Techno-Territories: The Spatial, Technological and Social Reorganization of Office Work

Heinrich Joachim Schwarz
MA, Social Psychology, Free University of Berlin
MA, Social and Cultural Studies, University of California, Berkeley

Submitted to the Program in Science, Technology and Society in Partial Fulfillment of the Requirements for the Degree of

Doctoral of Philosophy
In the History and Social Study of Science and Technology
At the Massachusetts Institute of Technology

December 2002

© Copyright Heinrich Joachim Schwarz. All rights reserved.

The author hereby grants to MIT permission to reproduce and distribute publicly paper and electronic copies of this document in whole or in part.

Signature of Author

Program in the History and Social Study of Science and Technology
December 4, 2002

Certified by
Michael M.J. Fischer, Professor of Anthropology and Science and Technology Studies (STS)

Hugh Gusterson, Associate Professor of Anthropology and Science Studies
Anthropology and STS

Joanne Yates, Sloan Distinguished Professor of Management
(Sloan)
Techno-Territories: The Technological, Spatial and Social Reorganization of Office Work

by

Heinrich Joachim Schwarz

Submitted to the Program in Science, Technology and Society in December 2002 in partial fulfillment of the requirements for the Degree of Doctor of History and Social Study of Science and Technology

Abstract

In this thesis, I examine the current reorganization of office or information work in its technological, spatial, social and cultural aspects. Based on ethnographic and historical methods, I explore how information and communication technologies, and spatial designs combined with specific organizational visions shape the social organization and culture of work. Analyzing ideas as well as material configurations, design as well as use, and developments in offices as well as those beyond the office, I am particularly concerned with the new forms of life and cultural formations these developments produce. The 1990s saw a development towards more flexible, mobile and virtual ways of officing, such as non-territorial offices and remote work. Analyzing the alternative officing movement in the context of wider economic and cultural changes, I demonstrate the strategic role technology plays for the movement's vision of a less place-based definition of work. Suggesting an alternative intellectual origin for today's office concepts different from Taylorism, I opt for the concept of office landscaping, an influential German office concept developed after WW2 and inspired by cybernetics. Fieldwork in a present day innovative office design firm reveals a deep tension in its office designs between a more flexible and mobile organizational goal, and a more communicative and collaborative one - a tension that is exacerbated by technology. Further exploring the designers' own mobile and non-territorial office, I introduce the notion of placemaking to explain the observed friction in the mobile ways of the office. I also find a reconfigured power dynamic that is no longer based on space ownership, but rather on mobility and ownership of technology, or "techno-territory." Not only do I examine alternative office designs, I also investigate remote and technologically mediated work beyond the office among high-tech workers in the Silicon Valley region. My analysis suggests not only novel network-like social and professional structures but also hidden costs for individuals associated with these new formations.

Thesis Supervisor: Michael M.J. Fischer
Professor of Anthropology and Science & Technology Studies
Table of contents

List of Illustrations 4
Acknowledgements 6
Introduction 9
1. Alternative Officing 29
2. Roots and Recurrences - Officescapes 73
3. Mobile Workplacing 114
4. The Culture of Mobile Territories 171
5. Virtualizing Work 213
Conclusions 255
Bibliography 263
Illustrations 273
List of Illustrations

Figure 0.1: Planned online virtual office environment for Chiat-Day, ca. 1994
Figure 0.2: Advertisement for freeagent.com, 1999
Figure 0.3: "We are tunnelling out after lunch - pass it on." Cartoon, The New Yorker, April 15, 2002
Figure 0.4: Cubicle skeleton. Cartoon, The New Yorker, October 20, 1997
Figure 0.5: "You don't get an office you get cargo pants." Cartoon, The New Yorker, August 17, 1998
Figure 1.1: Office furniture on wheels, SEI (Albrecht & Brokos 2000)
Figure 1.2: Workstation at Chiat Day's office in New York
Figure 2.1: German office landscape; NINO, Nordhorn, Germany, ca. 1966 (Boje 1968)
Figure 2.2: Groundplan of office landscape, Orenstein-Koppel building, Dortmund, Germany, early 1960s (Wankum 1969, 37)
Figure 2.3: American style open plan office, ca. 1935
Figure 2.4: Communication lines in traditional building, according to Quickborner Team (Lappat & Gottschalk 1965, 36)
Figure 2.5: Communication lines in office landscape, according to Quickborner Team (Lappat & Gottschalk 1965, 38)
Figure 2.6: Group arrangement in office landscaping, Osram building, Munich, Germany, mid 1960s (Wankum 1969, 31)
Figure 2.7: "Just like in your open plan office." German cartoon, ca. 1976 (Köchling & Drinkuth 1976)
Figure 2.8: Satirical illustration depicting life in office landscapes (Reinhard Mohn GmbH 1968)
Figure 2.9: Interaction matrix 1 used by Quickborner Team (Lappat & Gottschalk 1965, 33)
Figure 2.10: Interaction matrix 2 used by Quickborner Team (Lappat & Gottschalk 1965, 35)
Figure 2.11: "America's first landscape" - DuPont's Freon Division in Wilmington, Delaware, ca. 1967 (Interior Design 1969)
Figure 2.12: Office layouts before redesign according to principles of scientific management (Leffingwell 1917)
Figure 2.13: Office layouts after redesign according to principles of scientific management (Leffingwell 1917)
Figure 2.14: Union Carbide offices, New York, NY; architects Skidmore, Owings & Merrill, mid 1960s
Figure 3.1: Groundplan with zones, JFC (colored in original)
Figure 3.2: Table in the club occupied with coat, laptop, and bag, JFC
Figure 3.3: Messy table surface, JFC
Figure 4.1: Workplace in violation of clean desk rule, JFC
Figure 4.2: Jack Lemmon in *The Apartment*, 1960 (Antonelli 2001, 26)
Figure 4.3: "We don't offer bonuses, but the size of your desk will be adjusted quarterly."
Cartoon, *The New Yorker*, April 22 & 29, 2002
Figure 4.4: Phone rack, JFC
Figure 5.1: *pcTelecommute* advertisement, May 1999
Figure 5.2: GPS advertising, late 1990s
Acknowledgements

Despite some of the current discussions about authorship, I think writing a dissertation is a rather individualistic and solitary process. Although the ideas come from many directions, articulating and materializing them - that is the material and mental practice of writing - is hardly collaborative. The pain is rarely shared - for better or for worse. In the case of dissertations, the Author is not dead - unless he or she decided to finally go through with what one of my friends frequently threatened during the writing of his dissertation: to jump from the balcony (while I wrote mainly in basements, he was on the eleventh floor).

Having said this, I want to acknowledge the tremendous help I received from many sources and thank deeply all those who helped me for their time, efforts, creativity, insights, interest, attention, friendship and love. Without them, the dissertation would never have been completed, and the process would have been almost unbearable.

I am especially indebted to my committee. Most of all I thank my advisor Mike Fischer who stayed with me through long periods of silence and helped me work out a realistic plan to get the thing done; also for his untiring faculty to draw connections and lift me out of the narrow-mindedness of detail-focused writing. Hugh Gusterson's advice was invaluable in making my musings both more readable and more academic, so was his constant reminder that the best dissertation is a done dissertation. I thank JoAnne Yates for jumping in at the last minute and still offering extremely helpful suggestions. They made the dissertation so much better.

There have been numerous colleagues, teachers and friends who helped, supported and pushed me in one way or another, all of them significantly. At MIT, there was Sherry Turkle with her many inspiring ideas, Deborah Fitzgerald with all around support, and Bill Porter from Architecture. I am most grateful to my co-students Rachel Prentice, Chris Kelty, Hannah Landecker, and Rebecca Herzig for the many conversations we had; Rebecca also for the one, many years ago, that spawned the interest in this project. I also wish to thank the administrative staff at the Program in STS who have been nothing but helpful in all respects, especially Chris Bates, Debbie Meinbresse, Shirin Fozi, and Deb Fairchild.

Beyond the campus of MIT many friends, colleagues, and teachers provided guidance, exchange, support, and encouragement. I especially want to thank Jean Lave for being a role model for intellectual curiosity and authenticity, and who helped me to figure out what ethnography might be; Gabriele Gassman for our discussions on writing in writing; T.L.
Taylor, Mazyar Lotfalian, Melissa Cefkin, and Nadine Fernandez for our discussions about the dissertation, for their smart contributions, and for keeping me sane; Arne Kajser for helpful comments on one of the chapters. (I apologize to those of you I forgot to include -dissertation writing creates its own form of Alzheimer, so don't take it personally.)

I thank my colleagues at AT&T Labs, Bonnie Nardi and Steve Whittaker, for making me part of their project, for the many productive discussions we had, and for giving me a taste of collaborative research.

Without the time and trust that the people I studied offered me, this thesis would be a purely theoretical discussion. Many thanks to all of them. There is not space to name everybody, but let me say special thanks to Andrew H., Carolyne W., Jill I., Paul W., Steve A., Albert C., and George C.

I wish to thank the Lemelson Center at the Smithsonian and the Hagley's Center for the History of Business, Technology, and Society for their generous research grants. I am also deeply grateful for the ongoing financial support from the Program in Science, Technology and Society at MIT.

Let us not forget the non-humans. Thanks to Shiloh, the animal companion for the last months of writing, for the breaks of play she demanded and her tail-wagging concern whenever I cursed at my computer. Appreciation also to the black squirrel outside of my window in Takoma Park, which presumably performed the high-wire acrobatic acts just for my entertainment. There are also the objects, my personal infrastructure. I am indebted to the indispensable machine companions for providing me a beautiful work environment, first the Duo 280 and then the Powerbook G4. They accompanied me without pause over several years through thirteen cities in four countries, often working twelve and more hours per day. That much proximity and reliable service was only rivaled by my glasses and my Timbuktu bike messenger bag, and perhaps by the Mongoose, which carried me safely and speedily in and from work in San Francisco, Cambridge and Washington. A non-thanks goes to Microsoft for a word processor that left out no opportunity to annoy me.

I cannot thank enough my old and generous friend Ernst Schraube for coming to the rescue when the deadline was in sight, for reading the whole damn manuscript and making sense of it for me. The same amount of deep felt appreciation goes to my friend Carsten Østerlund whose constant presence, sometimes in person but mostly over the phone, was indispensable; without his stick and carrot, ear and stopwatch, brain and heart, who knows where I would be.
The deepest thanks to my parents, Vera and August, who raised a child curious enough to leave the country and confident enough to try its intellectual luck in a foreign place - there are no words to express my appreciation.

Cin, you provided a voice of reason, an analytical eye, and a deep sense for language, not to mention many culinary delights - and a home. For your unwavering companionship, tolerance, patience, care and love in emotionally and spiritually most taxing times, I thank you in love.
INTRODUCTION

Early in April of 1958, my wife and I arrived, malarial and diffident, in a Balinese village we intended, as anthropologists, to study. A small place, about five hundred people, and relatively remote, it was its own world. We were intruders, professional ones, and the villagers dealt with us as Balinese seem always to deal with people not part of their life who yet press themselves upon them: as though we were not there. For them, and to a degree for ourselves, we were nonpersons, specters, invisible men.

(Geertz 1973, 413)

Early in April, my bot and I arrived, iconized and modest, at a virtual work environment we intended, as anthropologists, to study. A small place, about a hundred people, and both remote and not, it was its own world. We were intruders, professional ones, and the employees dealt with us as virtual workers seem always to deal with people not part of their organization: as though we were not there, that is, as one of them.

Something like this, mimicking Clifford Geertz' first paragraph to his notes on the Balinese cockfight, I had imagined the report on my fieldwork in the virtual office to begin. I had hoped to return from the experience with a rich ethnographic account of the everyday life of an electronic office, telling stories of the transformation of work in cyberspace, the colonization of virtual environments by corporate interests, and perhaps the subsequent struggles over control in less fixed, firm, and familiar spaces.

It was at a presentation for a class on "Digital communities" at MIT in the mid 1990s, that I first encountered the virtual office system that triggered these fantasies. Representatives of a local Internet start-up demonstrated a computer-based virtual office system they were developing for a client. The system's intent was to provide employees with
a computer generated simulated work environment where they could meet, communicate, and interact with colleagues electronically. It was designed to enable employees to visit each other online in their digital offices independently from their physical location, as long as they had access to a phone line. The system, called "Oxygen," was based on a room metaphor, like many social and text-based virtual environments popular at the time. But in contrast to these, Oxygen was going to be graphical. At the presentation, the two designers from the start-up company showed slides of some of the individual and common rooms they were designing in the electronic space. The simulated rooms were simple but colorful; icons made from, albeit 2-D, headshot photographs represented individual workers.¹ (Figure 0.1)

I was fascinated. Social virtual environments on the Internet were receiving increasing attention at the time, and the effects of virtual experiences on people's identities became the subject of a lively scholarly debate.² Here was a system, then, not only more visually sophisticated than almost all of the Internet-based virtual leisure environments, but also designed for working professionals to communicate, collaborate, and solve real-life issues. This was more than computer-supported cooperative work, this was a computer generated simulated collaborative work environment, presumably with far-reaching consequences for the definition of work and the professional identities of the people involved. It was a test case, I thought at the time, of how the future may look like when geography and physical location no longer play a dominant role.

The virtual environment was developed for one of the offices of the advertising firm Chiat-Day. It was part of a larger transformation towards what the firm called the "virtual

---

¹ The avatar-like representations mirrored in their aesthetic those of the early graphical two-dimensional virtual environments such as The Palace being introduced at about the same time. The representations in the virtual work environment were designed to signal the communicative state of a person. For example, an icon of a head with a headset represented a person talking on the phone.

agency." Its vision, which combined changes in work organization and office architecture with cutting-edge virtual technologies, fascinated the popular media and the business world as much as it appealed to me. Many saw the future of work in the virtual office, I also saw my future dissertation.

Yet, when I was getting ready to start my dissertation research, Chiat-Day's famous virtual agency was no longer quite that virtual. Despite the hype, the far-reaching experiment in virtualizing work had quickly and silently shed some of its more radical features. Worst of all, it turned out that the groundbreaking virtual environment never got off the ground; the system had never proceeded beyond the pilot state. My plans to virtually participate in their deep work were shattered. A subsequent search for other virtual work environments of a similar kind remained unsuccessful. I could not find virtual spaces similarly visionary and used by office workers in their everyday work. Yet, over time I realized that my narrow focus on this specific type of virtual environment overlooked the way Chiat-Day's system was part of a wider but equally fascinating development.

Virtual work was only one facet of a broader trend and the rarified virtual environments just one indication that work typically done in offices was in a process of transformation. This larger transformation in office work questioned existing office models, such as cubicle environments or closed-room offices that had been common for at least twenty years. This development had the potential to redefine the conventional view of what an office was and

---


4 The reasons for the failure of the virtual part of the office's redesign are ambiguous. Some critics argue that the whole idea of a virtual work environment misunderstands the real needs of workers, while proponents suggest that it was mainly technical problems that caused the failure of the virtual aspect of the office concept. According to Steve Alburtus, an ex-employee who was involved in the project, the reasons were multiple: Given the state of technology in the early to mid nineties, the project was too ambitious and ended up slow and cumbersome; the pilot was tested by a group of technical administrators who had no need for a virtual environment because they were least mobile of all the employees; finally, the new owners showed little interest in improving the system.

5 I located a few places, such as a virtual environment based on Active World's 3D virtual environments at Boeing's Applied Research and Technology Group and a virtual collaborative system developed by the defense research firm MITRE, but these were mainly research environments and access was
what it was supposed to look, and to introduce alternative office environments and flexible and virtual ways to organize work. Widening my focus to look at these broader changes would allow me to analyze virtual or electronic forms of work in their larger context, that is how they were intertwined with physical work spaces, were part of organizational visions to change work, and played a role in a discourse connecting the business world with other social and cultural arenas.

In the end, my project grew from the narrow focus on a specific technological system to the much broader terrain of changing modes of work. The virtual advertising agency is part of my dissertation after all but only as one site among others - an important landmark in a developing trend that exemplifies how virtual technologies, spatial designs and visions of the future of work became thoroughly interwoven.

**New forms of life and cultural formations through the reorganization of office work**

This dissertation is an ethnography of the current reorganization of office work, in its social, cultural, spatial and technological aspects. It explores how advanced information and communication technologies, new spatial layouts and specific organizational visions reconfigure the social organization and culture of offices. Furthermore, it investigates how office work outside of offices, affected by technologies, involves new work locations and novel social and organizational forms. I am interested in the form of these transformations, the ideas behind them, and the consequences they have. I am especially curious about the new forms of life and cultural formations that emerge from this reorganization. (Fischer 1999)

One of my primary interests is the role of technology in that process and its relation to changing spatial orders.

For the last decade, the perceived transformation of work, especially office or
information work, has received much attention in the popular press and in the business world. Stories have portrayed office work as undergoing multiple changes that affect the content and organization of work, employment relations, technological infrastructures, and the locations and spaces of work. Reports on the 'future of work' or the 'workplace of tomorrow' have predicted far-reaching changes in where, when, with whom, and how people work.

These shifts are seen against the backdrop of larger changes in the economy and the business world. Social theorists have, for instance, described and predicted a fundamental shift in capitalism from the previously dominant model of mass production to one of flexible production and accumulation. In their influential study, Piore and Sable have argued that we witness a second industrial turn towards an era of flexible specialization, characterized by the "ability to continuously redesign the production process by reorganizing/rearranging its components." Building on their argument, David Harvey proposes that a Post-Fordist capitalist regime based on flexible accumulation is replacing Fordist principles of capital accumulation, with far-reaching consequences on all levels of society. The reasons given by

---

6 I use the term office work in the context of this dissertation in a broad sense. Office work is not a well-defined category. The common pragmatic definition includes whatever kind of work is conducted in offices. In the early and mid twentieth century, this might include the tasks performed in company headquarters, work in the financial and insurance industries, the processing in mail-order houses and the work done in research and development departments. More recently, the category has become even more bloated because of the increased computerization and informatisation that allows for more and more activities to take place in offices. What I mean by "office work" is what was traditionally described as office work, that is clerical, administrative and managerial work, plus various types of professional work, such as law, some forms of engineering, technical and scientific activities (excluding lab work). In addition, office work comprises types of work now performed in offices which came to be called information or knowledge work and are broadly characterized by some kind of collecting, retrieving, analyzing, interpreting, reordering, designing, generating or presenting of information. It includes jobs, for example, in software development, public relation, consulting, the media, and publishing, to name but a few. Once the location-based definition is no longer useful, as the developments discussed here suggest, another terminology is needed. My own alternating between office work and information-based work is a symptom of the transformation office work is undergoing as concept and in reality.

7 Kelly (1998)
8 Piore & Sable (1984)
9 Harvey (1989)
these and other theorists for these transformations range from globalization and technological innovation to shifts in consumer behavior and market conditions. Implicitly or explicitly building on such theorizing, the reorganization of office work makes flexibility one of their central notions.

Other social observers point the rise of the information society and argue for new, global or digital economies that force new business models, organizational structures, and industry relations.\(^\text{10}\) In addition, employees with less and less job security are said to turn (or are being turned) into contractors, consultants, and free agents.\(^\text{11}\) As a result, work is being organized into short-term and temporary project configurations, cutting across spatial and organizational boundaries, and depending on cutting-edge information and communication technologies. Employees work more and more from non-traditional locations; the home, the road, or "anywhere," or they rent space in offices that have been redesigned to allow for a more open, transparent, interactive, flexible and virtual work organization. The overall impression is that work is in flux and the office in motion.

Whether within or increasingly outside of traditional offices, the reorganization of office work challenges important assumptions underlying current information work. Promoters of new types of work describe existing office environments as rather dysfunctional and suffocating places, "neither good for privacy nor for interaction."\(^\text{12}\) They question that workplaces need to be located within offices, to include a demarcated, personal, quasi-permanent desk or room, and to be placed in close proximity to one another. As a result, office concepts, labeled "new," "alternative," "mobile" or "virtual," have emerged

---

\(^\text{10}\) The perhaps most influential account of the information society is Bell (1973). An excellent overview of the concept can be found in Webster (1995). The network society is discussed in Castells (1996), the digital economy in Tapscott (1996) and more systematically in Brynjolfsson & Kahin (2000).

\(^\text{11}\) The notion of "free agent," as the new paradigm of organization-independent employment form was popularized by Pink (1997).

\(^\text{12}\) Architect Frank Duffy made this comment about the standard US-American cubicle environments. (1999, 378)
since the early 1990s. The advertising firm Chiat-Day was an extreme example of this new type of office reorganization. The agency claimed that work needs no physical place at all. "Work is not something you go to, work is something you do," a representative of the firm pronounced. This desire to get rid of the workplace was duplicated by others and taken up by popular responses to virtual and alternative offices. Picking up on these sentiments, advertisement agencies and cartoonists pointed to the prison-like quality of traditional work environments. (Figures 0.2 - 0.5)

In the most stark sense, I am interested in whether there is actually a shift to placeless work, whether the reorganization of office work amounts to a literal dis-placement of work, whether workplaces in the usual sense will be outmoded and offices will disappear. Will work take place, one may ask, "anywhere and anytime," as commentators often state, and in no place in particular? More broadly, how exactly are the places and spaces of work currently changing? To reiterate, I am concerned with how emerging visions of work together with evolving technologies reconfigure the spatial forms of information work and through that affect its social and cultural organization. By spatial forms, I mainly refer to the arrangement and location of workplaces, office layouts, and ordering principles, such as collocation or proximity. The technological systems in this study include a variety of networked, mobile, and virtual information and communication technologies that inundate office work more and more. By the social organization of office work, I mean social relations between individuals, hierarchy formations in offices, communication practices and forms of working together.

---

13 On the "new office" see Duffy (1997); the "virtual office" has been discussed widely since the mid 1990s, see, for example, Davenport (1998) and Frank (1994); Apgar (1998) reports on the alternative workplace.

14 Illingworth (1994). The same thought was expressed by others as well. Lee Psinakis, director of channel development with AT&T is quoted as saying "Work is no longer a place you go, it's a job that gets done." (Anderson 1995, 32)

15 The end of the workplace was especially propagated by advocates of virtual work structures. (Lipnack & Stamps 1997) A slightly softer version of the claim was presented by those who thought, like Chiat-Day, that work should no longer be defined by place.
This thesis investigates these transformations during the last decade, including where they come from, and what their consequences are. I explore the main ideas and goals behind new office concepts, the strategies people use to reach these goals, and the way these concepts look and function on a day-to-day basis. I also explore the origins of these transformations, what motivates them, what intellectual traditions and discourses they draw on, and what their historical antecedents are. Finally, I am concerned with the consequences of these transformations. I investigate how new modes of working affect work practices, how they may reconfigure social relations and organizational forms, create new organizational cultures, and reshape the experience and meaning of work, both within and outside of traditional offices. This includes the question how people comply and resist, negotiate and appropriate these new configurations, and by doing so change them. I also look at who is in control of these new forms of work and, conversely, whom the new modes of working might put in control.

There are three specifications that determined the contours of the research project and the selection of research sites. First, the object of study is not a group of people, an institution, or an object - although all of these entities play a part. It is a phenomenon, more precisely a process, the changing organization of office work. The reorganization of office work (as well as the new regimes of space and technology) is a cultural formation with material as well as discursive aspects. The discursive aspects are the ideas, concepts, and ideologies that are part of this process. The material embodiments are the shape of office designs and the work configurations outside the office. This double emphasis on material and discursive forms or on concepts and material artifacts runs through the dissertation.

Second, the form of life created by changes in office work play out also beyond the office. The study of office work can no longer be limited to the conventional boundaries of the physical office. With virtual offices, telecommuters, freelancers, and nomadic workers, the old definition of what an office is, is itself at stake. I therefore follow information work
outside the office and examine it beyond the boundaries of its natural habitat. This includes remote collaboration, work across organizational boundaries, working from home, and increased technological mediation of interactions - conditions popularly known as virtual. While changes in offices are primarily associated with deliberate design attempts according to specific organizational goals, the changing nature of office work outside and beyond the traditional office is usually much less planned. Thus, the question of design features prominently in the office context and less so in the context beyond the office.

The thesis analyzes both the design of new office realities and their use. Comparing the ideas and expectations of designers of work environments with the actual reality of these ideas in use, provides insights into underlying assumptions and conflicting realities of this transformation. In sum, my analysis on the reorganization of information work examines ideas as well as material configurations, design as well as use, and developments in offices as well as those beyond the office.

I also focus on the changing interrelation between space, technology, and forms of sociality in their own right. Office work is the vehicle to approach this larger set of issues, and the changing nature of information work is an example of how spatial structures, technological strategies, and social and organizational formations interact, interrelate, and influence each other, thereby creating new forms of sociality. In the triangle of space, technology, and people, emerging spatial and technological are associated with new forms of life with their own socialities, affective dispositions, and perceptions, including people's perceptions of and relation to space and technology.

---

16 In addition to space, technology, and the sphere of the social, time plays an important role in this context, turning the triangular relationship into a square. Although time has an underlying presence throughout this dissertation (implicit in concepts such as flexibility and mobility and obvious in qualifiers such as temporary), this project focuses on space.
Motivation

The motivation for this project is twofold. On one level, I wish to develop concepts that help participants understand their own (work) situations. The transformations I analyze potentially have consequences on many levels. The evolving spatial and technological regimes and social and cultural formations may effect far-reaching changes in the way people work and live and how they utilize and relate to space and technology. I believe it is useful for office workers, designers, managers and consultants to understand these developments in order to make sense of their own situation and to steer the changes according to their own needs. This is especially important because these transformations have the potential to put greater burden on individuals, whether they are contractors working virtually or office dwellers working flexibly. With this project I hope to generate empirically derived concepts that can provide the analytical tools needed to turn lived experience into informed and transforming action.

The second motivation is more scholarly. Drawing connections between different disciplinary concepts and perspectives, I hope to make contributions to these disciplines through a kind of cross-pollination. My main interest is to bring into conversation the study of space with the study of technology and to demonstrate how science and technology studies can benefit from a spatial perspective (and how the study of space can benefit from the perspective of technology studies). In the case of information and communication technologies and the Internet, the connections between space and technology are indisputable, but still little understood. This project wants to shed light on the complex relationship between space and technology as it plays out in mobile, flexible, and virtual contexts.
Research sites

As I mentioned earlier, I make a distinction between office work and information work outside of traditional offices. I emphasize the new office concepts and forms of office work because the reorganization of office work as planned process mostly takes place in offices.

One of my richest sources for studying the transformation of offices was the office of an architecture and design firm, which I call JFC.\textsuperscript{17} Its innovative office concept embodied many of the new spatial principles. This office was central for my project because it enabled me to study the consequences of a highly mobile and flexible work arrangement for the work organization, social texture, and work culture of the firm. I conducted my most intense ethnographic research at JFC at the end of 1999. Their office, a non-territorial office, challenged existing formats and ideas about office work through its design and organizational vision. Rejecting one of the tenets of the traditional office world, the right to a personal workplace, JFC's office embodied one of the most discussed and controversial of the new office strategies. Their office was not only an interesting object of study because it allowed me to observe a mobile office in action, but also because it was designed by the firm itself.

The architecture firm specialized in office design and had a world-wide reputation for novel

\textsuperscript{17} This and other names are altered to protect the anonymity of people and organizations. It remains an open question, however, what role the anonymizing practice of cultural anthropology can have in the study of organizations and people that have a wider public reputation and thus can usually be identified through other means. Yet this may be not so different from more traditional cases in anthropology where prominent village members of indigenous tribes in increasingly studied parts of the world may be as identifiable as the founder of a well-known design firm. Thus the limits of anonymity raise questions of professional ethics in a research practice that claims to give insider accounts, or at least thick descriptions. If anonymity is necessarily only partial, then other mechanisms must take their place. One question is, of course, if anonymity is desired at all. Commercial organizations might be interested in publicity more than in anonymity, but they also want some control over what information should be public and what should remain private. Specific business practices, proprietary techniques and expertises, or information about pending deals may be considered confidential, for example. In addition, organizations need to control their public identities (many of them spend large amounts of money to sculpt their public images). Any account that differs from the desired image might therefore harm their business, or their investment in marketing. One strategy, therefore, is to give the informants, or subjects, of ethnographies a chance to respond to the account.
concepts and designs.\textsuperscript{18} I selected the company as fieldsite because I hoped to get exposed to a cutting edge and sophisticated approach to office design. In addition, I could observe office designers at work and at the same time at their workplaces. In other words, I could study their design practices simultaneously with their use of the office.

In addition to JFC, I looked at two other offices: the New York office of Chiat-Day (the alleged virtual agency) and the Boston office of Anderson Consulting, a worldwide management consulting firm. My field work consisted of site visits and interviews. Both encounters were far less extensive than the one with JFC, but they provided a useful vantage point from which to evaluate my experience with the architecture firm. Both banned permanent workplaces, but in difference to JFC, Anderson's hoteling approach allowed enclosed individual offices, while Chiat-Day hardly distinguished between differentiated work styles of workers.

In addition to studying the design and use of offices, I also investigated the rhetoric and visions driving their change. The growing popular, professional, and to a lesser degree, academic literature on new work was an important source for studying a trend in the making. The trade show and conference, indicatively named Alt.office, also proved to be fertile ground for analyzing the rhetoric of a movement manifesting itself.

The project also led me to look at the history of contemporary office designs. Looking for the origins of today's office concepts is difficult because the history of offices is largely uncharted territory, and because the office is a complex artifact with intersecting

\textsuperscript{18} Although JFC was an international firm with headquarters in England, they were not just a British practice and their design not just a British phenomenon. The founding architects were trained in the United States, the organization had branch offices there, and a good part of their projects were for US-American or transnational firms. They were not just known outside of the UK, they were one of the contributing forces in the movement to rethink office work. This movement is both nationally specific and a transnational phenomenon. On the one hand, there are particular cultural, economic, and political conditions that have shaped the development differently in different regions. (Van Meel 2000) On the other, the trend is spreading throughout Europe and North America with similar ideas and concepts. Northern Europe, the UK, and North America, in particular, have shown a strong and similar interest in office work in the recent past.
organizational, spatial, material, technological and cultural processes. One historical site of particular significance that I explore is office landscaping, a German office innovation that became popular in the 1960s.

Even though they are increasingly shaped by technology, offices are still defined by a shared physical space that offers a place for ethnographic observation. In contrast, the sites of information work that lie beyond the traditional office, by definition, do not provide the same conceptual unity and convenience of location. My research on office work located beyond the office was spread over a cluster of fieldsites in the Silicon Valley region. Most of the firms and individuals were highly skilled knowledge workers in the high-tech or media industries. These micro-sites of remote and distributed work included employees in traditional offices whose work took place in cross-spatial collaboration, consultants whose workplaces shifted between home and the client, and highly mobile workers who traveled frequently. What they had in common was that the main thrust of their work took place outside of conventional office structures. The virtual aspect of this kind of information work made for a less localized field experience. Physical workplaces do not disappear, they multiply - for the workers and for the researcher. My focus here was on the consequences of these developments for people, especially how they managed the virtual and mobile aspects of their work, including a strong dependence on technology.

Approach - work, technology & space

This project is located at the intersection of several disciplines and draws, conceptually

---

19 The terms "knowledge worker" and "knowledge industries" were coined by Peter Drucker and economist Fritz Machlup in the late 1950s. (Drucker 1959)

20 This research was conducted as part of a research project on cross-organizational collaborative work together with Bonnie Nardi and Steve Whittaker at AT&T Labs in Menlo Park, CA, from June to November 1998.

21 The mobile and virtual aspects of the phenomenon under study proved to be a particular challenge. Not only was I rarely able to keep up with the movements of my informants, participating in their intense
and methodologically, from anthropology, science and technology studies, history, and social geography.

The study of work has a long and varied tradition. Workplaces have been studied by sociologists, anthropologists, historians, and scholars in management and organization studies with different foci and from varied perspectives. Much research has been conducted from the perspective of management and has been motivated predominantly by the question of how work can be made more efficient or productive. Other approaches have shown interest in social and cultural issues. Recent scholarship in organizational studies, for example, has adopted a cultural perspective to the study of organizations, which looks not only at the culture of organizations but also at "organizations as culture." The difference to my own project is perhaps that I also try to understand organizations in culture, whereas organizational studies rarely looks outside of the organization.

Anthropologists and sociologists of work may use a wider lens but only a small number of academic researchers have studied office work in western societies with a focus on digital and network technologies. One important development is the type of work and practice studies pioneered by a group of researchers at Xerox Parc in California. Their work has been influential in spreading the use of ethnographic methods to the study of technology in everyday work contexts. Informed by ethnomethodology their close attention to situated knowledge and situated practices has been important also for technology design. This thesis shares their interest in the everyday of work. A new genre of corporate ethnography gained academic visibility in the 1990s further eroding an already porous boundary between academia

\[\text{22} \] See, for example, Kunda's excellent study of the corporate culture machinery in a high-tech company (1992); also Barley (1988), Casey (1995), Österlund (1996).

\[\text{23} \] The distinction between an approach of 'organization as culture' versus one of 'the culture of an organization' is made in Wright (1994).

and the corporate world.26

Thematically, the dissertation is most influenced by the fields of science studies and the anthropology of science and technology. Science studies is based on the premise that science and technology are central institutions and practices of contemporary late modern societies. This project draws on important insights from science and technology studies. Scholars in technology studies have insisted that we need to conceptualize technology as intricately connected to and not separate from what is commonly called "the social," and that it is crucial to examine the mutual relationships and influences between technology and the social arena. Furthermore, in order to understand these mutual relationships we need to pay attention not only to the material side of technology but also to its discourses and its symbolism.27 This project focuses less on technologies per se but on emerging technological regimes and the forms of life shaped by them.

The study of online and virtual phenomena, sometimes referred to as cyberstudies or Internet studies, has been relevant to this project as well. Cyber scholars have convincingly argued for the reality and authenticity of experiences in the electronic realm.28 In recent years, some researchers moved away from the exclusive study of online worlds and started to pay attention to the ways electronic and virtual forms are closely interrelated with non-electronic forms.29 Yet, the ways in which people negotiate the virtual and the physical in their everyday lives are still under-studied. I chose offices as research sites in part because they are places where electronic and non-electronic practices meet and electronic and

---

26 In recent years, research departments at computer, telecommunications, and technology consulting companies, staffed with anthropologists rather than usability psychologists, have increasingly brought ethnographic methods to the study of work, technology, design, and consumption; see, for example, Bell & Kaye (2002), Nardi (2000 & 2002), Cefkin (1998), Churchill & Wakeford (2001).
27 The foundation of the field of technology studies was laid out in the two volumes on the social construction of technology; Bijker et al. (1987), Bijker & Law (1992).
physical spaces interact.

Besides technology, the other major player in my project is space. Until recently, spatial issues have rarely been thematized in explicit terms in research in science and technology studies.\textsuperscript{30} The spatial organization of laboratories, for example, was hardly a priority in early laboratory studies. In particular, the relation between space and technology has remained under-theorized. Scholars in cyberstudies have expressed some interest in space, in part because some of the most fascinating social interactions on the net took place in computer-generated spaces with explicit spatial qualities.\textsuperscript{31} Yet, even in this context, the relation between social forms and spatial orders was rarely focused on.

Social geographers, of course, have for some time pointed to the importance of space for understanding human society and culture. They discussed how the production and use of space shapes human activities, reveals and maintains differences in power, and has profound effects on the way humans organize their social relations.\textsuperscript{32} Yet, there is a tendency among some scholars to create grand narratives by casting the relation between spatial and social orders in general and global terms. Social theorists, interested in the effects of technology on space, have developed similar schemes where they describe historical trends in terms of a compression of space and time, or in terms of novel spatial orders based on global flows of people, things, and information.\textsuperscript{33} As useful and interesting as these theories are in giving expression to large-scale developments, they pay little attention to the intricate and meaningful relations people have with the spaces and places around them, the way these may change under the influence of new technologies and shifting cultural sentiments, and the way

\textsuperscript{29} Miller & Slater (2000), Kelty (1999), Wakeford (1999), Fischer (1999), Ito (1999)

\textsuperscript{30} Yet, see John Law's work (Law & Mol 2000); a recent conference tried to evoke the "topological turn" in technology studies. (Transforming space. The topological turn in technology studies, University of Darmstadt, Germany, March 22-24, 2002)

\textsuperscript{31} The relation between digital technologies and space is explicitly raised by Mitchell (1995 & 1999).


\textsuperscript{33} Harvey (1989), Giddens (1990), Castells (1996).
new hybrid spatial orders may reconfigure forms of sociality.

**Mobile ethnography - mobile work**

This study is based on ethnographic fieldwork and historical research. It is part of what Hugh Gusterson calls the "third wave" of anthropology, that is the field's increasingly forceful turn towards investigating Western societies, their institutions and the "functioning of power."34 The study also subscribes to the project of "cultural critique," as laid out by Michael Fischer and George Marcus, in that it uses ethnography to question "taken-for-granted assumptions" and disrupt common sense.35

Ethnographic projects of this kind offer specific challenges. To begin with, they tend to resist attempts to reduce them to single site investigations. My study is no exception. Exploring design and use, origins and consequences, discourses and material reality of evolving cultural formations, I approach this investigation through a network of interconnected field sites. Such a "multi-locale," "multi-sited" and "mobile" ethnography, as Marcus and Fischer have described it,36 seems especially appropriate to explore multi-site offices and mobile workers. The dispersion of information work could hardly be studied in a non-dispersed way. In that sense, recent shifts in the project of ethnography resemble shifts in office work as both ethnographic and office work are no longer defined by a single and central location. Yet, multi-sited research strategies are in no way confined to the study of office work.37

---

34 Gusterson (1996, x)
35 Marcus & Fischer (1986, 1)
36 Marcus & Fischer (1986), Marcus (1998). Gupta & Ferguson similarly argue that anthropologists no longer see cultures as "fixed in place" and that therefore ethnography needs to investigate rather than assume any kind of "cultural territorialization." (1997, 4)
37 Recent multi-sited ethnographic projects include the dissertations of Rajan (2002), Rennecker (2002), and Østerlund (2002). Rajan explored the global political economy of the new biotechnologies that includes multi-national pharma companies, small biotech firms, venture capitalists, trade shows, conferences, and so on. Rennecker followed the distributed structure of a global, virtual engineering
According to Marcus, multi-sited ethnographies can be constructed in different ways: the ethnographer can follow people, things, metaphors, the plot, or the conflict. (1998, 89f) My own project is constructed along several paths. The main connective tissue holding together the different field sites is the story of the reconfiguration of offices, analyzed through a number of concepts (such as mobility, flexibility, and non-territoriality), through technology and through people. Governed by its distributed logic, the project resembles "an exercise in mapping terrain," as Marcus calls it. Although choices may be opportunistic at times, Marcus insists, the selection of sites and their linkages always become part of the argument. In other words, the sites not only explore the topic, they constitute it.

**Organization**

The dissertation has two parts: in the first and more comprehensive part, I explore the reconceptualization of offices; in the second part, I examine the consequences of working outside of and beyond the office.

In the first chapter, I describe and analyze the larger trend to reconceptualize offices during the last decade. I follow the emergence and evolution of this trend to alternative office models and its articulation as a movement that, based on novel spatial designs and organizational ideals, came to challenge existing offices concepts and experiment with new ones. Analyzing the rhetoric that surrounds the new officing trend, I demonstrate the strategic role that technology plays in a discourse of change. Through case studies, the chapter then explores the concept of non-territorial officing as a central example of this trend, including the supposed paradigm shift in the use of space and the underestimated role of technologies. In explaining these new office concepts and the rhetoric around them, the team of a car manufacturer through a number of locations and different countries. Osterlud studied medical records on their trajectories through different health care setting. Emily Martin's work involves the flow of concepts and metaphors through multiple social sites and cultural settings (1994).
chapter sets the stage for the detailed ethnographies to come. It lays out threads, such as the ambiguous role of technology in these developments and claims of a more social organization of work, which the following chapters will engage with in more detail.

The second chapter addresses the origins of both the new alternative office models and the traditional office designs. I explore the concept and practice of office landscaping, which developed in post-war Germany and spread to the United States where it influenced the office development there. What makes office landscapes remarkable, I argue, is that they appear to be a historical predecessor of both contemporary cubicle environments and also, ironically, of today's new designs, which developed in response to cubicles. The juxtaposition between office landscapes and today's innovative new designs further highlights the different role technology can play in office design. Office landscaping, with its diverse intellectual traditions, raises the question what kind of regimes of control the more radical of today's alternative concepts embody and whether they can claim roots different from Taylorism. The chapter is not a history of office design, nor a complete genealogy of today's office concepts, rather it uses a selective historical episode to juxtapose different approaches to office design located at different moments in time.

The next chapter, chapter three, is the first of two to analyze a particular office design in more depth. This and the following chapter draw on fieldwork at JFC, the architecture and consulting firm specializing in new office designs. This chapter focuses on the ideas that underlie the firm's office and their work. A close reading of the designers' spatial and technological strategies reveals how their non-territorial and mobile office was informed by two conflicting organizational visions, one emphasizing mobility and flexibility, the other communication and community. The chapter investigates how this tension played out in practice, and in particular how the technological systems used in the office tended to

38 Markus (1986, 83)
undermine one of the two visions. The chapter raises the question to what extent new office schemes like the one I studied steer office work towards more individual or more social and collective organizational forms depending on the informed design and use of technology. Applying my findings on how people use space in the office to a theoretical distinction made in the literature on concepts of space and place, I suggest the need for a formulation of these concepts that is more dynamic and accounts for technology.

Chapter four discusses the consequences of the mobile, flexible, and non-territorial office on the social organization of work. It explores the role of mobility in the new office. I investigate two particular aspects of the mobile office in order to demonstrate how the innovative design shifts both the culture and the power dynamic in the office - but not quite in the intended ways. I analyze space rules that govern the use of desks and storage and evaluate claims about reduced organizational hierarchies to examine the new spatial and technological regimes that change the culture of work in the office.

The last chapter leaves the arena of office design and turns to the ways office work is performed increasingly outside of the walls of offices. While the previous chapters focused on work in its physical environment, this chapter stresses the mediation of work by a constantly changing array of advanced information and communication technologies. Based on fieldwork with a number of people, firms, and work situations in Silicon Valley, I explore the realm of virtual work, remote collaboration, geographically distributed work, telecommuting and cross-organizational projects. I find newly emerging social and professional forms, but also new costs for individuals that these developments entail.
1 - ALTERNATIVE OFFICING

Forever in motion, we enter the workplace each day as corporate nomads, vagabond citizens of the global village - and as human beings who require an environment where the mind can create and the body can find comfort.

[...] Today, the office environment is a landscape in motion. Our workplaces are defined by the flow of information, the shifting of structures and the mobility of people.

(Furniture maker Teknion, 1998)

Designed for a mostly corporate audience, the conference and trade show Alt.office™ was advertised as the "most comprehensive gathering of information providers, products, and services for the alternative work environment." ¹ Using for their title internet lingo not yet outdated in the summer of 1998, the organizers aspired to create the impression of a cutting edge event that was at the forefront of the transformations occurring in the realm of work.² Their web site promised that at the conference "the most innovative and paradigm shifting minds in the country enlighten us on topics that affect how we live and work now, and how, because of alternative thinking we will live and work into the next millennium."³

For the second year, the conference organizers hoped to draw a large number of professionals to San Jose, California, and identified as their targets architects, interior designers, facility managers, human resources professionals, technology managers, real estate developers, home office users, educators, and consultants. Attended by over 4000

---

¹ The quote is from the now defunct Alt.office conference website, online at www.altoffice.com/conference (downloaded September 1998).

² The conference name emulates Internet jargon through its punctuated spelling: "alt.office" follows newsgroup naming conventions where "alt." stands for alternative and is the basis of thousands of discussion lists on topics ranging from alt.accounting to alt.tv.xena.

³ Alt.office conference website, online at www.altoffice.com/conference (downloaded September 1998)
professionals, the first *Alt.office* conference and exposition one year earlier in 1997 had attracted both local and national media attention, including reports from *National Public Radio, Public Broadcasting System*, the *San Francisco Examiner*, and the *Wall Street Journal*.

With forty sessions over two- and- half days, prominent keynote speakers, "networking events," company tours, and an "interactive" exhibit floor, the 1998 conference strove to appeal to both insiders and newcomers. The keynote speakers included Daniel Pink, former White House speechwriter and then contributing editor for the upcoming business magazine *Fast Company*, who had recently proclaimed the "Free agent nation" in a widely read article about the growing ranks of employees turning freelancers and consultants. Another keynote speaker was Kevin Kelly, *Wired* executive editor and notorious techno-futurist, who had just announced a forthcoming book on the *New rules for the new economy.* Conference participants could tour a "large scale Alternative Office facility" in Silicon Valley that, according to the program, featured "an interactive work and coffee lounge, high-tech presentation facilities, display workwalls, flexible furniture configurations and a completely integrated computer network and telephone technology."¹

The organizers strove to present the conference as state of the art in "alternative officing." Promising the latest in "non-traditional work environments, products, or services" the conference website listed as examples "non-territorial workspaces, virtual offices, team/group offices, multi-site offices and more." Reports on corporate office experiments and results from empirical research studies stood next to promotional presentations by technologists and consultants, and the invariable visions of visionaries.

In this section I discuss changes in office design and the organization of office work that have generated considerable interest and excitement over the last decade and changed the

---

¹ See Pink (1998) and Kelly (1998). For more on Daniel Pink's article on free agents, see Chapter five.
terms in which people think about offices, white collar work, the physical work environment, and workplace technologies. Known under a number of names - alternative officing is one of them - these experiments with workplaces and offices reached some kind of peak in the late 1990s when participants saw them as a movement that was about to become common practice in the industry. For example, a guest editorial in the journal, which was launched together with the conference under the same name, concluded that recent developments confirmed "the importance and the increasingly mainstream presence of the alternative office."6 Skeptics claimed, however, that it was little more than a few spectacular but isolated cases blown out of proportion by much media attention.

In the following I give a brief overview of this trend. In analyzing how widespread it was, I discuss both actual transformations in the office world and the discourse around them. I do not argue that it was either only a brief fad fueled by hype, or that it was a revolution that has changed the work experience of a large majority of office workers in North America. Both accounts carry some truth. I suggest, however, that it has been a rather substantial movement, in part because it became so fashionable.

Furthermore, I examine what the innovative office concepts under the name of alternative workplace strategies were about: what characterized them, what they tried to achieve, how they went about reaching their goals, and who the players were. Presenting three evocative cases of office models that break with the principle of permanent workplaces, I further explore what motivated these efforts and what role technology plays in these innovations. I also ask why they may occur at this particular point in time.

---

5 Quoted from the conference program (Miller Freeman Design Group 1998, 44).
6 (Haley 1998, 32). Both the conference and the journal, which was distributed as a supplement to Contract Design and Facilities Design & Management, were launched by large magazine publisher and exposition organizer Miller Freeman Inc.
The trend

Attempts to rethink and redesign offices have a long history, but this particular trend is relatively recent. Thomas Allen, a researcher at MIT, used the term "nonterritorial," for instance, in the 1970s when describing an early office experiment at IBM where an R&D group's individually assigned desks were replaced with a shared work area. Yet most observers locate the beginning of the recent wave of new office models and work processes in the late 1980s. Referring to alternative officing, Franklin Becker, an expert in workplace studies at Cornell University says:

"Since about 1988, large industrial corporations and firms [...] have, through some form of AO [alternative officing], rather dramatically changed the way they allocate and design space."

The exploration of new ways of working and office strategies gathered momentum during the 1990s, and garnered considerable attention from business circles and popular media in particular since the mid-nineties. This extended attention was partly driven by a few famous cases, such as for example Ernst & Young's "virtual office," IBM's Mobility Initiative, AT&T Workplace Solutions Initiative, and the advertising agency Chiat-Day's remodeling of their offices into what they called a "virtual agency." In the second half of the decade "alternative officing" became a major buzzword and the alt.office conferences in

---

7 See Allen (1977). According to Allen, IBM employee Armand Beliveau conceived the concept of a non-territorial office. It is not clear whether that included the term or whether this was Allen's own invention.

8 Although telecommuting is often considered part of alternative office strategies, I did not include it in this brief timeline. It has its own separate history that started with the energy crisis after 1973 and is linked to California's clean air regulation. Despite many optimistic predictions it remained a rather local and limited phenomenon throughout the 1970s and 80s. Now, as part of the larger workplace transformation in the 1990s, telecommuting for the first time gained a wider appeal and began to spread geographically throughout the US. See Huws (1990), Jackson & van der Wielen (1998)


11 Numerous articles appeared in the popular press and in trade journals in the wake of Chiat-Day's experiment. On their own website Chiat-Day listed about fifteen references, but since then many more appeared. For a small selection see for example, Berger (1999); Buchanan (1995); Frank (1994); Illingworth (1994); Jacobs (1994c); Muschamp (1994).
the years from 1997 to 1999 marked a high point both in the use of the phrase and in terms of the energy with which the transformation of office work was pursued and discussed.

