



# Perspectives on the Work Place of the Future

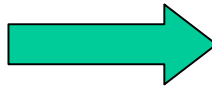
**Designing Work Spaces of the Future  
MILK Conference  
Brussels, October 16, 2003**

# Likely Trends and Influences on the Work Place...

## 2000's

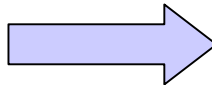
## 2010's

**Place centric management**



**Person centric leadership**

**Making the most from space**



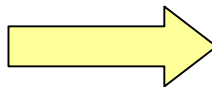
**Making the most from people**

**Reducing the costs of time**



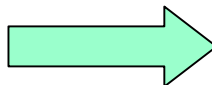
**Raising the value of time**

**Ubiquitous computing**



**Pervasive viewing**

**Workplace as one monolith**



**Workplace as set of integrated spaces**

## Messages

1.) Office Space reduction initiatives underway across many companies

*Procter & Gamble*



*Capital One*



2.) Top Business reasons include:

### Tier 1

- Cost Reduction
- Asset Utilization
- Org flexibility

### Tier 2

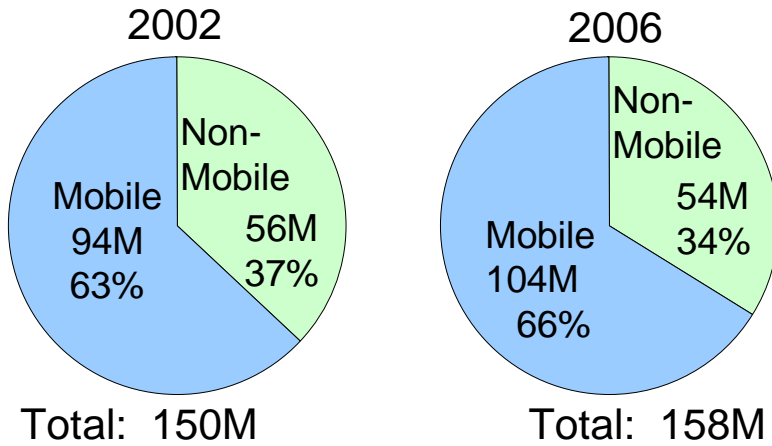
- Fast “on boarding”
- Regionalizing Work Places
- Personalization of Work Services

3.) “Place” Centric to “Less Place” Centric



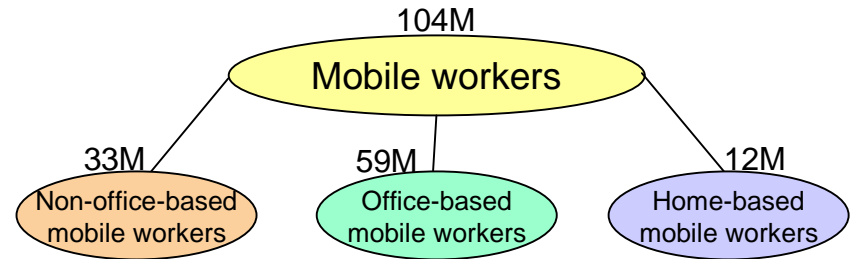
# Mobile Work Continues to Rise ...

## U.S. Worker Population (M)



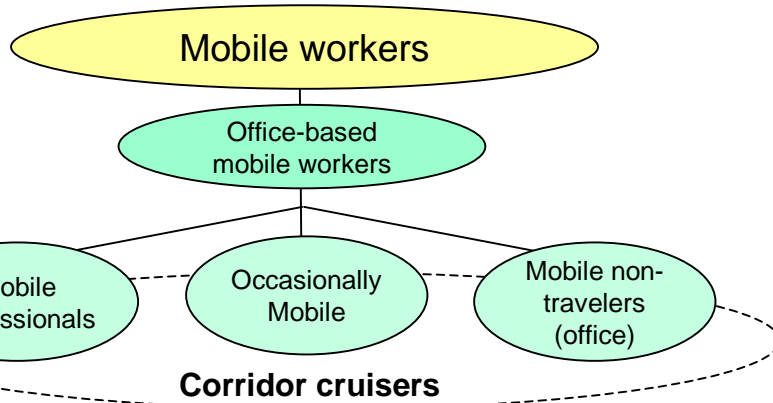
Source: IDC, 2002

## Mobile Worker Hierarchy

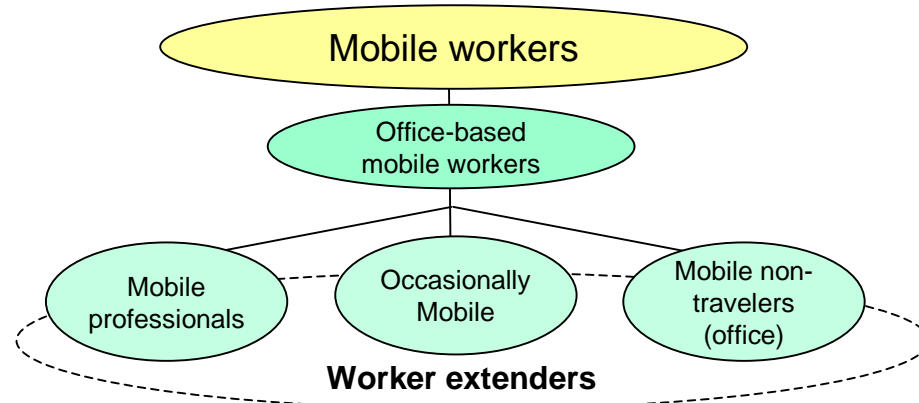


Non-office: Mobile field, mobile "on location"  
 Office-based: Professional away  $\geq$  20%  
 Home-based: Telecommuter away  $\geq$  20%

