicated issues that take only a few minutes to solve. However, if a customer has a more complex problem that needs more time, concentration and perhaps collaboration, the representative can use the semi-private space to focus on the problem. Finally, for highly complicated customer problems, there are quiet, technical laboratory-like areas where the representative can completely concentrate on solving the problem. None of the employees are assigned permanent space. They use the space that facilitates solving the customers' problems best.

Part 3. Case Studies

In buildings where the employees focus on product development, areas are delineated into suites of space with a matrix of physical settings to support the type of work being performed. Most include a combination of small offices, small meeting areas and large conference rooms, arranged to encourage collaboration.

Performance Measures

Approximately 1,000 employees are housed in flexible offices. Because of the success so far, all field offices will be transitioned into flexible offices, affecting between 8,000 and 10,000 employees. The satellite centers are in the pilot stage and have been used by approximately 900 employees to date. The goal is an annual cost savings from all the initiatives of \$40 million.

The benefits from the alternative work strategies extend beyond the reduction in real property costs. With each initiative the company has found that the cost savings were double those estimated, that employee productivity remained the same or increased, that turnover rates have remained the same, and that employee satisfaction has increased.

The company uses all of the usual real property measures, including cost per person. The “cost per person” calculation is “all inclusive” real estate occupancy costs (rent, depreciation, utilities, cleaning, maintenance, parking, security, cafeteria, health clubs, etc.). In 1998, the all-inclusive “cost per person” was \$15,000.

The company’s target for gross square feet (gsf) per person is based on three functional areas and is “all inclusive”:

Product Development	275 gsf per person
Administration	225 gsf per person
Field Offices	160 gsf per person

While the square feet per person is a set number for each functional area, how the space is configured is flexible and can be adapted to the needs of the employees.

Lessons Learned

Moving a workforce to a non-territorial concept represents a major change. Even if employees are supportive of the concept, learning how to effectively work in the new environment takes time and experience. Initial training is important but a great deal of thought needs to be given to what type of training, the content and how it is delivered.

Another lesson is to institute an engagement agreement process that establishes leadership responsibility, explains how everyone is to function, delineates ways to communicate, and establishes clear timelines and deliverables.

In configuring space to encourage collaboration, think in terms of neighborhoods. In the beginning, the buildings were configured with “like” contiguous space. For example, all offices were grouped together and all small meeting rooms were grouped together. This did not enhance the goal of collaboration. A better concept is to identify spaces in the building and mix together a group of offices, meeting areas and conference rooms for work teams. This helps people who are hotelling to reserve space where they can affiliate with colleagues working on the same or similar projects.

Appendix A: Selected Literature Review

“Alternative Workplaces are Growing – But Slowly.” *Building Design & Construction*, November 1998, p.20.

Discusses the results of a survey of 469 facility managers by LaSalle Partners Inc., and the International Facility Management Association (IFMA). Sixty-two percent of respondents currently use some form of alternative workplaces (AW). Forty percent indicated that the square footage per worker had been reduced. Respondents generally reported gains in employee productivity. The article did not provide data on productivity increases or cost/square footage savings.

Apgar, M. “The Alternative Workplace: Changing Where and How People Work.” *Harvard Business Review*, May-June, 1998, pp. 121-136.

Describes the experiences with the alternative workplace (AW) at IBM, AT&T and American Express. IBM is covered in detail in a case study in Part 3 of the *Workplace Evaluation Study*.

At AT&T in Morristown, NJ, a building was converted to shared office space. Although the renovation cost was \$2.1 million (for construction, furniture, communication systems, etc.), total annual savings amounted to more than \$460,000 or \$2,000 per person. Shared accommodations are now provided for 225 people versus 196 previously. Square footage per person was reduced from 230 to 120 with rental costs declining from \$6,100 to \$3,100 per year per person. It was also reported that the project produced closer teamwork, better customer service, and greater employee satisfaction [no specific data provided].

At American Express, the company reduced

the number of field offices from 85 to 7 as a result of the virtual office program for 300 sales and account representatives. The company also reported increased employee and customer satisfaction, although no data were provided.