Throughout the last decade the number of firms experimenting with new office models grew continuously. In good part these were large corporations. In the early years it was mostly in sales, consulting, and financial services, but over the years alternative workplace programs have spread over more companies and into more diverse industries. According to reports in trade journals, magazines, newspapers and a few books, alternative office models have been tried in the telecommunication, high-tech and computer industries; in insurance, advertising and the media sector; by pharmaceutical and chemical companies, and also in more traditional industries and government agencies. Companies ranged, for example, from MCI to Microsoft, Citibank, Aetna, the Discovery Channel, Dupont, Kodak, BP, General Electric and Monsanto.¹²

Not only large organizations tested new work environments, but also a number of smaller firms, among them advertising agencies, public relations firms, and most notably Internet start-ups, began to explore them in the mid-nineties. Moreover, alternative workplace arrangements were not just a North American phenomenon. New office solutions also became a hot topic in the UK in continental Europe, and in Scandinavia. A few speakers at the conference in California were European. Companies looking into new workplace strategies on the other side of the Atlantic were in part overseas branches of North American

¹² The list of companies and industries includes: in the telecommunication and the computer industry e.g. AT&T, GTE, Sprint, MCI, Nynex, Northern Telecom, Pacific Bell, Microsoft, IBM, Compaq, Hewlett Packard, Cisco, Oracle, Sun Microsystems, 3Com, Silicon Graphics, VeriFone, PeopleSoft, DEC UK; among consulting and financial service firms: Anderson Consulting, Ernst & Young, KPMG, Deloitte & Touche, Delta Consulting, Merrill Lynch, American Express, Citibank, Dun & Bradstreet, Swiss Bank Corporation; in insurance: Aetna, Cigna; in the media industry: Discovery Channel, BBC; in advertising and public relations Chiat-Day, among imaging companies Kodak, Xerox; furniture manufacturers: Herman Miller, Steelcase; pharmaceutical and chemical industries: Dupont, Pfizer; in more traditional industries e.g. BP, Amoco Oil, Shell, Coming, General Electric, Alcoa, Monsanto, Procter and Gamble, or AGI a packing company; and government agencies: General Services Administration, Internal Revenue Service, and the US Postal Service. See Anderson (1995);
or transnational corporations and in part local European firms; these included airlines, technology firms, and media companies, as well as local and regional government agencies.

North America and Europe have their own office traditions but the history of office design is characterized by overlaps and bi-directional cross-Atlantic migrations of ideas (more about this later). The recent development was no exception. A German research initiative, for example, mounted in 1996 a large effort to "discover and invent the future of the office." The office innovation initiative, Office 21, a high profile joint venture between the renowned national research institution Fraunhofer Gesellschaft and a growing number of industry partners was designed to combine research on current changes in office work with development of innovate office solutions.\textsuperscript{13} The initiative set out to analyze key factors in the development of office work, develop plausible future scenarios, and derive innovative ideas and creative solutions for the office of the future.\textsuperscript{14} They also established their own Innovation Center, an office laboratory in the South of Germany, in which they experimented with office models, furniture systems, space, and information and communication technologies and presented the results to the sponsoring industry and the wider public.

Trying to learn about the newest developments in alternative office planning, the initiative looked towards both sides of the Atlantic. They kept a close eye on developments in the US believing that many innovations in the last years in office work originated there, but they also followed northern European cases, especially from Scandinavian countries that

\begin{flushleft}
Apgar (1998); Becker (1999); Davenport (1998); Davy (1999); Girion (2001); Lieber (1996); Russell (1998); Sims et. al. (1996).
\end{flushleft}

\textsuperscript{13} The research initiative Office 21 was organized by the Fraunhofer Institute for Industrial Engineering IAO, in Stuttgart, Germany and a growing number of industry sponsors, from initially eighteen to roughly one hundred in 2001. The industry partners were mostly from Germany, continental Europe and a few of the European holdings of US American corporations and ranged from small and medium-sized firms to large companies such as Agfa Germany, Eriksson, Deutsche Bank, Deutsche Telekom, and IBM Deutschland.

\textsuperscript{14} This part of the initiative's research was primarily conducted through literature reviews, expert interviews, and best-practice evaluations.
had a long tradition in open, collaborative, democratic, and human-centered approaches to office work. The initiative organized a kind of office space tourism that toured best practice cases in the US and Europe periodically for a number of years.

**Spread and significance**

It is not easy to determine how mainstream this trend actually was. Although the list of companies involved is quite long, this gives little indication of how many people have actually experienced working in alternative offices of one kind or another. While in some organizations tens of thousands of employees were part of non-traditional workplaces, other firms may have initiated only a pilot study in a specific department. Precise numbers about implemented alternative office strategies are hard to obtain and the ones available are far from reliable or coherent.15

One of the larger and more respectable surveys produced ambivalent results: while innovative office strategies were discussed widely and employed quite frequently, the number of actually participating employees was still a small minority. The *Alternative Workplace Study* sponsored by the International Facility Management Association in 1998 found that 62 percent of the respondents actually employed some form of alternative workplace strategy, which they defined as team environments, non-territorial offices, home-based telecommuting, telework centers, or virtual offices.16 The most common forms used or being

---

15 These types of surveys or polls usually rely on self-reporting, and the concepts used are rarely well-defined, or the surveys have large structural biases: A telephone survey about telecommuting that calls only household numbers is prone to overestimating those working from home. And surveys sent out to specific professional groups, such as facility managers, do not cover organizations and their employees without these professions (or who are not organized in the associations), which are, in tendency, smaller and medium-size firms.

16 The study was sent out in 1998 to four thousand North American members of the International Facility Management Association which is one of the biggest, professional association for facility managers or "workplace professionals" as they are also called. The results were based on 469 responses, a response rate of 12 percent. About 90 percent of respondents came from organizations with more than 100 employees, and 17 percent from organizations with more than three thousand employees. Perhaps surprising was the high percentage of participation by facility managers from Government and Education (23 percent) and Manufacturing/Production sectors (21 percent). (IFMA
tested were team environments with 46 percent and telecommuting with roughly a third of the companies. Non-territorial offices were used or piloted by 18 percent of responding companies. But once employee participation rates were measured the numbers looked less impressive: only 28 percent of employees participated, for example, in team environments and 6 percent in non-territorial environments. Yet, even low percentage points can translate into quite large absolute numbers. If 5 percent of employees were actually affected by a specific form of new workplace strategies, with a labor force of about 135 million in the year 2000, this could involve 6 to 7 million workers.

Reviewing the above cited survey, one commentator felt compelled to make a relatively careful assessment: 'The study findings highlight the fact that these alternative workplace strategies are still in the early stages of implementation in companies across North

---

17 Other surveys conducted a few years earlier showed much higher numbers. The Site Selection survey from 1995 found that 69 percent of responding firms utilized "telecommuting centers," 59 percent used "virtual teams," and 55 percent employed or planned to employ "shared-space" workplace strategies; the survey is reported in Lyne (1995). A survey by the National Association of Corporate Real Estate Executives came closer to the 1998 results. They reported that approximately 20 percent of the member companies used hoteling; quoted in Anderson (1995). Yet, these differences do not indicate a decline in new office strategies in these years. Since most observers agree on the increase of new office solutions during that time period, the seeming decline more likely signifies how different surveys with a different sample, different questions, and a possible shift in the meaning of terms can generate vastly different results.

18 The employment numbers are according to the US Bureau of Census. The US Census provides no direct data on workplace configurations. They do investigate home-based work, which is closest to the category of telecommuting seen as part of alternative workplace strategies, but there the results are highly ambiguous. Depending on what counts as work from home the numbers vary widely. If home workers are defined as working from home a majority of the time, the number is quite low: 3.6 million out of 116 million; if working from home is defined as at least one full day per week it is 9.2 million out of 132; if some work from home is counted the number is 21.4 million of 120 million. One may speculate that the first case includes the self-employed who work out of their homes, while the last number also counts those who take work home in the evening and over the weekend. (The numbers stem from different surveys in 1997.) (US Census Bureau 2001).

19 The actual numbers of workers in alternative office arrangements will most likely be lower, since survey results are only relative to the sample selected. The sample in the above survey is limited in two ways: first it only includes those selected by the survey organizers, and second, it is further limited to those who had an interest in responding to the survey.
America.\textsuperscript{20} But the vast majority of commentators at the end of the 1990s were overwhelmingly enthusiastic about the scope and significance of this development. Most experts, commentators, and journalists had little doubt that it was a serious shift in the way businesses approached questions of work environments. "Over the last ten years interest in and implementation of different form of alternative officing (AO) have increased dramatically," asserts Cornell University's Franklin Becker (1999). "This is not a fad," argues real estate consultant Mahlon Apgar in the \textit{Harvard Business Review} (1998). And the \textit{Architectural Record} concludes, "these ideas are moving into the mainstream." (Russell 1998). A publication on real property and workplace policy by the US General Services Agency's Office of Governmentwide Policy similarly contends that alternatives to the traditional office are "being used with increasing frequency to accommodate the globe's changing workforce" as we are "in the midst of a managerial and technological revolution in office work." (1999)

Even if the precise implementation level was in question, most commentators agreed on the trend's significance and its discursive weight. Whether the number of new workplaces was still a small percentage or much higher, new ways of organizing the workplace were a topic that received wide attention from businesses, the trade literature, and even popular media. Trade magazines and professional journals from the areas of facility management, building, interior design, architecture, information technology, and business administration, to name a few, felt compelled to inform their readership about the ongoing or pending transformations in the office. It became an issue that could no longer be ignored. "By now every savvy business leader has heard the term Alternative Officing (AO). If you haven't been asked yet, you will be, so be prepared to answer the question, 'What is this alternative officing stuff?'" advised a writer for the \textit{Telecommuting Review} in 1998. (Telecommuting Review 1998)

\textsuperscript{20} Quoted in ISDesignet (1998).
Context of larger changes

The rising attention to new workplaces was part of a revived interest in all things 'work.' It was a larger trend that returned onto the public radar screen a topic that for years had been the realm of just a few industry professionals. In the nineties work and the workplace suddenly advanced from a previously rather boring and largely ignored topic to one that was trendy. Work and its alleged radical change was getting a kind of hyper attention with a tone of urgency and significance that had previously been limited to the realms of consumption and popular culture.

A growing number of newspaper articles and editorial sections reported on the "new worker," magazine launches focused on the "business revolution," museum exhibitions featured contemporary "workspheres," advertisements promoted products to work from anywhere, internet web sites tried to capitalize on the growing numbers of free agents, and book publications celebrated the new economy and its virtual constituencies. In the spring of 2000 the New York Times Magazine, for example, devoted a whole issue to the "new American worker" and "the way we work now." The main thrust of the magazine's editorial section revolved around the juxtaposition of the organization man of the immediate post-war period and the new worker who was portrayed as simultaneously "liberated, exploited, pampered, frazzled, uneasy." At least two stories covered recent transformations of the workplace. Next to these, full page advertisements promoted e-services and web-portals for the independent professional and presented office-wear from Prada for chic twenty-year-old office workers.

In that and the following year two major exhibitions almost simultaneously brought into

---

21 The new worker was reported on by the New York Times Magazine (2000), the business revolution chronicled by Fast Company, the Workspheres exhibit presented by the Museum of Modern Art, New York (see below), websites for free agents put online by Guru.com, and among the books celebrating the new economy and virtual work were Lipnack (1997), Kelly (1998), Tapscott (1996).

focus work and design. The National Building Museum in Washington DC presented "On the job: Design and the American office," and the Museum of Modern Art in New York City showed "Workspheres: Design and contemporary work styles." While On the job provided a thorough historical overview of trends in office design and their social contexts, Workspheres focused predominantly on the designs of objects for the "official," the "domestic," and the "nomadic" office with an emphasis on mobility. Fast Company, a kind of Wired for the business world, set out to "chronicle the changes underway in how companies create and compete." The self-declared "handbook of the business revolution," founded in 1995, met a fast growing readership with its focus on fun and future, and the attempt to combine the allure of the new economy with an emerging entrepreneurial spirit and more creative and fulfilling workstyles.

What the public could learn from the avalanching stories was that the shifts in the content and organization of work, in employment relations, in the tools and locations of work, and in work environments were fundamental and advancing on many fronts. In the new world of work, information had become the central substance, people worked in fluid project-configurations within flexible organizations, long-term jobs were being replaced by temporary contracts, and cutting-edge technologies were indispensable. In this world people either left their uninspiring offices to work instead in the comfort of their homes or cars, in cafes, hotels, or on the beach, or they returned into newly styled offices designed for team-players, knowledge workers, and nomads.

The sudden sexiness of all work-related themes occurred in the context of a particular cultural moment. The economic and social order itself was seen to be shifting. Work and its transformation became a pioneer topic since it put a face on larger developments such as the

alleged rise of a 'new economy', the assumed reality of an information society, and the seeming spread of globalization. But it was probably the close association with the Internet and with digital technologies to which the topic of work owed most of its renewed interest and heightened status in the last years of the millennium. "Technology is the "fashion of the nineties," said the head of the "virtual agency" Chiat-Day. But, the dotcom phenomenon in particular made non-traditional organizational and business forms look not just cool but also seemingly very lucrative. All forms virtual or "e" adopted the flair of a techno-cultural avantgarde and the smell of success. During the time of an unprecedented "e-conomic" boom in which many Americans participated as individual investors and took a promise-economy as reality, people's relation to technology approached something close to euphoria. Technology, progress, wealth, and social status not for the first time formed a happy alliance, but this time it was embellished with a good portion of relaxed playfulness and a pile of attractive toys. At the same time all kinds of social, cultural, and geographic transformations and liberations were expected to accompany the techno-utopian economy. Feeding from the energy and desire that this cultural moment of expected tectonic shifts generated, the topic of work was perceived as part of a revolution - a revolution that set the meaning of work itself in motion.

The changing vocabulary of alternative workplaces

In this time even the "backward little field of office design" had become a very "modish" place, as architect Frank Duffy, who made a considerable career out of designing new offices, put it in amusement. Although the work revolution was a wider topic, the alternative officing trend thematized and integrated many of the same issues, some explicitly,

24 Jay Chiat is quoted in Dix (1997).
25 This technological euphoria was perhaps even more intense than the "technological enthusiasm" that historian of technology Thomas Hughes pointed out for the early twentieth century. (Hughes)
others implicitly: change in employment relations, the impact of technology, more fluid organizational forms, shifts in the quality of work, and the slipping boundaries between work and home, among others. The alternative workplace theme resonated especially well with the growing technological euphoria. As new technologies entering people's lives touched on their existing spatial and temporal rhythms, the question of where, when, and how people were going to work felt particularly burning.27

It was probably around the time of the Alt.office conferences that the corporate strand of 'new workplacing' showed interest in the work styles embraced and lived by many dotcom startups that had a seemingly privileged relation to the rhetoric of innovation and change. Characterized by long working hours and strong visions, workers at startups had their own needs and desires in terms of how and where they worked. De-emphasizing hierarchy and status and re-emphasizing creativity, their offices strove to be highly collaborative, informal, and playful and wanted to provide some kind of creative home to the overworked twenty-somethings. In addition, and perhaps ironically, the firms at the source of the Internet economy were on average more face-to-face and less virtual than their own products proposed. This way, the open and transparent dotcom "playpens" with pool tables and "rec rooms" may have left a specific mark on the more efficiency oriented office experiments established corporate players were pursuing.28

The changing vocabulary permeating the discourse of new offices may be a reflection both of some of these larger developments and of a shifting fashion. The wave to rethink work environments had not always been captured under the label alternative officing or even by the qualifier alternative as in alternative workplace strategies or alternative office models.

26 Duffy, Frank, personal conversation, December 1999.
27 See William Mitchell's City of Bits for its unmitigated technological determinism in describing the effects of technology on the spatial and temporal aspects of urban life. (1995)
The term *alternative officing* was a more recent designation, at its height probably between 1997 and 1999 and little in use before the mid-nineties. Prior to that, the label *virtual* was in style, and many workplace innovations later captured under the umbrella of *alternative office* were called *virtual* or *mobile* offices.\(^2^9\) As for the gerund *officing*, workplace strategist Donald Sutherland claims to have introduced that term already in the late 1970s in order to emphasize that an office should not be seen as a place but as a process.\(^1^0\) It is not clear when exactly the *-ing* caught on, but architectural critic Kerry Jacobs observed in 1994 that the development towards mobile and virtual offices was apparently no longer about *offices* but about *officing*. Perceiving a trend from stability to mobility both in practice and in language she described the social and cultural shifts as "nouns become verbs."\(^3^1\) Officing, in contrast to office, connotes activity, movement, and dynamism - fashionable concepts in the new world of work.

Yet, the language of trends changes fast. Almost faster than it became *en vogue*, the label *alternative officing* vanished from the lexicon of business journals, facilities managers, interior designers, and workplace consultants not long after 1999. This could be just the usual shelf-life of trend names in the business world, but the demise of the name was more abrupt and specific. As entry in publication searches for the years after 2000 the term yields hardly any results. Tied closely to a specific cultural moment, the term *alternative officing* most likely got tainted by the collapse of the dotcom and new economy bubbles. However, the sudden outdatedness of the term does not mean that new office concepts with open plans,

\(^2^8\) McGurath (2000, 17). Girion makes a similar point on the lasting influence of the dotcoms on corporate culture and the use of space among traditional corporations, even after the end of the dotcom area (2001).


\(^1^0\) To Sutherland's dismay, the combination of "alternative" and "officing" seemed to undermine his intended focus on process. What was alternative about most of the new office concepts were the places of work, he argued. For a process view of offices, talk of alternatives therefore made little sense. (Sutherland 1997)

\(^3^1\) Jacobs (1994a)
team areas, and non-territorial, virtual and mobile aspects are no longer being designed and implemented. On the contrary, the transformation of office work continues - most likely in ever-larger numbers and ever changing names. In the years since 2000 "new workplaces," "new ways of working" and "the future of the office" are still a topic, and "nomadic offices," "digital cubicles," and "wireless workplaces" make headlines again. Companies continue to pursue changes in office work, if in somewhat more serene ways. A post-dotcom hangover may have dampened somewhat the larger public's excitement about radical change, however, and therefore diminished the popular interest in the transformation of work.

**Articulating a movement**

Now I can return to the question posed at the beginning of this chapter, how the alternative officing trend should be assessed. I hope this discussion has demonstrated that there was, in fact, a fair amount of hype injected in the discourse around alternative workplaces. It also showed that it was a significant trend that, although not the dominant form in office design, has managed to become the dominant discourse around issues of workplace design, office organization, and office work more generally. Moreover, some of the hype added momentum to the trend by intensifying the public discourse, by raising awareness of new office experiments for both professional and popular audiences, and by spreading the ideas and concepts involved. The resulting discourse may have persuaded firms of the importance of this trend and may have encouraged organizations to consider the strategies themselves. For example, a consultant in an office design firm believed that peer-pressure was one motivation among some of their clients to try out new office configurations.

Back in 1997 and 1998, alternative officing was in full swing. Although other conferences covered similar themes, the *Alt.office* conference, with its particular focus, helped to further establish alternative office strategies as serious topic and growing trend. The
sheer number of companies, experts, and participants confirmed that the topic was worthy of attention, study, and exchange. By presenting the various stories, accounts and reports about the exploration of new office concepts in close proximity, the conference highlighted how the seemingly diverse strategies and techniques to rethink office work in fact made up a wider trend. Moreover, the event concentrated in one place people from corporate and other contexts who otherwise might have rarely been seen together and so deepened the impression of a distinct movement. Through the help of events such as the *Alt.office* conference, alternative officing, rather than a mere trend, turned into something like a movement. The difference between a trend and a movement, I suggest, is that a movement is articulated as such, its participants are aware of their participation, and they share some kind of goal or direction, even if it is not more than the conviction that traditional workplace arrangements need rethinking.\(^{32}\)

Conferences like this are a particular instance of what I call *articulation centers*: places, institutions, or events that contribute to a discourse, or more specifically, are in the business of articulating facts and views powerful enough to potentially shape the publications, conversations, and utterances that make up the discourse about a particular theme or topical field. Journals, magazines, trade organizations, associations of professionals, museum exhibits, and websites are other types of articulation centers in this social arena. Some are more powerful in their articulations than others. In the case of *Alt.office* the combined package of a conference with a journal turned out to be an influential articulator in the discourse on the

---

\(^{32}\) The distinction between trend and movement I draw here is not clear-cut, nor does it have to do with numbers. It has to do with articulation, awareness, and a shared direction. A trend can be the result of independent events, in this case unrelated decisions by organizations to change their workplace designs. Once a trend gets articulated and the participants see themselves as part of the trend and perceive some common goal, no matter how vague, the trend is on its way to becoming a movement. The awareness influences their action and the various decisions are no longer unrelated, that is, organizations' workplace programs start to be influenced in scope or direction by those of others. A movement gathers momentum, for example, by luring into action outsiders who may not have considered that type of action unless they saw the involvement of their peers and were exposed to a discourse that takes it seriously.
changing world of work. It not only reiterated its importance, but also told specific stories about what the movement was and what it was not, how and why it existed, and what it wanted.33

Many articulation centers were at play to make the alternative workplace movement what it was. Without these crucial discourses that help produce and maintain them, heterogeneous movements or trends could not be sustained. This is especially true for social groupings, such as, for example, those concerned with workplaces that are diverse, have no clear institutional context, and are primarily based on common interests and activities.34

A large number of individuals, organizations, interested parties and "relevant social groups" had a stake in and were involved in the new office trend.35 They could only win from the strengthening of the alternative office movement as it drew attention to and legitimized their activities and professions, made available resources, and opened up new opportunities. The interest of the conference organizers, for example, lay less in defining the trend in a specific and narrow way; rather they wanted to show that the variety of new offices and organizational innovations had much in common. In that sense the conference was not only

33 See Kaushik Sunder Rajan's dissertation on a similar observation in the field of biotechnology (Rajan 2002). CSCW, the Journal of Computer Supported Collaborative Work, is another example of the close coupling of a journal and an interdisciplinary field.

34 The name articulation center may invite comparison to Bruno Latour's notion of centers of calculation. Centers of calculation, in Latour's description, hold crucial functions in the scientific project of modernity to produce facts from the messiness of the world in that they are central points of inscribing and re-inscribing information that stems from all parts of the world, regulating and rearranging the flows of information. Without them, argues Latour, modern societies would not be as powerful as they are. Centers of articulation too play crucial roles, not in the production of facts but in the production of opinions, beliefs, and social relations. Both types of centers are concerned with change. Centers of calculation, too, function to integrate diverse pieces of information or facts into new ones, decontextualize away difference and stress compatibility. So do centers of articulation. But this is where the analogy ends. While the main goal of Latour's concept is to downplay the role of human actors in the rise of modernity and stress the role of near-mechanical processes in the treatment of data, information, and facts, the notion of articulation centers does not aim at reducing the role of human actors. Although concerned somewhat with mechanics, the mechanics of discourses in creating communities or trends, the focus on discourses and social relations relies heavily on the participation of human actors. Latour (1987), (1990).
in the articulation business, it was also in the exchange business. It served as a kind of trading zone for ideas and stories about workplaces, new technologies and spaces, and the meaning of work, bringing together individuals and groups from various regional and professional backgrounds to exchange these stories and their experiences. Yet, the conference did have its agenda. The choice of keynote speakers and also of the conference title, among other things, illustrates that it hoped to connect the new office trend with the growing enthusiasm for the new economy, internet culture, and the dotcom world.

Their different agendas made these constituents articulate the trend in different ways and push it in different directions. In corporate contexts a number of professional groups were involved in altering existing office designs: managers and executives from different levels and special functional groups, such as facilities managers, human resource professionals, and IT employees. Other professions such as interior designers, architects, space planners, and technologists also had a professional stake in the new office developments, albeit often not in a corporate context. Another group of interested players were journalists, researchers, consultants, and visionaries who made careers of reporting on, contributing to, commenting on, or helping with such novel developments. With several of these professions came professional associations with their publications and sponsorships. The professional associations, for instance, endorsing or sponsoring the *Alt.office* conference included the International Facility Management Association, the Society for Information Management, the American Society of Interior Designers, the American Institute of Architects, and the International Association of Facilitators.

In addition to the various companies that considered adopting alternative office plans, there were other segments of the economy that wanted to sell their products and services to

---

35 See Bijker on the concept of "relevant social groups," which are aggregates of people with similar interests and involvement who take part in and shape the development of technologies. (Bijker & Law 1992)
them. For example, computer software and hardware companies offered products from groupware to wireless infrastructures. Most prominent among the vendor industries were furniture makers. Their influence at the conference was most visible in the exhibit halls where a more literal interpretation of some of the alternative concepts prevailed. Wheeled furniture, for example, invoked mobility, while glass partitions were meant to express organizational transparency. Despite a more conservative approach by some of the furniture makers, their rhetoric was frequently far from reticent. Canadian furniture company Teknion, one of the sponsors of *Alt.office*, for example, painted a fluid world in their glossy large-format brochure called "(e)motion" promoting their latest office furniture lines:

"Forever in motion, we enter the workplace each day as corporate nomads, vagabond citizens of the global village - and as human beings who require an environment where the mind can create and the body can find comfort. [...] Today, the office environment is a landscape in motion. Our workplaces are defined by the flow of information, the shifting of structures and the mobility of people."³⁷

Yet, a number of actors, both human and non-human, are missing in this account so far. An important but only marginally represented group consisted of workers, the future users of the furniture, spaces, technologies, and designs. This was particularly true for the conference where only a small number of presentations took the perspective of office workers. The neglect of users was slightly less true for the trend in general, since some research institutes included users in their studies, journalists helped voice workers' opinions, and a few unions made themselves heard on issue of work environments.

Without explicit articulation, non-human actors still played an important role in the development of new officing. Immaterial ones, such as building codes, tax regulations, and safety rules, and material ones, such as existing office buildings (with their heating, air conditioning, ventilation, lighting and power systems) and furniture systems. But the two

³⁶ The notion of "trading zone" has been used in science studies by Peter Galison (1987).
foremost non-human actors in the trend towards new office concepts were technology and space. Technology's influence as an actor in invention and innovation processes has been widely acknowledged, in particular within science and technology studies. Space, in contrast, has rarely received the same attention. That space can play as vital a role as technology in shaping developments and social issues, I will demonstrate throughout this dissertation.

In the next section, I will look more closely at the ideas and stories traded at the Alt.office conference and expressed as part of the larger trend to analyze what alternative offing actually means.

What are alternative offices?

What are alternative offices or workplaces? The conference Alt.office did not attempt to present a succinct definition of what alternative offing meant. To be sure, the sessions, presentations, and exhibits catered not just to the knowledgeable professional but also to newcomers, offering a useful introduction to the topic as they presented examples of alternative office concepts, clarified goals and objectives and mentioned the motivation and rationale behind them. Still, none of the official utterances defined in unmistakable terms what an alternative office, after the title of the event, actually was.

What was presented was a wide variety of approaches to what contributors perceived as alternative developments in office work. Session speakers showed concern, for example, for communication and team work ("Team building through technology," "The office without walls ... changing the paradigm of inter-company communications"), perceived or hoped-for shifts in work practice and culture ("Softwork: shifting toward informal work practices," "Fresh strategies for new culture workplaces: beyond the place"), or with mobility and virtual work ("IBM's experience going mobile" and "Furnishing the telecommuter's home office: the

Oracle experience." Conference visitors noticed that alternative offing was a fairly heterogeneous endeavor.

The vagueness was not just characteristic of the Alt.office conference, it was common in general. The author of an article in the Harvard Business Review on alternative workplaces, for example, describes it as "the combination of nontraditional work practices, settings, and locations that is beginning to supplement traditional offices." (Apgar 1998) Besides suggesting that spatial issues play a role, that is where people work, this description remains fairly unspecific. It mainly says alternative is what is not traditional.

Others, however, were more concrete. The authors of a book on the Reinvented workplace write:

"Alternative workplace strategies are new ways of coordinating work processes, organizational culture, information technology, and the physical workplace to improve the organization's performance and the quality of work life."

What emerged from the conference and the literature was that alternative offing set out to rethink and transform office work. More specifically the alternative concepts tried to alter where, when, how, and with whom people worked. They did that in part by reconceptualizing and changing the physical nature of the office itself, but not only. Alternative office concepts were as much about work practices, organizational structures, and the culture of a firm.

Most of the time the term alternative offing, however, was defined pragmatically through a list of examples and a rough categorization of approaches. Michael Brill, for

---

38 The non-standardized terminology with different terms for similar concepts and different understandings of the same concepts marked a field still emerging. It also pointed to a reality where labels could be as important as actual activity and where different commentators proposed their own categories to make sense of, or impose order on a confusing reality.

39 To be fair, the author goes on and introduces and discusses competently a number of examples of alternative workplace models. But the cited sentence was as close to a definition as the article provided. (Apgar 1998)

40 (Sims et. al. 1996, 2)
example, an often-quoted authority in the field, made a fundamental distinction at the conference. While some alternative concepts were about changes in the office, others referred to an increased emphasis on office work conducted outside the traditional office. This could be at home (then called telecommuting or telework), in external satellite offices or tele-centers conveniently located to reduce the travel-time for employees, or in the "virtual office" which referred to working without fixed office location, including cars, hotels, airport lounges, and clients sites. Franklin Becker of Cornell refers to this distinction when he writes that alternative officing was made up of "many different strategies and methods of using or not using office space." This distinction between intra-office alternatives and alternative beyond the office was important since the consequences for individual employees, management, or the entire organization could differ substantially. The distinction also shows that new office concepts could mean the dissolution of the idea of the office as we know it: the virtual office is the ultimate alternative - no office at all.

The types of new workplace strategies concerned with the use of space in the office, the type that I focus on in this part of my dissertation, varied considerably. Names of new office strategies thrown around at the conference and elsewhere, for example included free address, universal plan, team or collaborative spaces, hoteling, non-territorial office, hot-desking, group address, shared assigned, just-in-time. These strategies can be grouped into several rough categories. I introduce three of them. One type centered on making change easier.

Some office designers put, for instance, wheels on desks and chairs to be able to quickly

---

41 As head of Bosti Associates, a consulting and research institute, Brill claimed to have researched and worked on more than seventy alternative officing projects. He presented himself as voice of reason and reality in a sometimes exuberant sounding field. (1998).

42 The quote is from the "Planning and managing the workplace," course taught by Franklin Becker at Cornell University, College of Human Ecology, Department of Design and Environmental Analyses, Spring 2001, (course web site online at instruct1.cit.cornell.edu/Courses/dea453_653/ideabook1/3jin_ting/Ideabook3/defintion.htm; downloaded August 2002)

43 Definition attempts for all these terms can be found, for example, in Becker (1999); Sims (1996); Wallace (2000).
reassemble work groups by pushing around furniture.44 (Figure 1.1) Others, in contrast, tried a universal plan, which specified, in the words of the research director of a furniture manufacturer at the conference "a standardized office layout and footprint that allows companies to move people rather than furniture."45 Standard-size cubicles or workstations facilitate flexibility since they need little rebuilding when employees move around in the office. However, it is not clear what was new or alternative about such a universal plan, since it seems to epitomize the worst features of traditional offices expressed so vividly in the cubicle world of Dilbert. A second type of new office concepts was mainly about increasing communication and collaboration in the office, for example through creating specifically designed office areas for teams or by tearing down barriers such as office or cubicle walls between people.

The perhaps most distinctive and most publicized alternative workplace schemes abolished individually assigned workplaces altogether. Such schemes no longer provided permanent dedicated workstations to their employees; rather they encouraged the shared or temporary use of workplaces. Together with virtual offices, it was these non-territorial offices that had come to be identified by the general public with the trend in alternative officing since they presented the most far-reaching departure from traditional offices. (They were called "non-territorial" because employees had to give up their personal space.) Different versions with varying forms of workplace allocation existed: free address, for example, described a model of unassigned workspace on a first-come first serve basis, hoteling referred to the use of a reservation systems, and hotdesking stressed a quick turn-over rate.46 The

---

44 Another example of a flexible and mobile design with "big obvious wheels" on furniture is KPMG Peat Marwick's Silicon Valley plant; see (Davy 1999).
46 The lexicon of new officing is a fascinating topic in itself, with telling genealogies, rich images, and diverse connotations. Like officing, both hoteling and hot-desking use the genund form to describe an office strategy. Unlike officing, these two terms draw on an external imagery: The analogy to a hotel where customers come to rent rooms just for a short time was brought into circulation by Ernst &
majority of alternative workplace strategies within the office fell into one of these three categories: flexibility, team work and collaboration, and a non-territorial workplace allocation.

These distinctions were usually either based on the ways the office was physically changed or on the purpose of these interventions, and often both. That is, the different alternative office strategies were usually distinguished by the design strategies they employed or, in some cases, by what these strategies were supposed to achieve.

To understand what the transformation in office work was about it is not enough to distinguish different types of office innovation, it is necessary to ask what these strategies were supposed to accomplish, why they were undertaken, and how they worked. I will take a closer look at examples of the most distinctive of the workplace strategies.

Three cases of new office concepts

Through the comparison of three real-life office examples, fairly well known in the literature on workplace issues, I hope to show how these new offices apply spatial and technological strategies to build new work environments and alter the organization of work. Although in one way or another they all use non-territorial ways of allocating workplaces, they apply them to different professions and employ them in different ways and to different purposes. The results either de-emphasize or re-emphasize the office as major environment for work. These cases also demonstrate that there are multiple goals for new office models. In addition, they confirm that new office schemes are usually initiated by management and do not represent employees' interests equally.

---

Young. *Hot-desking* has its roots in a US navy's term for the sharing of bunks by sailors on different watches. *Free address*, first circulated by the Japanese, hints at liberation, and *non-territorial*, coined by MIT researcher Thomas Allen, reveals a shifting value-system regarding space ownership. See Sims et al. (1996, 39) for some of these genealogies.
Anderson Consulting

An example of a specific version of a non-territorial office can be found at Anderson Consulting (which was not long ago renamed Accenture). One of the five biggest management consulting firms with circa 65,000 employees in forty-eight countries, Anderson Consulting started in the early and mid-nineties to rethink their existing office design to take into account the work reality of a consulting business. Based on research conducted in cooperation with the London based architecture and consulting firm JFC for the parent company Anderson Worldwide, they developed new office concepts that were first implemented abroad and subsequently piloted in the Boston office as first US site in early 1997. Boston served successfully as demonstration object and test case for the rest of the company, and by 2000 about sixty percent of their offices were organized in the new way. Their new office concept followed a hoteling approach characterized by the absence of personally owned offices and a reservation system through which workplaces could be booked in advance.

When I visited the office in the morning of a late spring day in 2000 most arriving employees went straight to a computer terminal at the reception desk to check into the computer system. This way employees found out which office space they were supposed to use for the day. The building was friendly, warm and colorful. It had three floors with identical layouts to make orientation easier. According to the staff person who gave me a tour of the facility, the Wellesley office had 235 open and 109 closed workspaces at the time. Calculating that there were about 1100 employees in Boston and taking into account the two other smaller locations in the Boston area, my informant guessed the employee to

---

47 Most of the information about Anderson Consulting is based on a telephone conversation with Carolyn Clark Beattle (one of persons responsible for the transformation process at Anderson) in May 2000, and information gathered during a tour of their Boston, Wellesley office in July 2000 that was given by Ralph Autilio, Service Coordinator. Today Arthur Anderson no longer exists. The consulting arm was spun off as Accenture a couple of years ago, before the big accounting scandals that caused the implosion of Arthur Anderson.
workplace ratio as roughly three to one - one workplace for any three employees. On any
given day there were usually about 180 to 200 people in the building, he estimated, the rest of
them were either in the other two offices or, the majority, out at client sites. Many of the
"associates" were out Monday to Thursday at their clients and returned only Fridays back to
the office.

The reservation system was the core of the hoteling approach. Since none of the
consultants had dedicated desks, there had to be a system in place to assign workplaces
temporarily as needed. For the typical consultant-employee it worked like this: they needed
to make a reservation for a workspaces one day in advance by calling in or logging in to their
intranet and requesting an office, typically for a day. Although they could express specific
preferences, for example for a closed room, a room with windows, or a room close to their
support person, there was no guarantee that they would get their first choice.

Upon arrival at the office the next day, the consultants would login to the central
system to find their assigned office space. Whether an open cubicle or a room with doors,
their workplace for the day would be clean and stacked with the usual office material including
the right nametag out front; phone calls to their personal number would automatically arrive
at their desk. Their laptops plugged in to the system and once logged in they would learn
which printer was assigned to them. The intranet could tell them the location of their other
temporary colleagues. In addition, navigational and locator systems for finding one's way
around the building or finding others were installed in strategic locations throughout the
building. At the end of the day, the employees were required to take all personal belongings
with them. (If the reservation was for more than one day, employees were asked to leave
their things in a neat pile, in case they were sick or had an unforeseen meeting the next day.)

The reservations were managed behind the scenes by a group of employees. The
reservations center staff matched available workspaces with desired ones but gave preference
to seniority. Once the next day's plan was finished, space coordinator and attendants put on
the nametags, "refreshed" the workplace, and left it prepared for the next day.

Next to the reservable individual workplaces, the office also offered a number of other spaces: meeting rooms, collaborative team spaces, phone cells for private calls, a large cafeteria, and a number of non-bookable workstations. There was also a central filing space on each floor where employees kept their files and belongings. The amount of filing space depended on rank: partners had three drawers, consultants one, and analysts, the lowest in the hierarchy, none at all. The tightly controlled filing rules were intended to help support the "paperless office", as one of the space coordinators told me. From time to time they organized "pack-and-purge" days, and at one of these days they apparently had thrown out twenty tons of paper.

While the temporary workplace reservation system was for the firm's consultants, other groups, such as support staff, HR personnel, and the reservation and coordination system staff had semi-permanent workspaces bookable for up to one year. The space coordinator, for example, had a desk in a corner off one of the hallways, and many of the executive assistants were located together in pools separated by half-height partitions. They could also ask for more filing space if needed and some used filing carts, or "pods," on wheels.

In exchange for having to give up a personal space, the new office offered a number of "perks" to the consultants, various benefits that made working long hours easier. They offered a dry cleaning service in the building, a subsidized errand service which did everything from walking employees' dogs to having the oil in their cars changed, and a concierge who could make restaurant reservations or order flowers or gifts. On Fridays a masseur and a manicurist came into the office to give employees brief relief from their work.

Anderson's office demonstrated how a non-territorial office looked in a high-status professional organization. Consultancy is particularly suited for some of these changes because of the high percentage of absence from the office. On the other hand, management consultants are a status conscious and privileged group that needed to be treated well in order
to remain in their jobs or find them attractive in the first place (this was especially true in the boom years before 2000).

Anderson Consulting's hoteling approach to their work environments was motivated by two factors. One was cost savings; the other was related to organizational goals. According to one of the leaders of the conversion process, the huge percentage of out-of-the-office time made the call for personal offices highly questionable. Not only would valuable office space remain empty for most of the time, the office would then also feel deserted, which conflicted with others of the firm's organizational goals. Being in the consulting business, senior management put much emphasis on knowledge management and exchange, the informant clarified, and when the consultants were in the office they should be able to talk and interact as easily as possible. The high percentage of open workspaces was to ensure an increased level of interaction and a softening of departmental divisions. In addition, because of relatively high attrition rates, the exposure to others ought to be even more intense. (Some of the money saved for real estate was apparently reinvested into general furnishing, the technological systems, and the perks available at the office. "Road warriors want the office to feel like home when they are there" she said.)

This case showed the complicated mechanics hoteling required. Specifically, there were two main space-related strategies at the base of Anderson's workplace model. First, there was the increased number of open workspaces, more than twice as many as enclosed ones, which was intended to improve communication between employees. The second and central spatial strategy was the abolishing of individual workplaces for the main group of employees and a corresponding layout with a range of additional spaces to compensate for the loss of permanent and private office space. Here the goal was to reduce overall space needs and perhaps also to keep a certain occupant density in the building. Since all levels of consultants were subject to the new space policies, it also de-emphasized hierarchies, but did not eliminate them.
These spatial strategies were accompanied by a number of sophisticated technological strategies to make the new concept work, make it more productive, and deal with some of its consequences. Elaborate technological systems dealt with the specific challenges generated by the principle of temporary workplaces and issues of mobility. They ranged from the distribution of the scarce resource of workplaces in the first place, to the laptops and routing of phone calls, to the allocation of printers, to the way to locate colleagues, and to the navigation in the building overall.\(^{48}\)

While Anderson's office concept acknowledged the importance of the office as a place for employees to work, meet colleagues, and experience the company, the next example grants the office itself less significance.

**IBM**

At *Alt.office* a high-level manager from IBM's Global Sales & Distribution department introduced their *Mobility Initiative*, which strongly emphasized virtual and mobile work.\(^{49}\) Beginning in 1994, IBM had introduced a "going mobile" program for their worldwide sales force that resulted in over ten thousand mobile employees in the US alone. Supported by a range of spatial and technological innovations, the planners implemented countrywide mobility centers with an overall sharing ratio of four employees per workspace. The technological tools included space reservations systems, personal "follow me" phone numbers, and an electronic software delivery system for laptops. To reach the high sharing ratio, employees were expected to work in a number of different locations, including their

---

\(^{48}\) These highly sophisticated technological systems at times needed special help from human labor: since those who settled for touch-down spaces apparently tended to forget their location, the service staff had started to routinely write down every morning who sat where. Perhaps a design flaw in the login system, perhaps conscious omission, but in practice even the touchdown spaces needed to be accounted for. As a result the high-tech environment relied on people walking around and talking notes about employee's locations. (Personal conversation Autilio, Ralph, July 2000)
homes, "on the road," at customer sites, or "anywhere."\textsuperscript{50}

IBM's employees were apparently both lured and forced into the new model. On the one hand they were promised high quality technology, on the other the changes were implemented during a period of downsizing. The speaker from IBM summarized the latter part of their strategy openly: "You want to keep your job, you go mobile."

IBM's case illustrates how field-going employees appear especially suitable to a kind of office scheme that emphasized the virtual and mobile side of workplaces. The presentation left little doubt that the initiative's focus was on the production of as much mobility as productivity justified or employees tolerated. Charts displaying the changing cost-structure demonstrated that the initiative's motivation to save costs through real estate reduction was highly successful.

The example also shows how an investment in sophisticated technological tools was necessary to make the new office reality functioning. The technology was offered as a kind of ersatz object for the loss of space. IBM's example also illustrates that management and employees might have different opinions about the new office concept.

If at Anderson the transformation of office life was guided by pragmatic concerns and an interest to facilitate exchange, and at IBM the focus was on mobility and costs, the next example, also non-territorial, was driven by a more radical vision. I have mentioned the advertising agency Chiat Day before; here I want to discuss the specific strategies and goals of the design in more detail.

\textbf{Chiat Day}

About eight years ago, in 1994, the advertising agency Chiat-Day, known for their

\textsuperscript{49} My insights into IBM's Mobility Initiative are limited to the presentation at the conference and a couple of references in the literature. More recently, IBM introduced a new initiative that placed renewed value on the office environment.

\textsuperscript{50} Egan (1998)
innovative advertisements, generated a swirl of media attention by announcing their "virtual agency." Moving to a new location in New York City the firm had redesigned their office space in order to allow for more mobile and virtual ways of working. What that meant was not the end of the office as common physical space, as the term virtual may suggest, rather Jay Chiat, head of the agency and engine behind the change, decreed the abolishing of personal space as the major defining characteristic of office work. In the new office, none of the employees had any dedicated office space, not even the boss himself. Instead, everybody picked up their necessary equipment, a portable phone and a laptop, in the morning and signed up for a workspace when they needed it. (Figure 1.2) As the agency's management clarified in a statement: "No one will have his or her own space because space is no longer dedicated to the individual."52

Often employees did not use a desk at all. Journalists visiting the agency reported on employees busily working on their laptops in lounge chairs or roaming the hallways while transacting business phone calls with clients.

"Everywhere, leaning against walls, curled up in red beanbag chairs, walking in aimless circles, sitting at tables in the jazzy company cafe, are Chiat-Day's employees with portable phones pressed against their left ears and palms pressed against their right ears. [...] There is no place for them to rest for more than a moment, and so they keep moving, talking to somebody somewhere."53

Not only should there be no personally owned offices, there were no more enclosed individual workspaces as well. The physical space was redesigned accordingly: public areas, such as meeting places and project rooms, both open and enclosed, were added while individual work space was reduced. Indeed, the new design assumed that about one third of

51 See for example Buchanan (1995); Frank (1994); Illingworth (1994); Muschamp (1994).
52 Laurie Coots was the Business Development Director at Chiat-Day at the time. The statement is from a short essay that chronicles the development of the "virtual agency" idea. Coots, Laurie ca. 1995. "Resources in the Virtual Office." Internal document posted at their website. (Was online at www.tbwa.com).
employees would be absent at any one time. Personal belongings found room in high-school style lockers, the only personal and permanent dedicated space left in the office - in the physical office, that is. For personal workspace was supposed to move on-line into an elaborately designed electronic space.

The virtual environment, called Oxygen, presumable to express its life supporting qualities, was where employees were supposed to meet, communicate and interact no matter where their physical location, somewhere in the office or anywhere in the world, as long as they had access to a phone line. Oxygen was based on a room metaphor, like the text-based social virtual environments such as MUDs (Multi-User-Dimensions) that became popular at the time. But unlike these, Chiat-Day's virtual office system was graphical: workers were represented by icons made from headshot photographs, the various individual or common rooms were colorful and visually interesting, and people should be able to move around the virtual space with the navigational help of a map that looked like a subway plan.

The idea was that agency employees should have their individual offices now in the virtual space, online. It was the virtual office that employees could customize with colorful wallpapers to make themselves at home. Through their virtual office, employees had access to shared resources, such as files, images, archives, or applications. In the virtual office their co-workers could visit them, chat with them (per keyboard as in a chat-room), leave notes when they were not there, or exchange files with them. In the words of the designers of the young startup company developing the site, these virtual offices were designed as an "electronic social medium" to facilitate "social communication with a particular emphasis on flexible and mobile collaboration." Chiat Day's vision of their office was fairly consistent, the division of labor quite clear: while in physical space the emphasis was on the public and collective, the electronic space was geared towards the individual and personal.

53 Jacobs (1994)
Consequently, despite the signifier "virtual," the design by New York star architect Gaetano Pesce stressed the office's physicality and drew attention to the office in new ways. The painted floors stretched through the space as huge colorful screens of cartoon-art, walls seemed made of consumer objects, such as video tapes or remote controls, rather than bricks, lamps protruded into hallways like alien worms, and doors could be shaped like lips or a bottle. In other words, the design did not seem to miss an opportunity to make a statement against the usual gray world of boring office environments. The industry's main asset, creativity, was signified in every corner of the office. As a result Chiat-Day's office looked like a pop-art stage set rather than a workplace.

Chiat Day is a fascinating case study for many reasons. No other place brought together all the different office elements in such a unique way, combining uncompromising changes in work organization with an exuberant interior architecture and a visionary cutting-edge technological system. It promoted new ways of working like no other case, generating hype, spreading slogans and making visible what was at stake in the realm of work. In the more differentiated and sober terminology of a few years later, one might have called this wild arrangement a non-territorial open plan office with project team spaces, or perhaps a mobile office with a free address system and a collaborative virtual environment, or an intranet-based paperless office with functional space allocation.

Jay Chiat's motivation was hardly cost saving, and probably not even predominantly productivity. (He later commented that he counted it as a success that after the move into the new environment the quality of their work did not suffer.) What drove the shift was his conviction to transform work into something he felt was needed to move into the future. This new definition was governed by rather abstract principles, such as mobility, collectivity, an embrace of virtual technologies, and non-hierarchical gestures. But above all it was a

---

54 Chung (1995)
definition not based on territory or place, but on activity. "Work is not something you go to, work is something you do."\textsuperscript{55} Territoriality in Chiat's eyes was an out-dated concept and the cause for stagnation in work.