Source: IDC, 2002



Source: IDC, 2002



Source: IDC 2000

- **Travel within office or campus area**
  - IT support personnel roaming office to office
  - Knowledge workers collaborating in another office/conference room
- **Workers deploy laptop or PDA wirelessly/locally**
- **Ubiquitous high speed LAN wired connections**

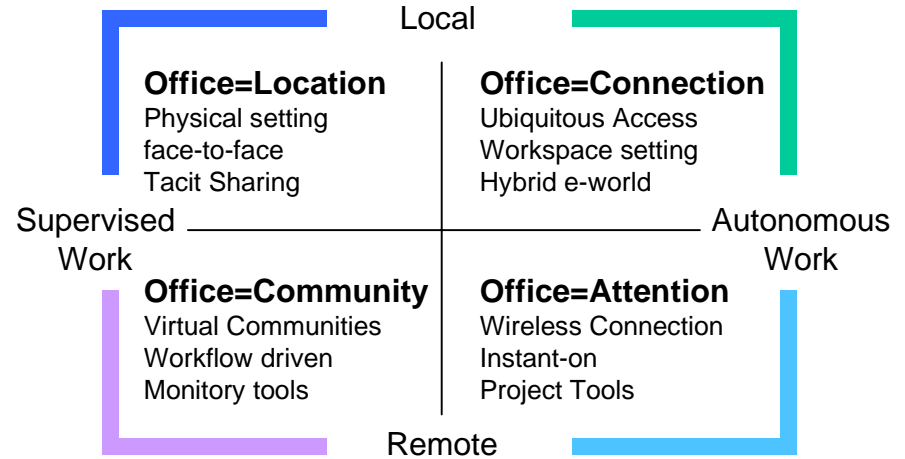
- **Knowledge working commuters**
  - shorter travel time
  - usually same route/method
- **Worker extenders**
  - regularly take work home
  - usually paperwork-intensive
- **Technology needs different from corridor cruisers**
  - focused on content access/creation
  - key is notebook PC
  - still using dial-up network - "good enough"

## Workplace efficiency initiatives . . .

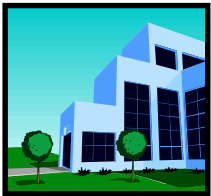
- Corporate-wide activities to reduce office space costs
- Move workers out of office, full or part time through flexwork
- Implement through coordinated HR, IT, and Real Estate functions



## Accelerating the Blurring of the Office . . .



## Causing a mind-shift from Place-Centric to Person-Centric



### People

Collaborative projects  
Remote/mobile work  
Flex time/space

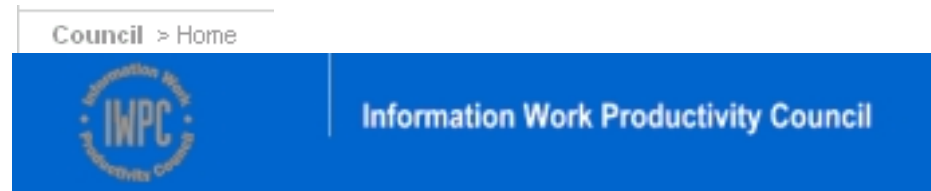
### System

Collaborative tools  
KM tools  
Edge technology tools

### Settings

Flexible work space  
Person concentric services  
Personal technologies

## Raising the need to re-examine productivity . . .



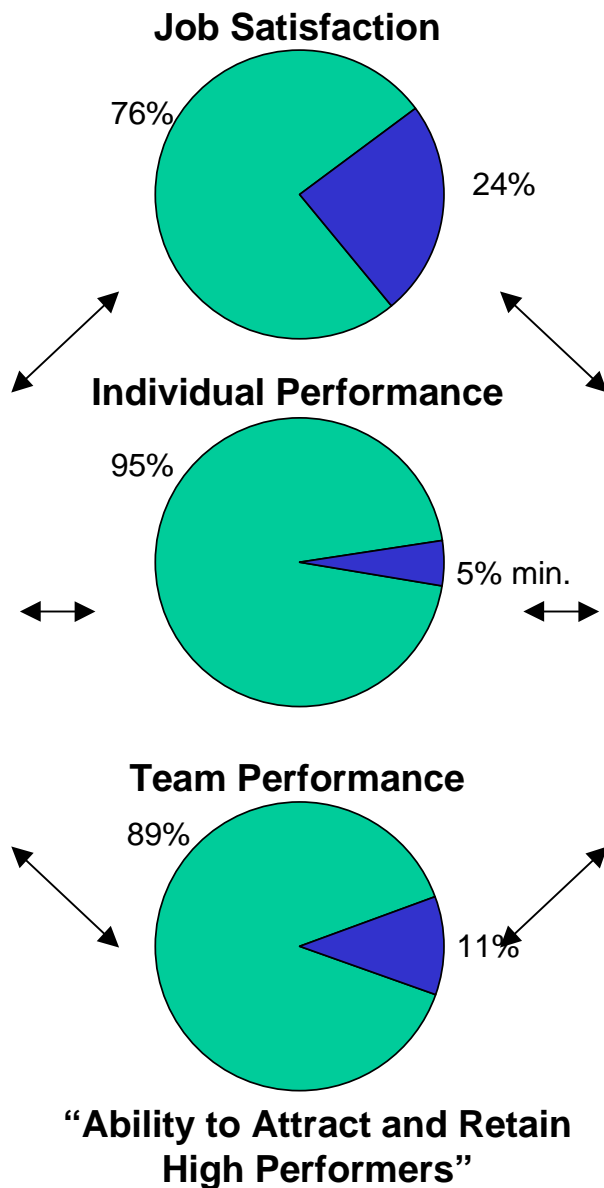
The **Information Work Productivity Council** is an independent group of companies and academics that have joined together to study the issue of information work productivity and profitability. The goal of the Council is to build a model that measures productivity in the information centric business environment of the 21<sup>st</sup> century.