The article also discusses some of the managerial and cultural changes required to support AW strategies. These changes include careful selection of employees; the need for clear performance objectives; training of managers and employees on how to work in a virtual environment; education of customers and other stakeholders; and creation of opportunities for employees to share ideas and occasionally socialize (e.g., Wednesday morning coffee).

Becker E, Tennesen, C., and Dahl, L. *Managing Workplace Change*, Ithaca, NY: Cornell University, 1997.

Provides lessons learned to implement new workplace strategies based on studies at six research sites. The workplace changes usually consisted of reconfiguring large, enclosed offices into open workstations or “group collaboration areas.” The primary goals of these initiatives were to enhance teamwork and organizational communication.

Some of the most important lessons learned included: (1) use small face-to-face communications for announcing the change; (2) explain the project process (from planning and decision making through design, construction, and moving); (3) prepare to answer the central question and concern of employees - what does it mean to me; (4) involve employees in both the design and implementation phases; (5) provide training in the cultural and behavioral aspects of working

Appendix A: Selected Literature Review

in new ways; and (6) perform “reality checks” with employees to ensure that their expectations match those of management.

Childress, J. “Managing Teleworkers, Skilled Supervisors Must Learn How to Judge by Performance, Not Observation.” *Telecommute*, February 1999, pp. 31-33.

Suggests that managers may need to change or reinforce their management style and practices to accommodate telecommuting in their organization. The author argues that managing telecommuters is not any different than that in traditional offices, and that managers must renew their emphasis on: (1) setting clear standards and goals for work, (2) measuring performance and provide feedback, (3) showing how each employee’s work fits into the larger whole, (4) motivating for continued performance, and (5) allowing for opportunities for employees to network and socialize.

Fister, S. “A Lure for Labor.” *Training*, February 1999, pp. 56-62.

Provides anecdotes to show that telework is an important strategic initiative to recruit and retain highly skilled workers. For example, Merrill Lynch found that its program prevented valuable employees from leaving. Also, Cisco Systems found that their telecommuting program allowed them to both recruit and retain high-tech employees. The manager of the telework program at one Arthur Andersen consulting office stated that the initiative is not a perk, but a purposeful business strategy.

Girard, K. “Telecommuting Trials, Tribulations.” *Computerworld*, November 24, 1997, p. 28.

Concludes that companies should save between \$1,500 and \$5,000 per year in overhead and office space per telecommuter if companies carefully select vendors and plan for hardware and software applications. The article points out the difficulty in establishing national

benchmarks for telecommuting costs since, for example, ISDN lines may cost twice as much in some parts of the country. The author also points out that companies may spend considerable money in setting up telecommuters at home but fail to recoup any savings by making better use of vacant office space.

Greenbaum, T. “Telecommuting: Avoiding a ‘Virtual’ Disaster.” *HR Focus*, February, 1998, pp. 11-12.

Suggests that human resource managers address such issues as the lack of employee interaction, the avoidance of distractions affecting productivity at home, and the need to create opportunities for training, growth, and teamwork. The article also points out that organizations should establish a profile of workers who can operate effectively in a virtual office. Additionally, the author suggests that employees should gradually work into a virtual office environment in order to acclimate to the new work and determine if they are satisfied and productive before committing to it as a permanent arrangement.

Hallowell, E. “The Human Moment at Work.” *Harvard Business Review*, January-February 1999, pp. 58-66.

Argues that although e-mail and voice-mail are efficient, face-to-face contact is essential to true communication. A psychiatrist who has treated business executives for anxiety disorders wrote the article. Hallowell writes, “I can tell you without a doubt that virtually everyone I see is experiencing some deficiency of human contact. Indeed, I am increasingly sought out because people feel lonely, isolated, or confused at work.” The article suggests that managers must provide opportunities for virtual workers to have interpersonal contact to brainstorm ideas, support each other, and avoid feelings of alienation or isolation. Examples are regularly scheduled “coffee calls” and informal lunches.

Appendix A: Selected Literature Review

Hawkins, D., Romano K., and Rindfuss, R. "Telecommuting Technologies and Experiences." *Online*, November-December 1997, p. 103.