Chiat Day in the end was as good an example of their marketing skills as of a dramatic change in the organization of work. No other business received quite the same amount of attention from the industry and from popular media. And no other business understood quite as well how to market themselves through their office environment experiments. The fairly radical vision was able to capture the imagination of the business community and the media who for the most part applauded the advent of the "virtual office" and perceived Chiat Day as one of its best examples. From \textit{Fortune} to the \textit{New York Times}, \textit{Time} and \textit{Esquire}, journalists reported zealously on Chiat-Day as it was "reinventing the architecture of work" (Frank 1994). Advertising companies are in the business of creating images, they are after all "selling dreams." An agency like Chiat Day, famous for its creative and innovative advertising, worked constantly on its reputation as its major asset. As one of their T-shirt slogans, "innovate or die," suggested, selling innovation was part of their business. When Jay Chiat declared technology the fashion of the nineties, his statement explains the appeal to make technology part of Chiat-Day's corporate identity. It also explains the uncritical treatment of matters 'virtual' or 'cyber' by the public discourse of the time. The media did Chiat-Day's advertising for free - if they did not even pay for it: In a move rivaling the shrewdness of Tom Sawyer in Mark Twain's famous story, Chiat Day at one point started to ask money for their office tours, charging others for their self-advertising.\textsuperscript{56}

Chiat Day's case is unique in some other ways as well. No other experiment was quite so ambiguous in whether it was a success or failure. In many respects the attempt failed. The

\footnotesize{\textsuperscript{55} Illingworth (1994). The same thought was expressed by others as well. Lee Psinakis, director of channel development with AT&T is quoted as saying "Work is no longer a place you go, it's a job that gets done." (Anderson 1995, 32)}
celebrated and ambitious electronic space never moved beyond the pilot stage, many employees complained loudly about the chaotic working conditions if they didn't resist the system more openly in the first place, and, soon, after a merger with another larger agency, a number of the innovations were watered down or taken back. But from a different angle, the trial also can be seen as fairly successful. With hardly any transition period, training, or change management as it would be called today, the agency survived the ad-hoc jump into uncharted territory and adapted to far-reaching transformations. The realization of the electronic space with the technical means of the early 1990s resulted in a system too slow and cumbersome for everyday use but the concept itself looked promising. And the early retreat by the new owners may have been due as much to the new owners' taste as to clear signs of failure - rumor has it that the new bosses could not live without their privileged corner offices.

The details of the case, its politics, its public visibility and its outcome aside for a moment, the ad agency launched a fearless attempt to substantially redefine office work and redesign the office as its traditional location. They deployed a number of far-reaching spatial and technological interventions, such as altering the physical space and building an electronic space that partially simulated the former. These strategies were to change where and how agency employees worked and what kind of firm the agency would be. The office was turned into a public space, whereas communication, privacy, and personal territory were delegated, or relegated, to the realm of the virtual.

**Strategies and goals**

Although the above examples all broke with traditional "territorial" work space assignments and withheld from employees personal and permanent workplaces, they differed substantially. They differed in the way the resulting office spaces looked and felt, how

---

56 Ted Colgate, Chiat-day, personal conversation, November 1997.
employees found their temporary workplaces and used the office, and how seriously the
office was taken as a central place to work: from IBM's emphasis on the virtual, to
Anderson's attempt to provide a productive home for nomads, to Chiat-Day's visionary
hybrid space that celebrated mobility and virtuality.

The three examples also varied in their target clientele: IBM singled out sales people, an
already fairly mobile group; Anderson focused on consultants for their hoteling scheme while
other staff had open but semi-permanent workspaces; Chiat Day was the only company that
imposed their non-territorial concepts on everybody, not just field-going employees (which
may explain the number of complaints). Workers who work out of the office a lot are
particularly, but not exclusively, prone to this kind of non-territorial arrangement.

Furthermore, from their own articulations the motivation behind the office redesigns
was largely different for the three companies. According to Anderson, their reorganization
was guided by a mixed rationale combining revenue concerns with the intent to change social
and communicative practices among employees along with their overall organizational
culture. They hoped to improve interaction across functional divisions and foster the
exchange of knowledge. IBM's interest in abandoning the one-person-one-desk principle
seemed primarily based on cost savings. In the case of Chiat-Day the motivation was less
clear-cut. If one takes their own words at face value, it was on the one hand an ambitious
attempt to adjust work to the perceived future reality of a virtual age marked by the absence
of territory, stable locations, and paper. On the other hand there was the vague belief that
creative work needed to be dynamic and project oriented. Most likely, but not admitted
directly, this was mixed with an astute sense of self-promotion. In addition, Anderson and
Chiat-Day also claimed to empower workers by giving them more choices about where they
worked and by limiting the use of space as status symbol. The flattening of hierarchies,
however, was more or less imposed from above and remained limited. Finally, Anderson and
IBM also had in mind to improve flexibility that a non-assigned and open layout could offer
their organizations. In short, there are multiple and different kinds of rationales behind most alternative workplace strategies.

IBM, Anderson, and Chiat-Day have in common that they rethought the role, function, and meaning of space in the context of work. Like all non-traditional officing models, they used strategies to alter the configuration, location, and arrangements of workspaces and workplaces and transformed the spatial order of office environments. Their central approach was to break the traditional association between people and their desks or offices; a second one was to open up closed spaces and create more open environments. A third way, not used by all firms, was to shift the ratio between private and public spaces by redistributing individually used space to public areas, project and team rooms, and other shared usages. Another strategy was to enlist external locations as additional places to work, a kind of outsourcing of space: client offices for Anderson, a range of locations for IBM, and undefined locations in the case of Chiat-Day.

While space was an explicit and central strategy, technology was less in the foreground but equally important for new officing. Technology was primarily enlisted to make the novel spatial configurations and social organizations work. From reservation, booking, and communication systems to kinds of digital environments that simulated some of the traditional spaces, technologies were supposed to help people find their temporary workplaces, contact their colleagues in their changing locations, access their files while moving around, and communicate without fixed locations. Without the tools, infrastructures, or work environment, the new workspaces and organizational forms of offices could not have functioned. The role, function, and meaning of technology in the context of work was redefined as well.

This triangle between space, technology, and the social organization of work is at the heart of the new office strategies. The relations between these three dimensions define the transformation of office work. This triangle maps onto a widespread organizational division
of labor within contemporary corporations between facility planners, information technologists, and human resources personnel, with their respective responsibilities for issues of real estate and work space, technology, and people. This triple emphasis was also expressed in the structure of the Alt.office conference: the program sessions were divided into main tracks covering spatial/environmental, technological, and human/organizational aspects of new officing with an additional track that dealt with their integration. Indeed, a stated goal of the conference organizers was to overcome the usual gap between the corporate division by bringing together the three different functional groups and having them talk to each other and coordinate their activities to change contemporary office work.

Why now - the rhetoric of conditions and reasons

I have discussed the multiple types of motivation that appear to drive the experimentation with office concept. Yet, one question remains: what motivates this interest in new office models now? Why do businesses challenge long-standing principles and perceptions about work, productivity, offices and workplaces now? Earlier, I already hinted at some of the factors responsible for the sudden interest in workplace change in business circles and among the wider public, but what do the participants say themselves? What are the reasons organizations and commentators give for the changes at the current time? Saving costs has always been important, but why do companies focus now on real estate to improve the bottom line? What makes flexibility such an urgent task, why is increased interaction considered important, and why do less hierarchical organizations now appear a valuable objective? Listening to those who initiate and advocate these changes may or may not

57 Taken from the list of participating professional associations some of the professional groups involved were facility managers, IT professionals, facilitators, architects and interior designers. (The officially endorsing associations included International Facility Management Association, Society for Information Management, American Society of Interior Designers, American Institute of Architects, and International Association of Facilitators.)
produce the actual reasons. It does, however, illustrate the ideology that both surrounds and drives the current transformation of office work.

The *Alt. office* conference from 1998 turns out to be a rich source for such an inquiry. A good number of talks during the conference attempted to link the new office models with larger trends and conditions that in their view forced companies to consider alternatives to their current office organization.

"The challenge facing corporate America as we approach the end of the 20th century is to find alternative organizational strategies [...] that are capable of responding to the new competitive realities."[58]

This session speaker named increased competitive pressure, others invoked globalization, an accelerated pace of change, and technology as larger conditions that required their response. Yet, these conditions and their links to office work often remained vague.

One exception was a researcher from a furniture company who combined an analysis of larger economical and business trends with her discussion of alternative workplace models. She observed a shift from a labor-based economy to one that was based on innovation characterized by "customization," "intellectual capital," and "agile structures." Together with other trends, such as the rise to dominance of office work, emerging shifts toward flatter and more team-based organizations, the increased use of information and communication technologies in the office, and an accelerated pace of change, these shifts required, she concluded, "agile" organizations and people, "elastic" interior architectures of the office, as well as "dynamic" floor plans. Alternative office solutions such as universal or open plans, non-territorial or virtual offices promised to accomplish just that. This way, the researcher drew the connection between the stated need for agility and flexibility and the spatial, technological and organizational strategies to achieve this. The semiotic triple jump agile-elastic-dynamic as applied to organizations, architectures, and floor plans in particular
knitted together organizational and spatial changes.

The German office innovation initiative *Office 21* also strove to contextualize and theorize office innovation more systematically in the context of larger societal and economic changes. The research initiative used a particularly wide-angle lens to look at the office. For the scenarios of plausible future worlds they constructed, they took into consideration and integrated a number of key factors that in their view played into the development of office work. This included shifts to an information economy and knowledge society, a restructuring of the corporate landscape, changes in employment relations, globalization, the role of the family, social integration or disintegration in society, architectural developments, and various media and technological developments including cultural attitudes towards them. None of these factors where highly developed in themselves, but the resulting accounts still reflected a relatively sophisticated attempt to understand changes in office work in their relation to other social, political, and cultural events and currents. The final global scenario, named "Orion," was chosen over two alternatives: it painted a world that was highly technologized, invested in progress, and individual-driven rather than organized along social values.

Among the larger forces often cited as cause for new office solutions by many new officing advocates, technology was frequently portrayed as strategic actor both in the role of culprit creating the situation that required new forms of offices and in the role of savior making them possible. Because of technology there was an accelerated path, intensified competition, more need for flexibility, and the expectation to work mobile and virtual. But technology also enabled us to change organizations to face these conditions. This double role of technology as cause and remedy is nicely expressed in the following session abstract from the *Alt.office* conference:

---

58 Sutherland (1998)
"This session looks at the challenges facing many facility managers as change in the workplace reaches warp speed and how the same technology that is accelerating change to an increasingly unmanageable pace may actually hold the key to a solution."  

The double-edged character of technology as condition and tool was related to the centrality of change as the operative term in most accounts of alternative office concepts. Change was the reason why new ways had to be tried, and change was the answer to the current condition; change was a reason for activity and also its goal. "We are in the midst of a new and constantly changing work culture," stated one speaker and went on to argue that therefore we needed to change our offices and our work culture. Such a tautology creates a near-perfect rhetorical perpetuum motion machine that sustains its own progress and movement endlessly: change creates change creates change. In this production machine, technology was a pivotal gear. 

At work here was a functional or strategic technological determinism, which may or may not have stemmed from a flawed view of the forces of history. Rather it served a calculated function within the arguments or ideologies of the presenters. Among the roles played by this kind of wide-spread technological determinism was to justify otherwise controversial managerial decisions by delegating responsibility to a non-human actor, to conceal the effect of other forces, such as market structures, or to exploit a contemporary rose-colored technoutopian climate in which technology's invisible hand cannot possibly err. 

The answer presented, in short, to the question of why alternative office schemes were needed now, was simple: larger forces force the change on us; new ways to organize work are the necessary answer to larger shifts; change is required to respond to change and prepare for change; technology is needed to face the challenges provided by technology. 

---

59 Dixon (1998)
Conclusion

In this section I discussed recent transformations in office and information-based work as a trend that has employed strategies of space and technology to change the physical character of the office, the organization of work, and the culture of companies. I described this trend as a powerful shift in how many organizations think about workplaces and organizational change. Although the experimentation with new or alternative office concepts has not resulted in the reorganization of a majority of offices, the rhetoric of new officing, I argued, has become the dominant discourse for thinking about offices and information work. Or, at least, this was the case at the end of the 1990s when the interest in reorganizing office work was further stimulated by a particular cultural moment characterized by a euphoric relationship to technology and an uncritical belief in a new economy. I suggested that the search for new office concepts turned into something like a movement through the work of what I called articulation centers. The narratives of articulators helped to make individual events part of a cultural dynamic or social movement that was further powered by substantial media attention.

The new office concepts, I showed, had many faces and pursued multiple objectives. Some changes emphasized workplaces outside of the traditional office, others intended to alter the office itself. Among those I distinguished three types that changed offices to improve teamwork and collaboration, facilitated flexibility, or abolished permanent workplaces. Analyzing concrete alternative office concepts of the third type, I showed that most new officing concepts used spatial and technological strategies as instruments of change. Spatial strategies included the location, spatial arrangements and temporal designations of workplaces; information and communication technologies were employed to make these new

---

60 The discussion of technological determinism within science and technology studies has a long history; see Marx & Smith (1994), Fischer (1992). Only recently have researchers turned attention to its strategic function where actors use a form of determinism as conscious strategy (Boczkowski 1997).
spatial arrangements work, that is to balance the loss of fixed locations, provide the tools for mobile and virtual forms, and also to offer new kinds of work environments.

The motivation behind these new office concepts differed. Some goals reflected typical managerial interests, such as reducing costs, or, less traditionally, increasing organizational flexibility. But many new office designs meant to change the social organization and culture of a workplace to increase communication and collaboration, enable more mobile work styles, or challenge deeply entrenched beliefs about work. In general, new office concepts worked towards flatter, more collaborative, open, dynamic, flexible, mobile, and virtual ways of working.

Those responsible for the transformation in office design mainly pointed to larger shifts as reasons for their new designs, such as changes in the competitive landscape, the speed of business, and technology. Technology's double role as both cause and remedy made it play a pivotal part in the discourse of change that justified new organizational forms and modes of work. New workplace strategies were deeply enmeshed in these rhetorical systems with their self-fulfilling qualities.

This anatomy of current shifts in office work, expressed through new spatial configurations and shaped by information and communication technologies, raises a number of issues. Presented from the perspective of those who promote new office schemes, the discussion up to this point has not analyzed how these ideas function in practice: how the new offices actually work, what kind of organizations result from these changes, and what it means for workers to work that way. While I presented intentions and ideas, the reality of new office concepts and workplace arrangements has remained unexamined.

How exactly, for example, do the different spatial and technological strategies achieve organizational change in offices? How compatible are the multiple goals and strategies? What assumptions about space, work, technology, and people do these concepts embody? What
other unexpected or unintended consequences do the reconfigurations entail? Moreover, how do employees respond to their changed workplaces and spaces? Do they accept the spatial and organizational transformations, or do they resist the new order of work? Who has control in these allegedly more collaborative, open, flexible, mobile, and less hierarchical work environments?

These and other issues I will address in the chapters to come. Yet, the following section will contextualize the current trend further. So far, I have implied that the current developments are in fact new, but is this the case?
2 - ROOTS AND RECURRENCES - OFFICE Escapes

Skeptics may argue that "new" and alternative office designs are far from new, that there were open plan offices before and that they did not work. They may further challenge the claims by proponents of the new designs that the designs offer more choice and flexibility and liberate workers. The skeptics may invoke scientific management's attempts to rationalize work in order to point out that it would not be the first time that managers changed workspaces to make work more efficient and productive. On the other hand, advocates for the new trend may counter that their designs provide transparent and communication-friendly environments, while it is the traditional cubicle environments that are Taylorist in their rigid focus on standardized shapes and forms.

This chapter looks at the concept of "office landscaping," a German office innovation from the 1950s, in order to address the above debate and examine the genealogy of today's "innovative" office concepts. Following the story of office landscaping from Germany to the U.S., I argue that not only did the German concept contribute to the evolution of today's cubicle environments, it is also an antecedent of sorts to today's "new" officing. The similarities between the German concept and today's trend show that some of the features of contemporary office innovations are not as new as their proponents claim. The differences, in contrast, highlight what is innovative about the spatial and technological regimes of the present-day office schemes.

I also explore some of the intellectual roots of the concept of office landscaping to approach the question of management control. I discuss how broader managerial discourses with different control strategies, from scientific management to human relations and systems
theory, have continuously influenced the design and organization of offices. Landscaping's connections to cybernetics suggest influences, however, that go beyond Taylorist approaches. This raises the question of what regimes of control might underlie today's alternative office concepts.

**Bürolandschaft in Germany**

In the 1950s a peculiar approach to office design and organization emerged in Germany. In fundamentally challenging the existing assumptions about offices, this approach altered the way offices were thought about and designed for decades to come, not only in Germany but around the world. Developed in the last years of the decade by a group of self-styled office planners and consultants known under the name Quickborner Team (after the town where they were located) the concept was called "Bürolandschaft." Office landscapes introduced a particular type of open plan office to post-war Germans that became the hot new model throughout the sixties, dominated discussions among architects, office planners and organizational executives, and triggered a lively public debate on the pros and cons of the novel work experience for white-collar workers. Although in some aspects influenced by earlier North American developments in office design and furniture, office landscapes were a German invention grown from the 'economic miracle' with eclectic intellectual roots ranging from the field of art to systems theory and cybernetics. When exported to the U.S. in the late sixties it generated interest as well as amazement and skepticism. An architectural journal compared the "strange invention by the Germans" to a theater lobby, a cruise ship, or a modern airport.¹

¹ Quoted in Ottlik (1966, 53).
What are office landscapes?

The idea of office landscapes called into question the dominant form of office layouts that had been standard in Germany until the 1950s. Office buildings were highly standardized in size and layout, consisting of one, two, or sometimes three rows of enclosed rooms accessible through long narrow hallways. Most of these "corridor offices" were occupied by two to six office workers, while single rooms were the privilege of higher level employees.

A Bürorandschaft, in contrast, was a large open room without internal partitions or enclosed rooms that included most, if not all, of a company's office employees. The feature that made the most prominent impression to the wider public was the offices' visual appearance. Stepping into an office landscape, the most noticeable new features were the carpeted floors, movable screens, voluminous plantings, multiple colors and above all, the so-called "free furniture arrangement." (Figure 2.1) Instead of using parallel rows, the German system laid out desks in all kinds of directions, with seemingly random angles and no discernible order. (Figure 2.2) The first impression was often one of chaos and anarchy rather than of efficient and rational design. The "free flowing" or "organic" design, as the Quickborner planners sometimes called it, together with the plants, the wall-to-wall

---

2 There had been few exceptions to this near-standard. Some banks and insurance companies had had large open spaces, and a few large manufacturers, such as Siemens and Borsig in Berlin, had open plan administrative offices as early as the turn of the century; see Boje (1968, 20).

3 The standard layout of traditional office buildings originated in the small-room principle and in part even from furniture measurements. Eberhard Schnelle, one of the fathers of the concept of office landscaping, wrote in 1963: "The interior and exterior form of office buildings became a problem in Germany only after the war. Prior to that, office buildings were designed with a very similar structure derived from static and hierarchical ideas. This structure resulted from the attempt to bring into line the architectural layout of the building with those office measurements that were seen to determine the ground plan. These were the measurements of the desk, the chair, the filing cabinet, and the single, double, or multi-person room." (Schnelle 1963, 13). (English translations of original German texts are generally by me, unless noted otherwise.) The size of offices was fixed in depth but variable in length, determined by the distance between windows. Single offices typically had the length of one window, rooms occupied by two to four workers that of two windows, and so on. The depth of the rooms and the overall ground plan of the office was typically determined by the length of office desks, which were set-up orthogonally to the windows, plus appropriate space for filing and walking. (Gottschalk 1967), (Kraemer 1969)
carpeting, and spots of empty space invited the landscape designation.\textsuperscript{4} Other innovations were centrally controlled lightning and air conditioning systems, a first in Germany, that were meant to provide equal work environments throughout the entire space. The design also included noise reducing ceilings and a grid of power and telephone jacks hidden in the floor.

The free irregular furniture arrangement also distinguished the Bürolandschaft from the U.S. model of open offices increasingly common since the nineteen twenties and thirties. The large unpartitioned offices were called bullpens for their long rectilinear rows of often identical looking, densely packed desks. (Figure 2.3) The German inventors of office landscaping explicitly rejected the U.S. system of "mindless" rows of desks and denounced it as either "military-style" or class-room-like.\textsuperscript{5}

"The open plan office is not a hall where planners forgot to put walls in and even less that extensive office type in the U.S. where the glass boxes of middle-management occupy all the windowed walls and the desks are laid out in endless boring rows in the inside without day light."\textsuperscript{6}

To distinguish the German open plans, office landscaping advocates dubbed the U.S. open designs "office halls" ( Bürosäle) or "American plan." In the United States these kind of pre-bürolandschaft open spaces are often called "open pool" spaces.\textsuperscript{7} In the following discussion, I use "open plan" as a more generic term for large open office spaces and "office landscaping" or "Bürolandschaft" as one specific kind of open plan, designed according to the

\textsuperscript{4} Kurd Alsleben, one of the three inventors of the concept, confirmed that it was indeed the landscape-like appearance brought about primarily by a more organic furniture arrangement that made them think of office landscape as an appropriate name in the late 1950s. Once the name was in circulation it provided an opportunity for others to play with the image. A commentator in a German weekly magazine suggested, for example, that an office landscape could invite thoughts "not of a tree nursery but of a natural, albeit ordered, park." (Manfred Sacks in Die Zeit, cited in Boje 1968, p. 38)

\textsuperscript{5} "The usual mindless military-style rows [of desks] get dissolved," writes Kurd Alsleben (1960, 29).

\textsuperscript{6} Eberhard Schnelle in Gottschalk (1968, 14).

\textsuperscript{7} See Pile (1978)
Quickborner team's principles. 8

How different the experience of an office landscape may have felt can be glimpsed from the commentary by a British observer in the mid-sixties, who described an imagined visit to the new office type:

"The office is entered in the centre of a vast floor. [...] The windows seem a long way away - perhaps 100 feet - but sunlight can still be seen in the trees and on the roofs of the factory shed outside. Desks, furniture and equipment are disposed, apparently at random, amid portable acoustic screens and tub plants. We begin to notice that there are many more people working in the office than we first thought. Because of the screens and the random disposition of desks, we are not a focus of attention as we make our way down the wide circulation path to the desk of the man we have come to see. That he is of some importance is made clear by the fact that he enjoys more space and better equipment than his staff - but still he takes his place on the open floor, as does the managing director. The colours of the walls, curtains, carpet and furniture have been chosen to enhance the feeling of spaciousness. Actually the noise level is surprisingly low: this is mainly due to the use of absorvent material in the ceiling and impact-absorbing carpet on the floor, but is also connected with the psychological factor that carpeting seems to be associated in people's minds with comfort, perhaps even with home, so they behave more gently, less exuberantly, on it. In this office, no one is shouting; even the telephones have lost their strident ring. The typists are grouped in a far corner, almost hidden behind screens and foliage. [...] The standard of equipment is high; it is light and elegantly designed. Everything is portable: even filing boxes are fitted with castors." 9

The rationale for a different concept of office organization

The concept of office landscaping was not mainly aesthetic, however. The turn away from both small-group offices and the North American type of open plan offices was reasoned for with a number of well-aligned functional arguments that focused either on organizational aspects of the office or on the quality of the work environment. The idea of Bürolandschaft was the result of a serious discontent with the traditional small room office

---

8 The German word for open plan is "Grossraum," which literally means big or large room and is opposed to a "Kleinraumbüro" (small room office) or "Kleingruppenbüro" (small group office).
concepts that were increasingly seen as inflexible, uncommunicative and unproductive. The developers of office landscapes, therefore, promoted as its main advantages flexibility, an unimpeded workflow, improved communication, and shortened circulation.

The concept was developed from organizational considerations as well as studies that showed how the flow of documents in the typical administrative offices of German industrial companies followed a cumbersome and elongated path. The way functional divisions of, for example, a mail-order company were usually located in the building, was according to organizational charts rather than the actual workflow. As a result, documents zigzagged in and out of many rooms and spanned several floors during their work life, slowing down work processes considerably. (Figure 2.4) Yet, by seating all concerned parties in the same room a functional layout could be determined that optimized the path of documents (bills, orders, receipts, punch cards, or whatever the material to be worked on was). (Figure 2.5) Moreover, the inventors of the office landscaping concept claimed, what was true for work material was also the case for people. The new open plans could shorten the walking traffic by employees and so speed up work. Furthermore, overall communication was highly improved in open plan offices compared to the traditional small room layout, the Germans asserted. The ease of seeing and walking over to a person could dramatically reduce the use of phone calls and of written office notes and memos, the much hated symptoms of inflated bureaucracies.

Of equal importance was the other main organizational argument for a large open plan, its flexibility. Changes in size and make-up of individual divisions or departments that required large remodeling efforts in a traditional set-up, could be handled quickly in an open plan. Early reports from existing office landscapes in Germany confirmed that rearrangements were often possible within a few hours and with the help of a few men who helped push furniture around after work.

---

These organizational arguments mainly justified the need for a functional open plan. The case for the particular landscaping version was established by another set of principles designed to improve the "work environment" and through that the comfort level and performance of office workers. At times called "ergonomic," these issues in fact ranged from environmental to social and psychological concerns. Bürolandschaften, their inventors claimed, offered more stimulation than smaller room solutions while generating less distraction or interruption than these, with the exception of single occupancy offices. The logic behind this argument was that larger rooms generated a level of background noise that could mask individual sounds so that they produced little distraction and offered some privacy. Individual conversations, for example, could only be overheard from a very short distance, the Quickborners argued, so that the common fear over the loss of privacy in open plan seemed largely unfounded. For this effect to work, a minimal room size was necessary since smaller rooms could not provide the necessary acoustic background. An ideal size for a Bürolandschaft was seen to be 38 by 38 meters or about 115 by 115 feet.\textsuperscript{10} Wall-to-wall carpets, acoustical low ceilings (less than 9 feet), textile covered screens, and furniture with few plain surfaces were other measures aimed at keeping the noise at a comfortable level. The size of the rooms made the fairly new central air-conditioning and modern lighting systems necessary in order to warrant good air quality, stable temperatures, and satisfactory lighting conditions at every workplace in the office.

On the social and psychological level, the proponents of office landscapes reasoned that while small room offices promoted the formation of cliques, the large open plan fostered a sense of community, an awareness of the work of others, and a feel of participation and ownership in the company. Moreover, the irregular furniture arrangement had not only functional reasons, but also social and psychological ones. It set different functional groups or

\textsuperscript{10} Kurd Alsleben, personal phone conversation, August 2002.
teams apart from each other. Since all desks belonging to one group looked in the same
direction but were at a different angle from the neighboring groups, the angular arrangement
was supposed to provide a sense of group identity that ought to counter the feared loss of
identity in open environments. (Figure 2.6) In addition, the angles were also a measure to
provide privacy. They helped avoid having two people face each other or directly observe
each other's work areas. In addition, free-standing screens and plantings with exotic looking
plants were placed to cut lines of sight and give workers a sense of protection from the back.

Through all these measures, the particular asymmetrical furniture arrangement was
meant to create for individual workers "subjective spaces" (subjective Räume) that worked as
the illusion of a smaller room in the vast open plan. In contrast to the large architectural
space, these individually experienced spaces were supposed to provide a sense of belonging
and comfort. According to Kurd Alsleben, who developed the concept early on, the creation
of successful subjective spaces required a skillful arrangement of furniture on a case to case
basis. At the same time, designers had to be careful to retain some transparency not create
the illusion of enclosed rooms. Thus, the seemingly confusing appearance so strongly
identified with the office landscaping concept, turned out to be the result of a large number of
functional, organizational, social, environmental, and psychological considerations. The
Quickborner office planners developed a set of sixty-eight guidelines that were to inform the
furniture arrangement in order to optimize the effect of such large spaces.

Another dramatic departure from contemporary office planning was the treatment of
difference in rank and status. In office landscapes, group and division managers were supposed
to sit next to their employees because they were part of the work and communication flow of

---

11 The illusion of closed room would generate the wrong expectations, argued Alsleben and warned that
screens should never be aligned as walls but always leave space in between. The slightly curved design
of their own movable screens helped to avoid building walls with them. The illusion of a closed room
including the wrong expectations these generate is exactly what today's cubicle offices 'accomplish.'
Alsleben (1960)

12 Alsleben (1965)
their teams. Only the most senior executives were exempt from this rule on the basis of a more limited overlap in work. Yet, even they were encouraged to join the open space to avoid a two-class system of space use (and the blocking of valuable windows). Perhaps surprisingly, some chairmen, CEOs, and boards of companies choose to voluntarily move into the office landscape. Proponents of office landscapes emphasized functional considerations rather than representative purposes. Although the latter were not ignored they received less attention than in both traditional German and American offices. Since higher level employees usually needed an extra table for visitors or received more visual and acoustic privacy protection, their workplaces in the open plan were distinguishable from those of regular employees; the choice of furniture allowed additional differences. Yet, opportunities for the display of status were much reduced compared to regular office arrangements. The less-hierarchy conscious approach of the Quickborner team was rooted in a belief in larger historical changes, in particular "the dissolution of one-dimensional systems of leadership and rank into more complex management structures."\(^{13}\)

To summarize, the concept of office landscaping was motivated by a number of organizational considerations related to communication and work flow and the intent to create a high quality work environment that took into account psychological, social and some aesthetic considerations. Transparency, openness, team-orientation, communication, comfort, and a certain equality, as well as flexibility, functionality, and performance were the principles that were embodied in the designs or the concept of bürolandschaft. The concept both assumed and encouraged responsible and self-guided worker; this notion was, for example, expressed in another often-quoted characteristic of office landscapes, the comfortably equipped break room, or break corner, open to all employees at all times.

\(^{13}\) Schnelle (1968, 13)
The story of bürolandschaft

The concept of office landscaping including its catchy name was developed by a relatively small group of planners, "organizers"\textsuperscript{14} and consultants associated with the town of Quickborn, located near Hamburg in Northern Germany.\textsuperscript{15} They became known under the name "Quickborner Team" in Germany as well as in the United States.

Eberhard Schnelle worked in his father's office equipment and furniture company near Hamburg, when he met Kurd Alsleben around 1956. Becoming friends they began a collaboration that over the next four years would produce the basic ideas of a novel approach to office planning and design. None of them had specific training or education in either architecture or planning, but Eberhard Schnelle's work for his father's company gave him some practical experience in the field and a focus on the office. The company, Velox-Werke, developed flexible filing systems and movable "organizational furniture" (Organisationmöbel) - a small typewriter desk with wheels, for example, was called "Mobile."\textsuperscript{16} The firm's stress on adaptability, flexibility, and movability seemed to have had some influence on Eberhard Schnelle's thinking. Kurd Alsleben had studied fine arts and worked in a museum before they met. This might explain his interest in aesthetic issues and a certain psychological and sociological sensibility. Still working for Velox, the two quickly widened their focus from furniture to questions of office organization and planning and began to advise firms on the planning of their new offices.\textsuperscript{17}

Although from the very beginning the offices they helped to plan were open plans with

\textsuperscript{14} The word "Organisator" in German is not an everyday term like "organizer" in English; it was used by the Quickborner team as a professional title.
\textsuperscript{15} The information stems from a number of conversations or written exchanges with key players, including Kurd Alsleben, Wolfgang Schnelle, Ottomar Gottschalk, Wieland Witt, and Dirk Schnelle in 2000 and 2001.
\textsuperscript{16} The quote is from a Velox advertisement in Schnelle (1958, 174).
\textsuperscript{17} The very first project done by Alsleben and Schnelle under the name "Velox Organisationsteam" was the redesign of the main customer hall of the municipal utilities in Luebeck, Germany; see Gottschalk in (Schnelle 1958).
functional layouts, only their third project in 1960 showed the characteristic asymmetrical furniture configuration that would become the trademark of their approach. The design for _Buch und Ton_ a division of the media company _Bertelsmann_ gave room to 250 workplaces on a square-shaped ground plan of about three thousand square meter (about thirty thousand square feet). The office acquired some fame and quickly became one of the demonstration objects for the new approach to office planning. Many of the basic ideas and principles of the concept had been worked out by 1960 when Kurd Alsleben left and others joined the Quickborner team, among them Eberhard's younger brother Wolfgang and a couple of years later the architect Ottomar Gottschalk.

In the following decade office building redesigns or new constructions with open plan offices spread throughout Germany. One expert estimated that around the mid-sixties more than thirty new office projects had been completed as open plan and a larger number were in planning. A publication from the late sixties spoke of fifty successful open plan offices built in the ten years prior, among them many well-known names in Germany, such as Krupp (steel manufacturers) Bertelsmann (media/publishing), VW (automobile), Allianz-Versicherungen (insurance), Osram (lighting), Boehringer (pharmaceutical), and BP Hamburg (petrochemical).

The size of these new or redesigned offices varied. While on average office landscapes gave space to about 200 employees, some had as few as 70 workplaces and others up to 400 employees in one room. Office buildings with several floors sometimes put more than a thousand employees in open plan. Since the new demands for large open floor space could rarely be satisfied with existing office buildings, the shift to office landscaping and open plan more generally asked for and generated a new kind of office building with larger and less rectangularly shaped floor plans.\(^\text{18}\) This way the new office concept might even have

\(^{18}\) Some architects started to develop building plans based on triangular or hexagonal shapes which, they argued, would both make open plans of the right shape and allow for flexible extensions when needed.
contributed to a shift in the shape of office buildings and through that in the urban landscapes in general.

Not all of the new offices were planned with input from the Quickborner team, and not all of them were office landscapes in the sense defined above. Other architects and planners took up the Quickborner method and some firms were selective about which of the ideas they included. The Quickborners complained that their concept was being diluted and too often cost considerations took priority over organizational and ergonomic ones. Nonetheless, a good number of German companies had decided to have their administrative offices as landscapes, including headquarters of large corporations. Starting in the early sixties the Quickborner team exported their concept to other countries as well and helped organize, for instance, projects in Sweden, The Netherlands, Belgium, Italy, the UK, Hong Kong, the U.S., Australia and Saudi Arabia.¹⁹

The Quickborners not only implemented Bürolandschaften, they also gave the movement a strong voice. In the early sixties the main drivers behind the office landscaping concept founded their own publishing house, Verlag Schnelle, where they and others could publicize their ideas regarding organizations, office planning, and related subjects. They edited, for example, the journal, Kommunikation: Zeitschrift für Organisationskybernetik, that became the main outlet for their ideas of office landscaping and its theoretical underpinnings (I will return to this journal below).

In the mid seventies firms started to move away again from the large open plan offices. A trend to smaller offices resurfaced. Work processes had changed in the meantime and resistance from employees against open plan office grew. The opinions differ on why this happened. While some claim this was the case because the problems of the large open spaces

---

¹⁹ See Duffy (1969, 29)
for employees become more and more apparent and could no longer be neglected; others say that the reasons should be sought in the watering down of the original concept. By that time, the Quickbronner team had already split into various separate consulting firms and a couple of the original members had moved to teaching positions at universities.  

The Quickbronner Team, during the height of their consulting activity as planners and organizers, apparently had no office of their own. With the exception of some kind of training facility to train industry representatives in their approach, the Quickborners were kind of a proto-virtual firm, traveling most of the time.

**Office landscape's reception in Germany**

How were these fairly different kinds of offices received in Germany? In the beginning office landscapes were new and different enough from the traditional image of an office that hesitation by both management and employees was to be expected. Yet, the idea spread quickly and new landscaped offices were adopted at a surprising pace. The topic also seemed to have captured the public imagination, since the question of whether to adopt open plan or not, was debated widely not only in specialized magazines but also in popular and national newspapers. The level of interest the topic attracted suggests that the issues raised by office landscapes touched on some larger themes that post-war German society was concerned with. Office landscape struck a note in part because it was linked to the question how Germans wanted to see and fashion themselves in the new republic.

As the German post-war economy grew fast and like many other Western economies shifted towards white-collar and service activities, new offices were urgently needed. In the first years after the war, rebuilding efforts had focused on production facilities, but now the neglected administrative sector demanded attention. Not only was there a need for many new

---

20 While the *Quickbronner Team* still exists, the Schnelle brothers founded a new consulting business, *Metaplan*, that focused on the organizational planning process; the architect Gottschalk taught at the
office workplaces, but the type of office activities seemed to have changed as well: business leaders and planners lamented a new kind of unpredictability and a new pace of change that made planning into the future difficult. Flexibility was therefore seen as vital. Moreover, a new type of work organization and of management seemed appropriate as well. Collaboration and team-work were embraced as crucial in the new time. It is likely that such considerations were not only economically based, but also a kind of allergic reaction to Germany's recent past. In addition, the fifties and early sixties were a time characterized by a strong belief in progress and an openness towards experimentation. All these factors contributed to the appeal of the new concept.

The commentary by the chairman of a large German lighting manufacturer that had decided to design the new headquarters according to office landscaping ideas expressed some of these sentiments. In a company brochure describing the newly constructed building he is cited:

"It is a building in which walls fell, in which we follow a new path. We attempt to improve the collaboration in the center of a large and branched-out firm by bringing people together more closely and to encourage them to discuss and exchange their opinions. Rationalizing and simplifying our administration, we foster and extend team work, which is so difficult in Germany."

The brochure from the lighting firm went on to explain that an open plan had emerged as the best solution to their organizational problems. Having never considered the American "office halls," they chose the concept of Bürolandschaft since it would realize "respect for the individual personality of each employee," and create a physical work environment that raised self-esteem and comfort-levels. In addition, office landscapes facilitated

\footnote{University in Berlin, and Kurd Alsleben became professor of the aesthetics of information in Hamburg.}
\footnote{Interview Gottschalk.}
\footnote{Heinrich Freiberger in Osram (1967).}
communication and adapted to changing task constellations.

Other reports from early experiments were similarly encouraging. From the perspective of the firms, office landscapes were considered a success. Although office landscapes did not really save space - the Quickborner team maintained that they were space neutral - and cost savings only occurred over time because lower maintenance costs offset the higher initial investment, planners, managers, and architects seemed to agree that the new open spaces had substantial organizational advantages.

A speaker for the Bertelsmann publishing company, which implemented perhaps the first real office landscape, concluded in a detailed report on their experience that management found the office satisfactory as well. Overall performance had improved, the flow of information had quickened, change in work organization had become easier, and the corporate climate had grown more friendly and civilized as well. Members of the Quickborner Team remembered as well that the new office design was generally accepted without problems, not only among management but also among workers.

The position of workers towards the innovation, however, was not that straightforward. Without doubt, bürolandschaft and open plan were on people's mind when the decade progressed. Benefits and problems with the new concepts were debated widely in popular magazines and newspapers and in companies planning to introduce the new concept. Resistance could be strong. Workers expressed their dislike of moving into the supposedly impersonal, anonymous, and distracting spaces without privacy, fearing loss of identity, "massification" (Vermassung) and constant surveillance. (Figure 2.7) The list of anticipated complaints could be quite long. If my contemporary sources can be trusted, employees' unease and discontent faded quickly, however, once they had first-hand experience with the

\[\text{Schuldes (1968)}\]

\[\text{Boje and Schuldes list and discuss typical complaints and fears by workers who are about or just moved into an open plan office (Boje 1968, Schuldes 1968).}\]
new office reality. Although problems with central air conditioning and the even with noise levels persisted in some cases, employees apparently found everyday life in the office landscape much easier and more pleasant than expected. The unusually luxurious ambience for an office was attractive, the ease in communication appealing, and the place conveyed a sense of progress and civility. Workers might have both loved and hated the open plan at the same time.

A satirical publication on behavioral rules in open plan expressed this love-hate relationship quite nicely. The publication was written as a tongue-in-cheek manners-booklet presenting behavioral guidelines to make life in office landscapes "unbearable." Published presumable by management of one of the office landscapes to promote responsible behavior by employees, it also pointed to the many ways in which life in a large open plan office could go wrong; the humorous cartoons revealed the potential chaotic character of such offices. The recommended behavior included keeping a messy desk, taking short-cuts through plantings and using them as ashtrays, shouting to colleagues in other corners of the room, visiting one's boss when he has visitors, rearranging one's desk every day anew - and keeping coats and umbrellas close to one's desk. (Figure 2.8)

"Dripping rain-coats, umbrellas and rubber boots ought to be kept close to your workplace. Hanging the items over plants, screens, or your desk interrupts the monotonous layout and gives your workplace a personal touch. Using the coat-check would be an irresponsible waste of time."26

Interestingly, unions came to support open plans as well. Both the big umbrella

---

25 The more civilized and social tone in the large open space was apparently a major selling point; it also expressed the kind of social engineering that some imagined the new open office to achieve. While the traditional small group office was depicted as gossip-ridden and filled with office intrigue, the public quality of all conversations and interactions seemed to have leveled some of the more intense personal relationships, conflicts with higher level employees, or idiosyncratic personalities. It was as if the wider views would entail wider horizons and the open plan could generate a new modern personality type made for the public nature and the transparent ambience, both confident and considerate, socially adept and with nothing to hide. (Boje 1968)
organization, the German federation of labor unions, and the German white-collar union endorsed the new open plan concept if they fulfilled a list of claims the unions had established, which included for example minimum space requirements per worker and an asymmetrical furniture arrangement.\textsuperscript{27}

Middle management often had strong objections as well, since they frequently lost the privacy of single rooms and the prestige that carried. Reflecting back from today, the architect Gottschalk, saw this as the one major problem they did not address properly at the time.\textsuperscript{28}

Generally, while the concept of bürolandschaft raised both interest and fears in the larger population, in practice it was fairly successful for at least a decade. (Headquarters of corporations as well as administrative work in particular were seen to be good candidates for the new model, but draftsmen, engineering and more creative work was also seen as appropriate.) In the early to mid nineteen seventies the tables started to turn. Resistance among workers grew, perhaps because some of the initial problems turned out to be not just initial, perhaps because the curiosity the concept had generated earlier had disappeared once it was no longer new, perhaps because a different kind of self-consciousness evolved in social democratic Germany. But the decline of office landscapes and more generally open plan offices was not just caused by user dissatisfaction; according to one of the members of the Quickborner team, changes in the work itself contributed to it as well. As work processes changed through the increased use of electronic data processing the original motivation for an open plan became less applicable. With electronic forms of processing data the work flow was less and less identical with the physical movement of documents and an office layout designed to shorten these movements less pressing. In the end it was technology, he argued,

\textsuperscript{26} Reinhard Mohn GmbH (1968). The title of the brochure reads: "A hair-raising story. Life philosophy of an office landscape grouch as how-to manual."
\textsuperscript{27} See DM test, and Boje 1968.
that brought the end of bürolandschaft.29

**The office as cybernetic system**

Office landscaping was not just an invention thought up by a group of people in Germany soon after the World War II; it was a development that relied on a number of techniques and technologies, such as air conditioning, lighting, noise reduction, lowered ceilings, and power and communication infrastructures, without which a large open space could not serve as a productive workplace for several hundred people. But it was also a development that drew on or occurred within particular intellectual traditions and cultural contexts that affected its outcome in crucial ways. As mentioned earlier, German society and culture found itself in a phase of rebuilding from a devastating war and recovering from an equally devastating political regime (not to mention the digestion, or perhaps repression as it were, of the collective responsibility for unbelievable horrors).

Office landscaping - as a design approach, organizational theory, planning method, and ideology of work - developed under the influence of system theory and cybernetics. I do not know to which degree the two original fathers of the concept, Eberhard Schnelle and Kurd Alsleben, were influenced by these theories in the first three or four years when they first outlined the idea of office landscaping. Later the influence is unmistakable, not just through the emphasis on communication and information flows but also explicitly in the language used and the institutional contacts and alliances the main players formed. After 1960 they made contacts with cyberneticians in Stuttgart, Karlsruhe and in France with whom they cooperated to develop a notion of cybernetics of organization. This approach found its

---

29 Others argue that the labor intensive research and planning process made changes difficult after all, not because of fixed furniture but because the research and consulting required to bring the planners and organizers back into the firm for any change in work processes. Frank Duffy, personal conversation, November 1999.
expression in a number of book and journal publications.

In 1965 the publishing house Schnelle launched a journal called Kommunikation - Zeitschrift für Planungs- und Organsationskybernetik (Kommunikation - Journal for cybernetics of planning and organization). It was published in German and English. In its first edition the editors described its mission:

"KOMMUNIKATION is of interest for the employer, the planner, the organizer, and the scientist. [...] KOMMUNIKATION contains contributions concerning the fields of the knowledge and application of organization, planning, cybernetics, and data processing as well as other related scientific knowledge."  

The journal was the main outlet for the Quickborner team’s approach to the organization of work, planning processes, and issues of communication. It also published articles by a number of contemporary cyberneticists. Another journal they published was Grundlagenstudi en zu Kybernetik und Geisteswissenschaften (Basic studies in cybernetics and humanities). Kurd Alsleben was also editor of a handbook on cybernetics. Lexikon der Kybernetik.  

The language of cybernetics and of systems marked the writing and thinking of the Quickborner team. Eberhard Schnelle wrote in a preface to the book of one of his colleagues’ in 1963:

"Office work is (...) always information processing in a sociological system called group, department, firm, national or world economy. The informational processes in these systems appear as communication. [...] The planner demands a flexible office building that stimulates rather than disrupts human information processing and enables the construction and reconstruction of communication networks. He demands the open plan office."

---

30 Kommunikation (1965). The text appeared in German and English.
31 Alsleben & Müller (1964)
32 Schnelle in Gottschalk (1968). In the same place he made the connection to cybernetics explicit as well: "A new architectural concept of office buildings could develop only after office work was investigated/probed with the help of novel means of thinking that are the theories summarized under the name cybernetics. These theories enable us to use scientific methods to make partly visible, partly
While trying to articulate a cybernetics of organization, he stressed in an article in 1965 the importance of examining the "flow of information" and feedback processes in "socio-technical systems," such as offices or organizations in general.\textsuperscript{33}

Moreover, in the preface to a British monograph on the German concept, published in 1969, the author acknowledges that "office landscaping is a total planning approach in which the cybernetics of information processing are fundamental" and which creates a "controlled environment."\textsuperscript{34}

The discussion of the cybernetics connection to the concept of office landscaping is significant because it was this orientation that placed the focus on information exchange and communication, which the concept of office landscaping promised to improve so effectively. Seeing the whole administration as a system rather than a hierarchy of divisions and functional groups, the Quickborner team's idea to bring them all into one room made sense.

The Quickborner's version of office planning following principles of cybernetics did not favor an abstract view over empirical reality, however. Planning an office in fact relied heavily on extensive research and study of the existing organization, its work processes, and the lines of communication and information exchange. These studies, conducted by the planners and organizers over weeks or months before the planning would start, provided the base for determining the spatial requirements for each workplace and the existing work and communication flows. The final layout was established through a hands-on method of laying out work groups or functional divisions on the ground-plan in order to minimize the established flows and circulations; the same step was then repeated within each group or division. The Quickborners made intense use of graphical representations of their findings, from communication graphs and matrices to workplace lists that contained furniture.

\footnote{measurable, but certainly more comprehensible the information, communication, navigation and control of all sorts of processes.\textsuperscript{33}}

\footnote{Schnelle (1965, 5)
constellation drawings. (Figures 2.9 & 2.10)

A systems view through its focus on information and processes could easily forget the presence of human beings. There was another influence in the Quickborner team that seemed to bring back in the human element. This other perspective resembled less a formulated and unified theory, such as cybernetics, than an eclectic mix combining a humanist approach, an artistic sensibility, and a set of psycho-social insights. This perspective had probably its strongest representative in Kurd Alsleben who emphasized the "subjective" perception and experience of workers in the new spaces, studied the psychological effects of color on work, designed furniture arrangement in "free and irregular rhythms," after Bert Brecht's method of writing poetry of the same name and was intrigued by a Polish theory on productive action called "praxeologie." He too was fascinated by cybernetics and others in the group also pursued aesthetic and social questions and displayed an interest in the work environment (Arbeitsumwelt). The high value put on team work is likely to have drawn on the human relations movement that was prominent in the U.S. before, during, and briefly after the war.

In any case, the Quickborners' interest in creating high quality work environments resonated well with a contemporary union driven-movement to humanize work. The plans and carpets gave offices a high-standard and domestic feel; the light clear furniture design provided a modern elegance. Moreover, the concept of office landscapes encouraged the responsible, team-working, self-guiding worker and dismissed rigid behavioral rules, strict hierarchies, unreasonable status, and cumbersome bureaucratic work processes. Bürolandschaft's system view did not entirely disregard office workers' needs.

**Office landscaping and alternative officing**

This episode in the history of offices is informative in itself but it has a particular

---

34 J.M Fraser in Wankum (1969, 5).
interest in connection with today's transformations in office work. The concept of bürolandschaft in reorganizing office work and redesigning office environments shows some obvious similarities with the new officing strategies about forty years later.

Like many of today's alternative officing concepts, office landscaping favored open and transparent layouts. Like several of these, it aimed at improving communication and the exchange or flow of information, especially across functional divisions that otherwise were separated by walls or distance. Thus, the open layout was one of the strategies to facilitate communication, now and then. Related to that, office landscapes as well as many of today's alternative office schemes eschewed personal ownership of work material and ordered limitations on individual storage or filing space in favor of central systems.

Moreover, a major reason for new office models today is to make easier the rearrangement of layouts in order to adjust to changing work processes. Flexibility was a big selling point for office landscapes, as it is today's open and universal plans and non-territorial environments, and for similar reasons.

Furthermore, the Quickborner team demanded that management move into the open with their workers, much in the same way as advocates of today's office experiments promoted the allegedly flatter organizations their new environments are intended to bring about. The use of single enclosed rooms for representational purposes, as the Quickborner called it, or the use of territory as status symbols as it is talked about today, was banned in both cases because these configurations exacerbated hierarchical patterns. Although in both cases a language of rational and functional arguments was used, one can detect quite similar overtones of democratic agendas. The final major similarity between the concept of office landscapes and some of today's new officing attempts is the idea of boosting a sense of community among those who work in these 'new' environments.