### Industry Sponsors



## Composite Work Place Effects of

- Technology
- Pay/Incentive
- Advancements
- Skill to Task
- Manager Direction
- Work/Life Balance
- Others



## Average Effects of Physical Work Place

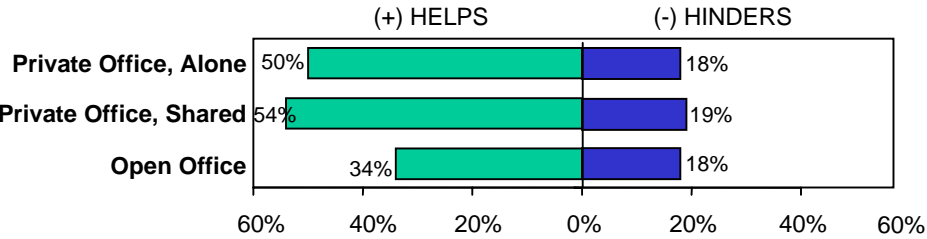
<u>Qualities</u>	<u>Rank</u>
Distraction-free solo work	1
Support for impromptu interaction	2
Support for meetings and	
Undistracted work	3
Workspace comfort	4
Co-workers accessible	5
Access to needed technology	6

“Ability to Support Both Distraction Free & Interaction”

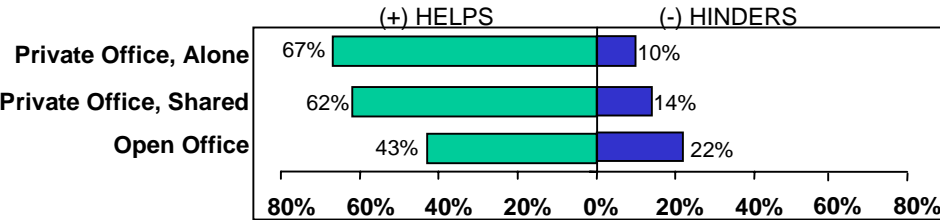
source: BOSTI

# Learning ... and the Real Cost of Doing Work ...

## Workspace Types' Effects on Support for Impromptu Meetings

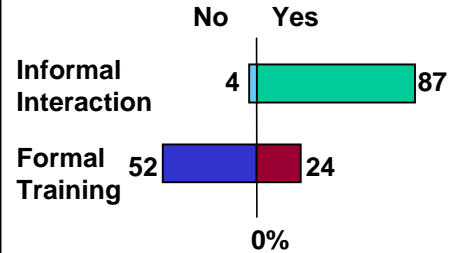


## Workspace Types' Effects on "Dropping in to Chat"

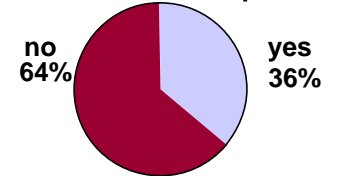


## Workspace Interaction and Learning

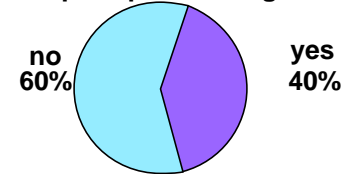
### How people's learning takes place



### Workplace Supports Unstructured Group Work



### Workplace Supports Impromptu Meetings



source: BOSTI

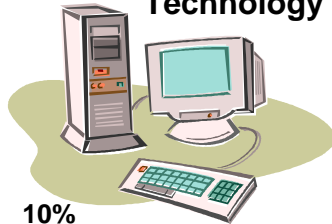
## Costs of Doing Work

### People



82%\*

### Technology

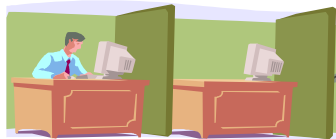


10%



3%

### Operations



5%

### Workplace

\* MIT/Duffy studies = 65%

source: BOSTI

## Costs of Doing Work ... total for 1998-2008

Cost Factor and Assumptions	Ten Year Cost	%
•Sq. ft. per worker = 286 ft <sup>2</sup> "all in" FFMA 1997 Benchmarks		
•New building and Interior @ \$130/ft <sup>2</sup> x286ft <sup>2</sup>	\$37,200	3.8
•Furniture set = \$5000 with \$3000 upgrade	\$8,000	.8
•Operational costs @ \$9.86/rental ft <sup>2</sup> 4% yr. increase -maintenance, janitorial, utilities, security, etc.	\$33,800	3.5
•Technology support @ 10/k yr. -H/W, S/W, training	\$100,000	10.3
•Salary - \$49.57 K/yr., with 3.6%/yr. 10 year total Median annual wage 1998 computer programmers - Benefits @ .35 salary	\$790,000	81.5
	<b>\$969,000</b>	<b>100%</b>