Identifies the technology required to set up a telecommuter based on experiences at Lucent Technologies and AT&T. The following six technologies should be considered for telecommuting projects in addition to the PC, telephone line, and office software: (1) ISDN line and ISDN modem, (2) a reliable internet service provider, (3) e-mail, (4) remote-access software, (5) a multi-function device (which combines the tasks of printer, fax machine, and copier), and (6) video-conferencing equipment as a partial substitute for face-to-face meetings.

Hequet, M. "Virtually Working: Dispatches From the Home Front." *Training*, August 1996, p. 28.

Discusses the advantages and problems of "virtual working" with anecdotes from telecommuters. It also provides a checklist for telecommuters to follow to keep focused. Included are: (1) establish a routine and follow it, (2) pace yourself to avoid burnout or "dragging by 2:30 pm," (3) clarify expectations with family that office hours are office hours, and (4) stay "visible" by e-mail and phone.

Holub, S. "Workplace 2000." *The Tax Adviser*, March 1999, pp. 193-194.

Identifies personal characteristics to look for in employees who would be candidates for telecommuting. The most important of which are being thorough, working well in solitude, being accommodating and reflective, and being comfortable with routine work. The article also suggests that special projects often lend themselves well to telecommuting (e.g., writing audit reports, revising systems manuals, etc.).

Maruca, R. "How Do You Manage an Off-Site Team?" *Harvard Business Review*, July-August 1998, pp. 2-10.

Analyzes a case involving problems in

managing an off-site team. The following lessons were identified: (1) establish a formal screening process to reveal work habits that make an employee an unsuitable telecommuter; (2) choose a team leader based on skills and experience, not his/her accessibility or proximity to the corporate office; (3) clearly delineate the work/tasks which must be done; (4) set up a formal review schedule to track the team's progress on each project; (5) have clear guidelines that explain when people must be "at work" and when they are at liberty to handle personal affairs; (6) institute a process to ensure at least a minimal amount of "face time;" and (7) avoid small misunderstandings becoming "major conflagrations" by relying on what may be the most effective communication methods (e.g., face-to-face meetings) not the most expedient (e.g., e-mail).

Piskurich, G. *An Organizational Guide to Telecommuting: Setting Up and Running a Successful Telecommuting Program*. Alexandria, VA: American Society for Training and Development, 1998.

Provides comprehensive guidelines for planning and implementing telecommuting interventions. The author discusses the possible reasons for considering a telecommuting program including greater productivity and increased employee satisfaction (less commuting time and more control over one's life). Finally, the book identifies possible disadvantages for companies (e.g., loss of control of workers) and disadvantages for telecommuters (e.g., loneliness, family distractions, and "cabin fever").

Shelling, S. "The Basics of a Successful Telework Network." *HR Focus*, June 1990, pp. 9-10.

Identifies the following factors that organizations must consider in initiating an alternative work environment.

Appendix A: Selected Literature Review

1. Job function should come first when creating a telework program, since “some jobs can easily be performed out of the workplace and some never can.”
2. Selection of employees for telework based on these traits: self-motivation, high level of job knowledge and skills, flexibility, strong organizational skills, strong communication skills, low need for social interaction, team player mentality, enjoyment of responsibility, and trustworthiness and reliability.
3. Don't lose all your star players since they are needed to serve as mentors to the remaining workers.
4. Keep diversity goals in mind for your telework participants as well as your corporate office population.
5. Use telecommuting as a performance initiative, and reward reliable performers with the telecommuting option. If an employee has difficulties in the office, working at home may only exacerbate the problems.
6. Set measurable output and standards to assess progress and manage by end results. The suggested methods for this “end result” style of management are setting project schedules and key milestones, requesting regular status reports and peer/team quality project reviews, giving performance feedback, and trusting and feeling comfortable without direct, visual supervision of employees.

Turnbull, K. et. al. *Telecommuting Programs in Texas: Case Studies*, College Station, TX: Texas A&M University, Research Report #1446-2E, August 1996.

Examines the experience and results of six agencies and businesses with telecommuting in Texas. It documents office space savings, environmental benefits (e.g., travel reduction,

air quality enhancement, and energy reduction), increased productivity, and improved employee satisfaction.