Yet, in addition to these substantial similarities, there are also major differences between the nineteen nineties office reform trend and that of the nineteen fifties and sixties in
Germany. For one, workflow as such is rarely an argument today for a reorganized ground plan or the spatial organization of the office, and the exchange of information is seldom understood in terms of the movement of documents, files, or other material work objects through the room. But the perhaps most striking difference between some of the more far-reaching office redesigns today and those of the past is that in the bürolandschaft, despite many innovations, each worker had his or her own desks. The long-term connection between a workplace and a worker was not called into question by the proponents of office landscapes. Field-going employees or sales reps might have had smaller desks, but they did have their own personal permanent workplace. Office landscaping, in other words, was not a non-territorial concept.

The other big difference to today is the role and involvement of technology. Although technology played an important role for office landscaping, the type of technologies and their function was entirely different. Large open offices would not have been possible without service technologies to create environments with artificial light and air; moreover, certain kinds of office technologies, such as for example punch card machines or even typewriters needed special treatment because of the noise they produced. However, information or communication technologies were not a requirement for an open plan or a free furniture arrangement. In fact telephones, although already widespread in offices at the time, were rarely mentioned in the literature on office landscapes. A more efficient workflow, which was one of the main arguments for office landscapes, was to come from physical rearrangements. It was not seen as mediated through technology. In contrast, today's new officing strategies make heavy use of a range of advanced technological systems, to guarantee communication and collaboration when mobile, to organize filing electronically, to navigate

---

35 Yet, communication technologies were taken into consideration in the research the Quickborner planners conducted as basis of their redesigns. Communication acts were distinguished, for example, whether they were in person or over the phone.
in the temporary offices, and so on. They not only organize the immediate workflow electronically, which has been done for quite some time, but free office staff from specific locations while connecting them to their colleagues and work.

As technology was less of an indispensable part of the office, the contemporaries of office landscapes also invoked it less as one of the factors why the new concepts were necessary or made sense. To be fair, the Quickborner did mention "the introduction of information processing machines" as one of the phenomena that office planning had to take into consideration. But in the practical design and planning process it seemed to have played only a minor role. Office landscaping was predominantly a spatial (and organizational) concept.

With so many commonalities, the concept of office landscaping could almost be regarded as one of today's alternative officing concepts, or at least as their predecessor. Yet, the gap of thirty or forty years and one ocean between asks for some explanation.

In the next section I explore how the concept traveled over the Atlantic, bürolandschaft became office landscaping, and a rather radical concept contributed to a fairly conventional result.

**Bürolandschaft becomes office landscaping**

In the early nineteen sixties the bürolandschaft concept crossed the border from Germany to other countries. The Quickborner team helped plan and implement office landscapes in Sweden, the Netherlands, Belgium, Italy and the UK. Around 1964 English language publications appeared that introduced and discussed the approach and soon thereafter the first landscaped offices in the UK. Frank Duffy, an architect and today an internationally renowned expert on office design, was among the first to spread the word in
the UK in a monograph on office landscaping first published in 1966. While the writer of
the preface praised it then as the first new idea in office planning for generations, three years
later the idea was considered no longer such a novelty. "Office landscaping is no longer new.
It has arrived," stated the preface of the second edition. The praise was the same as before.
The German concept was considered a full "success" because it combined "better working
conditions for the office worker," with a concern for the "functional needs" of the
organization, and an efficient "use of space."

Facilitated by the positive reaction in the UK, the concept soon crossed the Atlantic
where American office planners started to examine the German concept with curiosity and a
certain skepticism. Office landscaping had probably its first appearance in the United States
in 1964 when Progressive Architecture magazine published an editorial report on the "new
German system of office planning" that in its look seemed "diametrically opposed to
American office planning results." "To the American eye," the magazine observed with
cautious reservation "the results of this planning may look only like primitive, outrageous,
free-form chaos; the intent of the system is serious, however."

The first landscapes were implemented in the North America in 1967, an administrative
building at Purdue University in Indiana and an office floor for a division of DuPont de
Nemours in Delaware. (Figure 2.11) In the same year articles and reports about the concept
surged and an office design magazine organized a two-day "Office Landscaping Symposium"
in Chicago, attended by "200 leading office designers from throughout the U.S.," to discuss
the new phenomenon. Other office implementations followed, and in the next few years
office landscapes captured the attention of American office designers and planners who often
gave strong approval. In 1969 the journal Office Design could claim in a special publication

36 Duffy 1969.
37 Goodman (1969, 4)
38 ibid.
that office landscaping "has become a household word among designers, turning up in their publications, conferences, discussions, and letters with startling frequency." The magazine celebrated the concept as the "most promising development on the office design horizon today." Others judged that "however healthy our skepticism, office landscape will, incontestably, become firmly rooted here."

There was also a good portion of skepticism, however. In the beginning, the seemingly illogical furniture arrangements so different from the American way of office planning could trigger "shock, laughter, outrage and curiosity." Later on, deeper insights and more experience with the concept and its result still generated some resistance. The experience with the early landscaped offices in the U.S. remained ambiguous. At DuPont, for example, the office functioned and appeared efficient and the staff became adjusted to the new order, but managers complained about the loss of privacy and there was not much enthusiasm on either side. American office designers found the process of designing landscaped offices with their sixty-eight rules too complicated and rigid - too "Germanic."

The Quickborner team had opened a U.S. branch in New York and send people to consult on the first U.S. landscape implementations. They also organized seminars and workshops to spread their ideas. But despite their efforts and although more landscaped offices were being implemented, the American reservations about these remained. The complaints were the same: the aesthetic seemed somewhat foreign, the planning and design process was too rigid, and there was too little privacy for managers and higher qualified workers. One member of the Quickborner who participated in several projects in the U.S.

---

39 Progressive Architecture (1964)
40 "Almost everyone recognizes that landscaping or open planning, may represent a turning point in our whole approach to designing for offices. it is not surprising then, that it has met with controversy and hostility in some quarters, though these attitudes seem based more on misconceptions than on a real understanding of landscaping and what it is and is not intended to accomplish. Yet certainly landscaping is still in an experimental stage in this country and its position has not yet been fully established." (Office design 1969, 9)
remembers that the big problem in the U.S. was "privacy, privacy." What worked in Germany, to seat people together without protection and the team managers among them, was seen as "outrageous" in the United States. "After all, the team leaders had waited for their offices for years."

**The United States context**

To understand some of these reactions better it may be useful to take a step back and examine what the office situation was like in the U.S. at the time the German method entered the country, how offices commonly looked and what approaches to the organization of office work were in use. This examination will make it necessary to take one brief detour back to the early twentieth century and another one further into managerial theory.

The conventional office in the U.S. before the late 1950s came mainly in two forms. One type of office building consisted of large numbers of relatively small enclosed rooms accessible from long corridors. Smaller firms might have rented just one of a few of these rooms next to each other, larger firms might have owned an entire floor. This was similar to the dominant European office pattern. Yet, since new building constructions in the U.S. had increasingly larger footprints, the number of small windowless rooms located in the interior of the floors increased.

The other conventional American office type were large open pool spaces, or bullpens, where clerical workers performing routine work sat in narrow parallel rows of desks while their managers occupied spaces along the window fronts of the room that were partitioned off. The work done in these open pools was often quite repetitive clerical work, and the organizations using this office type were typically mail-order houses, insurance companies, or certain government agencies.42

41 Progressive Architecture (1968)  
42 See John Pile, an interior designer, who has written extensively on office planning, (1978, 16)
The rise of these open pool offices was connected to the growth of corporations and the increase in office workers during the first two or three decades of the century. Some of these open pool offices carried the fingerprint of scientific management’s efforts to apply their methods not just to the shop floor but also to office work. Claiming that their methods could be as advantageous to office work as to blue-collar work, the disciples of Taylor studied and gave recommendations on any number of aspects in the office, ranging from the use of pencils to letter opening motions and from the shape of furniture to the layout of the office space.

**Scientific office management**

The theory of scientific management, or Taylorism, is well-known as an approach that claimed to utilize scientific methods to organize work more efficiently. Scientific management became famous for its time and motion studies, subsequent task segmentation and rearrangement in supposedly more efficient ways. Work rationalization, claimed its proponents, was good not only for the organization, but also for the worker who could perform better and therefore earn more money. Although Taylor argued that scientific management was concerned about the welfare of workers, they were reduced to become passive beneficiaries of the approach, not more than a wheel in a well-oiled machine thought up by somebody else. It was only experts, such as scientists, engineers, and appropriately trained managers who could make the decisions, and really *think* about and plan work. The meaning of work played no role, only the rationality of its organization. Scientific management is thus famous for its clear separation of manual and mental labor (or conception from execution as Braverman insists) and its unwavering belief in science and

---

43 Braverman argues that the first principle of Taylorism should not be phrased as separation of mental from manual labor but as separation of conception from execution. "This is because mental labor, labor done primarily in the brain, is also subjected to the same principle of separation of conception from
rationality.

With regard to the office space itself, William Henry Leffingwell, a prominent figure in the effort to apply scientific management to office work, based his suggestions primarily on three principles, the logic of the work flow, the shortening of walking distances, and the ease of supervision. In his 1917 monograph "Scientific Office Management" he argued that "the office should be so arranged that the work will pass from one division to another with the least expenditure of time and effort."\textsuperscript{44} In addition, he suggested that "aisles should be straight, running from one end of the office to the other," desks be "placed in pairs"\textsuperscript{45} with an aisle on each side, and certain equipment, such as file cabinets or water fountains that office workers needed to access often, be arranged in a way to minimize traffic. His approach becomes clear through an example of two layouts of the same office before and after the rearrangement by him.\textsuperscript{46} (Figures 2.12 & 2.13) The biggest difference lay in the workflow, or "routing" as Leffinwell called it, which he indicated through thick lines in the presented plans. He pointed out "the startling waste in the routing of the work under the old arrangement" and the "advantage obtained through laying out the office according to the principles of [scientific management]."

"Under the old layout the turtuous course of the routine channel through the office is indicated by the heavy white line. The new plan, by directing the routine in an almost straight line, has remarkably shortened the time required for an order to pass from the main opening desk to the factory."

Leffingwell also criticized a layout where clerks where almost hidden by card files, because it made supervision difficult. In his recommended layout "every clerk is visible to the

\textsuperscript{44} Leffingwell (1917, 6f).
\textsuperscript{45} ibid., p. 8
supervisor.\textsuperscript{47}

Notably, although work flow was an important aspect of office layouts under Taylorism, communication was not. In fact, in harmony with scientific management's larger principles, its application to office management tried to eliminate communication and coordination tasks among office clerks as much as possible. Communication was not seen as a clerical task and could only diminish clerks' efficiency. The arrangement of desk was therefore supposed to reduce the "necessity of the clerk even rising from his seat [...] for where the work does not flow in this manner there is a constant tendency for clerks to do their own messenger work."\textsuperscript{48} Having analyzed Leffingwell's approach scholar of work Shoshana Zuboff similarly concludes that scientific management in the office deployed a long list of measures, including layout and the standardization of methods, to "insulate the clerk from extensive communication demands."\textsuperscript{49} There was another reason to suppress communication among clerks in large office pools: "every effort should be made to reduce [talking] by urging clerks to speak in subdued tones if it is necessary to speak at all"\textsuperscript{50} in order to keep down the noise level. In short, although concerned with the flow of work, circulation efficiency, and a certain visibility and transparency, Taylorist office design either ignored communication in the office as a factor to inform layouts, or explicitly designed it out of the office.

Whether the majority of open pool spaces in the U.S. were designed explicitly after scientific office management's guidelines or not (or were consciously designed at all), their

\textsuperscript{46} Leffingwell (1917, foldout)
\textsuperscript{47} ibid, p. 187. Similar principles of visibility and clear layouts were also desirable in presentations and reports; see Yates (1989, 86 & 94).
\textsuperscript{48} Leffingwell (1925, 333) cited in Zuboff 1988, 118.
\textsuperscript{49} Zuboff (1988, 119). For Zuboff the elimination of communication from these kinds of clerical jobs was a sign of scientific management's effort to separate low level white-collar jobs from managerial activity and so create effectively a blue-collar type job in offices. Instead of "acting-with," these jobs were reduced to "acting-on." The separation of manual from mental activity or of working from planning is of course one of the characteristics of Taylorism. See Waring (1991).
layouts seemed to follow a similar logic. Thus, the large offices in existence when the German concept of office landscaping entered the stage in the U.S. still bore the imprint of scientific management. This was the case despite the fact that scientific management as dominant managerial discourse was challenged by the Human relations movement starting in the mid 1920s. Why exactly this turn in theory did not seem to have had a strong effect on the way offices were designed and organized is not entirely clear. Some observers suggest that office suppliers, developers, and furniture manufacturers who were often responsible for the shape of office buildings and its furnishing were largely unaffected by what went on in lecture halls or in the literature. Therefore, despite a substantial shift in thinking about organizational issues in the 1930s, large open plan offices of a Taylorist making apparently continued on right into the 1950s and 1960s. At this time, this type of open pool office started to disappear or get smaller, in part because electronic data processing methods started to take over some of the routine and repetitive work previously performed in these offices by clerks.

Managerial discourse

Although the influence of larger managerial discourses on actual managerial practice and organizational reality is not straightforward, it is nonetheless useful to know what kind of managerial thinking was dominant in the U.S. during the 1960s, or earlier, in order to better understand the context of office design at the time. To do that I will borrow some ideas that organization scholars Stephen Barley and Gideon Kunda have developed about how managerial theories about work and the organization of work have changed throughout the

---

50 ibid., p. 11
51 Duffy Frank, personal conversation, December 1999.
52 Some historians argue that there is hardly any relation at all between managerial theory and practice, that management theories in circulation at a specific point in time say little to nothing about how organizations were actually managed on the ground in most cases. Yet, it is likely that dominant ideologies have some effect on practice sometimes, for in the case of Taylorism the influence of science management on the organization of labor might be varied and unpredictable but also unquestionable.
twentieth century. Their thesis not only offers an interesting periodization of historical
shifts in managerial thinking, it also draws attention to the issues of control that all
organizational approaches entail. (I use only some parts of their argument and these in a
simplified and very brief fashion.)

Barley and Kunda argue that in the time period between the 1870s and the 1990s, there
have been five distinct phases of managerial discourse that they call and date in the following
way: "industrial betterment (1870-1900), "scientific management" (1900-1923), "welfare
capitalism/human relations" (1923-1955), "systems rationalism" (1955-1980) and
"organizational culture" (1980-present). Of particular interest to me is the period they call
systems rationalism because it covers the time interval of concern in this context. Barley and
Kunda argue that the thinking about organizations and their management and control in the
period after the war was characterized by a focus on the system character of organizations
and a disregard of either detailed practices or workers as human actors. Using a scientific
methodology and value systems that borrowed from the new fields and theories of
cybernetics, operations research, process theory and contingency theory, the proponents
thought that organizations could be controlled by "manipulating structures and decision
processes" and by "managing boundaries between 'subunits' and by regulating the 'input/output
interfaces' between the organization and its environment." According to the authors, this
view rendered employees either as rational actors with instrumental thinking or left them out
entirely. While Taylorism half a century earlier borrowed from mechanical engineering, the
new systems rationalism had its roots in the war effort and "appropriated concepts from
electrical engineering and computer science."

In Barley's and Kunda's periodization scheme, systems rationalism and scientific

53 Barley and Kunda clarify that systems rationalism was not a unified theory or integrated movement,
but consisted of a number of "camps" with sometimes clear differences but nevertheless a "set of
precepts that transcended their differences." (1992, 379).
management have in common a similar approach to the question of control, that is how managers can guide, manage, and control organizations and workers so that work is performed efficiently and in the interest of management. Barley and Kunda argue that both of these managerial discourses follow what they call the regime of "rational control." They focus on manipulating the system while they are concerned with workers only insofar as these had to adapt to the kind of organization that management implements. "Each portrayed the firm as a machine, either mechanical or computational, that could be analyzed into its component parts, modified, and reassembled into a more effective whole." Managers were experts and separate from workers.

Despite a number of different managerial discourses dominant at different points in history, in their view there are only two different regimes of control that theories of management followed: rational control and normative control. Managerial ideologies of the normative kind try to achieve control by focusing on the worker as human agent and on human relations and see organizations as collectives. They try to improve working conditions, induce ownership, and convince workers to contribute to the companies well-being rather than manipulate them into pursuing management's goals. Thus control has to concentrate on "worker's identities, emotions, attitudes, and beliefs." Industrial betterment, human relations, and organizational culture were discourses of normative control.  

*Post-war office organization*

Barley and Kunda's discussion of scientific management and systems rationalism as discourses of rational control raises interesting issues with regard to the 1960s approach to office design and organization. Although Barley and Kunda do not mention offices as an alternative between these two regimes of control since the 1870s, they also propose that they are fueled by a binary opposition between cultural orientations or dual visions of social order that are deeply embedded in Western cultures and driven by economic conditions. In this view the alternation between

---

54 Barley and Kunda's argument goes further. They not only suggest that managerial discourses alternative between these two regimes of control since the 1870s, they also propose that they are fueled by a binary opposition between cultural orientations or dual visions of social order that are deeply embedded in Western cultures and driven by economic conditions. In this view the alternation between
arena of these managerial discourses, nor claim a close connection between discourse and organizational practice, my discussion of office design so far proposes that office concepts always pursue some managerial goals and as such inevitably embody and express ideologies of control.

The depiction of systems rationalism prominent after the 1950s in the U.S. suggests a certain ideological climate that might explain some of the reactions office landscaping received in this country from business owners, management, and office designers. On the outside much seemed to have changed after the war: businesses left cities and moved to the suburbs, the appearance of office buildings shifted dramatically due to American architects' "belated love affair with European modernism," and war-time developments in central heating, cooling, and lighting systems brought the universally serviced "sealed buildings" still standard today.\(^{55}\) On the inside, office management and workplace design did not develop in the same way, however. Originating in Taylorized office design and reconfirmed by the positive war-time experience,\(^{56}\) the highly rationalized and grid-ordered workspaces were still prevalent in the post-war years and expressed the ideology of the "organization man."

"Organizations seek the adaptable, interchangeable person," wrote William Whyte in his famous study in 1956. Even the seemingly modern innovative interiors of some of the most famous offices built and designed in the 1960s followed a highly standardized systems approach where all aspects of the office, from the building, to partitions, to furniture, down to pencil sharpeners could be part of a total design strategy. Although their aesthetics were remarkable when compared to the often dark and dusty interiors from earlier period offices, these offices were machines embodying their own system rationalism. (Figure 2.14)

\(^{55}\) Russell 2000, 56

}\(^{56}\)
Such discourses and such types of offices may help to explain the mixed response office landscaping received in the U.S., from the strong initial attraction to the lukewarm treatment of some of its pivotal characteristics. The Quickborners' system thinking and their astute use of large open spaces and up-to-date mechanical and electric systems must have appealed to the American office planners. On the other hand, the questioning and stripping away of hierarchical privileges and the free-form furniture arrangements, no matter how convincingly justified, conformed neither to management perspectives nor to the sense of aesthetics of those in charge of workspace planning. In addition, the consequent openness and transparency of the German concept, violated the sense of privacy of all those who were not low-level, more blue- than white-collar office workers.

As a result, few cases of office landscapes in the narrow German sense survived. Yet, on the other hand, the concept had a tremendous influence on U.S. office design and organization, leading to a reexamination and revival of open plan as a flexible and productive layout. In a development that still needs to be investigated further, it appears the combination of the German open plan concept and a new type of "systems furniture" introduced first to the public through furniture maker Herman Miller's so-called Action office in the mid-sixties,\(^57\) paved the way for a development that ended in large open plan offices

---

56 The professionalization of facility management in the 1970s still seemed dominated in its early days by professionals with military background and a "focus on standards and control." (Sims et al. 1996, 1)

57 The first version of Action Office was introduced in 1964, designed by Robert Probst most likely before the advent of bürolandschaft. Based on Probst's own original research of individual workers' needs, the Action Office offered a set of office furniture specifically designed for the variety of tasks modern office workers faced throughout the day, including a separate communication module for telephone calls. The furniture also emphasized the need for storage space at the desk. Both these characteristics were further developed for Action Office II, introduced in 1967. The various work surfaces were now no longer individual pieces of furniture but attached, together with storage space, to partition walls that served the double function of backbone for work surfaces and visual protection. Moreover, Action Office II consisted of modules or "components endlessly adjustable into differing configurations." How the jump from the first free-standing version of Action Office to the panel-based second one was motivated is open. A member of the Quickborner team remembers today that Robert Probst often participated in the seminars and workshops the Quickborners organized in the U.S. and talked to them frequently in the evenings. He suggested that some of the ideas leading to Action
with single occupancy workstations protected by enveloping partitions. These cubicles have come to dominate the U.S. office world until recently.

The introduction of the Action Office furniture system more or less coincided with the appearance of office landscaping in the U.S.. Especially the later version of Action Office with its light and open panels and reconfigurable work and storage areas stations seemed to both fit the furniture requirements of office landscaping and mitigate some of the perceived shortcoming in privacy and storage space. Thus, "in the minds of American planners, the two concepts were linked up," writes John Pile, interior design consultant who chronicled the development of open plan in the U.S. The combination might have violated the principles behind both concepts, but it created successful results that seemed as "private and as attractive as any private office of a conventional type," while still more flexible and space efficient than these. The initially relatively open partition-furniture arrangements tended to turn over time into more and more closed structures until they resulted in the familiar "cubicle farms" that still fill a majority of large open plan offices in the U.S.

The return from Brecht-inspired free and open furniture arrangements to the rigid rectangular layout of most cubicle environments invites speculation about deeper historical roots. The cubicle as a largely American phenomenon was another example of how deeply the Jeffersonian grid was embedded in American culture and material reality, maintained an office architect recently. Just as it has been a major factor in shaping the American

---

Office might have been shaped by the Quickborner approach. True or not, Heman Miller's Action Office suited the open spaces of landscaped offices well enough so that the two came to be increasingly used in combination. (Witt, Wieland, personal conversation, July 2000) (Probst 1968)

Pile (1978, 34)

ibid.

The history of the cubicle still needs to be written. In addition to the influence of the concept of bürolandschaft and the development of systems furniture, such a history would need to also take into account the history of partitions, the development of office infrastructure and equipment, and changing tax regulations or developers profit schemes that both seemed to have favored walls made of furniture in contrast to ones part of buildings. (Chrysanthos Brokos, personal conversation, December 2000)
landscape, it might have dominated the landscapes of offices as well.\textsuperscript{61}

Ironically, the concept of bürolandschaft thus cleared the way for a type of office that is opposed to many of the concepts' original goals.

Conclusion

This brief episode in the history of office design illuminated a number of points. First, the concept of bürolandschaft foreshadowed the recent reconfiguration of office work. Flexible, open, transparent, and more equal work environments that support communication, team work, and collaboration were called for fifty years ago as now, sometimes in a strikingly similar rhetoric. The parallels shed some doubt on the claims to newness of both the conditions that require new office concepts and the office concepts themselves.

But these historical analyses accentuate the differences between old and new designs as well. The main differences lay in concepts of space and the role of technology. Office landscapes used space in a functional but fairly static way. Job functions, and their relation among each other, determined the layout. In contrast, the more radical 1990s office schemes used space to dynamize work; the layout in non-territorial and hoteling strategies followed not job functions but job types and to some degree work processes (I will come back to that later.) How was the difference in the use of space related to technology? Although service and construction technologies made possible the new open plans in Germany in the 1960s, communication and information technologies served only a secondary function in that time period. With the arrival of electronic data processing, one of the primary reasons for the adventurous office plans would become obsolete. Once documents were moved electronically, the physical office layout no longer needed to optimize the work flow in the same manner. In a sense, office landscaping was premised on the absence of advanced information and

\textsuperscript{61} Jill Ingram, personal communication, December 1999. Jefferson introduced the one acre grid,
communication technologies, insofar as the emergence of computers contributed to the concept's decline.\textsuperscript{62}

For today, the link between non-territorial concepts and technology is indisputable. The exact relation is less clear, however. Today's office designers, for example, often claim that recent technological advances to make technology more mobile are the necessary condition for non-territorial office concepts. This may be the case but it is at least a two-step process from office landscapes to today. What justified the territorial workplace allocation in the case of office landscaping was not that staff were chained to their desks by personal but non-mobile technologies (except some professions such as typists but in most cases the equipment was not that personal). What tethered the majority of employees to their specific desks was the desk's position as part of an elaborate workflow system; the workplace was fixed in relation to others. In that sense, the new non-territorial office organization required two kinds of technologies and two steps of 'setting free' workers: first, electronic means of data processing took office workers out of the spatially fixed workflow systems while, in a next step, in the form of terminals and PCs, tying them back to their desks. Second, mobile technologies such as laptops and mobile phones (including their infrastructures) allowed office workers finally to leave their desks to which the first type of technology had chained them. (Thus, the first step untied employees from a physical position within the organization of work, but re-chained them to their desks, and the second step could liberate them finally from their desks).

However, technologies cannot be considered the only reason for the new office concept's temporary and impersonal space allocation. A shift in the cultural perception of

\textsuperscript{62}\footnote{Other factors may have contributed to the decline of Bürolandschaften in Germany as well. Architect Frank Duffy suggests that the rise of social democracy in Germany in the mid 1970s with its strong union base might have shifted perceptions and finally brought workers' concerns to the corporate boardrooms. This may be true despite the fact that unions supported the concept in the beginning. (personal conversation, December 1999)}
space was also necessary that made possible the step from personal space ownership to temporary non-territorial space use. This shift in the notion of space was related to cultural perceptions of technology, as I suggested in the last chapter. How the cultural life of space and technology are intertwined in the innovative offices, I will examine in the following chapters.

The analysis of office landscaping also showed the slightly twisted kinship structure for office concepts in the second half of the twentieth century. Curiously, office landscaping was not only a kind of conceptual predecessor of today's attempts by office designers to alter the organization and appearance of offices, it was also a predecessor of that kind of office that today's advocates of new officing consider as traditional and in need of replacement. As I hope my historical sketch of the German concept's reception in the U.S. demonstrated, bürolandschaft might have paved the way for the kinds of open plan offices that today's alternatives criticize. It might have also brought to life the kind of panel-enclosures that both the German concept and the recent reformers aimed to overcome. If office landscaping served as midwife for the cubicle office, it also manufactured the reason for its own recurrence in the new cloth of alternative officing (adjusted to a more technology-laden office reality). Both today's new office models and the "traditional" cubicle office can look back, both perhaps unknowingly, at office landscapes as their ancestor.

This whole process also involved some migrations of people and ideas across the Atlantic. While the Quickborner were inspired and influenced by many U.S.-borne ideas ranging from cybernetics to human relations, their ideas re-imported to the U.S. took on a quite different life. Many years later, the successor models of office landscaping are re-imported from the U.S. into Germany where the open plan offices did not lead to cubicled offices but were broken up into smaller office space and combi-offices.63

63 The recurrence also occurs in Germany where the office innovation initiative Office 21 that I introduced briefly in the last chapter connects both in language and design to the early bürolandschaft
Finally, this chapter introduced the issue of control. I used Barley and Kunda's thesis of alternating regimes of control in management discourse to raise the question of how office landscaping as a specific theory and practice of office organization and design fits into that picture. As an approach that employed the language of systems theory and cybernetics to increase office efficiency it would seem to follow the logic of systems rationalism and pursue a rational control strategy. In a way, it was a method to improve performance by manipulating the overall organization of a system. In addition, office landscape's large open space could serve as instruments of supervision and control. And finally, the notion of the planner as external expert who determines the best organization of the office reinforces the old Taylorite principle of the separation of conception from execution, with its potential to deskill workers.

However, office landscape's emphasis on high-quality work environments and the concern for the perspective and experience of office workers suggest a borrowing from human relations discourse and therefore a more normative notion of control. The concept appealed to workers' responsibility and interest in the organization rather than their self-interest and cared to reduce the differences in status and privileges. It also included workers' representatives in the planning processes. Finally, the large open spaces allowed less surveillance than open pool space with their separation of managers from regular employees. Ultimately, the emphasis on communication demanded by a cybernetic approach distinguished office landscaping from Taylorism, while demanding the large open spaces the effective and comfortable design of which became office landscaping's major concern.

Thus, it appears that office landscaping was a particular mix drawing on different discourses and practices. It combined the language of efficiency with the rhetoric of human relations, and the way of thinking of cybernetics with its own idiosyncratic aesthetical and developments. They recently developed an "interactive creative landscape" that included light and mobile partitions quite similar in their curvy design to the ones designed forty years ago. I do not
cultural sensibilities tied closely to the specific German historical and cultural context.

Without a more detailed study of how these offices worked in practice, how office workers actually experienced them and how the interests of the different parties involved were fought out or negotiated, claims about control and assessments of manipulation are difficult to make. The question of control is important also in the context of the recent changes in office work and the specific spatial and technological strategies involved.
3 - MOBILE WORKPLACING

In this chapter, I examine the office of an architecture firm that designed their own office as a test case for a flexible, mobile, and interactive work environment. Drawing on fieldwork in the office I explore how the designers' experimentation with alternative office models brings together technological strategies, spatial designs, social visions and organizational practices to create work ensembles with multiple competing characteristics. Responding to contradictory demands from a changing economic landscape their office tries to be physical and electronic, collective and individual, moving and stable, flexible and familiar, energizing and quiet, and relaxed and concentrated at the same time. The final balance between these competing qualities depends to some measure on the strategic deployment and use of technologies, shaping what forms of sociality will thrive in these workplaces.

The focus of this chapter is on design ideas and intentions, but in order to understand the ideas in their different aspects I also look at how the office works in practice. The following chapter predominantly investigates the practices in the office but also talks about the ideas behind the design. That is, both chapters deal with the relation between design ideas and the practice of office work but with a different focus; this chapter emphasizes design ideas while the next chapter stresses the reality of use.

Introduction: the tour

"This is the club." The architect leads the group of visitors, young architecture students from a nearby university, into the office.\(^1\) The students find themselves in a big loft-like

---

\(^1\) The following narrative is not a true depiction of one single event; rather, it is what could be called factional fiction, a composition assembled and condensed from different tours I watched or
space, the large metal-framed windows suggest the floor of a former warehouse. A few feet past the entrance the group comes to a halt in a central open space, roughly 80 feet wide, in front of an area that could be a cafe with its round tables and comfortable soft blue chairs. All the tables are occupied by people with laptops sitting in front of them. As the visitors enter, a few heads are raised and workers glance briefly at the intruders before they turn their attention back to the screens in front of them or the mobile phones held against their ears. The sound of voices, keyboards, and the distinct singsong of ringing phones, dialing modems, and alerting email programs melt into a busy but not unpleasant sound carpet.

The tour guide, an energetic man in a suit in his sixties, explains to the visitors that these tables in the "club" in front of them are not "owned" by anyone but are meant to be used on a first-come first-serve basis, especially by those employees who have no office or desk of their own. The club, he emphasizes, is purely "touch-down," it cannot be booked. Which is also true, he continues, for some of the other shared areas in the office, for example the two rows of wall-mounted bar-height workplaces next to the club. Along the windows are more traditional looking desk arrangements equipped with computers, monitors and telephones. Most of these are occupied as well. The guide identifies them as the "home-base" of design teams that are collocated in close proximity while working together on a project. Turning around, he points towards a small cluster of desks opposite the club in the middle of the open space and explains that these are the "semi-permanent workplaces" for the support staff. Behind the group, left of the entrance - the students spin around following his arm pointing from place to place - there are four tiny cell-like rooms just big enough to hold a work surface and a chair for one person that the guide identifies as "quiet booths." In one, a woman is sitting behind the glass door busily typing away at her laptop; a man is talking on the phone in another. While the students try to map the verbal description onto

---

experienced. Names, office features, their presentation, and the character of the event, however, are faithful to how I saw the tours taking place.

115
what they see, the guide moves on following the main corridor deeper into the office.

Navigating the group through the office, Wayne the guide, who turns out to be one of the founding architects of the firm, introduces his audience to the rationale behind the office concept. He has told this story before, but repetition has not dampened his enthusiasm. As a firm that specializes in workplace design, he begins, they have been promoting new office designs that are more flexible, open, and less territorial than the traditional layouts for many years. They themselves used to work in a somewhat traditional architecture office, everybody sitting behind their desks and the heads of the firm in their secluded areas. A few years ago, he continues, they decided they should take their own advice seriously, and so they set out to apply their design approach to their own office.\footnote{The redesign started in late 1997 about two years before this tour is set.} Studying their own work practices, the planning team concluded that a good number of their employees did not need private desks or offices at all. The design team handed them laptops and office-internal mobile phones and developed different kinds of work-settings to choose from according to people's work needs: most prominent among them, the open and shared (and highly wired) work areas like the club for regular kinds of work; the cells for concentrated work such as writing; and different types of meeting areas for formal or informal get-togethers. Other more residential types of workers, such as architects and designers working on longer-term design projects and requiring bigger computers and larger desk spaces, Wayne continues, are seated together with their teams in little neighborhoods they call "home-bases."

The new design, the architect concludes, works much better than their old office, mainly because it now feels more open and easier to communicate. He himself used to be removed from the rest of the office, but now he is in the middle of the action. There are some problems, he admits, but the main reason, he charges, is the current state of overcrowding of the office.
The tour returns to the entrance area. Now clients can come here - the architect sounds pleased - and see with their own eyes that an open plan doesn't have to be unfriendly and that the loss of private offices can increase the social dimension. People don't need their own desk, he proclaims, they own the whole office. The tour is over. Quickly, the guide says good-bye and hurries to the next to-do on his list while the students, impressed, stand around for another moment and take in the vivid atmosphere of this unusual office.

In tours like this, the architecture and design firm that I call JFC \(^3\) routinely presented their headquarters to clients, media representatives, students, and other architects as a living example of their approach to new office and workplace design. In these tours outsiders were introduced to both this firm's specific work and, more generally, to a changing understanding of office work. Considering themselves to be at the forefront of a present trend to rethink offices, the firm's designers had rebuilt their own office both in its organizational dimension and its spatial layout. Through such tours the visitors gained their own impression, however brief, of an office that in breaking with some long-standing and cherished traditions had left a good number of employees, including senior managers, without any personal and dedicated desks. Their impression might have come out positive enough. The shift to open and shared work environments was presented in a convincing manner, and, as far as the visitors could tell, the office inhabitants - if that was still a useful term - looked busy, but relaxed.

Yet, some visitors may have asked themselves whether the office really worked as claimed, whether the public spaces and the advocated mobility functioned as the design intended. They may have wondered what the rationale was for reorganizing offices in such a way and particularly for eliminating personal workplaces. Some may have speculated what it may mean to work in such an office on a daily basis and how such a design may affect

---

\(^3\) This and other names are altered to protect the anonymity of people and organizations.
individual work processes and the social fabric of the office.

Guided by similar questions, I take the mobile and non-territorial office of JFC as a particularly fascinating example of how new technologies, spatial designs, and current visions of work converge to substantially reshape office environments and through them the experience of work for office users. In particular I examine what larger ideas inspired this office's design and how, as a result, the organizational and social reality of the office was transformed.

I will argue that the design of JFC's office is informed by two competing visions of work that employ distinct design strategies in order to achieve particular forms of organization and sociality. The first design vision promotes a more social, interactive, and collective organization of work. The second aims at increasing mobility and flexibility to build a more responsive, dynamic, and mobile organization, yet in practice tends to generate also transience and anonymity. Based on my empirical research I present examples of how the resulting tension between these two goals plays out in the everyday life of the office.

Crucial for the design of both visions, I will analyze how space and, in particular, technology are implicated in different ways. While distinct spatial strategies underpin both the communicative office and the mobile office, technology has a less balanced role. Although on the surface technology is about connecting people, it is its close alignment with mobility that strengthens the office's temporary and transient aspects, widens the gap between the two visions, and so threatens to further individualize work.

To illustrate the close relationship between spatial strategies and forms of sociality and to illuminate further the nature of the tension between the two competing organizational visions, I discuss the notions of space and place as concepts of social and spatial orders. In the office, place and space appear less, as some social theorists in recent debates about late modernity have proposed, as progressive systems of order in history than as simultaneously existing and conflicting ways of organizing work relations. Moreover, not just shaped but
radically reformatted by electronic technologies, the workplaces and workspaces in the office need to be conceptualized as techno-spatial hybrids facilitating different social formations.

These conflicting visions of the organization of work and the strategic role of technology in them, I would suggest, are not just a characteristic of this particular office or this firm's design approach. I believe, the conflict between the increasing need for people to work together and the growing difficulty of interacting and connecting caused by constant movement and temporariness (and paradoxically amplified by information and communication technologies), identifies a pivotal contradiction running through current approaches to transforming office work, and changes in information-based work more generally.

This case of a 'new' office design raises questions about the material character of work, the social nature of space, the new recombinant work environments produced by techno-spatial designs - and the Janus-faced shift towards at one and the same time more individualized and more "socialized" forms of work.

**JFC**

JFC is an international architecture and consulting firm with headquarters in England and other offices in Europe, North America, and Australia. It was founded in 1973 by two US-educated British architects. In 1999 JFC had more than 200 employees, about 120 of them in their main office in London. JFC has acquired an international reputation for its approach to office design that responds to what they call "new ways of working." This recognition is partly based on their project history and partly on the status of the founding fathers of the firm who are acknowledged experts and internationally renowned speakers in the field. Among their clients are a number of well-known names in the insurance, chemical, telecommunication, consulting, and media industries as well as the public sector. The
architects' are not just known as space innovators that promote change in organizations through open and non-territorial office solutions. JFC's reputation is also as a research-informed design firm with a tool-box of sophisticated research methods to analyze their clients' space requirements. Since its redesign during 1997 and 1998, their own office, in addition to its regular function as innovative work environment, has also served them as laboratory to test their ideas and as a showcase for current or potential clients.

The following discussion draws on participant observation in the main office of JFC in London during seven weeks at the end of 1999. I observed the mechanics of the office and tried to understand the design and consulting work of the firm. I chose the company for their reputation in the field of innovative office design and for the opportunity to simultaneously look at the designers' design practice and their own office use. I thought there could be no better way to understand an approach to new office design than to see one of its products in action, and no clearer way to contrast design ideas and reality than having designers and users be (more or less) the same people.\footnote{Certainly this setup affected my findings. Different issues might have come up in cases where a new office layout had been designed and implemented by an outside firm. For example struggles over control could have overshadowed or distorted actual problems with the design. On the other hand, when office employees stand behind and take ownership of their design, it can be assumed that any problems arising go to the heart of the matter. Furthermore, when users are also designers they can be expected to be thoughtful and articulate about their experience.} They had some interest in me as well. Involved in user research themselves, they were curious about anthropological research strategies for studying organizations and decided to use the opportunity to "observe the observer." This way the ethnographic eye was meant not to remain unilateral. To my relief, they had plenty of other work to do.

\textbf{The non-territorial office}

Perhaps not unlike that of some tour visitors, my very first impression when I entered JFC's main office on the second floor of a refurbished Edwardian warehouse was quite
positive: it seemed friendly and lively, open and light. Although some wall-partitions broke up the loft space into separate functional areas it was a far cry from the room-and-hallway appearance of many traditional offices. The entrance area, for example, led into the center of the office, a wide open space without walls interrupting the view lines, made of different work areas, including the scattered round tables of the club, an area of support staff desks, and project team clusters towards the sides. Big windows about thirty meters apart added natural light from both sides. With wood and exposed brick the predominant materials, the coloring consisted of natural tones with a few strong color accents, such as the bright blue of the semi-soft chairs in the club or the yellow of a wall behind public workstations. One employee called the design "low key" because of its subdued color scheme. A design magazine concluded, "the ambiance is sober, but the office feels civilized and spacious."\(^5\)

When I entered the office for the first time, the atmosphere was busy but not frantic. People were sitting, standing, or walking, either working quietly by themselves, talking on the phone, or engaged in conversation with others. The movement and degree of interaction generated a certain energizing dynamism, what office workers liked to call the "buzz."

Portable pieces of technology seemed ubiquitous, especially in the central area. Connected to the nearest wall or floor jack, laptops occupied most of the desks and tables unless already equipped with a desktop computer; while identical-looking mobile phones either lay next to the computers or, almost as often, were in use.

My second impression formed after an initial tour was the absence of a single private office. The only rooms with doors I had seen, such as the small individual working cells and various-sized meeting rooms, were for temporary use only. All permanent and even the majority of temporary work spaces were in open space and without the traditional protective

\(^5\) To protect the identity of the firm, the bibliographic reference is not offered. Other references in this and the following chapter are altered.
(cubicle) walls. To understand this central aspect of the office design more fully, I needed to learn how the designers approached their task when they set out to redesign their own office back in 1997.

**The office redesign**

Henry had been with the firm for more than ten years and was now a partner and head of its small research division. He was articulate about the firm's design philosophy and had been involved in the whole process of redesign. Walking with me through the office, he told me the office's origin story which I would hear in different versions at various occasions during my stay, including during the frequent public tours. JFC had a strong reputation for their user-centered design approach that combined workers' subjective preferences with observational data on their work practices and space use. Thus when faced with the task of redesigning their own office, Henry explained, the internal planning team began by researching their own work habits.

Looking at how and where people worked, the planners decided that the firm's employees could be divided into four categories defined by their daily working patterns or work styles, technology requirements, and space use. The first two groups, about forty percent of the office staff, included those who were highly mobile and spent a good portion of their time away from their desks. This so-called "mobile office population" consisted of the "nomads," among them consultants and senior management who spent a majority of their time outside of the office working with clients, visiting other offices, or giving presentations. The second category, dubbed "independents", consisted of managers of

---

6 Later I encountered other enclosed spaces, such as an area for computer support and an additional work space on another floor. These were not included in the tours, however, presumably because they were not part of the main office, because they were recent adoptions due to the overcrowding of the office, or perhaps because they did not quite fit into the picture.

7 On their website they claimed to be "world leaders in the research and application of users' needs to the design of buildings, interiors, sites and cities."
multiple teams and researchers who worked mostly in the office but away from their desks. Since these two groups spent sixty percent and more of their time away from their desks, personal and permanent work places seemed wasted on them. An internal study conducted after the redesign, a so-called "post occupancy evaluation," quoted the original reasoning: "It was felt that giving everyone a dedicated desk that would be empty for a large part of the time was not an effective use of space." Consequently, for the new design these two groups had to relinquish their desks and instead received mobile technologies, a laptop and a mobile phone, and one meter (i.e. three feet) of fixed filing space in a general-use cabinet near the entrance area. The other two groups were "team-residents" and support staff.

Henry, as researcher, was determined an "independent." The idea was that he and other independents, nomads, or outside visitors would work at one of the new "shared" workplaces that were scattered around the new office layout and were not owned by anyone but were to be used only temporarily. They could choose between different work or "activity settings" depending on what kind of work they had to do: the enclosed "quiet booths," for example, when they needed to be without disturbance, single open workplaces in quieter zones of the office for quick use, or the lively central club with its more dense population and cafe-like styling. Henry told me that he would usually arrive in the morning, take his laptop from his lockable filing space, get his mobile phone from the recharge rack, and pick a desk or table in the club that was still available. If he had to go to a meeting during the day, he was supposed to take his stuff with him or put it back into his locker, and most likely would need to find a new table afterwards. If he needed to write he would choose a quiet booth instead. An internal

---

8 Other versions of this story spoke of five different categories, where managers of design teams were singled out as extra category. It never became clear to me, however, how they were supposed to be different from the other independents. In contrast nomads and independents, although both mobile, differed in the amount of temporary workspace that had to be provided for them within the office: independents needed more.

9 The study was conducted within a year of the redesign to evaluate the new office; [JFC]. 1998. [JFC] Post occupancy evaluation. Internal document, p. 1. This and other references are anonymized.
discussion document at JFC explained the rationale behind the principle of multiple settings:

"The premise of the activity setting is that a single workspace - an all purpose workstation - is no longer sufficient. The aim is to design a variety of spaces to accommodate the range of specialist activities undertaken within an organization. Staff are then at liberty to move between these, rather than doing all their work at a single workstation."\(^{10}\)

The other two categories of office workers were determined to be less mobile. Since they worked on design projects with others and needed large computer screens and desk spaces, many architects and designers were seated together in team areas, called "home bases." The workspaces of these "team residents" were still not considered permanent since the team was meant to occupy its home base only for the duration of a project. The support staff, the fourth category of work styles, were supposed to be easily found and thus were given – according to Henry - "semi-permanent" workplaces typically arranged in small groups. Sheila, the secretary supporting Henry and a few other senior employees, for example, sat among four others near the central entrance area and in direct view of the club. Like the team architects and designers, the support staff had desk phones and desk computers but no mobile equipment; in difference to them, they commanded some extra filing space.

**The non-territorial office**

The result of the redesign was an office with zones: semi-permanent project team zones, support staff zones, enclosed individual and group rooms, and "shared" work areas some of which were "bookable" but the majority "touch-down," to be used on a first-come first-serve basis. *Enclosed or open, owned or shared, bookable or touch-down* were the primary operative qualifiers for the new design. A self-promotional brochure presented the conceptual ground plan of the new office with the different zones color-coded according to the degree of

\(^{10}\) [JFC]. 1999. *Open plan: issues & considerations. An overview of history, trends, and issues.* (Internal discussion document, January 1999). The document was an internal discussion document intended to "assist our clients in their thinking about the new office design."
ownership, enclosure, and book-ability. (Figure 3.1) It visually represented the mix of open or enclosed, owned or shared work settings that characterized the office concept. The illustration graphically revealed how much the office redesign had pushed the environment towards the side of "open" and "shared," that is the lack of enclosed private office space and the drastic reduction of permanent individually owned workplaces. Such a non-territorial design is described in an article on office design:

"Taking the place of the one-person-to-an-office-or-desk stereotype, an assumption that has driven office design and planning for a century, is the idea of the office as a series of spaces designed to support a wide range of different tasks and activities. These task-based settings are only used on an as-needed basis." (Laing 1998)

Not all significant qualities of JFC's headquarters were manifest in space. As we will see, the technological aspects of the design were a prerequisite for the office to function as intended. Other aspects of the office design consisted of what the designers called "space policies" that were behavioral rules telling employees how to use the new work environment and what to do and what to abstain from. A "clear desk" rule, for example, required that all workplaces be cleaned up at the end of the work day and so "allow a more fluid use of non-proprietary space."11 Another rule instructed employees not to occupy a work space when not needed. Territorial behavior was outlawed.

Since these different design strategies were intended to change the way the firm worked, what precisely were the goals of the more open and temporary spaces and the portable technologies on the level of the organization of work and in terms of the social dimensions of the office? I want to suggest that what might seem like a variety of different design aspects in fact converges into two distinct and fairly coherent design narratives. Seen from the intent of the designers but also from the reality of office use, there were two competing visions of work that informed JFC's office design and shaped the office and the way it
worked.

I will present examples and quotes from the designers to underpin my claims, but I need to be clear that the specific formulation of these organizational visions - including calling them so - is my analysis and not the firm's. Although the firms' designers would hopefully agree with my description of their individual design interventions and associated intentions, they may not see them as two separate strategies and may not share my assessment of the tension between them.

The collaborative community vision

The first of the two visions of work to shape the office aimed at a more communication-intensive, social, or even communal organization where work was done together with others and tasks accomplished through collective efforts, where people knew each other, talked to each other, and learned from each other. The goals were to increase communication, collaboration and social interaction, de-emphasize individualized work patterns, and stress collectivity and community.

A number of design measures aimed directly at increasing the level of communication and collaboration among office workers and between different groups within the office. The internal discussion paper on open plan designs stated that "collaboration is [...] a fundamental part of today's office work." Similarly, Wendy who had worked as researcher for the firm for about five years explained to me that it was one of the company's axioms that especially in the more knowledge-based organizations at the end of the 20th century, communication between people was adding crucial value to what the company does.

According to the evaluation study, before the redesign, the planners had been "concerned that our existing office layout was limiting teamwork and interaction and reinforcing the

---

boundaries between groups within the company."\footnote{12} Removing barriers between people, taking workers out of enclosed offices, having them sit together in close proximity, and providing informal spaces were design strategies meant to improve team work and facilitate interaction. The idea behind open plan, for example, was that communication was easier and collaboration better in an open environment without separating walls or closed doors. With about fifteen work spaces in close proximity the club was one such open area. Whoever worked in the club sat close to others, saw them come and go, noticed their visitors, and overheard pieces of conversations, willingly or involuntarily. The reasoning was that this gave useful background information about the work of others and offered opportunities to talk with co-workers who worked on different projects. This kind of partial involvement not only occurred in the club, but also in the whole office, which contributed to a certain peripheral awareness of what was going on since no workplace was solidly cut off from the others - except of course the cells and meeting rooms whose purpose was precisely that. The club’s density, however, intensified the effect, as more people were an arm's length away and so more encounters and potential interactions might occur. According to one of the firm's directors, the belief in density as a desirable workplace strategy went back to research studies with stock brokers in New York City the firm had conducted many years ago. Comparing the amount of square feet per trader in different companies, she recollected, they had asked:

"what are the levels of density that create the element of buzz that actually seems to, in the companies that are very successful, reach a higher energy level and therefore better results, from the traders."