Source: Bosti



**ANFA** ACADEMY OF NEUROSCIENCE  
FOR ARCHITECTURE



# welcome

- welcome
- mission statement >
- research >
- people >
- financial support >



“...to explore research that  
‘bridges’ neuroscience with  
architecture...”

**mission**

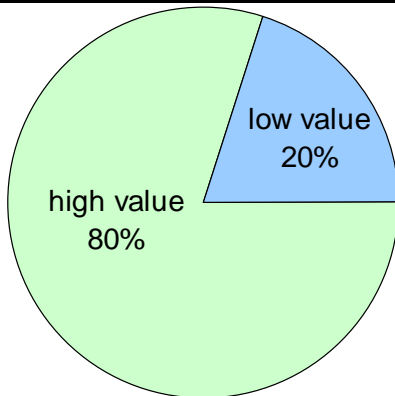
The Academy of Neuroscience for Architecture supports studies, workshops, and university based educational programs designed to explore research that “bridges” neuroscience with architecture. It is the first such institution in the world to link neuroscience with architecture.



	<b>Favorable Rating</b>	<b><u>Metric</u></b>
1. My manager organizes and shares information in ways that help me work smarter and faster	45%	Clarity
2. In my workplace, it is easy for me to find whomever or whatever I need to work smart enough, fast enough	25%	Navigation
3. In my workplace, it is easy to get what information I need to get my work done	25%	Basics
4. In my workplace, corporate provided resources (tools, training, information, IT) is easy to use	15%	Usability
5. In my workplace, the corporate resources get me what I need, as fast as I need it.	12%	Speed
<b>★ 6. My company is respectful of my time and attention, and is focused on using it wisely and effectively.</b>	10%	Time

Source: Jensen Work Survey  
7500 surveys, 180 companies

## Time Spent on Low-Value Work



Source: WFD Research



## Time Famine

“Feeling of being overworked”

- more than 50 hrs/wk regularly
- more than 5 days/wk regularly
- no control over work schedule
- 17 times more likely to make mistakes
- 24/7 expected accessibility

Source: Families & Work Institute  
1000 interviews



## Most Productive Time

- 3-6 hours per work day max.
- morning hours/before noon
- getting everything done on to-do list
- completing a project
- getting a compliment on quality of work

Source: Xerox Work Productivity Study



## Time Focus

- Focus on bottom line
  - make company more \$
  - save company \$
  - increase productivity to make/save \$
- Focus on what you do best
- Harness power of focus
  - high value vs. low value

Source: White



## IMF Ethnographic Study

6 months field work

138 interviews

25 people x 5 days = 1000 hrs. observation

Data coding -

- Role of paper
- Documents processed
- Document tools used
- Work tasks



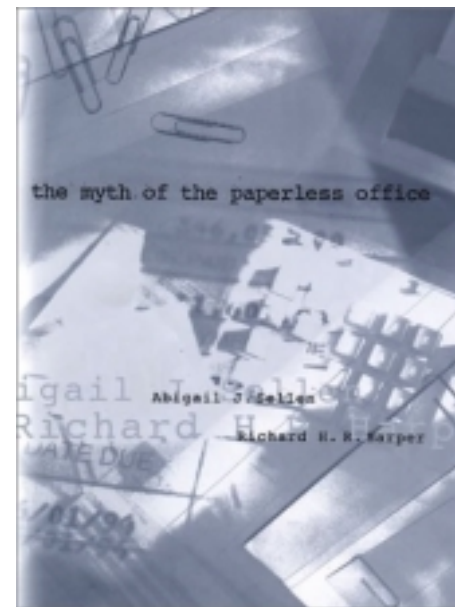
### Why people use paper

- Supports editing
- Supports collaboration
- Better for reading long documents



### Implications for Technology

- Paper is workaround to poor designs
- Limitation in edit/review “markability”
- Limitations in screen size
- No “information at a glance” capability



The Myth of the Paperless Office  
By A. Sellen, R. Harper

Source: Xerox

# Work Will Continue to Move to Displays ...

## Wide ranging research on the future office...

- Both industry and universities

IBM	NASA	U of North Carolina
Microsoft	Xerox	UC Berkeley
Intel	MIT	Cambridge
Mitsubishi	Stanford	Georgia Institute of Technology

- Research Themes include

Large Displays	Ubiquitous computing
Intelligent Settings	Intelligent Middleware
Collaboration	Work space personalization

- Large Displays pursued for:

Collaboration Support	Information complexity
Community Support	

## Providing Collaboration support ...



Connectedness:  
MIT Med Lab Europe



Interactive Public Displays for Collaboration  
IBM Almaden Research Center



Gates iRoom  
Stanford Computer Science



Immersive Displays  
University of North Carolina

## Supporting Community Building ...



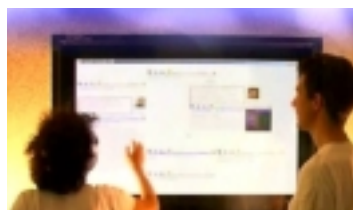
"What's Happening" Display for geographically dispersed communities  
Georgia Institute of Technology and Intel



Interactive Public Display  
Cambridge SystemLab,  
Mitsubishi Research



Informative Art: Using large display for information and visual art  
Viktoria Institute



XRCE - CWall

## Handling Information complexity ...



Gates i Room  
Stanford Computer Science



BroadBench Wide Screen  
Image Technology  
Center for Information Work  
(CIW) - Microsoft



Multiple Screens – G. Lehey



Panel Arrays - FX



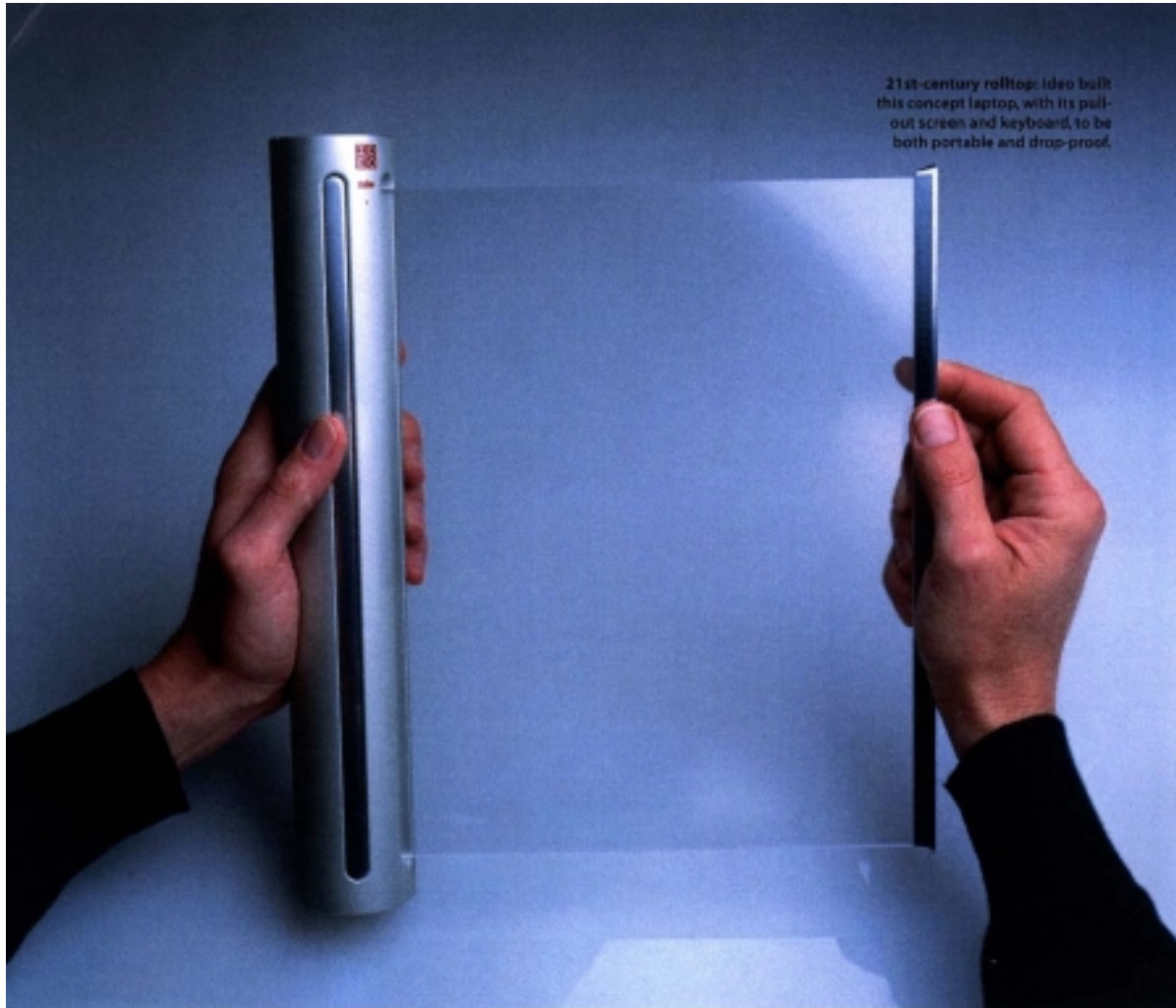
BroadBench Wide Screen Image Technology - Microsoft

## Early learnings for Broad Bench Approach

- For 100 users saw 25% to 50% improvements in productivity with over 100 users being evaluated.
- Out of 100 users, all wanted one if they could get it.
- Publishing users can edit five pages or more side by side.
- Workflow simulation is demonstrating the value of large display spaces where multiple events can be watched.