In common among the case studies were formal policies and guidelines that address the roles and responsibilities of the employer and the telecommuter. These include: (1) establishing telecommuting as a management option, not an employee benefit; (2) recognizing that participation is voluntary; (3) identifying the requirements for employee selection; (4) outlining the home office work environment; (5) establishing the expectations for telecommuters and supervisors; (6) addressing equipment, software, and confidential work material issues; (7) identifying the work hours and communication requirements; and (8) establishing that telecommuting is not a substitute for child or dependent care.

Wardell, C. “The Art of Managing Virtual Teams: Eight Key Lessons.” *Harvard Management Update*, November 1998, pp. 3-4.

Provides lessons with respect to virtual teams based on examples from such companies as Royal Dutch Shell and Digital Equipment Corporation. The eight lessons are: (1) start small (use a pilot); (2) have a clear purpose and goals; (3) assume nothing - spell out everything; (4) keep in touch with the virtual team every day; (5) forge alliances with corporate staff who need to provide information and other support to the team; (6) establish incentives for both project and personal performance; (7) resolve conflicts via phone conversations, face-to-face meetings, or have a “circuit rider” go from site to site to listen to concerns from employees and to serve as a “linking pin” among teams; and (8) conduct “postmortems” of the team’s experience and show every team how they fit into the larger picture.

Appendix B: References and Resource Guide

American Institute of Chemical Engineers

The American Institute of Chemical Engineers' Center for Waste Reduction Technologies is undertaking a collaborative project to develop sustainability metrics. The project aims to develop a group of core and optional metrics for each of the seven areas of eco-efficiency promulgated by the World Business Council on Sustainable Development. Contact Dana Ponciroli at (212) 705-7462 or danap@aiiche.org, or visit:

<http://www.aiiche.org/docs/cwrt>

Ben & Jerry's

Since 1988, Ben & Jerry's, a Vermont based ice cream company, has published an independently audited social report as part of its annual financial report. The social report is constructed around Ben & Jerry's key stakeholders and includes the results of an employee work life survey that addresses such issues as satisfaction with pay, working conditions, job security, etc. Contact Ben & Jerry's at (802) 651-9600, or visit:

<http://www.benjerry.com>

BOMA Experience Exchange Report

The Building Owners and Managers Association (BOMA) Experience Exchange Report Survey annually collects and publishes operating income and expense data representing over 4,000 office buildings throughout the United States and Canada in both the private and public sectors. For more information, contact Matthew Bond, BOMA Director of Research at (202) 326-6345. You can find BOMA on the Internet at:

<http://www.boma.org>

Brookings Institution - Intangible Assets

For more information on the Brookings Institution's project "Understanding Intangible Sources of Value," see the following web site:

<http://www.brook.edu/es/intangibles/default.htm>

Brownbag Series on Performance Measurement in Washington, DC

George Washington University (GWU), in collaboration with the Center for Accountability and Performance and the General Accounting Office (GAO), sponsors a series of brown bag luncheons on performance measurement issues in the Federal Government. The meetings are held at the university's campus in downtown Washington, DC. For more information contact Kathryn Newcomer of GWU at (202) 994-6295 or Allen Lomax of GAO at (202) 512-2803.

Canadian Telework Association

The Canadian Telework Association maintains an informative web site with links to telework web pages providing statistics, survey results, case studies and more. The web site address is:

<http://www.ivc.ca/>

Carnegie Mellon University

The Center for Building Performance and Diagnostics (CBPD) at Carnegie Mellon University conducts research, demonstration projects, and teaching in building systems and analysis. In conjunction with the Advanced Building Systems Integration Consortium (ABSIC), an industry-university consortium

Appendix B: References and Resource Guide

established in 1988, the CBPD is engaged in ground breaking work that investigates the impact of advanced technology and various workplace strategies upon the physical, environmental, and social settings of office buildings, as well as upon productivity and organizational effectiveness. The Center has developed the Robert L. Preger Intelligent Workplace, a prototype office facility that is used to develop and test new building and workplace technology.

Contact Dr. Volker Hartkopf at (412) 268-2350. The CBPD web site address is:

<http://www.arc.cmu.edu/cbpd/index.html>

Center for the Built Environment, University of California, Berkeley

The Center for the Built Environment (CBE) is an industry/university cooperative research center developed to conduct studies aimed at improving workplace performance. Research is focused on evaluating and improving building environmental quality, the effect of new technologies on productivity, and reducing energy use in buildings. Additional areas of research include indoor air quality, communication technologies, the financial implications of improved building practice, and standards and codes affecting industry.