While at one of the more successful companies the ratio was down to 3.8 square feet of workplace per person, she explained, other less successful firms had a much lower density. The difference was noticeable: at ten square feet per person there was "no buzz, no energy,

\footnote{12} [JFC]. 1998. \textit{JFC} Post occupancy evaluation. Internal document, p. 1}
no sense of market conditions in that space."

Henry drew the connection between communication and the firm's own work environment. He stated:

"We probably do have a very clear vision as an organization of what we think an effective workplace is - Interviewer: tell me about that - I think it is exactly the same thing. we are living it in a way, it is about interaction, it is about communication, and it is about choice. [...] Therefore the club environment works for us, the quiet booths work, so that's what we think is a really good environment for any organization dealing in ideas and knowledge, - Interviewer: because? - because its about the only way you develop knowledge and talk about it and communicate and work in teams. So the environment should support those processes, compared to the traditional environment which segments the organization a lot more."

Connie was a consultant in a group at JFC called "change management," which did not design new workplaces but helped organizations with the transition to their newly designed environments. She gave an example from her own experience of one of the desired effects of an open environment on communication:

"I think the [open environment] can create that very well. I mean [our] space is quite a nice example, we cluster people in project areas because they are going on for quite some time. But recently we had some project areas broke up because the project was finished and suddenly the configuration had moved, and you, suddenly, you see somebody working on something new because it is open, and, I noticed, the project team had changed. It means I go up and ask what is going on. [...] The open environment [does that]. [...] Its got to make our communication quicker, make our knowledge transfer quicker, so that we deliver faster and better products - as a general rule."

And the discussion document quoted earlier summarizes the advantages of open plan as follows:

"An open plan office is easier to scan in order to see whether colleagues are available for a formal or informal work communication, to discuss briefly an e-mail that has been sent, or arrange the time and place of a later meeting. [...] Open plan working is intended to encourage spontaneous communication." (11)

The office concept also reflected the high value put on informal forms of interaction.
The office, said another study the practice was involved in, should be "a more likely place for spontaneous, informal face-to-face contacts."\textsuperscript{13} For many years students of organizations have proposed that informal communication, as for example around the infamous water cooler, was essential for a healthy and productive organization in that it not only helped workers to get to know each other but also formed the basis for business-related information exchanges that may not have occurred otherwise. Following this insight JFC's office was designed with a range of spaces and places in order to promote informal interaction. The "hub," for example, a set of large round tables located near the central walkway and next to a kitchen-nook, was to be used for coffee-breaks as well as for spontaneous informal meetings (in difference to the club which was mainly a work area). There were, of course, also always short conversations going on around the espresso machine. Such "functional spaces" offered "an excuse' for casual encounters," the internal discussion document suggested.\textsuperscript{14} Since "popular gathering places are those which have pleasant settings," as the document also claimed,\textsuperscript{15} living room style seating arrangements at both sides of the club meant to encourage office employees to sit down with visitors and colleagues. Wide walkways were to make it easy to stop and chat for a moment, or even to have conversations while walking. And in fact, employees acknowledged the positive effect that "bumping into people" and subsequent "informal chats" had for creating a "friendly atmosphere" which, they said, was also good for business.

Project teams were an essential component for JFC and team collaboration was supported by specific spatial arrangements. "We assume that people work in teams," researcher Wendy confirmed. "Part of the structure that is assumed by [JFC] is that the work

\footnotesize\textsuperscript{13} The study was the second in a series that investigated the relation between people, technology and work environments; [PTB-2]. 1985. Executive Overview. Harbinger Group Inc., p. 40
\footnotesize\textsuperscript{15} ibid
is done by teams and that teams have to sit together." The discussion paper argued why:

"It makes sense to promote spontaneous information sharing, while people are working at their desks. This is particularly beneficial for team working, when people need regular access to shared information."\(^{16}\)

Therefore project teams worked in "home-bases," relatively small collaborative areas with workplaces grouped together that were expected to support the constant exchange necessary during team work, to coordinate work, answer quick questions, have brief meetings, and so on. According to the same document, these collaborative seating arrangements may have also provided "an opportunity to create group identities."\(^{17}\) The name home-base suggests that the designers saw them as places to return to from client visits, meetings, and other work spaces within the office, a home for the project and the team.

The objective to facilitate collaboration and boost communication also had fairly specific goals. As knowledge management had become an industry-wide concern, changes in work environments were looked at for improving the flow of information and the exchange of knowledge across functional areas. Larry, senior consultant in the North American office, said:

"People recognize the workplace isn't about processing information, it is about creating ideas or sharing knowledge or creating something new."\(^{16}\)

JFC's planning philosophy considered knowledge exchange a growing challenge for businesses which their own office designs should address. Connie, a relatively young consultant, made clear the focus on knowledge sharing that in her view overrode the firm's emphasis on teams. She stated:

"Increase in communication - I think of it as knowledge transfer, more than anything. [...] Now that we can get hold of everybody all the time, and we realize that business is becoming more competitive, it always is, becoming more competitive, and every company is trying to push

\(^{16}\) ibid, p. 9  
\(^{17}\) ibid, p. 3
forward, we realize the use, the value in sucking as much information from everybody as much as possible. We encourage information, so we cut down on the time it takes for me to find out who my main contact at BBC is and for a partner to share information with me about how to write a report, so I do it in half the time. It is more about knowledge sharing than actually producing work in teams."

Knowledge exchange was especially significant because JFC's own expertise was predicated on the productive exchange among each of its three functional areas: design, consulting, and research. Not only was the "knowledge center," a kind of library with books, magazines, and documents important, but so was everything that supported cross-border fertilization.

Yet, in addition to having people talk, interact, and collaborate more, an equally important goal of the office environment, I suggest, was to generate a sense of community and some common experience in the office. It is not hard to see that an open plan office inhabited by the majority of employees promoted some sort of common and public experience. But within the open environment some areas were more public than others. At the heart of the office, the entrance area with the club was the busiest and most lively work area and the most visible and public space. Like a town marketplace the center of activity, traffic, and public happenings, it served an important community function. Not just during extraordinary events such as company meetings or event days but also during regular working hours it served as the central nervous system of the office.

The notion of sharing was deeply embedded in the firm's approach to office design and the elimination of permanent workplaces. No longer owned by individuals, designers at JFC maintained, the new temporary workplaces were "shared" and the office was based on the concept of collective ownership. When I asked about the firm's design approach responses were hesitant at first, since the firm prided itself on design based on user research rather than abstract principles. Upon repeated questioning, Henry conceded, however, if there was a principle they followed, it was that of collective space ownership. Space should be owned collectively, not individually, he said. At the very least, collective space ownership was a
foundation of their own office. Henry said:

"For our organization we largely divorced the idea that [more communication, interaction, and choice] need to be combined with individual ownership; we are a collective organization and space is owned collectively, and there are benefits attached to that."

Thus, the abolishing of permanent individual desks was rendered as a shift from individual to collective space ownership. The label "non-territorial" for these kinds of office concepts therefore denotes the end of individual territory.

Although it may appear as a rhetorical trick, the language of sharing and collective ownership expressed a conviction that was central to JFC's design work and to their own office. When I asked one of the senior planners of JFC whether he ever missed coming home to his own private office after all his traveling, his answer, perhaps in his voice as official representative, conveyed this sentiment as well. He did not miss anything, he said, since he felt he did come home to his private office, the whole office was his and was his home; hanging out in the office was more relaxing to him than hanging out in any enclosed room could be. Similarly, Connie, the change management consultant whose work included convincing her clients' employees of the benefits of such non-territorial office solutions described that same perspective:

"... you don't just have a desk, you have a whole office. So don't think about your world as the little work setting in which you are sitting, this whole space is mine, every part of it, I can use any part I want. That's the way to think about it. So that would be a big shift in mentality."

A consultant who had joined the firm not to long ago from one of their clients used a slightly different language when he explained the principle to a group of prospective clients during a presentation:

"We take away people's space but the miracle is that they feel they gain space"

These notions of sharing and collectivity were not just embedded in the layout of the office; resources were organized communally as well. The reduction of individual filing space to a mere meter in a central location may have saved room, but a major rationale was to organize
filing collectively rather than individually. The objective was to have most work material not owned by individuals and only accessible to them but organized in a common place where everybody could get to it, either physically in a shared filing area in the office or electronically on the electronic file servers that were part of the firm's network accessible via ubiquitous network drops.

The shift away from personal to collective or communal ways was also reflected in the planners' view on personalization of space. Decorating desks and workplaces with family photos as is common in traditional office environments was considered partly undesirable and partly unnecessary by the design philosophy of JFC. The office itself was considered the community or family. Said one employee:

"I think that the corporate culture, you should identify so much with corporate culture that that's your personalization. [...] I am part of this, I don't need to have pictures of my dog up."

The community notion was further promoted through the way space was allocated in a supposedly less hierarchical way. It was one of the tacit foundations of office environments to assign space to employees on the basis of rank, position, or status. Assigning work space according to need or task rather than status, JFC's office scheme broke with that "estatism," as one consultant called that traditional view. Need-based space allocation sought to highlight equality between employees of varied titles and status and to de-emphasize rigid hierarchical structures that could hinder exchange and communication. The spatial "flattening" was intended to create a less divided and more equal social structure. (see next chapter)

Reviewing these design characteristics, it becomes apparent that the goal of JFC's new office concept was not just a new work environment but a different kind of organization with a different social structure and distinct social forms - an organization with a different kind of sociality of work. The aspired sociality of the office was a more open, collaborative, and social one, one less individualistic and isolating. A sociality that was based on a collective organization with a communal sense and on ongoing interactions and relatively close
relations among the employees. This organizational vision could be compared to the popular image of a village. In the public imagination, villages are marked by stable and strong social bonds, frequent interactions, lasting relationships, and a collective and communal feeling. They are also based on proximity and public spaces. And in fact, the village notion was not foreign to the thinking of the designers at JFC. When discussing their design both among themselves and with clients they did on occasion invoke the analogy. They called work areas for functional groups or projects "neighborhoods" and at least in one project I heard the term "village" used to label a design proposal that emphasized the social effects of proximity and adjacency.

**The mobility & flexibility vision**

Not all aspects of JFC's office worked towards this vision of a communicative and collective office vision. A number of design characteristics seemed to bolster a different kind of office and a different kind of organization at odds with the previous vision. The goals were a more flexible and transparent organization able to quickly adjust to change. The office design also aimed at supporting mobile work patterns for a growing mobile work force.

"Work," claimed an office designer close to JFC in an article, was increasingly "undertaken in ways that are more mobile and nomadic than conventional office work." 18 P Starting from the same assumption, the designers at JFC encouraged mobility through a number of measures. Mobile work was facilitated, for example, through the collective resource and filing system. As a strategy to minimize individual ownership, collective resourcing made mobility viable by reducing employee's dependence on personal files. The filing system in its physical instantiation promoted intra-office mobility while its electronic aspect also encouraged extra-office mobility.
But more centrally, one of the office's most outstanding features, its non-territoriality, was an attempt to make mobility work. Based on the firm's internal research findings that "consultants and designers were out of the building for a large part of the time" and the conclusion that "giving everybody a dedicated desk that would be empty for a large part of the time was not an effective use of space," the new design eliminated under-used personal and permanent desks and office spaces and promoted instead the temporary use of a number of shared work spaces.\(^{19}\) Varying in the amount of space and degree of protection from disruption they provided, from the highly controllable cells to the less controllable club, these activity settings provided both employees in the office and those who returned from outside locations with a choice of work settings according to their various needs. The specific needs of mobile workers were expressed in a quote by a senior executive from another European branch office:

"The nomadic worker has a real sense of belonging that must be nurtured and helped. It is important for these people to be able to go back to "the Office" at any time and to know that there are specific spaces that they can use and informal areas where they can interact and meet with their colleagues."\(^{20}\)

Although there was an interest in space saving, the design predominantly added to the ease of mobile working. Mobility was also closely intertwined with flexibility as goals. As the consultant Connie reflected on the different meanings of the notion of the flexible office, she pointed to the way mobility, flexibility in location, and organizational adaptability could be closely interrelated:

"The flexible office is one where the work settings support the work practices. It is as simple as that. The flexible office implies that people are moving around all the time, in that kind of short term basis. The flexible word is about adapting to the company as it grows and flexes and ebbs

---

18 Similar to the language at JFC, the distinction here is between mobile work in the office and nomadic work outside of the office. (Laing, 14).
20 [Bente Group]. 1998. \textit{Annual review 98}. (Internal document), p. 4
and moves, and teams change all the time and projects come and go. That’s the way it is flexible. - Interviewer: So it is not about people moving? - Not necessarily. It could be, I move around a lot I consider myself flexible. But it is not always what it means. People think a flexible office means we are not getting desks, we are all getting a laptop. Not necessarily, it may be flexible in a sense it is easily reconfigurable as your projects change, and they may change every year or every week, we don’t know. And also flexible in terms of location. We’re going to question the whole ethic of working in the office. It is not always appropriate, maybe you could work with your clients, in the car, on the plane, at home. That is flexible."

Although she rejected the perception that a flexible solution always implied a non-territorial or mobile design, this was the path JFC’s designers chose for their own office. In an office context, flexibility could mean both organizational and individual flexibility. As the above discussion illustrates, the design fostered individual flexibility in terms of where, when, and how office employees worked. Given a choice of work spaces, easy access to collaboratively organized resources, and a ubiquitous technological infrastructure, workers faced fewer constraints on how they worked, from where, and when than they would in an office with permanent office spaces. Assumed changes in the nature of work made this kind of flexibility appear desirable or even necessary. As knowledge and design work allegedly demanded an increased range of different work activities, specialized work spaces that could be chosen "at liberty," as they said, became beneficial or even essential.

The design also sought to enable a more flexible and responsive organization in terms of its size and adaptability. Change was considered "the greatest challenge, aesthetic as well as programmatic, of contemporary architecture," and the firm was said to be more "interested in the social phenomena of change than the chimera of a fixed and definitive style."21 Similarly, Derek Freeman, one of the founding architects, saw it as the firm’s job "to lay down spatial structures that are capable of migrating from one emphasis to another over time […] to invent spaces that are capable of being developed." Both of the design principles in

---

21 1998. The architecture of [JFC], p. 11
their own office, open plan and shared work spaces, were thought to ease the effort to rearrange the layout, for example, to make room for a number of new employees or to reseat people in order to accommodate a newly starting project team. No walls, or even furniture in most cases, had to be moved. And since workplaces were not customized to the position or taste of individuals, fewer adjustments were necessary to move people around for new projects. This sort of flexibility is one of the often-quoted rationales for a universal plan.

JFC's office had in fact proven highly adaptable in that it had been able to absorb a large contingent of unexpected users. Originally designed for 75 people, it housed nearly 130 by the time I conducted my research. And although the overcrowding showed its unwanted side effects, the fact that the same space could take so many extra workers without major rearrangements was proof of its adaptability in the eyes of the firm. The evaluation study commented not without pride:

"It is, though, one of the impressive qualities of the new office that it has succeeded in accommodating such an unanticipated increase in staff without seriously reducing productivity and quality of work."\(^2\)

The architects strove for an organization of open borders and porous boundaries. The will to let outsiders and visitors in reflected the needs of an aspiring multi-national organization. What made the office attractive to nomads and independents, to have specialized work settings at their disposal, was similarly inviting to outside visitors, whether they were from other branch offices of JFC, from clients, or from the new parent company that had acquired JFC not too long ago.\(^3\) The design not only provided space for travelers

---

\(^2\) A result of the overcrowding of the office was that different kinds of work settings initially intended for special use tended to be appropriated for plain work. If no other workplaces were available, mobile workers used spaces reserved for concentrated and quiet work, or tables designated for informal meetings as their regular work place. Moreover, for fear of losing their spots they were reluctant to give up their tables in the club and so further exacerbated the lack of space.

\(^3\) JFC. 1998. [JFC] Post occupancy evaluation. Internal document, p. 4

\(^4\) The acquisition took place under the name of a merger, presumably for JFC to learn from the larger company's consulting expertise. The merging remained ultimately unsuccessful, since more recently,
and visitors, it also made it easy for them to blend in with the full-time employees of the London office. For a spreading company like JFC, such permeability and openness was predominantly positive as it was desirable to break down the borders between different offices and to open up relationships with clients.

Related to the office's mobility and flexibility, a certain dynamism was designed into the office as well. Due to its density and the constant movement and sound of people, that in turn resulted from the open, non-territorial, and mobile environment, the club especially was supposed to exhibit a kind of stimulating atmosphere. Like an engine that meant to drive the organization, the "buzz" of the club should energize the work climate of the office. Though he did not talk explicitly about their own office, a senior partner put it this way:

"They need to feel they are in this super exciting, demanding, pressured environment because that is when they do their best work."

In addition, a dynamic work environment was also a welcome image to be projected to outsiders. The same partner remembered his first contact with the company long before the latest redesign:

"I knew when I waited in the reception that it was really an interesting organization, I just knew, because the level of activity, the running in and out of the organization, people coming in and out, I could tell instantly that it was a fun interesting organization, and I think, people instantly get those feelings when they go into an organization. I have been interviewing in other firms and none of them interested me at all, this was the only one that interested me at the time."

Like the previous design vision of a more communicative and social organization, this

---

in 2001, the senior partners at JFC bought back their firm from the European parent company, apparently in order to free themselves from the unwanted influence of a different corporate and national culture. Among the reasons cited for the dissatisfaction on the side of JFC were the stronger profit orientation on the side of the parent company and their attempts to restructure business processes to make them more accountable. JFC's employees felt that their design orientation and creative freedom was undermined and threatened by these changes. Curiously often these differences were explained as differences in national culture, the British versus a Dutch mentality. Although there were certainly different styles at work, in my view the critical differences stemmed mainly from organizational rather than national cultures. Despite an ongoing shift to more consulting work JFC had its roots in design and architecture work with a set of values and practices that centered around the quality of the product.
vision was about a different kind of organization and sociality of work: in this case a more mobile, flexible, transparent, and dynamic organization of work. But what was the rationale behind all this? In part JFC's design approach resulted from specific organizational requirements, such as the work styles and space needs a particular organization had. Yet, in addition their approach was built on a set of assumptions about larger changes in work and the economy. More flexible, mobile, adaptable, and fluid organizations, for example, have been the aspiration of the business world for some time now. The cluster of adjectives has pervaded the language of business people and popular media alike, expressing what is deemed necessary to survive in a world of global competition, accelerated change, and evolving new business structures. JFC's flexible, mobile, diverse, permeable, and dynamic office was an effort to create a similar type of organization, or more precisely, create an environment where such an organization could thrive, an environment that not only supported but promoted these crucial organizational traits. The same was true for the vision of a more collaborative and communal organization. More team work, knowledge exchange, and interactive behavior ought to respond to roughly the same set of challenges.

**Tensions in the real office**

The description of the office so far has almost entirely been based on JFC's design intentions of: what kind of organization of work the planning group had envisioned and how their ideas had been inscribed into the office via methods ranging from spatial arrangements to a set of normative behavioral rules. But if one looks at how the design might play out in practice and not just at design ideas, the picture changes. Although the design was considered largely a success by the designers and planners at JFC, I suggest that in practice the mobile and flexible office aspirations had consequences that not only went beyond their intended

The European company was mainly a consulting company with values and practices that seemed to
goals but also revealed an underlying tension between the two main design schemes.

**Design benefits**

To some degree the design could in fact be seen as a success. The open and shared work places seemed to increase communication and interaction among office users, access to senior executives had become somewhat easier, the choice among work settings provided stimulation and change to mobile employees, visitors found places to work, and the majority of employees seemed to enjoy the dynamism and buzz of the office and, in particular, the central club area. Accordingly, in their *Post occupancy evaluation* study conducted to evaluate the results of the implementation of the new environment, JFC reports that:

"team working has increased, communication within the office has improved and project groups are able to form, evolve and disband much more easily as the projects in the office change."  

Based on questionnaires the study also concluded that the club concept worked according to expectations:

"Communication in the office had improved overall with nomads and independents in particular using the central club area for informal communications."

According to my own observations, people seemed to enjoy working in the club. Some employees in particular confirmed that the office's open environment and the club's energetic atmosphere were successful. Researcher Wendy, although utilizing a separate office space one floor down and not a regular club user, nevertheless appreciated its climate:

"I find it a very exciting space, I know it sounds as if it is the [JFC] line but it seriously is, I do find it an exciting space, I do find it exhilarating, running up the stairs and getting into that space. It is like a stage."

---


26 The office had added an overflow space on the first floor of the building that was shared with the cafeteria, larger conference and meeting rooms, and the general reception area for all three of the businesses in the building.
Having worked in the office for about five years, she also appreciated the changes in communication the design brought about:

"One thing I haven't talked about is the interaction aspect of it, that, I think it works wonderfully in terms of people being accessible, and one can much more be spontaneous about being collaborative or just having a quick meeting, just chatting to somebody over coffee, in a way which didn't happen in [JFC] before - Interviewer: it didn't? - not nearly as much, I mean we always thought we were a highly interactive organization but I think, I have no evidence for this apart from personal perception, I think that kind of communication, that kind of interaction has increased enormously. We all talk to one another much more."

The choice in work settings appeared to have benefits as well. For some it apparently provided stimulation. "Sometimes you are thinking, 'I am stuck,' you get bogged down; sitting in new places stimulates and helps you." The change in work settings provided "a different scenery," it was useful to "go to different places." The nomadic and office-less existence had its advocates as well. Consultant Connie explained that "some people love to be outside, I love it, I would hate to have my own office." Other mobile employees even favored the constant change the non-territorial concept entailed. Joanne, a senior designer and project manager without desk not only did not mind the need to change her place of work frequently. Evidently not appreciating regularity and routine, she asserted that she would hate to have to sit next to the same person every day.

**Problematic results**

Yet, despite these positive results and reactions, I argue, as the work environment pushed mobility and flexible structures, unintended results reshaped the social organization of the office and its culture as well. The ongoing movement of people and the temporary nature of structures introduced a certain transience and instability to the social fabric. Demanded by the pursuit of flexibility, the choice among a number of workplaces potentially weakened ties between people and to specific locations. As a consequence, the actual work dynamics, rather
than supporting more collaboration and community threatened to individualize work.

Without personal desks and dependent on a set of shared work settings, the firm's mobile employees often did not reside in one location for long. Seating arrangements could change rather frequently, for example when workers went to a meeting and came back to find their table occupied or because they themselves decided to move to a different setting. As a result, one of the club's rationales, to strengthen social ties by exposing workers to colleagues sitting at neighboring tables was potentially offset by the shortlivedness of such constellations. It was acceptable in the club to join somebody else working at a table, without further conversation, even if the two parties did not know each other. Especially visitors from another office could sit down at one of the club tables for a couple of hours, for instance, before a meeting and spend their time working or on the phone without exchanging more than a greeting with their immediate neighbors. Such behavior ran counter to the assumption that physical proximity and density automatically enhanced the level of communication.

In a similar way, the office design helped little to integrate new employees. Newcomers did not attract much attention in an office with open borders and constant flux. Especially in the club and other shared work areas new office employees remained easily unnoticed, because with the constant coming and going of visitors and other "outsiders" new faces were the norm rather than the exception. Conversely, the office environment made it difficult for new hires to orient themselves, to learn who is who, and to get to know people. A recently hired designer expressed how she felt deterred from introducing herself to the other office employees because she could not distinguish who was a visitor and who a permanent member of the office. Another employee gave a similar observation. She had gotten to know her immediate project team quite well, but the instable seating arrangements made it harder for her to learn over time who was who in the office. My own experience underlines this point as well. Although blending-in is a hoped-for accomplishment among anthropologists, I was surprised when several weeks into my stay employees still thought of me as "probably one of
the consultants from Bente," the main office of the new parent company of JFC.\textsuperscript{27} The incident made clear how being new in the office was too normal to justify further inquiry.

Transience was a direct result of the principle of non-dedicated work spaces, but its effects might have been less pronounced, were it not for an office culture, that in adapting to the conditions of mobility and temporality had developed an attitude of tolerance that paid little attention to strangers. It exemplifies the kind of sociality the office environment exacted on its dwellers, a sociality that, if not promoting a certain anonymity, could fail to counter it.

In addition, team work might not have always fulfilled the expectation to balance the elusive social climate of the office induced by transience and mobility. Especially when team members worked on several projects in parallel or joined projects only briefly, encounters in teams could be short-term as well and so fail to strengthen work relations. Furthermore, projects could end up as nomadic and dispersed as the individual employees working on them. A team working on an office refurbishment project for a large computer company, for example, did not have a dedicated project area, due to the lack of space, nor did the individual team members have their own desks. As the team lacked any fixed places at all, their individual and collective work took place at constantly changing locations in the office. This made it difficult to find room for project related material, such as presentation boards and images. Moreover, some team members soon started to complain about what they perceived as impaired communication flows and a diminished coherence and common direction for the project. The lack of a home-base made their work overly diffused, a designer suggested.

The fact that employees changed workplaces constantly was not just problematic for team projects, it made it more challenging for everybody to find people. With people

\textsuperscript{27} While some of these consultants from the new European parent company worked with JFC’s employees on projects, others were in the office to learn more about the firm and facilitate the merger - not unlike anthropologists, they observed, talked to people and studied JFC’s approach.
working in all different locations, an employee complained, it was often "hard to get hold of people." 28 And the firm’s internal evaluation study states that even "support staff found it difficult to locate people as they could be sitting anywhere in the building."

These examples should illustrate how both intended and unintended consequences of a certain design vision tended to turn this vision into something different, something beyond the original intent. Efforts to design an office environment that would enable and promote an organization more mobile and flexible in its work practices, office arrangements, and locations threatened to result in short-term interactions and a transient office culture. Some of these goals were intended. Fast and brief exchanges and increased discretion about how to work on the side of individual workers was part of the new organizational model. Yet, the resulting transience of work relations was not a stated goal of the office architects but a partly implicit, partly unrecognized, and partly unwanted side-effect of their carefully designed flexible work environment.

The outcome was not just unintended, it lay in conflict with the other major design vision behind the office. Constant movement and relocation and permeable office boundaries all weakened, if not undermined, the original intent of an open club environment. As encounters became short-term and spatial configurations changed quickly, chances were reduced that people became more easily acquainted by getting used to a face over time, communicated across functional areas, and developed a sense of community through a public central place. Instead of towards a more communicative, collaborative, and communal feel with a more intense and enduring social texture, the office was pulled in a different direction: towards a social order made of potentially anonymous individuals who moved around busily and conducted transactions in short-term encounters in a transient environment without rigid

28 There were cell phones to reach mobile employees in the office, but this was apparently not as reliable a method to get in touch with people as one would assume. The use of technology in the office will be discussed later.
boundaries, permanent configurations, and stable social relations.

If the first vision evoked the notion of a village, one may compare this resulting social order to the image of a modern city. Less so in reality but in the popular imagination that stems from the early twentieth century, cities are seen as individualistic, anonymous, fast-paced, dynamically changing, short-term, and adjustable.29

I mentioned in the last section how both objectives of a more communicative and a more flexible organization were built on assumptions about larger changes in work and the economy. Yet, the major conflict between more social and more individualized forms also had more specific roots in particular assumptions about knowledge work and the increased knowledge component in office work more generally. Developed in some of their more theoretical work, the intellectual leaders of the firm assumed a dual shift in knowledge work characterized by increased degrees of "interaction" on the one hand and rising degrees of "autonomy" on the other. A related consultant described a similar assumption:

New ways of working are argued to be both more highly interactive and to provide individuals with greater autonomy over the timing, content, tools, and locations of work. (Laing 1998, 14)

They thought professional and managerial knowledge work entailed increased "control, responsibility, and discretion" over the content of work as well as how, where and when it was done. (Laing 1998, 18) At the same time interaction among workers, defined as office workers working or communicating face-to-face with their colleagues, was seen as becoming more important as well.30

29 Now considered classic scholars on city culture, German and US sociologists during the early and mid twentieth century articulated the specific social organization and experience distinguishing the spreading cities of modernity from small communities and rural areas. Considered outdated today because of the rigid dichotomies they constructed between romantic villages and distopian cities, the imagery nonetheless is part of today's popular imagination; see, for example, Sennett's edited volume (1969) and, especially, Simmel (1969), Wirth (1969), and Park (1969).

30 This dual shift in the nature of work was derived from their own research as much as from reflection. The insight to describe work and organizations by the two dimensions of interaction and autonomy went back to early work of one of the founding architects of the firm whose post-graduate work as an architect tried to empirically match social with spatial parameters in organizations. His parameters were
Yet, the simultaneous rise of both interaction and autonomy, as much as it appears to make sense in the context of knowledge work, had a pivotal contradiction built in: while interaction stressed the social aspects of work, autonomy emphasized individualism; while in order to support interaction employees should work in open environments close to others, in order to support autonomy employees needed to be able to retreat and to select environments according to their changing needs. In these assumptions about changes in the nature of (knowledge) work we find the basis for the double-edged design efforts between communal interaction and transient mobility. The assumed need for increased interaction emphasized a more social type of organization while the need for more autonomy stressed a more individual one.

The tension between more social forms of organizing work and more individualized ones cannot be fully appreciated without taking into account the role of another major factor in the design and use of the office: technology.

**Technology, flexibility & mobility**

So far the description of JFC's office and the tension between the two organizational visions has more or less focused on the role of space. Yet, although the office planners were mainly architects or space planners, technology was a crucial element in their approach and part of the firm's self-understanding. It was also a central research effort; they produced a number of published studies on the interaction between people, places, and technology. In a presentation given to a mostly academic audience, a senior partner presented his view on the dual role of information technology. On the one hand it had substantially transformed work processes in the recent past, requiring firms to react to these changes, he explained, but technology also offered new opportunities for design in that it could support new ways of working and enable

---

slightly different at the time, but his work served as the basis for subsequent research and theorizations
more group, creative, distributed, and nomadic work.\textsuperscript{31}

Technology played a central part in their own office, both visible as computing and communication devices and remaining invisible as part of an advanced infrastructure. In addition to the more traditional array of desktop computers and desktop phones that are familiar in many work environments, the office featured a system of technologies of mobility consisting of laptops and mobile phones; an intricate infrastructure of power plugs, phone and network drops protruding from walls above desk surfaces and hidden in the floor-carpet near tables; wireless transmitter stations in strategic locations on the ceiling, serving the office internal mobile phone system; a set of public workstations; and a small computer support staff responsible for maintaining the system. Pretty much all of the various workplaces and workstations, formal or informal, were equipped with power, intranet access, and occasionally analog phone lines for modem access.\textsuperscript{32} While some of the temporary workspaces, such as the quiet cells, had desktop phones which indicated that they could be used by employees without mobile phones, many of the non-dedicated desks in the club area did not provide desk phones, assuming that users had their own mobile phones.

At first sight technology's role for the two organizational visions in the office appeared fairly even-handed: on the one hand technologies supported communication and the sharing of resources, on the other they were part of the mobile and flexible organizational design. Yet in practice, I will argue, technology turned out to be far more effective as agent for a mobile organization than as catalyst for a collaborative one and, as a result, tended to foster individualized ways of working in the office.

\textsuperscript{31} Verbal comment Larry Alton during a presentation at M.I.T, Cambridge, MA, USA in March 1999.

\textsuperscript{32} Not all of the jacks and plugs were always functioning, however. Some employees complained that their mobility was impeded by the failure of parts of the infrastructure. It marked the insider to know which of the network plugs were not working properly and selecting their seating accordingly.
As I showed earlier, the goal of making the office a more communicative and collaborative environment drew to a large degree on physical attributes and the layout of the office: on proximity, openness, and informal places and spaces. Team spaces, the club, and shared workplaces were designed to facilitate social interaction and strengthen social relationships. It was also the case that technology facilitated and encouraged communication and the exchange of information in the office through phones and email. The internal file server, for example, was the electronic aspect of a system of resource sharing that was supposed to replace individual resources by providing a space where teams could store and find work-related documents. Yet, in general, technologies played only a secondary role in constructing a more social and interactive office. As it were, the forging of social ties and of a communal spirit relied mainly on the organization of physical space and only secondarily on technology.  

In contrast, technology was central to mobile employees. Without the system of mobile technologies the vision of the mobile and flexible office could not have worked. Providing continuous means for work and communication despite all the movement, the wiring of the office was a prerequisite for the principle of non-permanent workplaces. The nomads' ability, for instance, to move from workspace to workspace, from the club to a cell to a team space, was predicated on a system consisting of technological infrastructure and portable devices. Asked what the role of technology was for changes in office design, Henry explained:

"Absolutely fundamental. [...] First of all it was mobile technology that allowed the breakup of space within buildings, the fact that you could through structured cabling reconfigure your infrastructure very easily, plug in your computer at any port, that has been fundamental, because it means that you are not limited by the layout you have. And then mobile telephony, meaning that you have free address, it breaks up, it gives you the freedom to move."

The decision to give employees mobile technologies in exchange for assigned desks (or

---

33 This is only true for office internal interactions. For communicating with clients or nomads away from the office communication technologies were, of course, crucial.
cubicles or offices) was after all based on the assumption that these technologies would enable their users to get their work done independently from their location - offering "freedom to move." It assumed that they could always communicate by phone or email and would be able to design or write on their laptops as productively as if they were staying in one and the same place. A mobile office in the design of JFC would not really function without laptops and mobile phones - no way to find and reach people, no way to keep up a stable stream of communication, no way to work in continuity.\textsuperscript{34}

Mobile technologies were not just a necessary requirement for the mobile and flexible office, they could be seen as a means to mitigate the potentially problematic effects of a mobile design and to keep the office from becoming too transient and temporary. Furnishing a kind of permanent workplace independent from physical locations, or "location-free," they made a non-territorial solution appear tolerable.\textsuperscript{35} Taking away from mobile office workers their personal and permanent desks appeared less extreme if one believed that the real workplace for mobile office workers was generated by their laptops and mobile phones and thus was carried along wherever they went. Constantly changing locations appeared less unstable if the mobile employees were seen to take their workplace with them in the form of their devices. Such thinking just makes the old metaphor of the computer desktop more literal. It was the computer desktop that mattered, the physical one surrounding or carrying the computer was secondary at best. In fact, as if to leave no question about where the desktop is, the club did not have "desks" but "tables." In the same way, it was in the communication spaces generated by email or mobile phones that interactions took place,

\textsuperscript{34} In other office concepts the mobile phones are sometimes replaced by a "smart" desktop phone system that "knows" who is using the desk at what time and routes incoming calls to the right phone and person. Such systems require log-in by users and therefore work best when employees switch desks not more than about once a day. Anderson Consulting, now Accenture, had installed such a system in their Boston/Wellesley office.

\textsuperscript{35} The term "location-free" stems from a brochure for a workplace of the future project JFC was involved in. The full quote reads: "Technology allows staff to be location-free, both within and outwith the office."
neighborly conversations mattered less when seemingly replaceable by electronic proximity. And, in fact, office internal phone calls to other employees were frequent, as calling them appeared to be the quickest way to find any of the mobile or nomadic employees, despite the limited size of the office.

I believe embedded in JFC’s design concept was the premise that technologically generated workplaces and mediated communication and collaboration spaces could provide some continuity, permanency, proximity, and personal ownership that the now temporary physical workplaces could no longer supply. As a result, what was permanent for the nomads at JFC were their mobile technologies and the electronically mediated work spaces these made possible. And while they no longer owned any physical space, they did own technology. Personal equipment carried around in shoulder bags or spread out on desks was a ubiquitous marker of the nomads and independents, the designated mobile workers. As space had become collectively owned and shared, technology was owned individually, even more than before. That way, however, although promising to balance the possible transience and autonomy of a mobile office, the mobile technologies de-emphasized collective ways and re-emphasized individual ones.

The return to more individualized work patterns could be observed in electronic filing. As I have discussed earlier, the strategy of collective filing was meant to foster shared filing and reduce individual filing. Yet, in practice the idea sometimes backfired. Garry, an architect who had joined the firm about a year ago, told me that in his experience instead of being collected in one central place, resources such as documents, exchanges, and other important project information often wound up further dispersed over individuals and out of reach for others. According to him, the main reason was that project communication increasingly took

---

36 Although desktop computers and desktop phones in regular offices are also somehow owned by their users, they are usually not constantly with them, nor do they have official name tags. Mobile employees spent much of their time in close proximity to their technologies.
place electronically and ended up sitting in email and document folders on individual computers. While the discouragement of paper use was thus relatively successful, the effort to store electronic information collectively lagged behind. Theoretically, electronic filing on the firm's file servers should have remedied the problem. Yet, in practice it often did not work as planned. The requirements of high mobility made reliance on their own portable device as information source most likely more attractive to mobile workers than the use of the file server, which after all needed to be accessed in order to give away its information.\textsuperscript{37} The results could be worse than before. Although not hiding in individual desks any longer, vital project files could now reside on individual laptops, even harder to access. Despite intentions to the contrary, resources ended up even more individualized. For Garry this was another indication of the overall problematic role of computers in design work. In my view, it was a too faithful reliance on technology combined with non-territorial and mobile space planning that undercut and re-individualized what was meant to be a collective way of organizing things. I do not mean to suggest, however, that technologically mediated communication in offices inevitably results in individualized forms of work. Design efforts that emphasized a collective use of technology would not necessarily individualize the social organization.

To summarize: even if we accept that the mobile office vision attained some stability and gained some permanency via personal technologies and the electronic work spaces these offered, the major tension between the two design visions remained. At first sight, technology's role in the office seemed to support communication and interaction. It helped nomads to communicate and collaborate somewhat, to find others and be found. Yet, these

\textsuperscript{37} Other reasons for the imperfect use of electronic filing may be found in design. To make people use an electronic file server diligently the interface needs to be transparent, visually appealing, and easy to use, and rules and conventions of organizing information collectively have to be well thought out to balance the need for standards on the one hand and for flexibility on the other. Otherwise, electronic file servers may quickly turn into a place nobody wants to go to and either put or get information that is vital to them.
kinds of interactions were not necessarily strengthening community ties or the collective ideals. In the end, the wired office helped realize the mobile and flexible aspirations of the office concept more than its communicative and collective ones. Thus, although according to the design it should have mitigated the effects of mobility and reconciled the two conflicting visions, I argued, in practice technology ended up contributing to rather than erasing the individual and fluid ways of the mobile organization. Aligned with the individual, technology potentially weakened lasting social relations.

**Place and space**

I have shown that the two distinct design strategies informed by two distinct visions of work - the social and communicative organization and the mobile and flexible organization - produced forms of sociality that were in tension. I now want to explore the interrelation between these forms of sociality and the organization of space further. The two visions and the link between social relations and spatial orders evoke the concepts of *place* and *space* that have become central in social theory discussions on modernity and historical change. These notions have come to stand for major organizational principles, or near paradigms, for the organization of social life through periods of history. Put in the simplest way, social and cultural theorists have argued that the rise of modernity was associated with a shift in the socio-spatial organization that led from a governing principle of *place* to one of *space*. *Place* in these accounts is seen as the dominant principle of premodern societies where social structures were anchored in fixed locales with firm boundaries. Places function as common contexts and provide a sense of belonging to groups of individuals. A society based on *place* is a local society. In contrast, the new order of the city and modernity at large is founded on *space* which is dissociated from specific locations, is universal or global, and de-situates social life. For Anthony Giddens, for example, modernity is characterized by a disembedding of
social forms: "a lifting out of social relations from local contexts and their rearticulation across indefinite tracts of time-space." "The situatedness of place" no longer holds together spatial, temporal, and social forms. (Giddens 1991, 16, 18) And space becomes separate from place as "modernity increasingly tears space away from place by fostering relations between 'absent' others locationally distant from any given situation of face-to-face interaction."

(Giddens 1990)

With a slightly different emphasis, Manuel Castells draws a distinction between a "space of places" and a "space of flows." (Castells 1996) Castells' timeline may be more recent than Giddens' - the space of flows is mainly a late twentieth century phenomenon - but his view of the transformation is similarly about a "delocalisation of activities." The space of flows is about movement and global exchange where specific locales matter only as part of the larger flow and not as specific places. Despite the differences in where these theorists locate the historical change and how they perceive the intersection between social and spatial orders, they share the historical narrative wherein an order defined by local places and situated social forms was, or is being replaced by one of multiple locales and networked flows that no longer defines or anchors social forms.

I invoke these macro-sociological theories to draw attention to the overlap in meaning between these concepts and the images and visions I have discussed. In particular, I want to examine whether these concepts may capture a similar historical progression in office work and whether they can shed light on the struggle between different design visions in the office, spatially and socially. Conversely, the case of the office may help to refine the conceptualization of the link between the organization of space, technology, and social relations.

A historicalpace of place and space?

There is a close resemblance between the concept of place and the design visions of an
interactive and communal office on the one hand, and the concept of space and the design efforts towards a mobile and flexible office on the other. Borrowing these notions, the two organizational design visions can be described in a language where the first vision rests on a principle of place and employs places of residency and situated interaction, while the second vision draws on the principle of space and utilizes spaces of movement and temporary use.  

Yet, what about the historical narrative these concepts also convey? Are changes in the organization of work following a historical pattern similar to the changes in the organization of settlement and the culture at large as these theories suggests? Are place-based village-like visions perhaps being replaced by space-based city-like visions?

Some of the rhetoric surrounding recent experiments in office organization suggests just that. Work will no longer be place-based, it will be activity based, claimed for example Jay Chiat, head of the ad agency by the same name and engine behind its remodeling into a non-territorial or, as he called it, "virtual agency" in 1995: "Work is not something you go to" he proclaimed, "work is something you do." To protagonists of virtual offices, of course, the future of work is placeless, location does not matter, and work can be done anywhere. Work is finally liberated from the confines of places. I discussed some of this radical anti-

---

[38] To avoid some terminological confusion: the terms 'place' and 'space' as principles and paradigms that connotes specific spatial functions and have social consequences need to be conceptually distinguished from specific places and specific work spaces in the office. In everyday language, workplace stresses the location of work, while workspace emphasizes the arrangement or configuration of space that can be part of a specific workplace - or not, as is the case with spaces such as hallways or meeting areas. These two levels of meaning can lead to confusion if not used properly and read carefully. The club, for example, is a particular space in the office, centrally located, that per its design intention attempts to be a "place" in the theoretical sense outlined here. It tries to promote increased social interaction through a spatial order that sociologically has been associated with the principle of place. On the other hand, I argue that particular workplaces such as the one-person cells can exhibit space-like qualities in their social meaning, in that they are locations that promote transience and temporality and a flow of people through them.

[39] The sentence was not only widely quoted in the media at the time, it appeared so central to the sentiments of office visionaries that it was attributed to different people. Not only was it credited to Jay Chiat himself (Buchanan 1995) and to one of his senior employees (Illingworth 1994), others are quoted for similar versions of the same sentiment. "Work is no longer a place you go, it's a job that gets done," said Lee Psinakis, director of channel development with AT&T. (quoted in Anderson 1995, 32)
sedentarianism earlier but it is worth pointing out that non-territorial offices are different from purely virtual offices - self-descriptions to the contrary notwithstanding - and that behind the rhetoric are quite often intricate spatial concepts. The so-called virtual agency Chiat-Day had a quite elaborate and colorful office space that was designed by a famous architect.\textsuperscript{40} Yet, the claims about the end of place for office work do not require the absence of space, if one follows the argument of the social theorists above. Castells' replacement of a space of places by a space of flows is not far from what some of these self-declared office visionaries proclaimed and predicted during the second half of the 1990s.\textsuperscript{41}

A few years after these declarations, other observers of contemporary work places describe almost an opposite movement. Writing about recent developments in office designs, an writer in the New Yorker perceives a present trend in workplace design to create environments that look like villages, including marketplaces and neighborhoods, in order to foster community. (Gladwell 2000) One of the examples is the redesigned west-coast office of the newly merged agency Chiat-Day/TBWA which in the meantime had turned away from its virtual office aspirations.\textsuperscript{42} The attempt to recreate community at work, the author speculates, might balance the loss of community in other spheres of contemporary society.

In the language of the social theorists cited above, one could say that we discover the power

\textsuperscript{40} The office was designed by New York star architect Gaetano Pesce and, placeless or not, was certainly far from being lifeless: "It's happy and warm and colorful and soft and round and funny" judged one of the myriads of observers that in writing about the office made it one of the most talked about commercial spaces in the decade (Artsforum 1995)

\textsuperscript{41} Even with this clarification, the historical analogy between the shift in the organization of work and the larger historical shift in modernity does not quite hold. Since the traditional office with its individually assigned desks, cubicles and office rooms is not a social place but a rather individual one, it does not resemble premodern societies or small-scale villages, or fit the definition of the concept of place as laid out by Giddens, for that matter.

\textsuperscript{42} Shortly after the merger-slash-acquisition of the agencies Chiat-Day and TBWA, the new ownership modified their interest in the virtual office plans even for the New York office. How much of the shift from virtual to village was learning from experience and how much was merely a result of changing ownership is difficult to determine. A Chiat-Day employee involved in the planning for the virtual agency suggested that the new owners had showed little interest in the original experiment and had abandoned some of its crucial components early on. (Phone interview with Steve Alburty, November 9, 1997)
of place at work while it has been lost for the rest of society. Although the writer's analysis of the nostalgia for community supports parts of my own observations, my conclusions point in a somewhat different direction.

In fact, both presented claims about the transformation of office work, either towards placelessness or towards a return to place-based community, may tell only half the story. If JFC's office is any indication, current changes in organizations neither return to the village ideal nor leave work without its place - rather they appear to embrace both directions simultaneously. JFC's office did not merely mimic place and its ideal-typical stable community, it also emulated aspects of space and its transient mobility. If there was nostalgia for the sociality of village life among the office designers there was also a desire for more modern social forms that are dynamic, fluid, flexible, and in constant movement. In the office, elements of place and elements of space co-existed and were deeply intertwined both in spatial and in social terms. The intent behind the deliberate mixing of two competing visions was to combine and reconcile both social and organizational forms: community and dynamism, collectivity and flexibility, communication and autonomy. Rather than following a simple shift from place to space, or place to flow, from the local and situated to the disembedded, or from the social to the individual (or the other way round), the designers were aiming at blending, in the terminology of Castells, a space of flows with a space of places to achieve something like a stable city or dynamic village. Doing that they tried to move away from what they perceived as the isolating and inflexible spatial and social organization that traditional office designs enforced. The aspired blend looked more mixed than Giddens, Castells, or even social geographer David Harvey would admit.43 Socially, the combination of both forms of sociality were to bring together the reliable social interactions of close-knit

---
43 Although Harvey describes a shift to a postmodern condition where places regain new significance, this heightened importance remains controlled by a universalizing and globalizing capitalism. (Harvey 1989, 295)
communities with the dynamic mobility and flexible individualism of modern (urban) life. JFC's designers rarely made explicit reference to the notion of the city, but other were more explicit. TBWA/Chiat-Day's current Los Angeles office redesigned in 1998 drew on a mix of village and urban themes. With "neighborhoods", "main street," and "central park," agency employees came to call their office "advertising city." (Pearson 1999, 107).

This kind of intermixing is an adequate portrayal of structures of settlement as well. Since urban planner Jane Jacobs' seminal work, scholarship on cities has shown us that in reality the differences between cities and non-cities are far from being as clear or fixed as the traditional imagery would have it. (1961) Cities can be made of different neighborhoods that harbor lively local communities, and non-urban or suburban settlements can be transient and anonymous. Both forms of sociality often coincide - as they did in the office where the office as village coexisted, overlapped, but also competed with the office as city. I suggest that the same may be true for the larger historical development as well: rather than a move from places to spaces or from places to flows, we may witness an intensification of both forms.

**Technology, place & space**

What has been missing so far in the application of theoretical concepts of spatial and social forms to office design is technology. Technology's role in the office was key to understanding why the mixing of the two design visions was not as successful in blending forms of sociality as it was in combining types of spatiality.

Castells' perception of the shift from a space of places to a space of flows stresses the technological element: while his space of places is defined by locality, the now dominant

---

44 At one point, Henry did use the analogy between office design and cities: "Certainly - the office is the city. This whole thing about neighborhoods, about setting up these sorts of familiar environments within the office, you could call that 'the office is the city.'"
space of flows is deeply related to technology. His notion of flows and its technological foundation resonates well with how the office functioned, since the design vision of a mobile and flexible organization was in many ways a vision of flows, combining flows of human bodies with information flows. In addition, technologically mediated work spaces, ranging from individual computers to communication spaces and electronic resources, were closely linked to physical architectures of mobility. Moreover, Castells' depiction of the "informational" and mobile city portrays certain aspects of the office quite adequately. In current-day mobile cities Castells detects a state of "hypermobility" that entails a delocalisation of activities and, especially through wireless technologies, threatens to destabilize person-to-place connections. The planners at JFC certainly quite consciously tried to destabilize person-to-place connections - if by 'place' one means individual workplaces. And the office did feel hypermobile at times. Yet, Castells' depiction of the role of technology on spatial and social relations pays much attention to its delocalising role and little to the more complex intermixing that I highlighted in the previous section.