Source: Microsoft

## Roll Top Displays ...

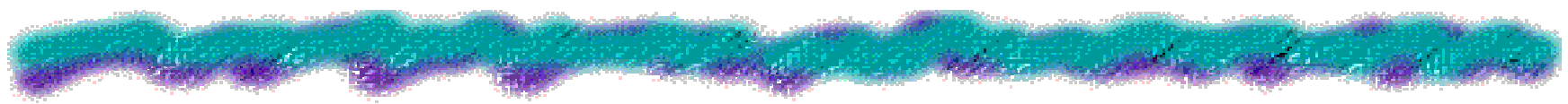
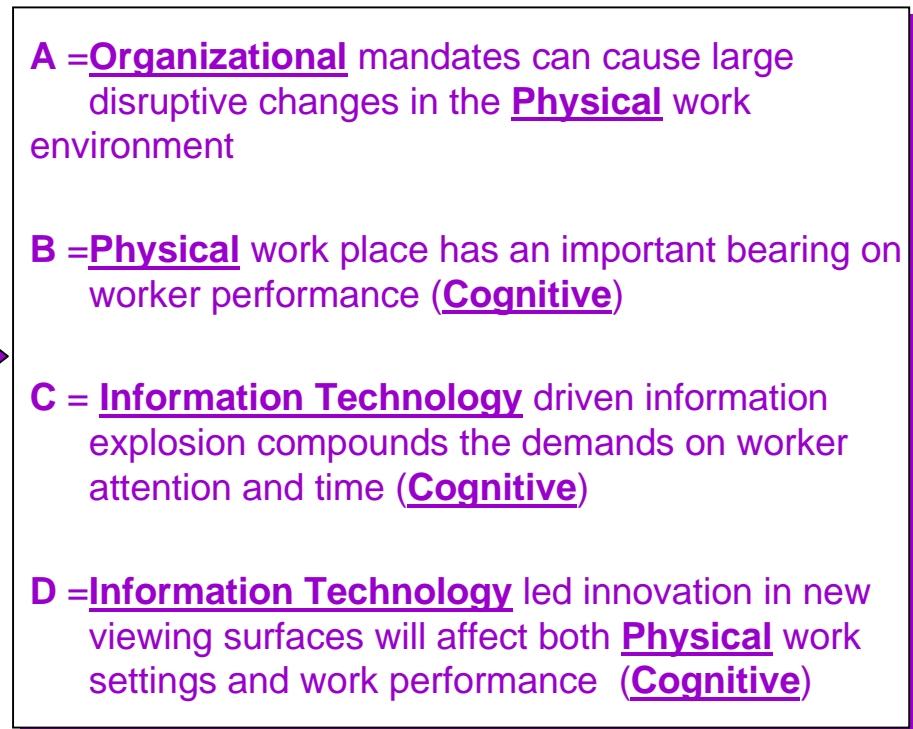
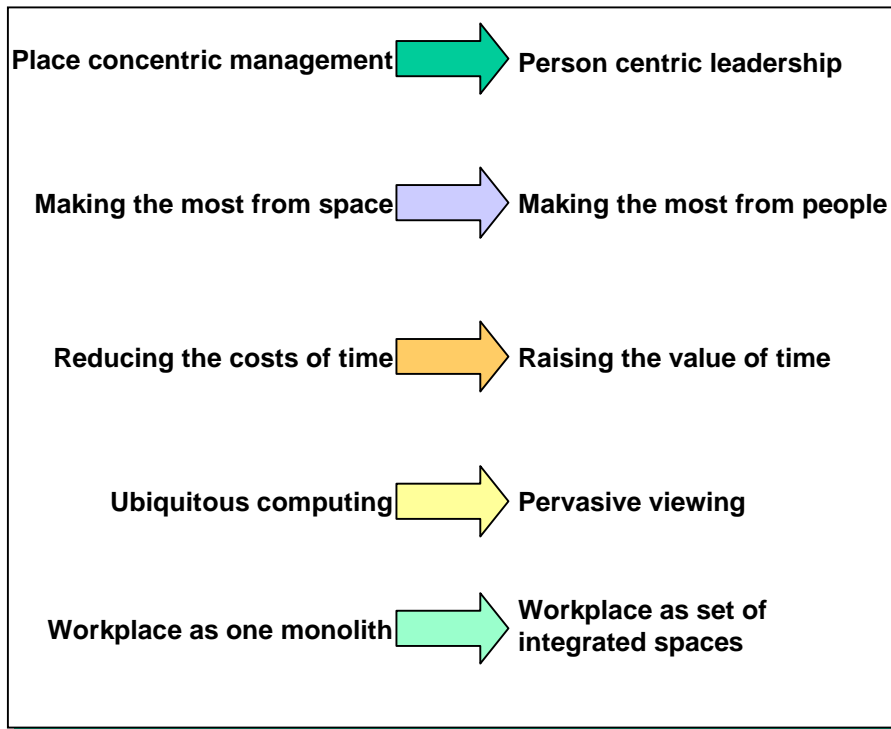