Contact Kevin Powell of CBE at (510) 642-4950 or contact one of the following GSA/PBS contacts: Dave Eakin at (202) 501-1726 or Steve McGibney at (202) 501-1605. The CBE web site address is:

<http://www-archfp.ced.berkeley.edu/cbe/>

Center of Excellence for Sustainable Development

The Department of Energy maintains the Center of Excellence for Sustainable Development. They have developed new

measurements called "Indicators of Sustainability." These are designed to provide information for understanding and enhancing the relationships between the economic, energy use, environmental, and social elements inherent in long-term sustainability. For more information, access their web site at:

<http://www.sustainable.doe.gov/measuring/meintro.htm>

Connecticut State Government

The State of Connecticut has a web site for news and information related to the state Office of Policy and Management 1999 survey of Connecticut executive branch agencies on strategic planning and performance measurement. The web site address is:

<http://www.opm.state.ct.us/mgmt/about/survey.htm>

European Telework Online

European Telework Online pulls together information on telework programs and issues covering all of Europe. The web site address is:

<http://www.eto.org.uk/>

Florida State Government

The State of Florida developed a database of measures to analyze the performance of state agencies. The Department of Management Services, which manages the State's real estate inventory, looks at over 60 measures for facility operations, management, security, and development. The State began measuring in 1995-96 and has now developed a trend analysis for certain measures. Florida was truly in the forefront of public sector performance measurement. You can find out more information by accessing the following web site:

http://fcn.state.fl.us/oraweb/owa/pas_display.searchmeasure?

FM DataCom (Tradeline)

This professional organization provides global facility managers and planners with professional training, publications and resources to ensure that they are kept current on all facets of asset management. FM DataCom sponsors Internet on-line conference forums to discuss subjects of global interest including performance benchmarking, Y2K, and asset management strategies, and publishes the FM Data Monthly covering all aspects of effective and efficient asset management. For more information on this organization, you can visit their web site at:

<http://www.fmdata.com/>

Gallup Organization Q12[©] Impact Program

For more information about this innovative program that measures employee satisfaction and productivity, visit Gallup's excellent web site located at:

<http://www.gallup.com/index.html>

Government Performance and Results Act of 1993

Public Law 103-62 provided for the establishment, testing, and evaluation of strategic planning and performance measurement in the Federal Government. You can find a summary of the Act on the Internet at:

<http://www.itpolicy.gsa.gov/mkm/pathways/pp2bgrp.htm>

Governmentwide Real Property Performance Measurement Study

Issued in June 1998, this groundbreaking publication derives 7 key indicators of real property performance and proposed a voluntary benchmarking effort to estimate a Governmentwide baseline measurement. The study also includes brief case studies on

organizations with experience in performance measurement of real property in the Federal, public, academic and private sectors.

Hard copies are available from the Office of Real Property by request. Contact Rebekah Pearson at (202) 208-1850 or e-mail to rebekah.pearson@gsa.gov. The document can also be accessed in PDF format on our web site at:

[http://policyworks.gov/
realproperty](http://policyworks.gov/realproperty)

Governmentwide Real Property Performance Results

This follow-up to the *Governmentwide Real Property Performance Measurement Study* was released in December 1998. It includes the results of the voluntary benchmarking effort conducted during the summer of 1998, which established the Governmentwide baseline for the 7 key indicators of real property performance. The publication also features comparable private sector data and profiles of selected Government buildings from the data sample.