In a similar vein, for architect and technology forecaster William Mitchell technology mainly dissolves spatial (or "placial") relationships in the workplace. He observes processes of fragmentation and recombination into new patterns induced by technology, resulting in the "recombinant workplace." With its intricate combination and deliberate integration of

---

45 See for example Doreen Massey's manifesto for "A global sense of place" in which she describes her local community in London in its simultaneously global and local quality (1994a).
46 Verbal comment during a presentation at MIT, Cambridge, MA, USA, March 5, 2002. Castells also described the dangers of the 'dual city' where unequal distribution and access lead to a spatial and social segregation, practically creating two cities in one, with gated communities for the 'haves' and ghettos for the 'have-nots.'
47 Ibid.
48 Mitchell describes the recombinant workplace as follows: "In offices, electronic interconnection dissolves the traditionally tight spatial relationships among private workspaces such as office cubicles, group workspaces such as meeting rooms, informal social spaces, and resources such as files and copying machines. When files are online, and office workers have personal computers and printers, there is no longer much need to cluster private workspaces around central resources; these spaces can migrate to the home or to satellite locations, they can follow employees on the road, or they can
electronic and physical work spaces, the office environment is becoming not just a fragmented and recombinant, but also a hybrid space.\textsuperscript{49} Such hybridity in the office does not have to mean big wall-mounted video screens and augmented reality conference rooms. It can refer to the way physical spaces and places are technologically mediated, technologically motivated, and technologically meaningful, that is they make the most sense in the presence of information and communication technologies. Let us be reminded that electronic spaces served a crucial function for the mobile office, not just for helping people communicate but also as indispensable part of mobile ways of working and the flexible and temporary use of physical spaces by mobile employees. In that sense the office is an instructive example how technological infrastructures and electronic spaces are not just "superimposed" on physical landscapes, but are closely and logically interlinked. In the office, the physical and the electronic were not separate and did not replace each other, but were deeply interrelated and formed and informed each other in fundamental and multiple ways.

However, it is important to recognize that technology is not universally synonymous with the principles of space or flows, nor with the individualization of work. This is despite the strong association I have made between the system of mobile technologies in the office and the vision of a mobile and flexible organization with individualized work patterns, and also despite Castells' linking of information and communication technologies with the late modern shift away from places to a spatial order based on flows. Recent work in technology studies on the use of online communities has vividly demonstrated that digital technologies can create online spaces that display all characteristics of places and help form social organizations and communities. (Dibbell 1993, Jones 1995, Mynatt 1997, Rheingold 1993, Smith & Kollock 1998, Turkle 1995) To understand "localized affiliation enabled by new

\textsuperscript{49} Mitchell, William. Verbal comment during a presentation at MIT, Cambridge, MA, USA, March 5, 2002.
media networks" anthropologist Mizuko Ito, for example, suggests the term "network localities" to describe technologically mediated social places that foster communities, such as online multi-user environments or even networks of mass-mediated consumers. (Ito 2000)

Technology, like space, can be designed to emphasize different organizational and social forms: it can stress individualized structures or social ones, can push anonymity or community, space or place - or both. It depends crucially on the details of the spatial, technological, and social interventions what the outcome will be. In the case of JFC's office, technologies were to some degree involved in both of the design strategies; they fostered local interactions as well, not just flexibility and mobile flows. Yet, due to the specifics of the design and also the use of technologies in the office, they tended to weaken the more collaborative and team based forms and strengthen the flows of people and individualized forms. In JFC's office, technology fostered transience and anonymity, encouraged individual resource handling, and emphasized individual ownership.

To speculate, had the design not relied so much on individual ownership of technology and instead paid more attention to creating electronic social places, the result may have been different. Informal electronic meeting places could potentially balance the diminished weight of physical places of interaction even in an office with mobile and nomadic employees. Other electronic places like file servers which promised to collectivize information traditionally organized around individuals, or more precisely their desks, could de-emphasize individual ownership. In its current form, individuality was stressed by the design, but in connection with properly designed physical spaces, a wired mobile office could have the potential to enlist technology in the service of more social and communal forms of interaction, providing new forms of communication and different kinds of permanence.

**Placemaking**

The conceptual apparatus I have borrowed lets me describe the spatial order of the office
now as doubly hybrid in that it combines *spaces* of flow with local *places* - as socially distinct principles - and mixes *electronic* and *physical* environments. There is still one problem with this conceptual analysis, however. The distinction between the principles of *place* and *space*, or even *place* and *flows* is based so far on a very static and design-centric conception of both notions. An additional look at the way people used the office reveals the difficulties in making the intended flexibility work, suggests a more dynamic nature of the places and spaces in the office, and indicates a more malleable quality of the embedded socio-organizational visions.

*The inflexible office*

Despite the elaborate design strategies, mobility and flexibility in the office did not quite work as it was supposed to. Work space turned out to be less flexible and employees moved around less than the firm’s office visionaries presumed. In the club, especially, one could see almost constantly occupied tables *without* an occupant in sight and tables with empty chairs marked by a jacket, coat or bag. (Figure 3.2) Instead of carrying their laptops with them when going to lunch or a meeting as the space rules demanded, nomads and independents frequently left their equipment behind and so marked the space their territory. In difference to what the office design prescribed, workers did not change places as quickly as functions or activities. There seemed to be a certain inertia at work. In their post evaluation study, the designers acknowledged this:

"It was assumed that mobile staff would move from work area to work area during the day as the work tasks they were doing changed. However it has become clear that most people set up a ‘home base’ when they first arrive in the office and connect their PCs to the network and email. From there they move off to other work locations for ad hoc meetings or externally for other meetings, returning periodically to check mail etc."

Moreover, over time I noticed that even in the so-called non-bookable areas, such as the club, people were sitting at the same tables fairly regularly. It turned out that some employees
came extra early in the morning to secure "their" tables. Apparently, territorial behavior was harder to forego than the non-territorial advocates had believed. The partial return of territoriality was no secret and did not remain uncommented on. Wayne, one of the founders of the firm and solidly behind their non-territorial philosophy, readily acknowledged this type of behavior. He even pointed at his colleague Henry with a smile and told me that he could almost always be seen sitting at this same table. Habits were hard to break, he said, thereby indicating that he saw this as transitional behavior that could be overcome with time. Like most others, he also referred to the overcrowding of the office as a factor that could explain the tendency to hold onto any space one had found.

I suggest, however, that there are other possible explanations for the kind of immobile behavior, which may even question some of the assumptions built into the office. One reason for the reluctance of nomads to take their equipment with them as frequently as they changed places, may have been that changing workplaces was actually a more material activity involving more stuff than the design ideal imagined. Hot-desking, as the concept of shared work places is also called, could be quite messy. Resembling only remotely the advertising images that presented a person with a lonely laptop on a clean and neat white table surface, the round café-like tables in the club were often covered with all sorts of things. There were laptops, power adapters, network cards and cables, external devices, mobile phones, additional cell phones, computer bags, print-outs, folders, note-pads, brochures, organizers, jackets, keys, glass-cases, and coffee cups. (Figure 3.3) Consequently, to pack up one’s stuff and unpack it in a different location involved more work than people may have been willing to spend for shorter moves, not to mention the powering down and up of laptops and the re-arrangement of materials on the new desk as a way of organizing one's work or memorizing one's thoughts. The materiality of work did matter. That messy desks can be quite productive has been acknowledged in recent design efforts by a furniture manufacturer who developed workstations that support multiple customizable arrangements of work
material as "auxiliary memory support system." (Hales 2000)

Another reason for the stickiness of places turned out to be that people liked certain characteristics of a location. Henry, for example, although himself an advocate of the firm’s design strategy, rejected Wayne's belief that it was all about habit. He claimed that for him it was a matter of choice, not custom. He pointed out that the table he usually was sitting at had concrete benefits. Its location allowed strategic lines of sight to both his secretary and incoming visitors without too much exposure for himself. Others chose certain desks or tables because they liked the proximity to a team space, the view out of the window over the canal, or the less public location. Yet, when their preferences consistently favored one place over another, it became a problem for the mobile workings of the office.

Still another reason for returning to specific desks or tables was that some people liked familiarity or stability. They liked a stable environment with familiar constellations of neighbors, view lines, and spatial arrangements. For them the individual qualities may not have been important, only the fact that they stayed the same and remained stable. It is important to understand that this desire for the permanent and familiar was not universal. Many mobile employees did not mind moving around during the day if they only could return frequently to what the evaluation document had called a "home-base." And for each one of those there was one mobile enthusiast who loved changing locations and did not miss a home-base at all. Nonetheless, for many others a place and its environment were significant beyond the general characteristics of noise level and amount of space which were the basic criteria in JFC's space planning. Criticizing his own firm's office layout, a senior consultant at Anderson Consulting said:

    Human beings have a sense of place, and hoteling violates that." (quoted in Duffy 1999)

---

50 In JFC’s design approach work spaces were distinguished by the amount of space available and different levels of what was labeled "environmental control." The latter circumscribed control over noise levels, disruption, and privacy and was mainly regulated through acoustic and visual barriers and location.
The underestimated materiality of work, the conscious selection of work places for their particular qualities, and the wish for familiarity and constancy explain the resilience of territorial behavior and the resistance to high-level mobility. They also challenge the assumption of interchangeability of workspaces as the prime goal of a universal plan and prerequisite for interoffice mobility and space flexibility. Workplaces may be less interchangeable after all. Yet, in addition, these explanations for inflexible, immobile, or "turfish" behavior also suggest that people's relation to their workplace, or to places in general, was more complex, more personal, and more special than the design gave room for.

**Workplace making**

Philosopher Yi-Fu Tuan distinguishes the concept of *place* from the concept of *space* from a phenomenological perspective. (Tuan 1977) While *place*, in his view, is the location we inhabit and made our own, what gives us grounding and provides security, *space* in contrast is the open, uncharted, and in a way untamed, it allows movement and signifies freedom, but is also unknown and unfamiliar. We go out into *space* and make it our own *place*. Although not unlike the distinctions I presented above, Tuan's emphasis is on the personal relationships people have to places and space. For him, they are not just abstract organizing categories but carry personal meaning.

From Tuan's perspective, I argue, one can see how the multiple work settings in JFC's office remained general and undefined workspaces until a user made them their own workplace. Against the assumptions of hypermobile officing, people needed to personalize a work space, or, better, make a workplace their own. Mobility and flexibility therefore required efforts of workplace making - even when only temporarily. Workplace making involved efforts related to the material arrangements of the work at hand and the work environment itself, not just the packing and unpacking of work-related stuff but also other tangible aspects of the environment, such as the arrangement of materials as mnemonic
device, customization, and personalization.

Those employees who sought the continuity of working at a stable place might agree that they developed some kind of attachment to a place that made working easier. The process of work place making may involve emotional labor connected to people's relation to the places in their environment as well. Thus this process of making the space of a quiet booth, for instance, one's own place to work, was not unproblematic and introduced some friction into the mobile machinery of the non-territorial multi-setting office.

Workplaces are made, they are not just there. Even within spaces of flow, in order to work, people make their own personal place, a kind of temporary territory. Not taken into account, the invisible work of workplace making can compromise the intended office design and undermine desired levels of mobility and flexibility. (Ironically, workplace making could thus mitigate some of the previously described negative consequences of technology in the office.)

Such conclusions have consequences for how to conceptualize the office environment and how to think about spatial concepts more generally. First, an environment like the office is made, appropriated, and defined through use and not just by design. The focus on placemaking makes us realize that it is the daily practices of those who live and work in the office that shape the kind of environment it becomes. The spatial, technological, and social design strategies certainly have an influence in that they make suggestions, give incentives, discourage, encourage, promote, imply, pronounce and hide, push and pull, persuade and bribe. But what kind of personal and social places and spaces are being created, what kind of social place the club becomes, for example, is the outcome of many processes and players, the planners, the space police, the spaces themselves, the technologies - but prominently among them the so-called users and their work activities. People don't just find places or spaces planners happened to design for them. In consuming spatial orders they always produce them as well.

165
Such findings about the active making of workplaces do not necessarily contradict the theoretical distinction between concepts of space and place as discussed above. Focusing mainly on individual relations to space, the notion of placemaking does not per se question the existence of spatial orders with different social consequences. It does, however, demonstrate the dynamic nature of the office environment, or all environments for that matter. If the active production of space is a constant process, and often enough a struggle, the static concepts of place and space need to be revised and seen more dynamically. Especially in an environment of unassigned spaces where people make their own places, some of which are temporary and transient, others more deeply their own, the making and appropriation of space points to the malleability of the designers’ office visions.

Yet, a more dynamic and unstable view of spatial orders does call into question overly rigid definitions of the concepts of place and space. Recent reflections by anthropologists and urban planners on the nature of space, for example, rightly criticize the strong counterposition of these concepts in some classical theories of modernity.51

This section’s discussion of concepts of place and space in the context of the dual design visions of JFC’s office has refined the view of the office and its make-up in a number of ways. The office now appears as a complex social, spatial, and technological environment where two conflicting spatial orders not only co-existed but were thoroughly intertwined and competed with each other, making use and intermixing more socially stable places and more individualizing spaces of flows. Moreover, the discussion showed how technological systems

51 Doreen Massey’s rejection of the traditional definition of place in difference to space, or of the local in difference to the global, is a good example. Places are not defined by boundaries, she suggests, but through the interrelation with other places and their relation to the outside. “The view of place advocated here […] stresses the construction of specificity through interrelations rather than through the imposition of boundaries and the counterposition of one identity against an other.” (Massey 1994, 7) Places, therefore should not be “counterposed to spaces as flows.” Translated into the language and imagery I have used here, it is not the borders that make a village but its relation to other villages and towns and/or cities. And it is the relation of other various places in the office that give them their quality, not their difference to the movement of people and flow of information or the spaces of flexibility.
were interlinked with the spatial orders and furthermore how electronic and physical spaces and places formed a hybrid environment. Finally, realizing that these socially significant techno-spatial orders were created as much in use as through design revealed the principally dynamic and malleable character of the office design.

The discussion not only shed light on the reality in the office, but it also helped to develop the conceptualization of space along the same three dimensions. We learned that in order to describe environments such as JFC's office in a meaningful way, concepts of space and place need to account for and capture different socially significant spatial orders and their coexistence and intersection. Second, such concepts need to describe related logics of space (and place) and technology and the hybridization of physical and electronic spaces. And third they must understand the act of place making and therefore the dynamic nature of spatial orders.

Conclusion

Interwoven in this chapter were two or perhaps three interconnected lines of inquiry: a close analysis of a particular office design including a reflection on the dialectic tension between individualized and social ways of work, the exploration of theoretical concepts about the social meaning of space, and involved in both, an investigation of the pivotal role of technologies.

The central topic was the description and analysis of the self-experiment of innovative office designers who developed for themselves what they considered a showcase state-of-the-art office. I presented this experiment as a fascinating case of organizational engineering, where spatial and technological design strategies together with some behavioral rules were meant to enable, encourage, or even enforce specific work styles, social structures, and organizational characteristics. I argued that there were not one, but two distinct
organizational visions embedded in the design. Built around principles of proximity, open space, and informal encounters, one vision aimed at increasing communication, team work, collective ways of organizing work, and a communal and social climate. The other design vision deployed principles of non-territoriality and multiple work settings together with an elaborate system of mobile technologies to achieve flexible work patterns, mobile ways of working, and a more fluid, dynamic, and responsive organization.

I showed how in practice these two visions were in conflict, where the mobile and flexible design efforts worked against the goal of a more communicative and collaborative organization. Frequent movement and change weakened the social fabric and communal climate and introduced some transience. I demonstrated how technology was central in this process, in particular in shifting the balance between the two visions. On a basic level it was part of both organizational goals, helping to create places for communication as well as spaces for individual work. But because its particular design and use were centrally linked to mobile and flexible ways, it undercut a more stable social texture and collective philosophy. Organized predominantly individually, the mobile technologies in the office pushed the mobile space against the social place, further reinforcing individualized patterns of work.

This was a story of contradictory organizational visions guiding office design, which generated conflicted social realities that differed in interesting ways from the designers' original intentions. The tension went partly back to assumptions about historical change in the world of business and the nature of work, but it was the design and use of mobile technologies emphasizing individual ownership and anonymity rather than contributing to collaboration and collective modes of interacting that threatened to tip the balance.

A second line of inquiry explored what kind of theoretical concepts could capture the close relation between space, technology, and social forms in the office. The proposed analogy between the dual vision office design and the pair place-space linked the case to other social arenas, to larger questions of historical changes in society, and to theories of
socio-spatial orders in modernity. Borrowing the theoretical distinction these two notions allowed me to capture in more theoretical terms the interrelation between the conflicting spatial, social, and technological orders at work in the office. But this worked only so far. With its co-existing spatial principles, physical and electronic spaces, and competing social forms the office was neither based on place nor on space. To use an analogy, it rather looked like how we perceive large metropolises at the beginning of the 21st century, with large urban centers and particular areas of anonymity and transience, and also neighborhoods and local communities, both flexible and social, individual and collective. In short, flows and social places do intersect, the office demonstrated, hybrid physical and electronic environments have specific social ramifications, and place making is inherent to place using, the production of space not separate from its consumption.

The office planners' attempt to create an environment that combined the desirable qualities of a dynamic and flexible sociality with that of a stable and social social order, did only partly succeed. Flexible and mobile ways were in danger of undermining social and collaborative modes. Yet the inherent conflict in the office model between wanting people to work together more closely and the growing difficulty to connect brought about by constant movement and temporariness, identifies a pivotal contradiction in today's approach to office work that goes beyond this particular case. The tension between more individualizing and, if one can use this term, more socializing tendencies is at the core, I believe, of current transformations of office work. Whether the organization of work is becoming more social or further individualized depends in part on the informed design and use of technology. But looking at the office at JFC it appears that both tendencies occur simultaneously, work getting more intensely individual and more intensely social at the same time.

Despite its tensions and problems, I see JFC's office, as well as the firm's design approach more generally, as a highly productive attempt to reinvent what it means to live and work as
an organization in the shifting economic landscapes and cultural worlds of today. Grown from many years of research, reflection, and cooperation with client organizations, the resulting design philosophy and practice was both sophisticated and experienced. The planners, designers, and consultants reflected on the psychological and social repercussions of their interventions, appreciated the importance of culture for organizations, and realized that change was always risky and problematic. They were not just after profit maximizing or space efficiency as office innovation often is, but strove to create the best and most productive environment for work. But most importantly, in their experimentation with new office environments they helped to articulate the range of elements, such as communication, collaboration, knowledge exchange, community, autonomy, transparency, space, technology, flexibility, territory, mobility, materiality, place, ownership, and choice, that work places and spaces of the future will have to deal with.

This chapter was mainly about the design of the office, its rationale, strategies, origins, and visions, with some discussion of how the design was used. Woven into the designers' goals and visions seemed a cloud of concepts, such as flexibility, territoriality, privacy, mobility, interaction, collectivity, and autonomy that were based on assumptions about people's relation to space, the nature of change, the power of technology, and the meaning of work. The next chapter will stay closer to the perspective of people in the office and explore how office inhabitants and nomads negotiated an evolving culture of mobility with space rules, new hierarchies, and a reversed symbolism of technology and space.
4 - THE CULTURE OF MOBILE TERRITORIES

The last chapter focused on the content and contradictions of the design intentions that informed JFC's office design. It dealt mainly with design ideas and only in part with their actual consequences in use. In this chapter I continue to explore aspects of the design but now I concentrate more on the office in use and the way office workers engaged with this design and its rules. I ask what kind of control they had over the spatial arrangements in the office, to which degree they wanted or were able to change the designations of the layout, and whether they challenged and contested what the design prescribed and promoted. This chapter mainly explores how an office that was based in part on mobility and flexibility as guiding principles worked out on the ground, that is, what the ramifications were in terms of the social organization of the firm and the practice of work. A central question is how social relations were affected by the layout, rules and policies of the design. While the last chapter discussed two contradictory models of social relations in the firm's office vision - a more social and communal one and a more individual one - this chapter looks more closely at the actual patterns of relations evolving in the office, that is how people enacted or changed the design's structures. Specifically I ask how the new office design affected existing differences in status and power relations and what kind of organizational forms appeared compatible with a non-territorial and multi-sited office scheme. This includes who in the office benefited in what ways from the new forms and who could influence the design's direction. A related topic in this chapter is the role of material things in the office, as indispensable work material, as impediment for mobility, and as symbol of status or identifier for certain groups in the workforce.
I examine these issues through two cases. The first case looks at policies that regulate work material and space use in the office. It follows a controversy about storage and the status of work material in order to bring to the surface certain assumptions about the nature of work that underlie the firm's design. The second case looks at claims to diminish differences in hierarchy through the spatial layout of the office. Both cases point to the central meaning of mobility\(^1\) for the functioning of the office, in terms of how everyday work is supposed to take place as well as in terms of the social structure of the firm. The discussion also brings to light the important role of technology for the shifting power relations in the office.

**Assumed immateriality**

One evening, Wayne, a founding partner, and I walked around the office talking about the presentation he had just given to a delegation of a European Broadcaster who visited JFC to explore options for their planned new central office building. While discussing the case we walked around the office and finally approached a smaller room that connected the central open entrance area with the workspace for the computer support staff.\(^2\) About eight feet deep and fifteen wide the room we stood in seemed to serve several purposes: it functioned as passway to the computer support staff, as improvised workspace, and - here was the problem - also as storage room. For the roughly six weeks I had been in the office, I had seen a couple

---

1. In the context of JFC's office design, *mobility* and *flexibility* were related concepts. Although I mainly speak about the mobile office and mobility in this chapter, flexibility is part of the picture. Not only were both principles central corollaries of the new office concept, they also overlapped to a good degree. Intra-office mobility, for example, almost always entails flexibility in work location. The two concepts focus on different aspects, however. *Mobility* emphasizes the ability of employees to change locations while at work, while *flexibility* stresses the ability to respond to change. In addition, organizational flexibility can refer to the office's ability to adjust to medium or long-term change, such as fluctuation in employment or structural shifts through changes in projects. This type of flexibility does not need to involve any kind of short term mobility.

2. In an exception to the principles of an open and shared office design, the "network people," had their own enclosed work space. Not considered part of the regular staff in the first place, the computer support staff's insistence on a closed door apparently did not threaten the coherence of the office.
of occasionally used make-shift workplaces in one corner, while the bigger part of the room was slowly taken over by a pile of diverse work materials. Already filled with poster boards, image printouts, and other large items, right now the space was stuffed even further with large cardboard displays piled on top of everything else. These boards stemmed from the big company-wide event that had taken place in the office recently; their annual meeting day had brought together employees from all over the firm in a day of conversation and celebration.

"And this with a shortage of space," Wayne shook his head furiously. He seemed shocked about this accumulation of stuff in a valuable office space. Without doubt he thought such an inappropriate use of space unforgivable in an office that not only had a very tight space situation but also well-defined space policies regulating the storage of things and the use of space. Project related material was supposed to be stored in the respective team pool areas if in use, filed if no longer in use but important, and disassembled if neither used nor worth being kept. The presentation boards probably belonged in the last category. Work material belonging to an individual ought to be stored in their personal filing space. Other objects should go back to the library or the sampler room. Wayne perceived this unruly corner of the office as an expression not of a storage problem but of a lack of discipline. And so he called for a "space manager" who could enforce spatial discipline and police the behavioral rules the office design in his opinion depended upon. It was not for the first time that I heard a call for enforcement of order, but during my time at the office such a position was nonetheless never seriously discussed.

To appreciate what was so upsetting about a surprise encounter with a space temporarily appropriated to uses other than their official prescription, we need to examine these space policies and their importance for the functioning of the mobile and flexible office. Central
among these policies was the 'clear desk rule', which, among other things, carried assumptions about the status of material things in the office. The rule therefore sheds light on how ideologies of mobility and flexibility relied on deep-seated and contentious assumptions about the immaterial character of work. In addition, the smoldering controversy around it brings to the fore how unevenly the control over the direction of the design was distributed among different groups in the office. The case also points to the way spaces in the office were redefined by users in ways that went beyond and against the original design.

**The clear desk rule**

The clear desk rule was part of a set of spatial policies that were developed to guide employees' behavior in the new office environment. Other rules regulated the use of touchdown areas, closed cells, and meeting rooms, for example.\(^3\) Described by an internal discussion document, the clear desk rule demanded that all work material "be removed at the end of the day and stored in personal files/storage."\(^4\) No personal items were to be left overnight so that shared work areas could remain clear and open to the use of others. One of the prerequisites of a mobile and flexible office concept, the policy had the main purpose of allowing "a more fluid use of non-proprietary space."\(^5\) Yet, since the rule applied not only to shared workplaces, such as the club, but to all work areas, the clear desk rule, together with limits on personal storage, seemed to serve the additional function of restricting the amount of personal work material in the office.

JFC was not the only company with such a rule. Many office experiments during the late 1990s that featured an open plan or shared work areas had some policy in place that required

---

\(^3\) More specifically, these rules prohibited occupying space in touch-down areas through personal items, encouraged using closed cells only for privacy or concentrated work, and prioritized client meetings over internal ones when using enclosed meeting rooms, for example.


\(^5\) ibid.
their employees to clean up their desks whenever they left their workplace for an extended period of time. In their hot-desking Boston office, Anderson Consulting, for instance, introduced container-like boxes, called "totes," for the transport and storage of employees' belongings which got locked away at night and taken out again in the morning. The management consulting firm had special service staff to move these boxes for their senior partners.6

At JFC certain types of material were supposed to be stored in central locations: project-related documents could be filed in project files, while books and magazines should be returned to the "knowledge center." For personal use, employees at JFC who worked on projects usually had some filing space in their team areas. But the nomads, independents and senior managers had to keep their belongings in a central place. At the end of his workday, for example, Henry, head of research and one of the deskless independents, typically packed up his laptop, unplugged it from the network and power outlet, collected papers and other material he had been reading or editing, and carried it all over the few steps to the row of medium-height filing cabinets located in the entrance area. Serving also as display space for some 3-D models of projects the firm had worked on, the cabinets separated off the row of quiet cells from the open central space. Pulling out his personal drawer of three feet of filing space Henry usually piled everything on top of the folders, material, and equipment already stored in it.7 Sometimes he locked the drawer but during the day he often left it unlocked. His mobile office phone he took to a special rack where it got charged over night. Returning in the morning Henry went through the process in reverse order. He took from his drawer his laptop with power adapter and network cable and the papers he might need for the morning,


7 I know the state of his filing space quite well, because Henry generously offered to put my laptop in his space when I needed to clear my desk and didn't want to carry my laptop home in the evening.
picked up his phone, and walked over to the club area where he hoped to find his favorite spot unoccupied. Whatever he needed he could usually carry in one walk.

Henry found the clear desk policy not too problematic. At times he felt there could have been more storage space, but he knew that they were short on space. Others complained that it was inconvenient to pack away their things in the evening, only to bring them back the next day, opening the same pages of books and laying out in the same sequence files and documents. But overall, many of the users of the central non-territorial club area seemingly had not much trouble with the rule. Wendy, for example, not a mobile worker but a researcher whose main location was in an extra office downstairs, maintained that she had learned the cleaning up routine at another company a long time ago. It still helped her to discipline herself and to clean up her desk every evening. She explained:

"That was only the second place I have ever worked and I still clear my desk every night. It may be only cleared into an entry, but it's cleared. And that's a very important part of my work ritual, closing down for the night."

Yet, the case of clear desks was not that clear. Over time it had generated some controversy in the office. Employees complained that it was not useful to their specific work activities, and so the rule had turned into probably the most contentious of the behavioral rules that accompanied the new office layout. An example of its controversial character was a story an architect told me, a story that also suggested a certain power imbalance in the office. A while ago the architect and his team had worked on a 3D model late into the night to meet a deadline the next day, and they finally went home in the early morning hours. When they returned after only a few hours of sleep the model had disappeared and on their empty desk they found a note reminding them to clean up their desks in the evening.8

---

8 Although it gave only general recommendations for open plan environments and did not mention JFC's office specifically, the discussion document cited above also makes the suggestion that "personal material, if left overnight, could be collected and disposed of in 24 hours if unclaimed." [JFC]. 1999. *Open plan: issues & considerations. An overview of history, trends, and issues.* (Internal discussion document, January 1999), p. 17
Although they recovered the model, the architect resented the insensitivity of this intervention of the "space police," which most likely was one of the senior partners, in this particular situation.⁹

Although herself content with the rule, Wendy offered other examples of the problematic impact the rule could have for some people. She told the story of a colleague who, to work productively, needed her personal order, which was made difficult by the clear desk policy and the limited individual storage space:

"[It is] somebody who is actually a friend of mine, so I am biased. She is an extremely ordered person, everything has its place and everything has to be just so perfect for her to have the right mental attitude to work. So constructing that just-so-ness every morning was a huge effort. She had to buy special containers and receptacles to put [her stuff] into, so that it could all go away at night into storage. […] She would not just throw stuff in like I would, everything had to fit. So it was a major problem."

Peter was another problematic case. He was described to me as the person whose work practices and space habits were most at odds with the redesigned office and its temporary workplaces and space policies. An architect and expert on building types who had developed a system to assess buildings for flexibility of space use, he had been with the firm for many years. Since he relied greatly on books for his research, he apparently had difficulties adjusting to the new work environment where he was officially without a permanent work desk and was expected to clean up every day. Wendy commented on Peter's work habits before the redesign:

"But for Peter, his desk, you should have seen it, it was so archetypically Peter, he had papers stacked high like this and under the desk, and he knew where everything was. It wasn't just chaos, it was very organized. For him that was his knowledge, his understanding. When we changed to the new system he had to throw all his stuff away. I think that was very hard for…"

⁹ I am not sure where the model should have been put according to the rules, since it was too big to go into individual storage spaces. There was no dedicated space for models, but presumably it should have been stored temporarily in the sample room or in the filing area or another less exposed part of the office.
him. So that's one way in which it doesn't seem so good."

Yet, Peter did not entirely subscribe to the new ways. She continues:

"What he seems to have done as far as I can tell is to create himself a desk in the knowledge area where he has all his stuff and he doesn't put it away every night."

Ignoring the official space designation, he had over time taken over one of the more peripheral touchdown desks that was located outside the views of visitors and clients. Demonstrating at times his good will, he tried to clear his desk when he was not in the building but often left a pile of books and material on the floor next to "his" desk.

Peter's attempt to effectively create a quasi-permanent workplace for himself was one of the more overt cases of sidestepping the office design's space designations. Others circumvented the non-territorial policies as well and silently occupied spaces they were not supposed to in less central areas of the office. (Figure 4.1) The urban planning and development group that focused on city planning, for example, practically occupied a project space for themselves that was not designated as such. Researchers in an extra office space on the first floor ended up using their own desks and computers quasi-permanently citing specialized software they needed as the reason. And a few consultants with the help of their stuff took over workplaces that through habit became recognized by others as theirs. These latter cases were not just about the clear desk rule, they challenged the office's principles of non-permanency and non-territoriality. Yet often it was breaking that rule that made it possible to signal place ownership, or at least lasting 'usership'.

The appropriation of extra space for storage, much to the dismay of Wayne and other enforcers of the design philosophy, was further evidence of the slippage of space rules. It was not just the one room that had attracted his disapproving attention. In general less frequented corners of the office could quickly turn into storage areas for posters, files, books, or other objects that had no other place to go. Accordingly, the Post Occupancy Evaluation study conducted to assess the redesign of the office stated disapprovingly:
"Housekeeping has also proved to be a problem with the increased numbers of staff and a number of cleanups have been found necessary to reduce the amount of unofficial storage in work areas."\(^{10}\)

The study seemed to argue that this too was a result of the overcrowding of the office. The overcrowding probably exacerbated but did not cause the problem. A more self-critical remark came from one of the designers who maintained that flexible work required special transitional spaces, what she called "just-in-case" space. Such spaces could be used for different temporary purposes, for example to keep things for short periods of time until they were used again or went into final storage. This insight, the designer added, was not really passed on to their clients, however. Nor, I believe, did they incorporate it into their own office design. The consequences could be noticed easily. The surreptitious appearance of improvised, temporary and unplanned storage spaces was a result of problems underlying the clear desk rule. In order to get their daily work done more conveniently or effectively, the firm's employees worked both with and around the official designations and policies, sometimes following them grudgingly, sometimes bending or redefining them, sometimes ignoring them, and sometimes openly criticizing them.

These examples not only demonstrate that the clean-up policy was controversial and problematic, they also show that it was not altogether successful - people did not always adhere to it. Instead users re-appropriated the spaces and places of the office according to their own needs, disregarding at times the official definitions.

**The immateriality assumption**

The debate around the clear-desk rule and the redefinition of work spaces against official prescriptions calls into question central assumptions of the office design. The reluctance by some people to clear their desks and the 'inappropriate' use of overflow and storage spaces

elsewhere expresses how the rules about storage and cleaning failed to adequately consider people's actual work needs, especially the significant amount of physical work material.\textsuperscript{11} Similarly, in the last chapter I mentioned the materiality of work as one of the reasons why mobility and flexibility in the office did not run as smoothly as planned. I described how the temporary tables in the club were usually covered with a range of things and so hardly resembled the serene desk surfaces that representations of mobile work usually depicted.\textsuperscript{12} The silent resistance of office workers who did not clean up their desks diligently and the disorderly surfacing of stuff suggests that work was, after all, more material and messy than the design presumed.

These cases reveal one of the basic assumptions of JFC's office model - the assumption of the immateriality of work. By this I mean the implicit or explicit belief that the work conducted in the office has or needs little material basis and that work material is either electronic or fairly negligible in its material dimensions. This immateriality assumption was deeply embedded in the design for a mobile and flexible organization, the concept of multiple shared workplaces, and the use of mobile technologies. The non-territorial concept presumed that the materiality of work was not that significant. To assume that personal resources can be limited to a minimum, that mobile workers can pack their equipment and move to different locations several times a day without problems, and that the rule about leaving desks clean does not create an unnecessary burden, suggest that the materiality of work was not considered important. It is necessary to qualify this statement: the material work environment was of course taken seriously; the whole office layout was based on the belief

\textsuperscript{11} Offered by space rule proponents, a frequent explanation for that kind of "resistance" was that people would cling to their habits and not let go of what they were used to. In that view it were not real but only imagined or habitual work needs that were neglected by the design.

\textsuperscript{12} Photos that portrayed the office in trade magazine articles or the firm's own promotional brochures always presented a highly ordered and clean environment; there was usually not much more than one person, one laptop, and one table surface to be seen; even the obligatory power cables were absent.
that the physical environment mattered. It was the material side of work that was seen as
unimportant and an impediment to the more mobile and flexible ways of working.

In part, this was a conscious strategy to limit individual ownership of material, not just
to make it electronic but also to organize it collectively rather than personally. This strategy
was consistent with what I called in the previous chapter the collective or community vision
of the office. In fact the design offered a number of collective office-wide storage solutions: a
central filing location for project files, a knowledge center for books and other paper-based
resources, and even a whole storage room for material samples of tiles, carpets, and other
materials architects needed to make choices about their design.\textsuperscript{13} Yet, these collective
solutions helped only so much. It was not practical for Peter, for example, to check in and
out all his material on a daily basis. And to put project related work material into the project
files made sense for archiving purposes but not when people where in the middle of working
on it. In addition, storage problems occurred not just with regard to personal material. It was
often project material that did not fit into the dedicated spaces.\textsuperscript{14} (In the last chapter I also
hinted that this disregard of the material side of work was closely related to a belief in
technology and the conviction that mobile phones and laptops could mitigate the difficulties
related to constant movement and change.)

Since matter mattered quite a bit in the not-yet-paperless office, such a neglect of the
material side of work not only provoked disagreement, it could also generate extra work. To
accommodate unaccounted for stuff, office workers had to devise strategies and engage in

\textsuperscript{13} To further 'de-individualize' the filing effort the office hired temporary workers to keep up with filing
and to clean up and reduce the sample library at regular intervals.

\textsuperscript{14} To be more specific, one way in which the office scheme did not take full account of the complexity of
work materials was that it had a black-and-white view on work material: stuff was either in use and
then on one's desk or not used at all and then back into filing or wherever it belonged. Space was
either seen as work space or as dedicated filing space, nothing in-between, no temporary filing space
or, what is so common in traditional offices, space that serves both as storage and for work. The
lessons learned from these examples are that there is need for just-in-case spaces and for mixed spaces
that serve both functions, work and storage, simultaneously so that things can be 'kind of used': not in
use at the moment, but not yet to be stored away either.
largely invisible work that otherwise would have been unnecessary. They had to find
temporary storage places, carry things around unnecessarily, or hide things. The efforts to
either fulfill the spatial rules or circumnavigate them consumed valuable time and energy. Not
considering the materiality of work could compromise the very design that demanded this
disregard in the first place. Work could be unproductive without the proper material, mobility
and flexibility constricted through necessary but 'unplaceable' stuff, and space wasted when
taken over unsystematically.

Designers versus consultants, residents versus mobiles

The clear desk ruled reflected not only the low value put on material, it also pointed to a
certain power imbalance in the office. The architect who told me the story about the
'disappearance' of their model over night went further in his critique. He also saw it as an
example of a systematic bias in the concept of the office plan that tended to neglect the
needs of certain professional groups - his own. In fact a number of architects and designers
complained that the office with its space rules was not designed for them. It was modeled
after consultants, they charged, who had little material needs beyond letter-size documents,
which could easily be carried from desk to desk or that existed digitally on laptops. In
contrast, for those working with large paper sizes and other material resources, such as carpet
or tile samples, the limited storage and the clean-up requirement was a big nuisance. To
corroborate further their charge they pointed to the lack of display space on the walls.
According to their view such an omission could only stem from somebody unfamiliar with
their work and their needs.  

15 The struggle over displays had lasted for more than a year when during my research they finally put up
large wall-mounted boards near project areas. (Even this seemed more a side-effect of the display
efforts during the annual meeting rather than an explicit attempt to give the architects what they had
been seeking for so long.)
The accusation that the work reality of consultants might have become the model for the rest of the company was not far-fetched. The senior executives who had initiated and largely shaped JFC’s redesign, even if architects by training, had long worked primarily as consultants. Furthermore consultancy, not design, had come to generate the most business and revenue for the firm, and grew disproportionately as a sector. However, according to some the division of labor between designers and consultants and their respective investments should have been the opposite. In Henry’s experience designers typically pushed clear desks while consultants sided with users’ needs.

"The classic design thing is: should we have clear desks or should users be allowed to personalize their work stations, and all that crap, or not. Most design firms would say no, because that’s messing up my design, they make pristine architectural statements and don't want pictures of kittens and puppy's stuck on someone's workstation. And then, from the [consulting] point of view that could meet all sorts of organizational needs. So, how do you reconcile these two things? That debate is really healthy. [...] There are different interest groups being represented, the consultancy side [...] is about representing the organization, the user, and the design side is about representing the building, at the most simplistic level."

Nonetheless, at JFC it was the architects and designers who criticized the clear desk rule and through it a bias towards material-less work, not the consultants. The consultants appeared to represent the firm’s design philosophy and its rules and preferences more strongly and fervently than designers. The different groups in the office had aligned themselves differently with the dominant ideology. This division and the designers' discontent was even officially acknowledged by the firm’s internal evaluation study. The document summarized:

"Since the refurbishment, patterns of work have changed throughout the office but it was felt by some people that the changes suited the consultants more than the designers." (POE)

I believe the reason for this twist of roles - that designers had taken the view of users while consultants had turned into advocates of new ways of working twisting users’ arms for their own betterment - could be found in their own work practice and work styles. Most
likely, at JFC the designers' personal experience with these pristine architectural statements dampened their enthusiasm for a purely aesthetic reasoning. Since in their work architects and interior designers needed a certain amount of space and a good number of quite physical things, from plans, to drawings, displays, and sample materials, they could feel some of the space rules' specific constraints very practically in their daily work.

The consultants, on the other hand, although traditionally user advocates, had subscribed to the design philosophy of JFC that promoted mobility and limited individual ownership of both space and work material. Perhaps, as some of the architects suggested, the consultants' inclination to regard work as immaterial and therefore physical work material as both limited in its use and containable, could be found in their own work practices as well. As consultants had a different work-style, they were used to traveling, their work was easily computerized, and their mobile work styles had made them experienced in controlling and limiting material objects and things. In addition, their products, such as reports, workshops, policies, studies, and much personal interaction were less physical compared to that of architects.

But it may have been less a conflict between designers and consultants per se. The more precise dividing line may have been between those who worked in mobile ways and those who did not. These two groupings overlap strongly, since consultants were predominantly mobile and designers were primarily team residents. Yet, some of the senior and managing designers, although architects, were also among the mobiles. From this perspective it was those who were the most mobile and the least material in their work who had managed to model the firm's concepts and policies after themselves, their own work behavior, and space needs. This group upheld the principles of an immaterial and mobile work organization and tried to impose their modes onto others who had quite different work styles, were perhaps more sedentary and therefore were 'stuck in' more material ways of working.

In recognition of the designers' complaints and the scattered resistance against the space rules, enforcement had become less rigid over time. But as the story of Wayne's indignation
reveals, the principle remained and the bending of the space rules could occasionally trigger calls on the side of management for a space manager to police people's spatial behavior. These calls were short-lived, however, and the next morning my interlocutor seemed to have all but forgotten his reaction from the evening before.

**The materiality of space**

On one level the story of less-than-clear desks and illegitimate storage spaces demonstrates how in practice people redefined and re-appropriated office space to their own use. Rules and space designations officially prescribed by the design were powerful in their ability to push organizational agendas and to promote spatial practices, but they had limits. Employees had much say over how certain spaces were used in the end. Short of open resistance, office employees engaged in a number of strategies to bend, realign, circumvent, or reinterpret the spaces and their prescriptions if they felt them too cumbersome or unproductive for their work. Although in principle supportive of the design of their office and its organizational ideas, they adopted a more flexible space behavior and used material more fluidly. They rejected, for example, a too rigid spatial separation between use and storage of work material and found it necessary to create spaces that were in between, where things were somewhat in use and a little bit stored. Doing so they emphasized the need for temporary, liminal, and just-in-case spaces.

More generally, the story suggests, that users as much as designers determined what functions the spaces and places in the office held, and moreover that these functions could not be fixed easily. In this sense, space proved not unlike technology. The notion of *interpretative flexibility* when applied to technology design emphasizes that there is always a range of uses any technology or technological system can be subjected to.\(^\text{16}\) Designed space,

\(^{16}\) The notion of *interpretative flexibility* was publicized by the approach known as Social Construction of Technology; see Bijker, Hughes & Pinch (1987) and Bijker & Law (1992).
as artifact, can be interpreted with a similar flexibility of uses. Space too has *affordances* - to use a different language and theoretical tradition - and like those of technology they are malleable.\(^{17}\) Or, to put it still differently, space has *politics*, but similar to those of technological artifacts, its politics include processes of negotiation and resistance.\(^{18}\)

On another level, the controversy of the clear desk rule and its adjacent spatial policies uncovered how deeply assumptions about the immateriality of work were embedded in the office concept at JFC. It also revealed to what degree their ideas about mobile and flexible work were based on these assumptions. The problems emerging with the rule challenged these assumptions suggesting that they were unrealistic at best and counterproductive at worst. Based on spatial and material work needs, the critical perspective of architects and residents especially pointed to the danger of equating non-territorial with non-spatial; even temporary and shared workplaces, they said, needed some amount of controlled space. They also questioned the close kinship between mobility and immateriality.

Finally the case brought to the fore a certain power dynamic in the office between different professional groups, which was based on the degrees of mobility they commanded and their respective abilities to steer the firm's design agenda. It turned out that it was the mobile workers and, more or less identical with them, consultants who shaped the office environment based on their own work experience and work needs. The central significance of mobility in the life of the firm and the privileged position of those who were mobile was also apparent in another example, which I will consider now. The following section discusses the firm's claims of a substantial shift in the organizational hierarchy linked to their different space use.

\(^{17}\) On the language of affordances and constraints see former cognitive psychologist, then techno-guru, now entrepreneur Donald Norman (1988). This terminology has been criticized within technology studies for its undercurrent of technological determinism.

\(^{18}\) On the politics of technological artifacts, see Winner (1986).
Reconfigured hierarchies

In Billy Wilder's 1960s movie "The apartment," the main protagonist, C.C. Baxter, charmingly portrayed by Jack Lemmon, is one of the more than twenty thousand employees of a large New York insurance company that occupies a huge modern office skyscraper, which the opening sequence of the movie presents in all its vastness and symbolic power. This is the age of the "organization man" and claims adjuster Baxter's ambition to climb up the corporate ladder compels him to give favors to his bosses in the form of the key to his apartment that they use for their amorous extra-marital adventures. After sacrificing his home (and health since it is winter and cold in New York) for some time, Baxter finally gets promoted to a higher position. In one of the central scenes of the movie we see him pack up the rolodex and a couple of other office essentials from his desk which is just one in an endless grid of indistinguishable desks in a large open office space fading into perspectival infinity towards the horizon. Carrying his office utensils in his arms Baxter walks triumphantly past his colleagues, who look just like him, to the elevator that takes him upward to a higher floor where he enters his new office with windows and a glass door on which his name is just being written. (Figure 4.2) This walk from the nameless and endless mass office without any privacy to his own private office expresses in one brief scene his move up the career ladder and the associated rise in status, power, and comfort.19

Intro: space = power

In numerous stories in films or books narrated throughout the twentieth century, from the twenties to the nineties, such symbolism was amply used and immediately readable by the audience. The large corner office with a nice view, a grand mahogany desk, and other luxurious amenities has always and unambiguously signaled a comfortable position in the

---

19 There is a nice play with the home-work division in this film. Baxter trades in ownership of his private space for ownership of a work space. And his bosses, despite all the nice office space they
corporate hierarchy. At seriously senior positions the executive territory was usually also
guarded by an ingenious alliance of human secretary and spatial layout that controlled the
gate into the space of power and successfully shielded the chief officer from intrusions from
outside of his - as in most cases it was "his" - elevated realm.

Even today the symbolism feels still fairly unambiguous. A recent cartoon in the New
Yorker shows a job applicant who sits at the side of a gigantic desk that fills almost the entire
room with a high ranking employee, presumably a manager or HR person, behind it. The
caption reads: "We don't offer bonuses, but the size of your desk will be adjusted quarterly."
(Figure 4.3)

If the ubiquitous narrative device is any indication, the universal formula for corporate
reality reads, space equals status equals power. The measurement of privilege in square feet, or
put in different terms, the symbolic use of space to express corporate hierarchies, in fact has
for a long time been one of the universal truths in the business world - the corner office one
of the corner stones of corporate America. Franklin Becker, an expert on workplaces and
facility management describes the basic link between hierarchy and territory in many
organizations:

"Convention, in most large American organizations, is very clear: Those at the top get more
space, more privacy, better views, more and better furnishings, and more opportunities for
personalization and choice."

He continues to stress how deeply the convention is woven into the very structure of
organizations:

"Redefining the organization's assumptions about how to symbolize status and power is
probably the most difficult aspect of corporate culture to change. It is like pulling on a loose
thread: It stubbornly refuses to break loose, but once it does the whole garment may unravel."
(Becker 1990, 229f)

command, need to turn to their inferior to find a truly private private space.
De-hierarchizing the office: space ≠ power

Yet as hegemonic as this marriage between space and power in the corporate world appears, it is not without exceptions. There have been attempts to rethink organizational hierarchies and their expression at several times in history - office landscaping was one of the more serious cases. Most recently, the experiments with new office environments throughout the 1990s targeted traditional power formations as well. The growing desire for more interactive and flexible work environments together with ideas about space efficiency left little room for the luxury of large privileged spaces for upper management. Advocates of alternative office concepts praised open and shared office layouts precisely because they would express and reflect a flatter, more democratic organization. In a hot-desking environment, so the argument goes, everybody is treated equally, CEO and junior employee can end up sitting next to each other. Although the equalizing efforts did not include salaries, proponents of the new office celebrated the death of the corner office as a sign for a radical democratizing of the workplace. If this were all true, the fading of the status-function of office space, as Becker put it, may be the most radical shift in the meaning of space in the context of work. (1999)

Yet, I want to show that the case is not that simple. Examining closely the reality of JFC's office I suggest what went on in their newly designed environment was a redrawing of hierarchy rather than its disappearance. I also propose that the symbolism of power, although losing its tight coupling with space, shifted elsewhere instead.