# An Integrating Concept ...for the trends and Influences

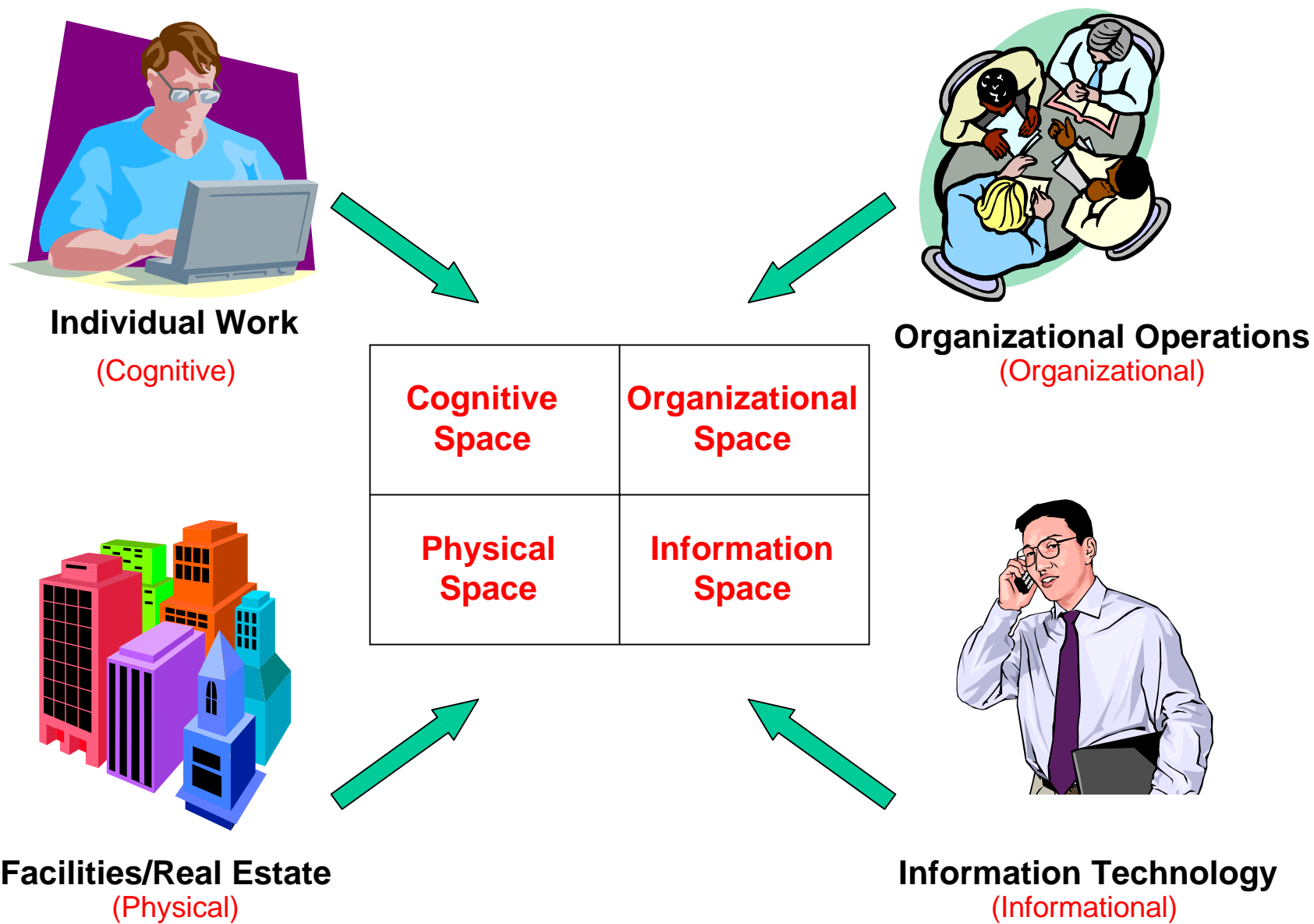
## 2000's

## 2010's

## Integrating Concepts

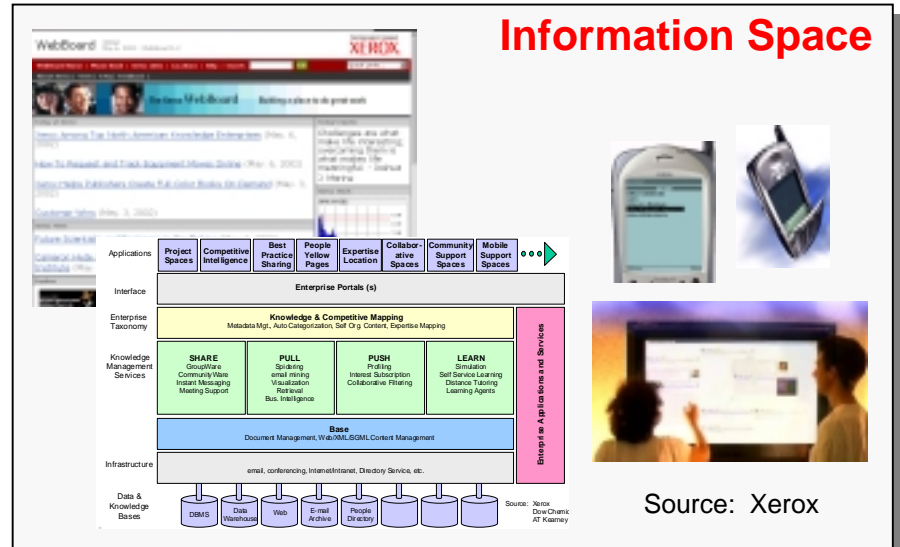
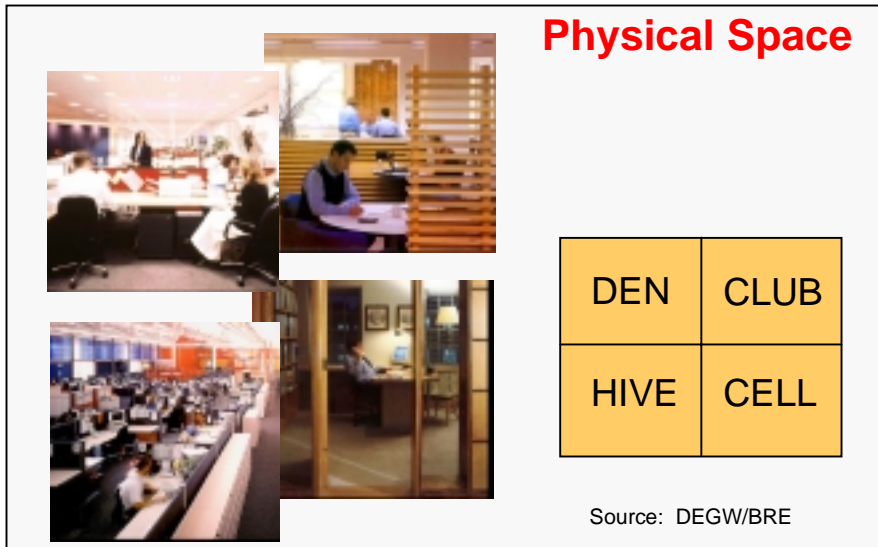
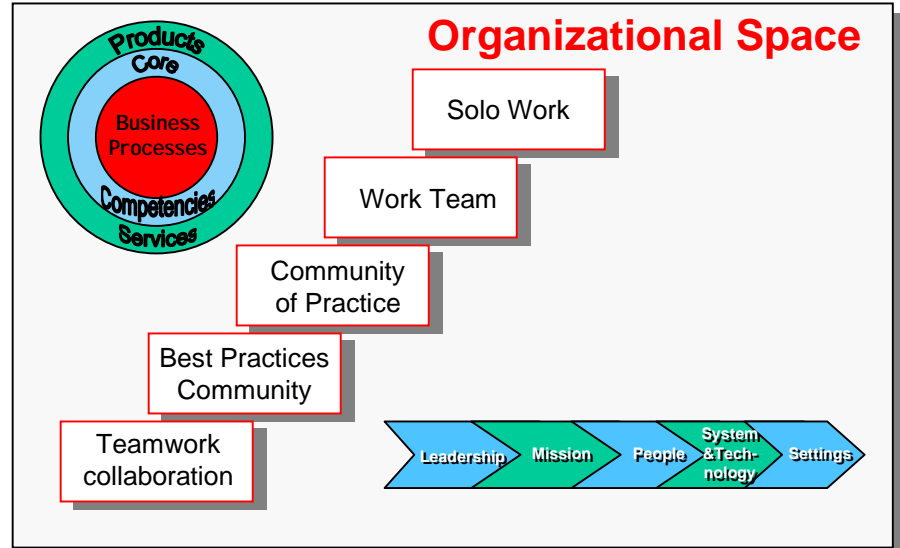
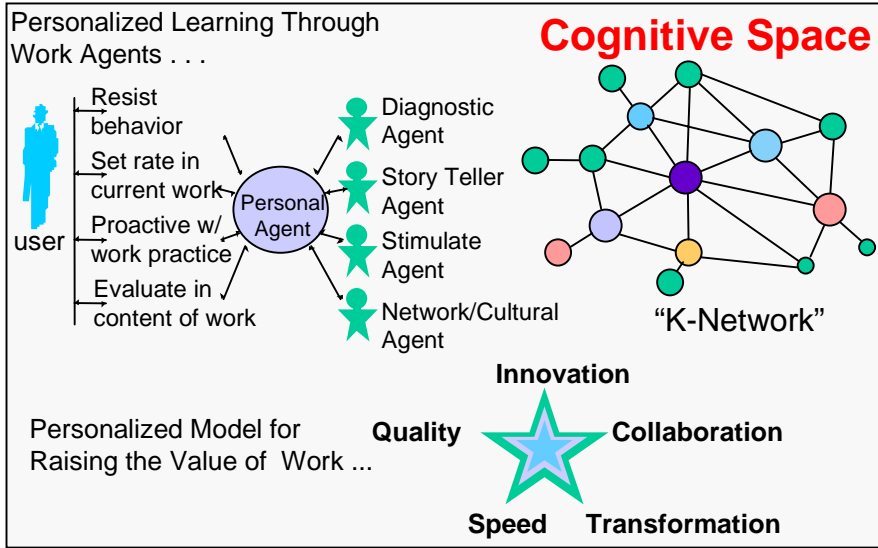


# An Integrating Concept ... The 4-space Model



Note: 4 Space Model is Xerox Copyrighted

# The New Workplace: Designing and Caring for "4-Spaces"



***"It's time to take a more holistic view -- requiring a deeper understanding of all dimensions of work -- which means caring and design for the personal, physical, organizational, and informational spaces of today's workplace. "***

Anne Mulcahy, CEO, Xerox  
ITC World Forum  
March 2003