Hard copies are available from the Office of Real Property by request. Contact Rebekah Pearson at (202) 208-1850 or e-mail to rebekah.pearson@gsa.gov. The document can also be accessed in PDF format on our web site at:

<http://policyworks.gov/realproperty>

In December 1999, we will publish the second annual edition of *Real Property Performance Results*. To support this effort, we will collect data on a voluntary basis until September 30, 1999. This year, we will accept data from the private sector and other national governments as well as Federal landholding agencies. To participate in this important and innovative benchmarking project, please contact Stan Kaczmarczyk at (202) 501-2306 or e-mail to:

stan.kaczmarczyk@gsa.gov

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GSA Contact for Information Technology Cost

For information on how the information technology cost component for the base case was developed for the Cost per Person Model, contact Christopher Wren at (703) 605-9811 or e-mail to:

christopher.wren@gsa.gov

GSA Contact for Real Estate Cost

For information on how the real estate cost component for the base case was developed for the Cost per Person Model, contact Stan Kaczmarczyk at (202) 501-2306 or e-mail to:

stan.kaczmarczyk@gsa.gov

GSA Contact for Telecommunications Cost

For information on how the telecommunications cost component for the base case was developed for the Cost per Person Model, contact Ron Faiola at (202) 501-2754 or e-mail to:

ron.faiola@gsa.gov

GSA Contact for Workstation Furniture Cost

For information on how the workstation furniture cost component for the base case was developed for the Cost per Person Model, contact Ms. Pat Thomas at (202) 501-0436 or e-mail to:

patricia.thomas@gsa.gov

GSA Office of Governmentwide Policy

The GSA Office of Governmentwide Policy's Telework Team promotes telework throughout the Federal Government. For more information, contact the team leader, Dr. Wendell Joice at (202) 273-4664 or e-mail to:

wendell.joyce@gsa.gov

You may also contact the other members of the Telework Team by e-mail:

glenn.woodley@gsa.gov

william.michael@gsa.gov

joanne.shore@gsa.gov

The Office maintains a web site listing telework resources. You can access this information at:

<http://policyworks.gov/telework>

GSA's Public Buildings Service - 9 Key Performance Measures

The Public Buildings Service (PBS) established and tracks 9 key performance measures to monitor its business performance. These measures are:

- Impact of non-revenue producing space
- Lease costs
- Maintenance costs
- Cleaning costs
- Customer satisfaction
- Construction costs within budget
- Construction costs within schedule
- Funds from operations
- Indirect costs as a percent of revenue

For more information about the GSA/PBS performance measurement system, contact Hugh Colasacco of the GSA's Public Buildings Service at (202) 501-0112 or e-mail to:

hugh.colasacco@gsa.gov

GSA's Public Building Service - Customer Satisfaction Survey

GSA's Public Buildings Service (PBS) leads the field in the systematic measurement of customer satisfaction. PBS conducts the survey annually and covers the entire GSA/PBS facilities inventory over the course of two

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annual surveys. An independent contractor groups, tabulates and reports the results to PBS.

For more information about the GSA/PBS customer satisfaction survey, contact the Office of Real Property or contact PBS directly by calling Peter Ford at (202) 501-0514 or e-mail to:

peter.ford@gsa.gov

GSA's Public Buildings Service - Telework Centers

As of January 1999, GSA's Public Buildings Service (PBS) established a network of interagency telework centers in outlying communities surrounding Washington, D.C. These telework centers are designed as alternate workplaces that augment the work-at-home option used by many Federal agencies as part of their "Family-Friendly" flexiplace program arrangements. For more information about GSA/PBS telework centers, contact Prentice Einarsen at (202) 208-1585 or e-mail to:

prentice.einarsen@gsa.gov

You can also visit the Federal Interagency Telecommuting Center Pilot Project on the web at:

<http://www.gsa.gov/pbs/owi/project.htm>

The Integrated Workplace: A Comprehensive Approach to Developing Workspace

The Integrated Workplace is the result of a collaborative, multidisciplinary approach to developing and providing workspace, uniting your organization's strategic real property plan with your organization's strategic business goals. It responds to the people and work practices of each individual and group, and provides them with the physical space and tools needed for their success.