The intent to democratize

JFC's approach to office design, like that of other office innovators, decidedly broke with the tradition of space-based hierarchy. Their move to take their own space away from managers, consultants, and senior staff and put them in the open as mobile employees was a conscious attempt to take away space-related privileges and de-emphasize hierarchy in the
firm. Part of their rationale was that a flatter organization was seen to be better suited for the level of interaction and flexibility they perceived as necessary. But their declared objective was also to democratize organizations through a reconfiguration of space. "In traditional work environments," reads an internal discussion document that was also offered to clients, "common indicators of rank can be the size, location, and furnishing of the workspace and the degree to which it is enclosed." But since "work settings will reflect the value systems of a particular organization" the document goes on, an open plan design could "reinforce 'flatter', less status conscious organizational structures." 20

However what ought to transform the power structure in JFC’s office design, was not just an open plan. For an open plan can still maintain hierarchies when not enforced equally throughout an organization. In fact, JFC’s designers and consultants often encountered this problem with clients who wanted an open plan, "except for management." Historically this kind of open plan for the masses had been almost a staple of office design. 21

In JFC’s case it was the principles of non-territoriality combined with the decision to assign work space according to needs that challenged the allocation of space by rank or position. As my informant Henry emphasized, the dissociation of space from status was one of the basic assumptions of the firm’s design philosophy. Space should be allocated on the basis of the "needs of the actual work processes," he said, not with regard to job titles. Such a principle undermined the territorial foundation of power; yet it did not necessarily foreclose high ranking employees commanding more space, Henry explained: "If a manager needs a twelve-person meeting room, fine, if he meets with large groups of people all the time."

At JFC, senior staff did not need or have that much space. The nomads, independents and senior managers all had turned into mobile employees without any dedicated work space

21 It is not an open plan but rather a 'universal plan,' where all workplaces are the same and seen as
of their own. Their temporary workplaces were in the club or other touch-down spaces in the office. Since the work patterns especially of higher ranking employees did not justify spatial ownership, the need-based space allocation at JFC therefore almost reversed the traditional situation with regard to space ownership.

Changes in the territorial base of the organizational hierarchy were not implicit side-effects, they were considered explicit goals. The intention behind cutting the link between rank and turf was to emphasize equality between employees of varied titles and de-emphasize rigid hierarchical structures. The spatial 'flattening' should create a less divided and more equal and democratic social structure. This does not mean that the promoters of the design thought to eliminate hierarchy and erase differences in rank and power altogether. Differences in positions, in pay, and in experience obviously continued. Rather, the idea was to reduce the effects of an overly strong hierarchy on the communication flow within the firm.

There is a symbolic and a practical aspect to this strategy. By abolishing territory as status symbol non-territoriality should stop the overt expression of rank and hierarchy. Yet traditional enclosed office spaces held not just symbolic but quite practical privileges for their high-ranking owners, giving them control over access by others and their own privacy. JFC's non-territorial environment strove to prevent higher rank employees from drawing such privileges from space ownership, which could hinder exchange and communication. The effort was to make senior staff more accessible and part of the social texture, not just symbolically but in the contingencies of day-to-day work.

Perhaps unique in JFC's case was the high level of cooperation from senior staff. In their work with clients JFC's designers often experienced resistance from senior employees and found themselves explaining to hesitating managers that the inclusion of senior staff in their new office concept was necessary to raise acceptance among all employees. Not just top level

---

interchangeable, that promotes a certain equality and enables flexibility in an organization.
management but especially middle managers and professionals, like lawyers and accountants, were often unwilling to give up their, as they thought, well-deserved privileges and let go of what a change management consultant at JFC called "estatism" - the mindset of holding onto exclusive workspace as entitled privilege. The consultant describes the resistance that discussions of a new office design met in a financial service firm:

"All is bound together with status, and feeling like they are working for the biggest accounting firm in the world [...] they go, yes, in principle we love it, but in terms of estatism, their mindset, it's just a nightmare, we can't get them - it's tearing them away like with their nails in their mahogany desks, screaming. None of this has happened, we're just talking concept level, but they are already screaming."

At JFC in contrast, senior management required little convincing of the benefits to giving up their longstanding privileges, since they not just shared but had shaped the philosophy behind that design. Their unflinching commitment could help persuade other employees to follow suit. The same consultant explained the effect senior management's "buy-in" had for other employees:

"I think the fact we can deal with it and we don't mind is that Derek, Katherine, Donald Perkins, Rayna, Eric P., Ben Danfield, the top six people in the company and all partners, nobody has a desk, nobody has an office, we have no excuse as consultants. If they are doing it, God, we can do it."

**Increased access**

Due, perhaps, to the wide support from executives and employees, the firm's attempt to create a flatter organization by de-hierarchizing space ownership and outlawing territory was not unsuccessful. It was true what my neighbors and informants in the club area proudly pointed out: there one could frequently find high-level staff, such as senior consultants, project managers, vice presidents, even the founders of the firm, bent over their laptops or talking into their phones. Classified as nomads or independents without their own dedicated work space they needed to find temporary workplaces for themselves and settle down at a
table in the club, without secretaries to filter approaching employees, real-estate to nurture corporate egos, and closed doors to generate the aura of powerful and secret decisions being made. They competed for an available spot and network drop with everybody else. It was also true that their presence provided an easy way to have a quick chat with them.

In JFC's previous office before the redesign, spatial distinctions had functioned as social barriers. Researcher Wendy praised the new environment for its leveling of difference compared to the old:

"In particular I find senior management much more approachable. I don't know whether you are aware but in the original layout, Derek and Chris were in the area that is now the knowledge center. So it was through a very clear barrier, the furnishing was different, they had this kind of furniture, and no one used to go there. As soon as you walked through the archway it was totally different, it was quiet, there wouldn't be many people around. It was a different world, like going up to the executive level. Whereas there is none of that now. The club is not an executive area in that sense."

My own experience confirmed some of these sentiments. As visitor I was invited to set up my home base in the club among the other 'deskless', where I could plug in my laptop computer for taking notes and occasionally dial up to access my email. Introduced to only some of the senior partners when I arrived, the set-up in the club allowed me to meet other senior employees, as it required little effort to introduce myself to somebody sitting not more than two arm-lengths away.

For example, Derek, one of the founders of the firm and still a major intellectual force in the office was out traveling when I first arrived. He traveled a lot and his time was scarce when he was back in the office. Sitting at a neighboring table the day he returned I watched a number of people passing by his table, saying hello, stopping for a little chat, or sitting down briefly with more serious business matters. These conversations did not appear to be scheduled meetings but occurred informally. When the stream of communication had become more sporadic I got up and introduced myself. The open environment not only made it easy
to talk to him (for me as for many other people), it also made it less effort to time my intervention for minimal disruption. Visitors from other offices, new employees, and regular employees seemed to have similar experiences. The barrier to talking to higher ranking staff in the club was lowered. The different spatial situation reduced the social barrier as well.

The setup also worked on a symbolic level. Since touch-down work space was found not through rank but on a first-come first-serve basis, higher level employees needed to secure a seat or desk in the same way everyone else in the club did. In the tight space situation their equal struggle for space helped employees to see them as peers. Differences in power appeared minimized this way. This is the case, although it may have also been true that lower level employees at times avoided the habitual desks of their superiors.

The place of placeless power: ¬ space = power

Yet, it needed a non-nomad, a sedentarian, a resident architect who had a semi-assigned desk in a less central part of the office to point out to me that not just some but nearly everybody sitting in the club with their laptops and mobile phones were senior consultants, project managers, or partners - that is high level. She was right. With the exception of a few visitors and a couple of new employees who had not found a place yet, most of the users of the club and other touch-down zones were either senior employees or consultants, and often both.

Although Wendy had concluded that the club was not an executive area "in that sense," in another sense it was just that. Perry, for example, had started not too long ago as an intern at the firm. Originally without any workplace he had joined the other "deskless" employees at the club. Yet soon, he told me, he felt out of place as a junior person among the senior partners, consultants, and managers and moved to one of the semi-permanent zones where architects worked on a project. Not carrying the markers of the mobile workers, laptop and mobile phone, he had felt uncomfortable. A few others confirmed his perception. Regular
employees could easily feel awkward among the nomads and senior managers. Working in the extra office space on the first floor, one of the researchers felt somewhat cut off from the dynamic of the main office. Asked why she did not come up more often and sit in one of the shared areas to connect with other JFC staff, she responded that she felt bad because the space upstairs was so tight; but she also added that she felt the club was for nomads.

Such perceptions suggest that the club had in fact become a rather exclusive area, almost off-limits to those office employees who were not among the nomads or senior staff.

Intended to break down barriers and reduce hierarchies within the company, the supposedly flatter design appeared to introduce new spatial boundaries, most notably between non-mobiles and mobiles and between regular and higher ranking employees. To only slightly exaggerate, the central office area had turned into the locus of the powerful, the sphere of an emerging class of mobile Brahmins - the place, ironically, of placeless power.

This point not only demonstrates that banning personal work space for mobile workers and need-based space allocation did not really exorcize hierarchy from the office, it points to a peculiar newly emerging hierarchy. At JFC to be mobile carried status and to wander homelessly around the office with a heavy shoulder bag and in search for an empty space indicated your importance. In contrast, those with a desk appeared less important and often did not dare to sit among the nomads.

It was not surprising then that those further down the organizational hierarchy had the most permanent workplaces. The administrative support staff, for example, were fairly immobile since they had not only semi-permanent desks but also more filing space than other office employees. The accountants who were also not part of the core functions of the firm, such as design, research, and consultancy, had a semi-permanent work area as well. And another group that even surpassed the secretarial and administrative staff in terms of space and territory, stood entirely outside of the corporate hierarchy. Responsible for keeping the technological infrastructure working and the office wired, the "network people" resided in
their own enclosed work space off the main entrance area. The seeming privilege to ignore the open plan and non-territorial design principles, however, was more likely a sign of their service status and their disconnectedness from the real business of the firm.

Larry, one of the senior consultants who according to his own estimates traveled about fifty percent of the time, describes this new and inverted view where status is related to the freedom from the need to "be here."

"That's something that some organizations haven't been able to really communicate very well; because one of the big pushbacks against these new offices is 'oh, I need my office because I am senior' and so, you know, helping people to understand that actually there is a new way of looking at status. That 'you don't have to be here' is a mark of status. If you need an office and a desk then you can't be very senior. Because you should have more control over where you are working than needing this place."

The new spatial order then may signal power differently: in a curious reversal, it was not territory that signaled status, but the lack of it; not ownership of space that marked power, but fluid movements through it; not property that showed rank, but mobility. Although abandoning personal space as display of power, the office design had not resulted in the disappearance of difference and social strata but rather achieved a reconfiguration or inversion of hierarchies organized along different lines and expressed in almost the opposite way. In addition to executives and senior managers, the new elite included those who worked in mobile ways.

---

22 Claiming that they would not be able to get their work done if they could not retreat to the quiet and protection of their own closed space, the computer experts, who made possible mobile ways of working in the first place, themselves worked under the most enclosed and permanent conditions of all.

23 In addition, the human resources person was allowed to use an enclosed space, or better, she shared it with the head of accounting. These two were not low in the hierarchy but required confidentiality in their work.
Techno-territory: technology = power

If power in the office was closely associated with mobility, mobility was intricately linked to technology. The design promoting mobile and flexible ways of working rested on a system of mobile technologies that made possible and productive the elimination of dedicated personal work places in the first place. Without these technologies, I argued earlier, flexible movement within the office would be much harder and much more disruptive.

The symbolism of mobile technology

Consequently, among the different groups in the office the nomads and independents were defined as much by their ownership of technologies as by their lack of space ownership. If mobility indicated rank and status in the new office, mobile technologies were its markers. Mobile phones and laptops carried around in shoulder bags or spread out on desks had become ubiquitous indicators of the designated mobile workers. High rank therefore was no longer symbolized by big office, but by big technology - or, more accurately, small technology. The smaller and lighter, the better. Larry, who worked out of one of the North American offices remembered well the awe he inspired when he showed up in the London office with his new small Sony laptop that, although a fully-fledged computer, was light and slim like no other laptop at the time.

"Now, the lighter the toy, is the biggest thing. How small is your laptop that's the question now. I got this new laptop and arrived in London with it. You know it is very thin. -

Interviewer: I saw it. - And everyone was going, where did you get that, how come you have it. It was so funny. And all the other partners, especially, were like, what is that, why don't I have one, how come I haven't got one? It was amazing the reaction it created. They all were obviously going to go out and buy one immediately and then they were emailing me, what exactly was that, which model?"

The appeal of gadgets in the current cultural infatuation with technology is no longer news. Nor is the new and, in its application to technology, reversed meaning of the old saying that size matters a surprise to those who have been paying attention to popular discourses on
technology. In the context of a new office philosophy that places great emphasis on mobility, however, the work tools are not just gadgets but become emblems of the new mobile power elite and of innovative officing itself. As Garry, the intern had observed, without the mobile equipment he felt out of place in the club. (Such technology ownership, incidentally, might have spared me the same fate: having a laptop, and a relatively small one at that, the anthropologist could pass as one of the natives.)

Yet, it was mobile phones as much as, or even more than, laptops that embodied the new symbolism in the mobile culture of the office. Nomads and mobile workers appreciated their internal mobile phones, they "loved" them, as one designer said, and would find it hard to give them up in the future. Phones even wore the initials of their owners, in three capital letters. Having a personal cell phone in addition to the firm's internal one, some employees carried around two phones. In a gestured comment acknowledging this double fire power, one of the consultants in a self-mocking gesture drew the two phones like a cowboy drawing guns from a holster on his hips.

Paradoxically mobile phones not infrequently were left on desks where they seemed determined to ring non-stop in the absence of their owners. The status character of the phones might propose that people carry them at all times. But in reality, status seemed to take a back seat to convenience. It was apparently not as practical to carry the phone along for every short trip to the bathroom, to chat with a colleague, or to get a coffee. The ringing of temporarily deserted mobile phones gave the non-owning non-mobiles another reason to be irritated about them, if not due to envy then because of annoyance. The ringing of ownerless phones was in fact a common complaint.

24 The technology sections of newspapers that emerged in the late 1990s are a rich and rewarding source for this popular symbolism of technology. Written in the tongue of the people, trend reports, product reviews, and background articles not only introduce innovative products and reports on trends, they are also heavily replete with what is considered cool and desirable by the men and women in the street or behind the desk. See, for examples the Thursday "Circuit" section of the New York Times.
The centrality of the phones to the self-understanding of the office is further articulated by another image from the mobile office. Shortly after my arrival, Henry gave me a first tour of their space. Starting at the most central location, near the entrance, he soon pointed to a large rack to the left that had rows of slots for mobile phones, some of them filled and others empty: "Here is where the phones live," he explained. On shelves in the rack the office-internal mobile phones of the nomads and independents were being recharged over night and were waiting to be picked up by their owners in the morning. (Figure 4.4) The best way of finding out whether a person is in the office, Henry passed on his piece of mobile office wisdom, was to check there. "When the phone is in the rack, the owner is out, if the phone is gone, the owner must be in the office." A smart strategy, it dawned on me, since trying to find mobile employees at their desk was a rather futile endeavor, as they could be anywhere in the office. Indicating this way employees' presence or absence the phones had come to publicly signify their owners. (Employees without mobile phones were not as mobile and could be found more easily.)

Even more to the point, on display in a nicely furnished rack, like rare artifacts on display shelves in a museum or jewelry at Tiffany's, the phones signaled visibly and succinctly what the office was about: mobility through technology. Rather than seeing lavish executive office spaces, visitors and clients were greeted by an exhibition of phones that sent out their message even when turned off: the firm's innovativeness, cutting-edge approach to work environments, and fascination with mobility, the latter of which could not be captured more aptly than through its central objects. Lined up, with name tags,\(^\text{25}\) and centrally on display like this the phones had become insignia of status and power, distinguishing those who had

\(^{25}\) Incidentally, the alphabetical order of the phones posed a problem for the aspired organizational flexibility of new officing. Every time a new owner was added or an old one subtracted, all the name tags had to be re-arranged and all the owners had to get used to the new location of their phones on the rack. This was not a big problem, but big enough for Henry to mention it. Known to any institution that organizes their mail slots by name, this problem of change in members is more pronounced, however, in a place that embraces change and seeks flexibility.
the privilege of owning one from the rest who did not. In its central position, the phone rack overtly presented the alliance of mobility, technology, and power that was characteristic of JFC’s new office environment and its reconfigured hierarchy.

To be sure, objects, even technological ones, have served as status symbols in the corporate world for some time. The golden pen, the well-designed phone, and the telecom system to the secretary outside have always been signs of power. Yet, in the past these worked in combination with the space of the office, decorating it, equipping it, making it an even more exclusive space. These objects did not compete with, overshadow, or substitute for the office space itself.

In the new world of JFC’s mobile and non-territorial office one of the major symbolic functions of space had been adopted by technology. Instead of ownership of space it was ownership of technology that expressed status and signaled hierarchy. As the tiny subnotebook computer supplanted the spacious corner office, technology replaced space in its symbolic expression and practical manifestation of power.

I would like to push this point a bit further through another kind of formulation. Although the non-territorial office banned personal territory as the base of both the practical working of the office and its hierarchy, the embrace of mobility introduced a new kind of territory - a technological one. Since the possession of technology gave control over electronic spaces as well as command over movement through physical space, one might say that the foundation of the new ways of officing at JFC was a kind of techno-territoriality. The term techno-territoriality, although metaphorical, is meant as more than a word play here. It means to express that the kind of command over space that mobility can provide

---

26 The symbolic lives of the phones may not have been intended from the beginning. According to explanations I was given it was supposedly technical constraints that limited the number of mobile phones on the central switchboard, which “regrettably” led to the two classes of citizens, those who had one and those who did not. I do believe that this stratification was not intentional. But planned or not, the semiotics of mobile technologies quickly became part of the formations of hierarchy in the office and the office design made unabashed use of their expressive force.
rivals in many aspects the control traditional ownership of office space can offer. Techno-territoriality therefore includes mobile territoriality. But in addition it reflects the symbolic force of technology in the new environment that heightens mobility and expresses status and power formations much in the way 'regular' territory used to in traditional offices.

**Mobile privacy**

The way space was related to power in traditional offices was not just symbolically as expression of status; it also offered direct and real privileges. For example, it protected from disruption and offered privacy. If mobility and technology were in fact to replace space in a new hierarchical order, they not only ought to serve as status symbols, they also needed to provide real privileges to the members of the mobile elite. The case of privacy is an interesting example, both because traditionally it was one of those privileges that came with space ownership and because from the outside JFC's office did not seem to provide much privacy for anybody. How then did privacy and publicness work out in a mobile and flexible office and especially for those higher up in the hierarchical order? And what role did technology play, if it was indeed essential ingredient of a mobile work style and its new symbolism? How did technological territory affect the balance between public and private in the office?

Privacy is socio-culturally and historically specific, and even in a particular social context it can have a range of different meanings. For the purpose of this discussion I cannot unfold the layers of meaning the concept carries. Briefly, what I mean here by privacy is what people say when they talk about privacy in the context of work and office models.

---

27 By distinguishing 'symbolic' from 'real,' I do not mean to suggest that symbolic expressions are not real or that status symbols could not yield real power. They do. Still, symbolic privileges need to be socially recognized in order to be effective. A golden pen only provides power if it is recognized as status symbol. But some privileges can provide benefits that are independent from their social acknowledgment. For example, corner offices did not just signal power they gave control over workspace in very practical and crucial ways.
Roughly three related points get mentioned: concerns about distraction and interruptions, concerns about scrutiny and surveillance, and issues of confidentiality. In the following discussion, then, privacy is understood as a measure of control and choice over these issues by individuals.

Designed to encourage interaction and communication, open environments such as the office at JFC almost by definition are not very private; they offer employees few opportunities to retreat and keep to themselves. If the objective is participation by letting people hear and see what others do, closed doors cannot be part of the program. In fact privacy together with the fear of disruption were the biggest concerns articulated by the architects’ clients when open environments were being discussed. Nervous about the lack of visual and acoustic privacy in an open plan, employees and middle managers of client organizations feared that they would not be able to talk about confidential matters on the phone or with visitors, that they would always be under scrutiny, and that they would constantly be distracted by others.

In reality, open environments could be less distracting than outsiders thought. In JFC’s office for example, individual voices could quickly dissolve into a general sound carpet providing an acoustic backdrop that could mask individual conversations without being too loud itself. After a visit to JFC’s office, a member of a client focus group reported to her colleagues that the office turned out to be less noisy than she had expected. She concluded that one was less likely to be disturbed by a co-workers’ voice in an open office than in a cubicle environment, presumably since the open visibility in the open environment caused people to automatically adjust their voices. There were also specific environmental design interventions responsible for the relatively comfortable sound level: sound-absorbing surfaces like carpets and ceiling tiles together with white noise from loudspeakers helped to lower perceived noise levels.
But more importantly, JFC's office and design philosophy differed from this absolute vision of open environments. The planners at JFC had deliberately sought to create a range of places that answered various space needs and differed in their degree of privacy and publicness. An internal discussion document on open plan design acknowledges that "whatever the eventual design, it is necessary to balance the need for effective communication with the need for adequate privacy; to provide stimulation while still allowing for concentration."28 The office layout itself was designed to make available a range of work places, central and public work ones as well as more peripheral and thus private ones. Especially some of the project team spaces were away from the center, in less frequented areas, or in a corner behind a separating wall. Recognizing, as the same document says, that the "requirement for privacy varies [...] during the day," the office also featured specific enclosed spaces for concentrated or confidential work.29

Still, despite these provisions, the majority of workplaces were in the open and a large number of shared workplaces were even located in the densely populated entrance and club area. The office was still a fairly public place. Especially in the club, the base of most mobile workers and visitors, it was hard to hide. One employee compared the club to a stage where constant visibility by colleagues and potentially by visiting clients required on-stage performance. This could be energizing, but in her view also tiring. In the terminology of sociologist Irving Goffman, the club was all front stage, no back stage. (1959) Another example of the, at times, uncomfortably public character of the club came from a female designer who complained about the scrutiny she felt in the club mainly from (other) high-powered women. She interpreted this as competitiveness and it made her uncomfortable

29 To highlight these multiple types of work settings designers at JFC called their design, as a variation to open plan, "free plan."
enough to avoid the space.30 The issue was not surveillance in the traditional sense, however, because in the classic definition surveillance is asymmetrical, the observer invisible and invisibly watching the subjects; Foucault's Panopticon is precisely designed to assure this invisibility through its architecture. The scrutiny in the club, however, was mutual, the observers, co-workers, senior staff, or even clients, could be observed back. However, if the Panopticon's crucial aspect is seen as the internalization of surveillance, then the new open layouts may be considered quite successful in offering that effect. (Foucault 1979, 201)

One would think that the mobiles and nomads for whom the club was their predominant 'home' were therefore the most exposed, had the least privacy, and little means to escape from the busyness and buzz of the center. To some degree this was true - and deliberate. For the new work philosophy no longer viewed individual privacy or isolation as ultimate goals or achievements. Rather it was connectedness and involvement that were pursued. Being part of the buzz, not eluding it, was cherished by the new work philosophy at JFC. When I asked what managers usually received in exchange for giving up their privileged office territory, it became clear that the new value system of alternative office concepts did not regard privacy highly. Henry explained that the managers in their newly designed flatter work environments could show off as being both innovative and non-elitist. When the head of Anderson Consulting, for example, let himself be photographed in their new hot-desking environment

30 I am not in a position to offer a thorough analysis of the gender aspects in the firm. Nonetheless, here are some observations. Unusual for an architecture or design firm the ratio of women among employees at JFC was quite high; the HR person at JFC confirmed that the only area where women were underrepresented was consultancy. The number of female partners and senior staff was also higher than normal in this industry. The founders of the firm were all male but the current directors were a man and a woman. Several people I talked to, both men and women, agreed that the office was unusual for their "strong women" - which I took to mean: successful, with individual work styles and articulated opinions. It remained unclear to me what the reasons were for the relatively equal gender distribution or the presence of such "strong" women, nor how this affected the work of the firm or its culture. One statement by a (male) architect ascribed the relatively civilized hours they worked in the firm to the presence of women. Others put the strong presence of women in the context of the firm's openness to other non-mainstream groups, such as gays, international workers, and employees with non-design backgrounds.
at a small workstation with his sleeves rolled up, Henry explained, it was about "presenting himself as innovative thinker" and as somebody who is "out with his people."

Nonetheless, despite the celebration of the public nature of the club and the pride in forgoing exclusive privacy among high level employees, there were a number of ways especially for mobile workers to mitigate the public quality of their work lives, to take breaks from scrutiny, and even to create some privacy within all the publicness.

Although working mostly in the least private place in the whole office, the club, mobile employees in particular could utilize the choice among a number of different work settings that the design offered. For example, they could escape to the enclosed spaces that were particularly designed for concentrated undisturbed work and private phone conversations. In theory, the quiet booths were also open to other employees, but the more overcrowded the office became the less accessible these spaces were and the less legitimate appeared the use by non-mobile employees. In addition, regular employees did not have laptops they could take into these spaces allowing them access to and continuation of their work. (The booths did have phones, however.) In addition, mobile workers could use less public but still open workplaces in more peripheral areas of the office. Some of these single desks were seen as quieter, more removed, and hidden than the central shared workplaces. One of the mobile designers, for example, one day commented on her working in one of these removed workplaces as being "in quarantine," - presumably to characterize time spent in a separate and quiet place to recover from a low energy condition, or the disease of a busy workload.\textsuperscript{31}

\textsuperscript{31} For the nomads among the mobile workers, who were defined by their high percentage of traveling and out-of-office work, another way of fleeing their public existence was to leave the office altogether. They might end up in other public places like client's offices, airplanes, and hotel lobbies but could also find improvised work places with little distraction and a high level of privacy in their cars or hotel rooms, or their homes. Yet, my discussion here focuses on what is going on inside the office. There, nomads had to rely on the spaces and possibilities JFC's office environment presented, just like the independents and senior managers who were defined by intra-office mobility. Working from home was officially permitted but rarely practiced. I have seen only a few telecommuters working from home.
Yet, even without the escapes to areas outside of the club, privacy for mobile and nomadic workers at JFC may not have been as limited as it appeared from the outside. As I pointed out in the previous chapter, the club warranted a certain kind of anonymity due to its transience and temporariness that the less transient but open team resident places, for example, did not provide. Although this anonymity may have been counterproductive in the light of the office design's communicative aspirations, in terms of privacy it offered certain benefits.

But more importantly, there was another way in which predominantly mobile employees could gain privacy. One day, at a table next to me one of the senior designers received a phone call. A few seconds into the conversation she suddenly got up and started to walk away from the table. But rather than going to another location, I realized, she actually wandered around the office. Although people she passed could still overhear her conversation, her moving around gave nobody enough time to follow longer parts of the conversation. Walking afforded her a particular kind of privacy. The strategy of moving while talking in a sense made the whole office her private phone booth. In a way she resembled the famous figure of the flaneur, who when moving through modern cities, stayed nowhere long enough to lose her anonymity. Unlike the flaneur, however, the mobile conversationalists in the office did not use the anonymity to observe their surroundings, but to engage with another place while remaining unconnected with the office environment during the period of their talk. This kind of mobile privacy was the exclusive possibility of nomads and independents since only they had mobile phones. Regular employees in contrast were stuck with their desktop phones and the open space in which these were located. (They could, however, use a low-tech version of mobile privacy by taking a visitor on a tour through the office when they wanted a more private conversation) Mobile workers employed this kind of mobile privacy only when privacy was a particular concern. When they did, they made use of a special privilege accessible only to those who carried mobile communication technologies.
The special privacy for the nomads, independents, and senior managers appears paradoxical at first, because without their own office or desk these groups seemed the most exposed and least protected, but in the end it was the lack of their own space that gave them the opportunity to this form of privacy. And it was the new signs of status and means of power, mobility and mobile technologies that made possible the privilege of confidentiality in a fairly public space. The real benefits in terms of privacy that the new mobile elite gained with the help of their exclusive mobile technologies partly compensated for the voluntary loss of their spatial privileges.

My discussion of the remaking of private and public in JFC’s office environment and how different groups in the office benefited differently from the rearranged social topology, was to argue that the new culture of mobility and technology shifted the traditional distribution of privileges, but, perhaps not surprisingly, without erasing social and power differences. Rather it re-erected distinctions based on new tools and symbols. I argued that, for example, privacy, both a status marker and real benefit of the old corner-office mentality, underwent two transformations. It lost some of its symbolism of rank and power to a new ideology of public presence and being among the workforce. At the same time special forms of selective privacy were either built into the office layout, or emerged newly as ad-hoc strategies due to mobile technology. Privacy with its cousins confidentiality, anonymity and freedom from scrutiny therefore could still serve partly as privilege and reward for those higher up in the hierarchy. It used to be an added benefit of space ownership, now it was a result of technology ownership and mobility.

*Mobile territoriality*

The case of mobile privacy is another instance of the kind of techno-territoriality that the alternative office concept willingly or unwillingly embraced. Afforded by mobile phones the moving and movable communication spaces that high level users carried through the
office in their meandering paths were an example of the new type of territory that the
mobile elite could deploy and command. Enabled by technology the roaming conversations
took place, if that makes sense, throughout the office. In other words, the mobile private
spaces and places employed by mobile employees were a specific type of technologically
enabled, mediated and defined territory.

These mobile places are similar to those anthropologist Mizuko Ito describes as
"portable places" in her study of Japanese youth' use of mobile phones. (Ito 2002) Ito found
that the teenagers used their mobile phones extensively to break free from the controlled
domestic spaces of their parents and create their own electronic meeting places with their
peers, at night at home or during the day in the streets of Tokyo. Although Ito does not call
it that, these places too are a kind of techno-territory. In her case, however, the new places
do not replace previous forms of territory and privilege, but give the teenagers entirely new
forms of building their own private social structures and portable places to escape traditional
systems of control.

The power geometry of technology

My discussion here was not to examine whether the office at JFC was still hierarchical.
Of course, there was hierarchy. As in many other organizations, there was a system of
partners, there were managers, senior executives and chief officers, and there were obvious
differences in pay and benefits. And in addition to the official structure, there was power and
authority based on experience, seniority, knowledge, and even personality. The central
position of the founders and intellectual forerunners of the firm, for example, was
unchallenged, and reflected by the amount of stories that circulated about them. The
reverence the majority of regular employees had for them seemed unbroken.
The point of this section was about the expression of hierarchy and its consequences for the productivity and climate of the organization as a whole. The claims regarding hierarchy in the design at JFC were not about getting rid of differences (although some less sophisticated and more radical proponents of alternative office solutions might say so), they were about making hierarchy less negative for the work culture in terms of collaboration and communication. Hierarchy, according to the design, should not harm the flow of knowledge and exaggerate difference among employees; rather its distinguishing effects should be reduced to a minimum.

I suggested that the results were mixed. There was indeed a certain flattening of the organizational structure, symbolically and also practically, due to the fact that higher level employees were mingling with the regular employees and without their usual tools of protection. They were more accessible, and they probably in turn learned more about the firm as well. Yet, the overt act of giving up the status symbols of space ownership obscured the birth of new status markers and a new system on which status and power were based. If in traditional offices, I argued, hierarchy was in part based on the symbolism and actual benefits of space, in the new office the system was turned on its head: hierarchy was reconfigured and power lines redrawn according to mobility.

In her critical essay on current debates on globalism, time-space compression, and shifts in the spatial order, social geographer Doreen Massey argues that we should not assume the increase in flows and movement and capital's global reach to be ubiquitous and homogenous. Rather we need to pay attention to the complex social differentiation and power dynamics of these processes. It is of crucial importance, she demands, when we talk about mobility, to consider who moves and who doesn't, as well as who is in charge of the movement of others, and who has little control over their own: "There are differences in the degree of movement and communication, but also in the degree of control and of initiation." (Massey 1994a, 150) Referring to the term used by David Harvey and others, she calls the actual differentiation
and unevenness of this allegedly universal process of late capitalism the "power geometry of
time-space compression." (1994a, 149)

Using her terminology, what I have done in this chapter was to describe some of the
field lines of this power geometry for the internal world of JFC. There, too, it turned out to
be central who moves and who doesn't, and essential who controls the movement of others
and their own. I demonstrated that it was predominantly the mobile workers who could move
freely within the office, choose among various work spaces and settings (at least in
principle), and enjoy certain privileges along the way. More importantly they also held the
keys to the office design, who managed to project their own level of mobility and degree of
materiality of work onto the whole office, and pushed their own work styles onto those who
were more space-bound. Although I was not talking about global flows, transcontinental
migration, and a worldwide transfer of goods and information, the mobile office had a power
geometry of its own. It was less about the compression of time and space than about the
rearrangement of the spaces and places in the office according to new patterns of status and
power.

The case of the reconfigured hierarchy pointed to two specific aspects of the office's
power geometry. First, closely related to the geometry of power was what could be called a
geometry of desire that lay parallel to and corroborated the first. The geometry of desire
refers not to a differentiation in control over movement but to an uneven symbolism, a
differentiation in the expressions of power, in what signals status, marks coolness, and
indicates privilege. "Mobility, and control over mobility, both reflects and reinforces power,"
says Massey. (1994a, 150) I wanted to show both how mobility signaled status and how it
generated real power in the office. One way in which power was reinforced, generated or
reproduced was through a belief in mobility as desirable, an infatuation with JFC's office
design that made mobility a status symbol, a fetish, as well as an ideology that considered it
not just a principle of design but almost a higher state of being. Movement, dynamism, and
buzz were good, freedom from space and territory desirable. Central for JFC's organization
and culture was a social differentiation based on mobility and a cultural differentiation of
respective values, beliefs, ideas, and desires. In short, it needed a geometry of desire to uphold
the specific geometry of power, a culture of mobility to maintain the reconfigured power
structure. If traditional offices were rooted in a culture of space or territory, the new office
was founded on its opposite. This culture of mobility was reproduced not only by its
ownership rules, work styles, space policies, and tools and toys, but also through its beliefs
and values.

The second aspect of the geometry of power in the office was technology. Both as tools
and as signs, the system of mobile technologies and its devices enabled and embodied the new
mobile cultural order. Mobile phones, for example, allowed those in power to appropriate
space in a different way. To achieve a specific form of privacy they could exploit the whole
public office space as quasi personal territory. Thus new forms of mobile and technological
territory replaced the traditional space-based ones, and technology supplanted space in some
of its traditional functions of power, as marker and driver. Since a spatial differentiation
turned into a differentiation based on technology, the new culture was as much a culture of
technology as a culture of mobility. One might say, what configured the new forms of
hierarchy in the office was a power geometry of technology.

Read together, the two parts of this chapter also suggested that in an organizational
culture where mobility signaled power, immobility and by association materiality could
indicate lack of power - and resistance. Employees could deploy material things, such as
display posters, files, plans, and books, to express and force immobility and so simultaneously
resist the dominant doctrine. Cluttered desks could be a sign of a busy work schedule, they
could be an attempt to claim a desk, or they could be a gesture of defiance. A related way for
employees to wrestle control from a perhaps too tightly ruled office environment was to re-
appropriate spaces for storage purposes. In contrast to other kinds of resistance based on
movement, these forms of resistance in the office are a kind of immobile resistance. (see de Certeau 1984) The goals are the same: to contest the control of space.

This discussion has made visible the limitations of spatial design efforts to determine organizational and social change. There is no doubt that JFC's designers went fearlessly against entrenched traditions and seeming truths on office work and the organization of firms. Ambitiously, they pushed new strategies on how to organize interaction, manage the material side of work, display power, reward seniority, and match bodies with places in order to produce new work realities. Some of the goals were perhaps too ambitious and some of the strategies too innovative. The outcomes were mixed: rather than, for example, the waning of hierarchy the result was its transformation, and rather than the radical reduction of material stuff what happened was its unofficial occupation of space. This does not mean that the efforts were entirely unsuccessful, but they had unexpected outcomes and effects that undermined and at times even neutralized the intended results. Office design by itself cannot easily force desired change, it can only promote, support, and encourage it.

In the millennium version of "The Apartment" the year-2000 Baxter, played charmingly by John Cusack, would, after receiving his promotion, pack up a few of his files from his tiny personal office, triumphantly walk by the long row of closed doors behind which his colleagues work away in identically looking offices, and approach the concierge. There he would receive a laptop (with a wireless card) and a mobile phone and would join the higher ranking nomadic employees in the firm's large open atrium café or other work locations throughout the world.
5 - VIRTUALIZING WORK

In the previous chapters I discussed the transformation in information work by focusing on the office itself, its changing organization and design. In this chapter I concentrate on those transformations that reach beyond the physical space of the office. ¹ The changes occurring in the last decade are not just about reinventing offices, alternative officing includes, as Franklin Becker reminds us "many different strategies and methods of using or not using office space." (Becker 2001) During the Alt.office conference, for example, which I introduced in chapter one, advocates of alternative officing discussed, in addition to innovative office layouts, telecommuting, virtual teams, and mobile workers.

Office work beyond or outside of the office thus is not an oxymoron; it is one of the main directions the developments in new modes of officing have taken. The notion includes work done in locations other than offices as well as work conducted across different locations and organizations. It involves workers who have no traditional office workplace at all, such as some salespeople and most of the self-employed, contractors, consultants and so-called free agents. It also comprises work during business travel and client visits or from home by workers who also do have office workplaces, however temporary or shared they may have become. Part of the latter group are the nomads at the architecture firm JFC whom I studied while they were in the office in the previous chapters. All these cases have in common that they involve work where people are not collocated and rely heavily on information and communication technologies in order to work together or interact with others. This is the case whether it is free agents permanently working from home, road warriors who travel

¹ An earlier version of this chapter was presented under the title "The hidden work in virtual work," co-authored with Bonnie Nardi and Steve Whittaker, at the International Conference on Critical Management Studies, in Manchester, UK, July 14-16, 1999.
constantly or virtual team members in otherwise traditional office layouts. Such mediated, remote or distributed constellations are generally called virtual work. In short, information work beyond the office almost always involves technologically mediated or virtual work.

This does not mean, however, that the dimension of space would not matter here. Although spatial designs are less frequently deployed as explicit instruments in the reorganization of work outside of the office, the places and spaces of work beyond the office remain important but can differ substantially from traditional office workplaces. Remote and technologically mediated work frequently takes place in non-office locations, such as homes, temporary travel locations, transportation vehicles, or temporary workplaces at clients, some of which are planned and professionally designed while others are set up by individuals or entirely ad-hoc. Some are dedicated workplaces while others are hybrids with mixed functionality and often temporary in nature. As work away from the office has become more prevalent during the last decade, efforts ranging from the high-tech redesign of hotels and transportation facilities to the wiring of homes and public places have added work functionality to hotel rooms and lobbies, airplanes and airports, cars, trains, cafes and homes. Moreover, extra-office work has been predicated on a growing infrastructure offering services to those who do not have access to them through traditional office locations. While selling mostly technological services, places like Kinko's or Internet cafes also provide temporary workplaces. Other types of new workplaces are designed by the

---

2 Hotels increasingly provide work-related services to business travelers, including work desks in their rooms with several phone lines and high-speed data ports or, more recently, wireless services throughout their premises. Airplane manufacturers cater to the needs of busy business travelers in new ways as well. Boeing, for example, advertises Boeing Business Jets with flexible layouts to work, conduct meetings, and be connected while in the air. On the ground, LaptopLane offers cubeile offices with printers, faxes, phones, and fast Internet connections rentable by the hour in a number of airports in the United States. Railways and car manufacturers similarly try to appeal to travelers and commuters by planning to add work and communication related services to cars and trains.

3 Shipping services or neighborhood computer support services are also part of the new infrastructure; yet, without making available places to work. And the expanding market of short-term office rentals allows organizations to respond quickly and flexibly to new market opportunities and provide virtual organizations with a business front and a reputable address. Office space for rent is often fully
home users themselves or not designed as workplaces at all. When work is performed in airplanes, cafes, regular hotel rooms, or when "hot-desking" at home, the workplaces are usually short-term, improvised, and hybrid.

The shift to work beyond the office seems as significant for the future of work as the reorganization of offices. While the latter challenges the centrality of a fixed or private workplace in the office, the former calls into question the notion of the office as central location of where work gets done altogether. Some believe that the ability of knowledge workers to work wherever they want marks the end of the office as we know it. Evaluating these developments, a German architecture office perceives a "liquidization" of work and "mobilization" of the workplace and declares, "your office is where you are." (Arch+ 1997) Others, more realistically, perceive the rise of new work locations external to the office as an alternative to but not necessarily a replacement of office environments. In this view, the current developments give births to many new types of offices. The catalogue of the Workspheres exhibit at the Museum of Modern Art in New York in 2000, for example, distinguishes between the "official office," the "nomadic office," and the "domestic office." (Antonelli 2001) The choice of language suggests that working from home and working on the road generate new kinds of workplaces or offices that may compete with but not necessarily take the place of the "official" office as shared organizational work environment.4

This chapter investigates this type of remote, distributed, and technologically mediated work beyond the office as part of the reorganization of office work. Similar to the developments within offices, these shifts towards extra-office and virtual work are inspired by

---

4 The typology between official, nomadic and domestic offices emphasizes the physical location of workplaces. Another term often used in this context, "virtual office," in contrast, stresses the technology-based and geographically distributed character of these workplaces.
new visions of work, draw on advanced information and communication technologies, involve novel kinds of workplaces, and result in changing organizational structures and new social forms. While the role of space is somewhat different, information and communication technologies are even more significant for this type of work than for intra-office work since the lack of collocation makes information and communication technologies indispensable for remote work. There is also a widespread rhetoric of mobile, temporary and virtual work that celebrates the opportunities allegedly provided by virtual work. A steady stream of images, stories, and accounts told by the popular media, the business literature, by consultants and in advertising try to persuade us that with the help of current and emerging information and communication technologies we will be able to work with anybody, at anytime, from anywhere, in more flexible ways, with more freedom, and above all, more efficiently and productively.

Against these assertions of a rhetoric of virtual work, I want to demonstrate in this chapter that the transformations to these new forms of work are far from costless. Based on research with high-tech workers in the Silicon Valley region I explore the emerging social and organizational forms that accompany remote and virtual work. I also show that much additional effort, extra work, and new skills are necessary to make these new forms of work viable - work on the side of organizations, but more pronounced on the side of individuals. I identify and present three different kinds of this additional work, which I call net work, boundary work and technology work. I claim that these extra kinds of work are being rendered invisible by the prevailing rhetoric of virtuality and that this deletion serves a function and carries consequences. In addition, I wish to demonstrate how this erasure tends to simplify and naturalize fundamental concepts such as team and communication, since in practice a stable team is not pre-given but the goal of a constant effort. In this, I approach virtual work as material and situated phenomenon. That is, rather than narrowly focusing on
the virtual I pay attention to the practices that constitute virtual work and the physical and social context in which it takes place.  

The discourse of virtuality, flexibility, and mobility

The magazine advertisement presents two images next to each other: to the left a cramped and hectic looking office in black-and-white with a white cut-out shape of a man in the middle, as if he was teleported away, to the right a comfortable, clean, aesthetically pleasing living room in warm red and brown colors with the figure of the man copied right into the middle. (see Figure 5.1) The text suggests to "put yourself in a more productive place." The product is pcTelecommute, a software application to support working from home. Smaller print underneath the images claims that the software "has everything you need to work from the one place you can get things done - at home." Thanks to technology, the ad implies, we can do everything away from the office, in a calmer, more pleasant environment, and still be more productive.

Another ad shows a busy urban traffic scene, with cars, trucks, and pedestrians; the black-and-white and zoom perspective of the photograph accentuates the crowded, hectic, and confusing character of the situation. (Figure 5.2) The text, written over the picture in irregular and hard to read type, as if shaken out of shape by the noise of the street and urgency of the moment, says: "You have 20 minutes to make an appointment at an address you've never heard of." "We'll take you there." 'We' is a piece of technology, a little device for cars with a GPS (global positioning system), and a map display. The ad targets business people, and we learn, with the right device, new locations and hectic schedules are no longer a problem for the mobile business traveler.

---

In a recent review on the literature on virtual teams, Julie Rennecker points out that a majority of studies have tended to focus on intra-team activities and neglect the situatedness of virtual work activities in specific physical and social settings; her own study is a notable exception. (Rennecker
The brave new world of mobile and virtual work is not only articulated through advertising, business consultants also promote progress through virtualization. In a peculiar evocation of history two experts on virtual teams acclaim in their book of the same title that "for the first time since nomads moved into town, work is diffusing rather than concentrating." (Lipnack & Stamps 1997) With just the right management, they maintain, "virtual teams are a strategy for success," because "for the first time, teams can virtually collocate all the information they need to work together and put it all in context."

A few years ago, the then new magazine *Fast Company* celebrated the movement towards free agents, the self-employed, contractors, and consultants who turned their back on the "dysfunctional workplaces" and the growing insecurity of corporate America. Free agentism, Daniel Pink, the author of the article claimed, would not only result in more money, freedom, and security but also promise more authenticity, identity and wholeness. He quoted one of his free agents who proclaimed: "unless you are into self-abuse, or you're incredibly lucky and avoid restructuring, being a lifer is no longer an option." (Pink 1997) A couple of years later, the same magazine, now twice as thick, reported on e-lancers, that is freelancers or free agents who electronically connect with each other through the web; they quoted a business school professor who announced the "dawn of the e-lance economy" (Tom Malone quoted in Mieszkowski 1999). The message is clear: the freedom of loose and temporary business relationships combined with the connectivity of electronic communication technologies is going to restructure the entire economy.
These are just a few examples of visions of a world of more mobile, temporary and technologically mediated work. There are many more: as marketing imagery, as journalistic reports from the world of work, as presumably well-researched case studies and theoretical analyses in journal articles, as popular culture thinking, as lunch talk in business circles, as themes of conference and magazine launches, as explicit goals for organizational restructuring policies, and as implicit bases of technology designs. Despite a certain heterogeneity, these views on the future of work in the digital economy share major assumptions, perspectives, and goals. They portray a world of tomorrow - or is it already today? - in which we work from anywhere and whenever we want; in which we work on short-term projects with people from different organizations at different locations; in which we contract and consult through temporary and fluid business relationships; a world of work, in other words, in which we work as telecommuters, home officers, working nomads, road-warriors, and free agents in virtual offices as part of virtual teams in virtual organizations. According to this view these transformations are seen not only as an inevitable but as a desirable answer to the challenges of a globalizing economy, intensified competition, and increasing speed of technical change. Most of all, these changes, made possible by advances in information and communication technology, are promoted as more efficient, productive, and essentially without costs (Illingworth 1994, Mitchell 1995).

In other words, what emerges from many of these individual representations is a techno-utopian discourse of virtuality. It is a discourse that combines linguistic with material practices, for example the implicit representations embedded in organizational policies and technology designs. It is a discourse of virtuality in that it disregards the embodiment of work activities and work relations while overestimating their technological base; I follow here Katherine Hayles' critical definition of the condition of virtuality, as the cultural perception

---

6 This notion of discourse is close to Paul Edwards' in his astute analysis of the closed world discourse (Edwards 1996).
that information is separate from but to be privileged over materiality (Hayles 1999, 13, 18). And it is *techno-utopian* in that it links progress with technological advances and promises the betterment of human life through liberation from physical constraints and material burden - here in particular the relief from fixed physical locations, rigid organizational structures, and unchanging social interactions.

**The work of virtuality**

The research that this discussion is based on was conducted in the Silicon Valley region in the second half of 1998. My colleagues and I were interested in how people worked together across organizational boundaries, when geographically dispersed and under conditions of flexible, often short-term business relationships and high mobility. We specifically wanted to understand the role of information and communication technologies in people's work.

In the end we studied twenty-three informants, some in their twenties and fifties, but most in their thirty and forties, and equally men and women. They were well-educated, highly technically literate, and mostly professionals. The sample included people with job titles such as TV producer, web designer, marketing specialist, multi-media producer, appeals court lawyer, non-profit consultant, technology transfer manager, and commercial video director. The participants worked in a variety of industries with a concentration in telecommunications, media, and high-tech, especially software and Internet, including for example a multi-media company that specialized in web-site, CD-ROM, and game production. The sample included independent contractors or consultants, business owners, and employees, from CEO to secretary.

---

7 The research discussed here was part of a collaborative research study conducted with and organized by Bonnie Nardi and Steve Whittaker at the Human Computer Interaction Department at AT&T Labs-Research in New Jersey and California in the summer and fall of 1998.
The sample was not chosen in a random way but developed through personal contacts and recommendations - the research thus made use of the same kind of network structures that became one of its findings. The sample is not representative in a broader demographic sense but biased towards the highly technically literate and the well-educated. This condition, however, is shared by many workers in this geographic region and the industries studied, in particular the information and knowledge workers who are most likely to work in remote and mobile ways. Nonetheless, it is important to remember that the results capture a development more pronounced in certain regional, occupational and industry pockets that may or may not spread further and to less privileged parts of the population. It is also useful to keep in mind that this research describes developments at the height of an extraordinary economic expansion. The burst of the economic bubble in 2000 has doubtlessly affected the job constellations and work configurations in a region heavily depending on startups and Internet-related businesses. How, exactly, the economic downturn has affected the scope and practice of virtual and mobile work is an empirical question.  