The Integrated Workplace study was released in May 1999 and can be obtained by contacting Rob Obenreder at (202) 208-1824 or e-mail to rob.obenreder@gsa.gov. The document can also be accessed in PDF format on our web site at:

<http://policyworks.gov/realproperty>

International Development Research Council (IDRC)

IDRC is a professional association for managers of corporate assets including corporate real estate, facilities, information technology, human resources, finance and other support units that define corporate infrastructure. For more information about IDRC's Workpoint Cost Accounting Model (discussed in Part 2 of this document), you can access their web site at:

<http://www.idrc.org>

International Facility Management Association

The International Facility Management Association (IFMA) publishes benchmark reports for facility management. The data is collected from member organizations on a voluntary basis, much like our Office's annual voluntary benchmarking effort on performance measurement. For more information about IFMA, see their web site at:

<http://www.ifma.org/>

International Standards Organization - ISO 14031

The International Standards Organization's draft guidance on environmental performance evaluation, (ISO 14031), categorizes indicators into three basic types: environmental condition indicators, operating performance indicators, and management performance indicators. It also identifies five kinds of quantitative measures: direct, relative, normalized/indexed, aggregated, and weighted. The basic thrust of the guidance is that the more indicator

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categories covered the better the measurement system — and in this vein more than one hundred illustrative indicators are listed.

Contact Steve Cornish at (212) 642-4969, or visit:

<http://www.iso.ch>

International Teleworking Association and Council

ITAC, the International Teleworking Association and Council, is a non-profit organization dedicated to promoting the economic, social and environmental benefits of teleworking. Hosting Telecommute America! is one of its major activities. For more information, call the ITAC Headquarters Office at (202) 547-6157 or access their web site at:

www.telecommute.org/

International Workplace Studies Program, Cornell University

The International Workplace Studies Program (ISWP) conducts research on new ways of working. Dr. Franklin Becker, Director of the ISWP, is an internationally recognized expert on the planning, design, and management of innovative workplaces. Viewing the workplace as a system comprised of physical settings, information technologies, work processes, and organizational values, ISWP research explores the critical success factors underlying high performance organizations. Dr. Becker and Dr. William Sims, principle researcher for the ISWP, have written extensively on the workplace.

You may contact Dr. Franklin Becker at (607) 255-1950 or Dr. William Sims at (607) 255-1954. The web site address is:

<http://iwsp.human.cornell.edu/default.html>

Metropolitan Washington Council of Governments Telework Resource Center

The Telework Resource Center is part of Commuter Connections, an alternative commute program coordinated through the Metropolitan Washington Council of Governments. Their web page is another excellent source of information about telework. The web site address is:

<http://www.mwcog.org/commuter/Bdy-Telework.html>

Office Construction Planner

The construction planner for office buildings is a general planning model to help the user understand the financial impacts of project decisions and conditions that apply to the construction of office buildings. The planner focuses on construction costs and is primarily built around actual construction experience. The model does not attempt to address all costs that go into a building project, nor do the costs reflect actual costs for any project in particular. For more information, log on to FM Datacom's web site and scroll down to Construction Cost Planners:

<http://www.fmdata.com/>

Office Space Use Review

This landmark publication presents numerous case studies, summarizes benchmark utilization rate data, suggests a target average utilization rate for the Federal Government, discusses emerging trends in space use (including alternative work environments), and advocates the inclusion of administrative costs in the strategic planning process. For a copy, call Stan Kaczmarczyk at (202) 501-2306, e-mail to stan.kaczmarczyk@gsa.gov, or download a copy from our web site:

<http://policyworks.gov/realproperty>

Oregon Office of Energy

The Oregon Department of Consumer and Business Services, Oregon Office of Energy maintains a web site devoted to telework, which includes case studies of successful telework programs. The web site address is:

[http://www.cbs.state.or.us/
external/ooe](http://www.cbs.state.or.us/external/ooe)

Pennsylvania Department of Environmental Protection “Green” Building

The Pennsylvania Department of Environmental Protection Southcentral Region is housed in the state’s first “green” building project. The facility will use 50 percent less energy than a conventional commercially leased building. Other features include recycled steel and furniture, and individually controlled airflow and temperature controls to greatly increase worker comfort and productivity. You can find out more at the building’s web site:

[http://www.gggc.state.pa.us/
GreenBldg/
StoryBehindGreenBuilding/
storyhom.htm](http://www.gggc.state.pa.us/GreenBldg/StoryBehindGreenBuilding/storyhom.htm)

Performance-Based Management

In December 1996, GSA’s Office of Governmentwide Policy published *Performance-Based Management: Eight Steps to Develop and Use Information Technology Performance Measures Effectively*. This document presents an approach to help agencies develop and implement effective information technology performance measures. For a copy or more information, contact Pat Plunkett at (202) 501-1123. You can also download a copy of the study by visiting the following Internet address:

[http://www.itpolicy.gsa.gov/mkm/
pathways/evt8step.htm](http://www.itpolicy.gsa.gov/mkm/pathways/evt8step.htm)

Performance Pathways

The U.S. General Services Administration’s Office of Governmentwide Policy provides this one-stop source for information related to the development and use of performance measures. The information is geared more towards performance measurement in general, as well as information technology. The site nevertheless provides much valuable information of interest to real property professionals. Examples of topics include Performance Based Contracting, Sample Performance Measures, Strategic Plans, and Sources for Training and Development. The web site address is:

[http://www.itpolicy.gsa.gov/mkm/
pathways/pathways.htm](http://www.itpolicy.gsa.gov/mkm/pathways/pathways.htm)

You may also contact Pat Plunkett at (202) 501-1123 or e-mail to:

pat.plunkett@gsa.gov

Smart Valley Telecommuting Guide

Smart Valley’s mission was to serve as a catalyst for applications of network technology, getting the projects started, then finding an appropriate home for them. In the end, Smart Valley’s projects have involved more than 15,000 volunteers, over 100 companies and have leveraged \$4 million of membership funding into over \$100 million in projects for the Silicon Valley community and beyond. The organization published a Telecommuting Guide, which is available via the Internet at the following location:

[http://smartone.svi.org:80/
PROJECTS/TCOMMUTE/TCGUIDE/](http://smartone.svi.org:80/PROJECTS/TCOMMUTE/TCGUIDE/)

Society of Industrial and Office Realtors

The rental rate chart that accompanies the Cost per Person Model was developed based on information published by the Society of

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Industrial and Office Realtors (SIOR). SIOR is a professional commercial and industrial real estate association with over 2,000 members in 350 cities worldwide. For more information, see their web site at:

<http://www.sior.com/>

Sustainable Development

The President's Council of Sustainable Development developed performance indicators for a wide range of areas relating to the economy, the environment and social equity. These include measures of stewardship and energy efficiency. The information is available on the Internet at the following address:

http://www.whitehouse.gov/PCSD/Publications/TF_Reports/amer-chap1.html

Virginia State Government

The Commonwealth of Virginia, Department of Planning and Budget developed a process that integrates performance measurement into its budgeting process. The web site contains information about Virginia's nationally recognized Performance Budgeting process, which links strategic planning, performance measurement, and budgeting. The process also incorporates activity-based budgeting concepts that allow for even greater attention by state government to results, cost effectiveness, and accountability. The web site address is:

<http://www.state.va.us/dpb/pm/perfmeas.htm>

Washington Metropolitan Telework Centers

The Washington Metropolitan Telework Centers (Maryland, Virginia, Washington DC, West Virginia) network of telework centers provides a streamlined resource for employers to place their employees in the telework center that best serves their needs. They maintain an excellent web site that you can access at:

<http://www.wmtc.org/index.mv>

Workplace Productivity Consortium

The Workplace Productivity Consortium pools the resources and knowledge of managers and researchers to investigate the role of the workplace in knowledge worker productivity. The Consortium is comprised of leading high tech, financial services and consumer product companies located throughout the United States. For more information, access their web site at:

www.wpconsortium.org

Notes

Notes

Publication Survey

Workplace Evaluation Study

Please take a few minutes to complete this survey so we may better meet our customer's needs.

1. The publication is of interest to you.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

2. The publication format provides easy access to matters of interest to you.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

3. The publication addresses issues which are of value to you in your position.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

4. Access to detailed comments is necessary because the Executive Summary does not provide sufficient information.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

5. The information provided in the publication is fair and impartial.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

6. The publication is an appropriate length.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

7. The publication is easy to understand.

Strongly agree _____ Agree _____ Disagree _____ Strongly disagree _____

8. Please provide any additional comments on the publication:

Organization _____

Name (optional) _____ Title _____

E-mail address (optional) _____

Please tear this survey page out and fax it to us at (202) 208-7240; or fold it in half, tape closed, and mail it back to us. Thank you for your participation.

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