The informants' work lives in one way or another fit the image of the new economy of mobility, flexibility, and virtuality: some telecommuted a couple of days per week, others juggled different work sites across the continent, some worked in a variety of groups with members in different locations and organizations, others traveled extensively, a few had become consultants or were self-employed working out of their own homes, others were contracting, still others were on projects with a number of semi-independent constituencies. Not surprisingly, their work situations were also characterized by the other markers of the

---

8 To speculate: since free agentism could flourish in Silicon Valley because of the high demand for qualified workers in the region, one can expect a desire to return to more safe and established employment relationships on the side of contractors and consultants with reduced opportunities. One the other hand, recent layoffs forced many knowledge workers into unemployed where they may try to survive as freelancers until they find new employment. Moreover, the events of September 11, 2001 have contributed to an increased interest in using technological solutions rather than air travel. It remains to be seen whether this preference for technologically mediated collaborations over travel intensive face-to-face meetings will last.
new economy: an accelerated pace, dynamic constellations of professional relationships, and an increase in the use of technology in their work. The research shows the extra effort necessary to get work done under these conditions. Of the three categories of this extra work I want to draw attention to - net work, boundary work, and technology work - net work is the one that characterizes best the new condition of work.

**Net work**

In general, "net work" describes the intensified activities, practices, and strategies of building, maintaining, and managing the new socio-professional network-like structures - structures, that seem to have become increasingly essential for many of the informants to do their jobs and maintain their professional careers (Nardi et al. 1999). There are two kinds of networks and thus two meanings of the term *net work* that I want to discuss here.

**Socio-professional personal networks**

The first meaning of the term *net work* refers to the management of longer-term professional networks. Workers in the new economy, like my informants, find themselves less and less in tight institutional and organizational structures with determined futures and stable, long-term, bounded, and secure work contexts - which may soon become the nostalgic icons of a past world. (Bishop 1999) Driven by a variety of factors - more frequent job changes through downsizing, mergers, and the waning of whole industries, voluntary job switching, more intense interrelationships with people outside one's own organization and context such as clients, alliance-partners, and non-organizational team-members, and rising self-employment - the significance of the corporate environment and its structures are said to be on the decrease (Casey 1995, Castells 1996). The new socio-organizational environment for an increasing number of people in the rapidly shape-shifting workscape of Silicon Valley, are socio-professional networks of people that consist of current, former, and
potential future colleagues, clients, consultants, lawyers, contractors, information sources, accountants, friends, and tech support - people one wants to work with, used to work with, or who are useful in any other way.

All of my informants drew in one way or another on these extensive personal, social, and professional networks for making current business successful, finding new business, acquiring necessary knowledge, or making new contacts, and thus extending the network further. Most invested considerable effort in keeping up these structures.

Kathy⁹ was a marketing and communications consultant in the high tech industry who had worked for about ten years for consulting firms and in-house at companies before she started her own business out of her house in the Santa Cruz mountains. She explained that apart from skills that she needed to acquire, it was mainly a network of people that was a prerequisite for her becoming self-employed. It took her ten years "until I had a network set up-not a computer network, but a network of people. of acquaintances and such." Kathy's network helped her to get new jobs through referrals or her own active acquisition. She also drew on her network when she needed to cooperate with other consultants or contract out certain work herself. She actively cultivated these relationships by regularly staying in touch.

Interviewer: *Now, this network that you described...*

K: It's people who I have worked with, both in companies and in consulting firms, as well as clients that I have worked with, and it's also editors, or other industry people that I have worked with, and I have proven to them that I do a good job, so if someone called them, "oh, I'm looking for someone to help me with this situation" if I fit that qualification, they'd call me.

*So how many are there?*

Oh, well that's a good question! (pause) Um, I would say there's a good 50 people that I would say I communicate with at least twice a year just to keep in touch with.

*What does that mean? How do you do that? You call them up, say, "hi, how are you?"*

[...] Just by e-mail lately. It's been just, "Hi, how ya doin'" or I pick up the phone and go to lunch with them. Going to lunch or breakfast works really well.

---

⁹ Names of individuals and organizations are again altered to protect the identities of informants.
Although in Kathy's case the work to keep the network alive and functional did not seem particularly hard, it nonetheless was extensive and an essential part of the existence of a consultant working from home. Martha's net work looked more tiring. She was a freelance journalist in the process of establishing a career in the Silicon Valley region writing about technology and culture issues for European magazines and newspaper. Her most important relationships were with the editors of the publications she attempted to do business with on the one hand, and her informants, on the other. She explained how important her database of about 300 entries had become and how painstakingly she kept track of all the relevant information (devoting about one day per week to office work):

Every calendar entry of mine, like I would spend a lot of time updating those and it's been invaluable. I mean I have backup copies on different places, because if that would be lost, I'd lose probably, whatever, at least $20,000 just in a month, you know, to get that all back. Basically, each entry has not only all address, contacts, phone, fax, it has a little note telling what they like, what they want, what they don't like, what they pay, what they normally pay, what they pay to me, what I've been able to bargain, and what's the line length, and how many characters per line they have, because they hate that if they have to tell you this twice. So that is like a main asset, and I was told by other free-lancers and I started that right away. [...] And any little E-mail I get from somebody else in the house, I take immediately address, everything down, it's like a total compendium.

Similarly, Ed, an independent TV producer, had worked with a large number of people over the years. He explained his need to leverage these acquaintances for current or future work:

I need to be able to track them back or whatever. Art directors, artists, you know, people that can draw in a certain way. People that could give me money. Lawyers; people that take away my money.

These networks are long-term and potentially rather extensive - they ranged from 500 in Ed's case to about fifty in other cases. At the same time they are dynamically shifting structures that constantly change in size and quality: bonds loosen and strengthen, new ones are being added, others given up. The networks are heterogeneous in that they comprise
different people and kinds of relationships that are more or less active, frequent, intense, and personal. They are social, professional, and personal at the same time, since they go beyond purely instrumental and task-oriented relationships, include friendships, and are formed around the needs of one person. In theoretical terms, I distinguish these socio-professional networks from communities of practice, in that the latter are defined by shared practices and similar professional identities (Lave 1991, Wenger 1998), while the networks that sustain the new flexible and mobile work realities are less homogenous and reach across various communities of practice (see Østerlund 1996). They also differ from other concepts of work-related social structures, such as 'knot-working' (Engeström 1999) in their long-term duration and person-centered quality. Finally, these networks are not like regular communities based on common interests (Wellman 1998), since they are egocentric and the various participants or members may have nothing in common except a relationship to one person.10

As these examples illustrate, for my informants working depended on building, maintaining, and managing networks of people, as well as knowing, remembering, and leveraging them. If a career in fact used to be, as the etymology of the word suggests, a straight ahead journey on a firmly paved road (Sennett 1998), now that this road is falling to pieces, the career becomes a zigzagging cross-country ride which needs to be supported by a flexible network of paths, bridges, and short-cuts that has to allow constant changes of directions. Thus, net work as I understand the practices of making connections, updating relationships, organizing information about contacts, "refreshing your list," keeping in touch, and remembering who could help with a certain work, has become an essential and constant activity.

---

10 For a further discussion of such networks and their emerging role as primary structural context and social reality of work see Nardi et al. (1999).
Work-nets

The second meaning of net work refers to the efforts to micro-manage the actual configurations of people during projects, the actual work-networks, the daily structures and constellations of working together that I call work-nets. While the socio-professional networks as described above are latent or dormant from the perspective of actual work practice, work-nets are active, and often activated and recruited from the resources of the former. Yet, although often made of parts of multiple interacting socio-professional networks, work-nets are no longer egocentric; rather, they resemble dynamically changing, overlapping netted structures of people. As we will see these configurations are far from the notion of well-defined, bounded teams with common understanding and shared goals.

Laura owned and managed a small company that does documentation and training for large high-tech companies. She had a few employees but hired contractors and consultants in different places for her projects as needed. She described one of the projects her company was working on. It was about the production of a training intranet and involved four different client sites, a number of employees of the client's company who had to provide content input for the intranet, a few employees of her company, and an increasing number of contractors, who may have worked from home, at the client site, at Laura's company office, or in a different city altogether:

So the teams are dynamic in that sense. The teams are dynamic in the sense of people just move around within the organization, and there's just natural attrition and things like that. So there's... I would not really say that there are sub teams, ... But it is, it is just kind of a network of people that are available for input for subject matter. ... It's kind of like, it's various subsets of people, and the subsets, the, uh, sets keep changing, the make-up of the sets keeps changing.

Her language seems to emulate the opaque and shifting structure of the configurations she attempts to describe.
Ed's project similarly is a good example of distributed, cross functional, and cross-organizational work involving different organizations and quite a large number of people. Ed was an independent TV producer who had worked for a variety of companies before but had become a self-declared "freelancer." He worked out of his office, which was one large room in his flat in a San Francisco hillside building where he lived with his wife and his children and a beautiful view of downtown and the East Bay. The name of his "little shell company," as he referred to it, *Penguin*, was written at the entrance door to his office and reflected his specialization on children's television and animation. When we met he was involved in producing an animated show for children to be shown both on TV and on the Web. Ed was the overseeing producer for the main client, a children's channel. The project consisted of a fluctuating number of people in multiple organizations in a number of locations all over the US. Ed described the people he needed to be "in touch with on a regular basis":

And the groups that are involved in the making of that are people at Disney. Disney is in LA, and there are several groups inside Disney that need to be in touch with me on a regular basis. [...] There's the woman who's the head of it. Her name is Emily. She's the head of on-air promotions. And then she has a producer working under her, a guy named Bill, who has an assistant working for him, named Cora. And then there's the legal department, a guy named Franz who works in the legal department. And then there's a person who's been assigned to take care of the online. His name is Brad. And then there are various people who work with him. [...] There are these groups: the online group, the legal group and then, out of New York, is a writer named Francesco and another writer he works with. Then, creatively, we are working with a production house, CreativePix, here in San Francisco. And we're also now working with a group called Molto Media that does computer graphics on Potrero Hill. - *Interviewer: That's a lot already* - Yeah, it's a lot.

Ed estimated that he worked with at least 50 people on that project. Asked whether there was a sort of a core group within that larger group, he reduced the whole lot down to three:

Not so much. I mean, if there is a core group, it's me and the writer and Emily, our boss. That is kind of the core of the core group.
This example demonstrates that the work-nets of participants and constituencies that makes up distributed multi-organizational projects of this kind are potentially vast and variable. They may be vast because they can bring together a large number of people in different places: lawyers, writers, media developers, secretaries, producers, software developers, and technicians that have to be talked with, kept in the loop, and communicated with, each of them in conversation with additional people.

But work-nets are also variable because depending on the type and stage of the project, the particular task at hand, and the person, the people who have to be informed, coordinated and communicated with during the course of a project may range widely - in Ed's case from three to 50 and everything in between. Moreover, all of the participants have their own additional work-nets and personal networks. For example, Emily, Ed's "boss," had regular meetings with the board of directors at the channel about that project, while Francesco, the writer in New York, was affiliated with a TV network there. As a result, it seemed fruitless to determine what the size of the group working on this project actually was. Ed used the image that such configurations had certain depths, trying to express the fact that each of the people had their own network behind them that came into focus when looking closer. Like a fractal figure, these networks have no clear borders; they reach further and further, deeper and deeper. No wonder, then, that the term "team" never came up in Ed's story about his project.11

Not all of my informants were part of configurations that extreme in complexity, scope, and distribution. But although the work-nets of my informants naturally differed

---

11 This may illustrate as well that there is no clear and unambiguous distinction between the larger network of potentials, which I call socio-professional network and the actual working configuration or work-net. At any moment a dormant or latent connection may be drawn into a current work situation or somebody from a current project may join the ranks of the larger net of people. Indeed, many of the projects the informants worked in included groups of people that for certain tasks or periods were part of the active net while at other times remained outside or in the background. The shimmering boundaries of work-nets are in fact one of their crucial characteristics.
depending on the industry, profession, and particular project, even smaller and less intricate projects were characterized by fluid boundaries and changing distribution.

*Net work in work-nets*

Work under these conditions is always to some degree *net work*. The more distributed, heterogeneous, and technology-based the work-nets become, the more skills, practices, and strategies are required to manage these structures, most notably measures of *coordinating, stabilizing, standardizing,* and *translating*. What becomes essential are activities and practices to coordinate schedules and work activities, organize the flow of information, constantly define roles and functions, stabilize structures, generate common understandings, manage boundaries, standardize processes, names, and objects, bridge different (corporate) cultures and languages, and establish shared contexts.

For example, if several people collaborate on the design and production of a web-site or an intranet, issues of standardization become extremely important, especially if the participants don't permanently work together, are not collocated, and are not part of the same firm. Naming conventions and process standards have to be developed and adhered to in order to make it possible for everybody to find, say, a certain document and its most recent version on the file server or intranet - a process the afore-quoted business consultants conveniently simplify by saying, "For the first time, teams can virtually collocate all the information they need to work together and put it all in context." (Lipnack 1997, 18) Yet, for the majority of my informants, those in firms and those working on their own, the issue of conventions, naming, and standards was a constant struggle, exacerbated by changing work configurations, distance, short business cycles, and differing local practices.

So you know, like- if I need to look at a logo, if I'm somebody on the outside at [Kids Channel] and I need to look at a logo that [CreativePix] did, and [Creative] did seven logos and we need to be clear about how we name those, and then how I reference them and to keep a running log of that because then two days later, [Creative] had done three more logo versions of
the stuff that we discussed earlier. And you know, how you name those and how you access those, and how you even file them! It's like a librarian's job. [Jill, co-owner, CreativePix]

If it isn't formatted in the right way, the programmer can't use it. (Gary, CEO, MediaMax)

Distributed and cross-organizational projects require good communication and interaction infrastructures, as well as means to provide something like a common vision, or at least common knowledge, in the absence of the possibility of constant control and supervision. To achieve, for example, a functioning cooperation among all the different participants in Ed's children's project, a certain technological infrastructure had to be created, a system of exchanging information or work material which ranged from reports and communication by email, telephone, conference calls, drawings by fax, video tapes by FedEx, picture files on an intranet, to a lot of traveling to have personal face-to-face meetings. Describing how a number of people in different places came to look at the newest animated sequence so that they could collectively talk about it, the following example illustrates how this collaborative infrastructure is not only technical but has to entail a system of coordinated practices:

And so I'll put the computer stuff onto tape, on a VHS tape, make five or six copies, get to the FedEx office before they close, and everybody will look at it in the morning and hop on the phone and discuss it at 11 o'clock the next morning, because, you see, 11 o'clock is good because by then it's 2 o'clock New York time. They will have already seen it. They will have come back from lunch, and so they can hop on the phone, and it gives it enough time to get through the mailroom at [Kids Channel in LA], which is usually slow, and finally it gets to somebody's desk and finally they come back from all the ten thousand meetings they have to do, and they get to look at it. Meanwhile, I get a copy or I go down to [CreativePix] and we all have seen it and we all hop on the phone and talk about it.

Another type of work has to do with defining roles and establishing a functional division of labor. In industries where clear professional identities or clear boundaries between industries or markets seem no longer to exist - where "everything touches something else" and "all those things are mixed," as David, the co-founder of a commercial and animation
production company put it - projects need to first identify and negotiate who is who and who does what. In a recombinant corporate landscape, a certain structural and functional clarity that seemed to be almost a given in the traditional team model, now has to be rebuilt every time anew. Laura whose struggle to describe the moving "team" structure in her project was presented earlier, answered a question about how people knew about other people's functions in such netted work-structures of nearly transient strangers:

We do that mostly through... that's mostly just, almost like a training function. Bringing people together, talking about what are the critical success factors for this project, how it's going to be organized, what their role is, what their responsibility is. So it's a constant kind of reinforcing sort of thing. It's really a team-building issue. In the end, all these things to a large extent rely on people. And so it's really trying to raise the awareness of the issue.

Raising awareness of other people, their roles, and functions is only one prerequisite for functioning teams; there are many other team building strategies such as keeping them "in the loop" or having them meet regularly.

Other kinds of network issues cannot be solved through structural or organizational approaches. Especially for bridging contexts and spatial distance, additional skills and considerations are required. Rachel, a production manager in the aforementioned multimedia company MediaMax, explained how she talked to contractors who work from home:

I realize that they are at home in their home setting. I don't call them up and talk business right away. I'll call them up - for example, one of my programmers off site is working on fixing up his house. I'll call him up and say, 'Hey! How's your floor going' or 'your windows' and kind of get into his world. And he'll talk to me and we'll chat about this and that and then I'll get to work stuff. Cause I know, I've worked at home before. I know what it's like when you get this business call and you're in your home setting. It's just kind of sometimes invasive or intrusive, and you need to walk a fine line whereby you have that kind of intermediary language. And I don't think it's a ruse. I think it's just a part of conversation that you're meeting each other somewhere. - Interviewer: Just establishing context ... - Exactly. The two worlds. And I did that with everybody that's an independent contractor in their own way.
This practical sensitivity towards different contexts was also exhibited when she talked to clients in distinct organizational cultures, "switching gears" and languages as she spoke with the representative of a bank in a "corporate" way, a woman in a union in a "sisterly" way, and an artist in a game company in an "entertainment-y kind of way." What is notable is not that these strategies are used, but that they are almost ubiquitous, that almost every single transaction requires one.

Traveling as well entailed necessary work for the informants. They needed to maintain contact with their work-nets, remain informed or "plugged in" (for example by "checking voice mail on a religious basis"), and get established in new locations, even if it were a second office in a corporate location across the country. For instance, Carl worked in public relations in a large telecommunications company. His main office was on the west coast, but most of the people he worked with were based in the company's headquarters on the east coast. Regularly, he spent a week at headquarters, using as office one of the undedicated workplaces available to visitors like him, so-called "swing spaces." Between meetings, he tried to keep in touch with the people there and in the loop by engendering "serendipitous" planned interactions.

Well, all the public relations people, at least most of them, are headquartered in one area of [the company's main location on the east coast] - the big Mother Ship back there. So in fact the week that I was back there I spent a lot of time either in meetings, or [when] there were times when I was in between meetings or something, I would walk around that area. - Interviewer: So you would deliberately do that? - Yeah. Stop in a few places; peek in people's doors; that type of thing.

It is not a new insight that collaboration and any kind of work interaction among several people requires effort. Yet, I believe that the complex distributed and flexible structures that described joint work situations for the informants did exacerbate the need for such activities. When communicators and collaborators are separated by different contexts, organizational cultures, and locations, and are confronted with changing participation, mediated
communication, and various locations, the work to make collaboration successful increases dramatically. I gave only a few examples, but they stand in for how in these dynamic worknets many things are not a given, but have to be made, generated, created, built, managed, and negotiated again and again: a common language and vision, shared processes, trust, standards, and a technical and social infrastructure. In Ordering modernity sociologist John Law (1994) characterizes activities such as juxtaposing, summarizing, and simplifying as ordering activities, a label which also applies to some of the work activities I describe. More importantly, Law insists that there is never order, only "ordering." In the same vein, one could say that under these conditions there is stabilizing, standardizing, and contextualizing but never really anything stable, any fixed standard or permanent context. As a result, collaboration has to be constructed and reconstructed in an ongoing manner, and teams are perpetually being built in a constant process - but are never built.

**Boundary work**

Boundary work - the second category of additional work I identified - refers to the increased need but also increased difficulty to create, maintain, negotiate, and manage boundaries, both at work and between work and not-work or home or leisure. Regarding the latter, I realized that for the informants it took effort to not let the boundary slip, to not let the anytime, anywhere office morph into an "every time-everyplace" office, as futurist Paul Saffo put it (Vogel & Marks 1998). Especially those informants who were independent contractors or consultants, who worked from home or traveled frequently had to develop strategies to maintain the boundary between work and home and not let work take over the rest of their lives. Kathy, for instance, the communications consultant, who had an office in her house, set up a strict separation:

I'm not going to bring my office anywhere else. [...] I made the deal with myself that, if I'm going to work out of my house, I can't have everything all over the place. I can't have-little bits
of work everywhere would drive me bonkers! So I had decided that it needed to be very separate and I'm very strict about it.

Her plan was not to let work spill over into other parts of her house. The rule was, no work in the living room, except perhaps, she conceded, reading the business section of the newspaper. Although she maintained that it worked for her, she still warned that:

You have to be a real disciplined person in order to work out of your home, because there's so many things you could be doing. [...] The way I structure it, I just have to say okay, these are my work hours, I only go in the office during those times, I close the door on the weekend, or sometimes I do work weekends, but I try to be very structured with it.

Vacations have become the territory of major struggles in interest between being connected to (ones net-) work and keeping away from it. Jill, one of the co-owners of CreativePix, had to learn that in order to have a vacation at all she had to draw boundaries - and not bring her cell phone.

A week in between [two business trips] was supposed to be a vacation but it ended up me being attached to the phone at least part of every day dealing with pseudo emergencies back here. [...] I swear I'm taking a vacation in August and nobody is calling me! (laughs) - Interviewer: How will you avoid that? - Well, I was just thinking, a very small beach house and, just, I have to set aside time with no interruptions. - So you won't take your telephone? - There's a telephone there, but no, I'm not taking my cell phone.

Similarly, a consultant for non-profit organizations told me that she didn't take her laptop on business travel anymore, because otherwise her clients expected her to finish work that was talked about in the afternoon by next morning. Not having the option of working in her hotel room was easier than insisting on her evenings as work-free time.

This speaks to the boundary work necessary to preserve the realms of non-work against invasions of work, whether at home, on business trips, or during vacations. But there is also boundary work of the opposite kind: to uphold the boundaries of work against the intrusions of home. A piece of advice given to telecommuters by a seemingly well-intentioned business manager poignantly illustrate this point: to minimize interruptions by one’s children when
working from home, the home-workers should require their kids to call them on their business phone (in the home-office) instead of just walking in when they wanted to talk to their parents. 12 (Davenport & Pearlson 1998) This seemingly practical remark receives its strange sound from the fact that the boundaries formerly provided by physical distance and organizational setup are now supposed to be regenerated by the children who are asked to discipline themselves into viewing the home office with their parents in it as a space far away. This is one example of how a setup of remote or virtual work pushes a certain burden onto workers - or their kids.

It is not a new observation that the "electronic cottage" blurs the boundary between work and home (Toffler 1980), but it is worth reminding us that home-workers have to put in extra effort to maintain distinctions that previously were supported by physical location or organizational frame.13 Some of the people I talked to decided explicitly not to work from home because they felt they needed the spatial and organizational separation between work and home and either were not willing or felt they may not be able to recreate the necessary boundaries by themselves.

All of the above examples referred mainly to the work of placing and maintaining boundaries. Yet, as sociologist Nippert-Eng demonstrates in her foundational study on homework boundaries, boundary work encompasses both the placement and the transcendence of

12 "While it may seem silly from the outside, it reinforces the separation of the personal and professional time, even when physical separation is minimal," says the manager according to Davenport & Pearlson (1998, 58). The authors present this as an example of the training companies set up to help their employees deal with boundary issues. See also Schultz & Orlikowski (2000) for a similar comment on that example.

13 Since the term "telecommuting" was coined by Nilles during a period of sudden concern with energy and fuel consumption in the wake of the oil crises, there has been steady work on many aspects of telecommuting, including its effect on transportation patterns, community relationships, and, of interest here, the negotiations between home and work. Among the more interesting and broader scholarly work is Huws (1990) and more recently Jackson and van der Wielen (1998). The last few years saw a proliferation of survival handbooks and manager guides as well as journalistic accounts on the intricacies of telecommuting; for example Wells (1997).
boundaries (1996). Since individuals position themselves always somewhere in between the extremes of total integration and total separation of home and work, Nippert-Eng observes, they constantly work both to maintain and transcend these boundaries. In this sense, commuting, for example, can be seen as a special kind of useful boundary work, despite its bad reputation. Like the liminal spaces described by anthropologists, the daily commute in cars or trains can ease the transition between the world of work and the world of leisure. Asked whether she thinks about work when at home, Rachel, production manager in a small multimedia company, explained her strategy to effectively elongate the commute further.

Uh... yes. Yeah. I try not to, I try to just have a transition period before I go home. Usually when I go home I’ll take public transportation and then I’ll go home and I’ll either... before I even go in the house and deal with house-stuff, I’ll go and water my back yard or walk my dog so that I don’t go straight from one space to another space. And then... because if I do go into the home space directly then I bring work home with me. So I kind of have this transitional exfoliation time.

Commuting both serves to maintain and transcend boundaries. If this liminal space is missing because the commute takes only the two seconds of closing one’s office door and walking into the living room, it has to be replaced by some other material or mental process of transition.

In general then, the current transformations toward more mobility, flexibility, and virtuality tend to blur rather than solidify these boundaries. As a consequence, compensating activities to strengthen, replace, or renegotiate boundaries are increasingly needed. Furthermore, as I tried to show, this increased permeability of the home-work boundary is not a symmetrical one. As home can usually be infused more easily with work than the other way round, boundary work to maintain borders in order to keep in check the threatening colonization of life through work is more wide-spread than the opposite kind.

---

14 Nippert-Eng defines boundary work in general as "the never-ending, hands-on, largely visible process through which boundaries are negotiated, placed, maintained, and transformed by individuals over time" (1996, viii). Boundary work regarding the realms of home and work is a special case of that -
A second type of boundary work is within the sphere of work. It is about negotiating one's position in the networks; how active, reachable, and available one wants to be at different times, and it especially refers to efforts to make oneself unavailable, temporarily absent, to have uninterrupted space - practices and strategies that I call "islanding," and that have become increasingly essential. Islanding is boundary work not concerning the boundaries between work and home but between different modes of work.

Islanding can take many forms: a very common strategy I encountered with about half of the people I interviewed who worked in office environments was to escape the many interruptions of the office world by working from home - permanently as "home-officer" or one or two days per week as telecommuter:

There's just a lot of meetings. I mean, there's-you can't fit 'em in all every day. But when I can work from home, it's amazing, it's just amazing how much work I get done. It's just, uh, heaven! (Jill, content strategy, Internet portal company).

A sentiment the software advertisement for pcTelecommute quoted in the beginning intended to capitalize on. As we saw in the previous section this strategy can itself create new boundary problems.

Consultants are often explicitly hired because of their outside position, a position, however that they need to constantly maintain and negotiate. Kathy for example avoided interruptions by turning off the ringer of her phone for certain periods during the day. One of the groups she worked with was not "happy" with these delays and wanted her to be constantly reachable.

So I said well, do I turn my ringer on when I don't want it on, or do I get a pager? And I figured the pager would be easiest. [...] So I am going to be purchasing a pager for this one group so that they can get me whenever they want during business hours.

albeit in my opinion not very visible.
Between being available without pause and being an efficient consultant, the pager seemed the smaller problem.

Islanding, like retaining work free vacations or evenings, was also achieved through avoiding certain technologies: a manager in an Internet portal company avoided participating in some of the half a dozen parallel communication media at use in the company by refusing to get some of the devices, such as two-way pagers or radio phones.

The strategies for islanding ranged from the subtle to the structured. Sven, a researcher in a telecommunications company admitted that the need to dial-up when at home helped him refrain from checking his email every five minutes. Interestingly, cumbersome technology can turn out to be quite useful in getting precious unconnected and uninterrupted time in that way. And Kathy, the consultant, organized her day into phone periods and dedicated non-phone periods during which she let all her calls go to voice mail. There are even commercial products as institutionalized response to the need for islanding that make available information about how and when people in the public relations business can be reached and, equally important, should not be contacted; a deadline-pressured newspaper journalist may warn potential disturbers to not call in the early afternoon, for example.¹⁵

Technological, social, and organizational factors contribute to the strong need for islanding. The increase in mobile and communication technologies makes people available and reachable in ways they were not even a few years ago. Yet, it is the shift in social and cultural expectations about return times, speed in response, and availability, that can convert the technical potential into social requirements. It seems that few are exempt from the acceleration of transactions and the rise of urgency in business. This was expressed again and again by the informants. Contributing to the scarcity of isolated work time was also the amount of communication and interaction that net working itself required. Ironically, while

¹⁵ The product is MediaOnline by MediaMap.
"face-time" was more difficult to get because of geographical distance and hard-to-synchronize schedules, the opposite, "face-down" time, bent over the keyboard working by oneself, appeared even harder to achieve.\textsuperscript{16}

Islanding is boundary work in that it builds or strengthens borders against interruptions and intrusions from other people and maintains boundaries between different modes of work - often social ones versus individual ones. It is the other side of the coin of net-working - or more precisely, it is part of net work, or \textit{positioning work}. Maintaining one's networks and making one's work-nets function stresses the connections, associations and relationships with other people, while \textit{islanding} is the strategy of splendid isolation - remaining partly disconnected, separate, and unrelated for a few minutes, an afternoon, or a weekend. Thus, \textit{boundary work} within work-nets is not just about keeping up boundaries but about carefully negotiating and managing different and partly contradictory needs.\textsuperscript{17}

In sum, boundary work is about negotiating one's availability in one's networks and work-nets as well as negotiating the moving demarcation lines around work altogether. At times it is about keeping up and maintaining boundaries by replacing old orders (and borders) previously guaranteed through systems of location, time, and organizational setups with new practices and strategies to manage work and leisure. These practices more often have to hold in check the colonizing tendencies of work and, less frequently, the potential distractions of home. Similarly often under conditions of mobile, flexible, and virtual work, boundaries become fluid and have to be renegotiated entirely - thereby changing the meaning of work itself.

\textsuperscript{16} The difficulty to get face-down time or "quiet time" has been documented by Leslie Perlow (1997).

\textsuperscript{17} A brief terminological remark: behind the uniform use of the term 'work' in this paper there are a variety of different types of efforts and activities, not all of them are work in the traditional sense of expenditure of labor. Some of the strategies of boundary work, for example, involve a sort of mental or conceptual labor and may not consume much time. I chose to label them work, nonetheless, since activities such as conceptualizing, learning, distinguishing, deciding, realizing etcetera can be quite laborious, and because it is precisely the traditional meaning of the concept of work that is at stake in the changes I investigate.
Technology work

The notion of "technology work" points to the observation that technology has become so ubiquitous and essential for work that it is no longer just a tool; rather, it has become a condition in itself and requires increasing amounts of time, effort, and expertise to use it to its potential. Technology work thus comprises the construction and maintenance of technological environments for work activity, communication, and collaboration as well as their informed and meaningful use and appropriation in a social context. The types of work I focused on, knowledge or information-based on the one hand and remote, dispersed, multi-localational, and netted on the other, rely heavily on information and communication technology. And the more flexible, fluid, multi-party and temporary work configurations become, the more bricoleur activity of fitting together, adjusting, tuning, and protocol establishing is required.

One type of technology work has to do with keeping up with changing technology. By now it is no longer news that it has become a permanent challenge to stay informed about, acquire, set-up, maintain, constantly upgrade and customize the newest and best computers, fastest and cheapest network access, most recent software, and smallest portable and telecommunication devices. An employee of a telecommunications company described, for example, his time paradox with computers: he could do things faster if he learned to use his computer better, but time to learn was limited as well.

I'm sure that many of these things I can be much faster with, like I said about my computer: I'm only going to learn about 10% of it cause I could spend all day here learning to do some other function faster, but that's not my job. Learning to use my computer is not my job. There's only a certain amount of time that I can devote to that and that's been painful enough as we've switched platforms left and right; upgraded several times. (Carl, public relations)

This process of keeping up is hard enough for organizations with specialized IT departments, but for contract workers, consultants, and small businesses without outside support, it can resemble a Sisyphean task.
Leroy Inc. was a small but established business in Silicon Valley that offered services such as documentation writing, training, and usability testing to larger software companies. The owner and CEO pointed out how their specific needs in web-based collaborative software tools which help organizing collaboration and differentiating access to their often large document collections forced one of their information designers to spend about half of his time constantly searching for these tools. Despite a time investment that big for a company that had less than twenty employees, it remained unsuccessful for the time being. As an independent, Ed, the TV producer, lacked the support that somebody with a closer affiliation with an organization would have had. Although he worked on a big production project, his tech support person was somebody in the neighborhood who had advertised on telephone poles and set up his ISDN line for him (yet only supported PCs and not his Mac, for example). Thus, he sounded somewhat envious when he described Francesco, the writer in New York, who was "a bit more plugged in" because he was working with a TV network:

He has a secretary who answers his phone for him and he has fax machines down the hall and, you know, a Fed Ex receipt person who will send and receive Fed Ex packages and put them on his desk. I don’t have any of that. My Fed Ex is, I go up to this place called Mailboxes up on 24th Street, just four or five blocks. My fax machine is that fax machine over there on the table, and the way I stay in touch with everybody, as I said, is a lot through email and through conference phone calls.

Without support, without even a secretary, Ed emphasized, he had to improvise permanently and was less organized and less efficient than he would have liked to be.

In addition to dealing with the basic communication infrastructure, there is also the work necessary to overcome the many insufficiencies of current computer technologies generated by incompatibilities and firewalls in inter-organizational communication and collaboration. Although the Internet was recognized as tremendously helpful for dialogue and for data exchange by most of the informants, a substantial amount of foundational work was still required to make use of the technology.
You know, these things are all very helpful, but they still rely on a form being created around them that everybody understands, you know, language that everybody understands as you're putting data in. [...] But, you know- it's interesting. It takes a lot of time - seems to right now anyway - take a lot of time to create that structure. And many times there isn't that time to do it, so it's uhm, tough- (Jill, CreativePix)

I could present other examples of the various practices needed to make Internet technology work in real life business contexts in the section on net work. Since the lurking discontent, constant struggle, and huge investment of time and energy by individuals regarding computer technology is widely known these examples may suffice here.

I want to focus on another kind of technology work: the efforts to choose among communication and collaboration media and to use them in a "refined way," as one worried CEO of a media company put it. As communication and collaboration with co-workers, colleagues, and co-participants in networks and work-nets becomes more and more technologically mediated, selecting between phone, voice mail, email, pagers, instant messaging, between conference calls, video conferences, intranets, chat or "face-to-face" has become an arena of fine-tuned juggling and sophisticated practice. Even choosing between the increasing number of "communication vehicles," as a manager from an Internet portal called them, is not a trivial task.

That's the challenge. I mean, the good thing is we have enough communication vehicles. The bad thing is we have a lot of communication vehicles. (Emma, Internet portal)

Informed choices about media in social contexts have to take into consideration many factors: the affordances of the medium, predilections of sender and recipient, genre-specific expectations, (Yates & Orlikowski 1992) nature of the task, state and history of the project, technical infrastructure, need for documentation or second party awareness, and a certain informational economy. For instance, asynchronous communication technologies such as voice mail or email are more convenient and require less scheduling coordination, but they are also less interactive than phone, conference calls, chat or instant messaging. Information
distribution and dissemination works well through email, while problem solving or fine-tuned coordination may often be better in person or through phone calls. In order "to invite some discussion and evaluation of how we're going to get something done," Ashley, the production manager of a multimedia company, favored conference calls over email. Furthermore, in the beginning of projects, communication modes that helped getting to know each other and build social relationships and trust were seen as more important than later when detailed coordination issues may be negotiated in email equally well. Some people seemed to find it easier to spontaneously write an email, others preferred to "pick up the phone." And knowing the other's personal preference could be essential for successful business communication. Similarly, according to a marketing consultant, there was a certain hierarchy in the public relations business in that the choice of the medium had to match the significance of the task: real face-to-face meetings with editors for example were reserved for high level events such as the launch of a major new product line; trying to make physical appointments for minor issues was seen as inappropriate (Nora, marketing consultant). There were also distinct company cultures. Not surprisingly in a large telecommunications company the phone was the preferred medium, while email was by far the communications medium of choice in the small Internet companies I looked at.

To summarize these examples of sophisticated media choice, desired degrees of synchronicity, interactivity, urgency, social presence, convenience, and cost had to be - and often were - reconciled when any kind of communication and collaboration medium or environment was chosen.

Furthermore, media choice and use not only alleviates and hinders communication and collaboration depending on technical affordances, social norms, and cultural sentiments, it also can send a message about the intentions and expectations of the person who made the choice, for example what communication they find desirable. For instance, arranging physical appointments can convey commitment or stress the social aspect of a business relationship.
Using email for all communication during a project may indicate missing trust, since the participants want to have everything "for the record;" in this case email may start to look like "rockets being sent back and forth, you know, torpedoes." (Rachel, MediaMax) In this way, the choice of the medium carries social meaning, or - to recycle McLuhan - the medium is the message. This message is not unambiguous, however, since heavy email use may indicate missing trust but may also just refer to the distributed and intricate network structure requiring a common record for everybody.

Much of network I discussed earlier as well as what I called islanding, was done through intentional choices and decided use of media and communication technologies. Email, for example, with its ability to "cc" other people can foster group awareness, provide the opportunity to open up a group's information space, and bring closer people like clients, secretaries, or peripheral group members who are part of the more remote spheres of the work-net.

I find with e-mail and the way I tend to use it a lot, is when I need to have a one-on-one dialog with someone but it would be nice that someone else knows that's going on, I sort of "cc" the information to a third party and sort of keep people in the loop but not force them to participate. (Ashley, MediaMax)

Email's utility of 'keeping people in the loop' was mentioned often. For remote workers, consultants, and telecommuters, staying in touch and networking needed the right medium for the right task. Many said that phone use, for instance, could often bridge differences in contexts, languages, and (corporate) cultures better than email. At the same time, using email or also the phone could limit "mind space" for certain interactions and exchanges compared to physical meetings and thus were welcome strategies for islanding.

This type of technology work, the efforts, activities and practices that go into the selective, productive, and appropriate use of media, from the acquiring of basic media literacy
to its refined use lies at the heart of working successfully together with other people in distributed, fluid and virtual work structures. Without the kind of sophisticated and adjustable usage the informants would not have managed to work the way they did. They could not have properly managed the flow of activity and relationships in work-nets nor negotiate their own forms of presence in them. Although the informants were fairly aware of the growing role of technology in their work worlds and the need to master its potential, they could not always articulate the high level of techno-literacy they themselves exhibited or rationalize their adroit choices, nor did they seem to fully appreciate the considerable and ubiquitous efforts I call technology work.

**Mediated networks**

So far I have described technology work, boundary work, and net work largely as distinct categories, but in practice they are hardly separable. Boundary work and technology work are often seamlessly integrated into net work. Islanding is often done through technology, and the management of networks and work-nets requires much boundary work. The three categories of work thus can be seen as different aspects of the same thing. Managing one’s networks and work-nets including one’s own presence and absence in them, with and through technology, is accomplished through the same activities and practices.

Since the work-nets and networks are maintained by, and exist to large degrees through, technological mediation, they are not just socio-professional but *techno-social* in nature. As the term socio-technical has been used in science and technology studies to describe technological systems as seamless webs of social and technical constituencies (see Hughes 1983, Bijker & Law 1992), I want to indicate with 'techno-social' that these obviously social networks are also intricately technological. They are more and more technologically mediated and exist less and less outside of technology. If the social is technically mediated, relationships within these structures cannot be understood, nor lived, without acknowledging
their technological base. Managing and using these networks is becoming a question of technological and media literacy as much as of psychological, social, and organizational sensitivity - where a definition of the term literacy has to include the adept use of communication technologies for social and business purposes in cultural contexts.18

The hidden costs of virtualized work

In the chapter thus far, I have presented the findings of my research: the current transformations of work towards more flexible, mobile, and virtual forms entail additional work activities and efforts in at least three interrelated areas, which I identified and described as net work, boundary work, and technology work. I have laid out how much understanding and planning, negotiating and managing, rearranging and juggling was required in order for people to make communication run smoothly when not collocated, to bridge contexts, to deal with absence from the office, to adjust to permanent change, to refrain from working incessantly, to integrate diverse mediated forms of communicating, and to actively take their professional futures in their own hands.

In the rest of the chapter I want to demonstrate that what I have been describing is the cost for the transformation to flexible, mobile, and virtual work. More importantly I assert that these additional kinds of work are largely hidden, and "deleted" from accounts of current work, especially from and by what I identified earlier as the discourse of virtuality.

The three types of work are 'extra' efforts in the sense that they are partly new or intensified, and partly individualized. Some of the work I discussed, especially some of the

18 The parallel shouldn't be taken too far, however. The term techno-social should not indicate, in a simple reversal of early social constructivist arguments, that these social networks are technically constructed or get their meaning from technological processes. In both cases, the seamless webs of sociotechnical systems and the technosocial networks in the new economy, the materiality of technology and the meaning-making quality of social processes have to be taken into adequate account. In this emphasis on sense and meaning making, I differ somewhat from actor-network approaches (Latour 1992; Law & Callon 1996).
boundary work and technology work, e.g. the choice in media, may be more or less novel, other practices and activities have merely become much more frequent, ubiquitous, and extensive than they used to be.

To be sure, building networks to support one's careers, struggling with new technologies, and negotiating boundaries has to some degree always been part of work. Sales people, for example, have come to epitomize work away from colleagues and their organizations - with all the attached imagery of self-determination versus isolation, professional pride versus lost identity. What is different today, I suggest, is the scale of change and the cumulative effect of several factors combined. While sales people in the past may have known what it meant to do sales work, were prepared for the extra work required, and could make use of the collective wisdom of their communities of practice (Lave & Wenger 1991), many of the informants today became 'sales people' only recently and without fully realizing it. Moreover, all the other people they work and do business with seem to become 'sales people' as well. In a world of 'sales', then, the extra work required by each person may not be entirely new, but in accumulation it has reached a new level of intensity.

In addition, some of the work I have identified is not just more intense, it is also being individualized. What used to be taken care of by traditional organizational structures is now increasingly carried by individuals. I have presented examples of how working at home required workers to maintain boundaries previously warranted by the structures of the workplaces now in their own minds and through their own practices. Other examples described how institutional support for working from home and traveling was often lacking. And, after all, net work in general is almost by definition individual work, because it is about the growing significance of personal techno-socio-professional networks in contrast to institutional and organizational structures.

How costs are transferred onto individuals is perhaps fairly visible in the case of alternative office arrangements such as hoteling or large telecommuting programs, where
corporate savings of real-estate costs are increasingly being carried by individuals. While individual workers buy equipment, rearrange their homes to accommodate their home-offices, and give up living space, these costs often do not figure into official calculations used to justify the financial success of such corporate policies. How official accounts neglect these costs became apparent during a conference presentation by a manager of a large computer company who presented as financial success the company's fairly large telecommuting program in the US. When asked whether subsequent IT costs were included in their cost-benefit analysis, the manager had to admit that they were not, nor - and this is the point I am trying to make - were the real expenses their mandatory program generated for their employees. As one observer put it: "home offices accomplish the cost-savings objective by replacing company real estate with the employees', raising questions of fairness." (Davenport & Pearson 1998, 54).

As those invisible costs by individual workers make possible the savings by organizations that introduce rigorous telecommuting programs, the non-financial and less tangible costs that I have described make possible the shift to virtual, flexible, and mobile work configurations precisely by being pushed onto individuals - and being hidden from official accounts.

Some of the net work, boundary work and technology work is similar to what has been called articulation work in symbolic interactionism and the field of computer-supported cooperative work. (Gerson & Star 1986, Suchman 1996, Schmidt & Bannon 1992) Articulation work describes the "invisible juggling" work necessary to "keep our work going" in the contingencies of everyday work, in particular when dealing with computer systems or cooperating with other people. (Bowker & Star 1999, 310) Especially some of what I called net work and technology work is articulation work in that sense. Other kinds of work I

---

19 Verbal comment at the Alt.office conference in San Jose, California, August 13-14, 1998.
discussed are also "categorial work" in Bowker and Star's terms, insofar as it involves meaning. Not all of the work I found in virtual work is articulation work, however. Boundary work, especially, often does not fit the definition used for articulation work.

**Deletion**

This process may be characterized as a process of "deletion" (Star 1989, Law 1994, Forsythe 1999). As used in science and technology studies, deletion describes a process of rendering invisible certain activities that are essential for the production of scientific facts or technological artifacts but not represented as such.\(^20\) For example, much of the social negotiations are erased from the accounts of scientific discoveries. In fact, the erasure and deletion of the social nature of scientific processes is necessary to portray a scientific fact as fact, as something that exists in nature and outside of the social context in which it was "discovered." In the same way, I argue, the effort and work required of and to a large degree carried out by individuals in the shift to virtual work, the work to use technology, to manage networks, and to manage one's presence or absence in it, is deleted from and by the discourse of virtuality.

When I pointed out in the beginning how current images and representations of work stress the way new technological solutions or new organizational forms could achieve higher productivity through flexibility, mobility, or virtuality without much cost, I described a rhetoric that erased the actually occurring costs. In contrast I have tried to illuminate what the discourse deletes. Space and time may matter less, I said, but it requires work to make them matter less, and even then, new efforts are needed to balance the boundary shifting effects of the everywhere-everytime office. Technology may help to connect from and to

---

\(^{20}\) The notion of deletion goes back to social interactionism. In John Law's words, "interactionists write, inter alia, about the way in which low-status work is deleted by those of higher status." (Law 1994, 99) My use of the term doesn't require agency with high status, although it is likely that the power to shape a discourse is reflected in status.
remote places, but once the connection is made, the real work only starts. Technologies also may "enable" "virtual teams," but to make them productive and truly collaborative requires a wide range of laborious strategies, techniques, and social practices. Finally, flexible business relationships may provide more freedom and adjustability, but they also ask for alternative social configurations to provide for the lost security and social integration - configurations that themselves demand constant building and managing activities.

Deletion, as has been demonstrated in science studies (Star 1989), is not arbitrary; it serves functions and it has consequences. Here, it functions first and foremost to hide how much of the burden of virtualization is pushed onto individuals, and thus allows interested parties to promote the current transformation of work as beneficial to everybody. It also keeps up the techno-utopian belief in the magic of computer technologies.21 This of course, serves well those who want to legitimize planned changes in the organizational structure or real estate layout of their companies, those who have a stake in technologies on which virtual, flexible, and mobile work rely, or those who made the transformation of work their careers in other ways. This does not mean, however, that different constituencies could not simultaneously participate in and be affected by the process of deletion.

In addition to these ideological functions of deletion, there are immediate consequences. One effect of the erasure of the actual costs of the transformation of work is that business reorganizations and policies as well as technology design remain uninformed of the actual situation and fail to adequately address the problems of current work. Examples may range from telecommuting programs without special training and advice for the participants, over technology design and marketing that conceive and describe products as liberating and

---

21 In general, the rhetoric of virtuality not only carries the usual suspects of technological progress narratives, the mantras of heightened productivity and costless transformation, one also finds other utopian promises such as the tropes of liberation (from the confines of place and the regimes of time), democratization (through less hierarchy), and self-expression (via enhanced creativity). See also Iacono (1999) for an interesting discussion of the variety of different discourses, including counter-discourses, involved in the debates about the computerization of work.
efficient but miss devising support for the translation and standardization work that is necessary to make it actually work, to the general lack of software that supports net work.

Another possible consequence of this deletion may be the fact that the extra work is often not adequately acknowledged by the participants themselves - they do it, and even speak about it, but still do not appreciate that it is work or how much work it is. Especially, they do not seem to consider it their "real work," as Carl, a public relations worker, put it. Many of the informants felt that they had not enough time to do their "real work," such as talking to their clients, designing a web site, writing a press release, or a legal brief. I believe that the disregard of the actual scope, status, and significance of techno-boundary-net work, and, facilitated by its discursive deletion, its distinction from "real" work, is likely to put much extra stress on workers. It may keep them from acknowledging their accomplishments, from seeking and getting the support they need and deserve, and ultimately from understanding how their job and skill sets have changed.22

There is another consequence, and that is for our understanding of what working together may mean under virtual conditions today.

**The blackboxing of basic concepts - beyond teams**

Both result and prerequisite of this deletion process is an oversimplification of basic concepts such as communication, collaboration, and most of all team. Although teams are now often "distributed" or "virtual," the basic notion of a team as a well-defined group of people who work together with a common goal and a shared understanding has been insufficiently problematized. By drawing attention to the constant work that is going into the stabilization

---

22 This is not to say that the informants were passive victims of transformations happening outside their control. Indeed many of them chose their situations, preferred to work from home, enjoyed the flexibility and independence of contracting relationships, and loved their jobs even when it required spending every second week on the other side of the continent. They actively shaped their work lives according to their own desires as much as possible. But, I argue, full awareness of the status and origin of all this new and extra work is undermined by the discourse of virtual work.
of teams, I suggest in contrast that the notion of a 'stable team' is the ideal and never entirely realized endpoint of a constant effort. What is often seen as the stable starting point for productive work is in fact a quite unstable, constantly changing structure, overlapping with other such structures, and created out of networks by net work. The actual configurations the informants worked in turned out to be multiple, interconnected, dynamically fluctuating netted structures with only partly shared visions and goals.

This does not mean that team-like structures (often also called "crew," or "core," or "group") do not exist, but they tend to exist only for certain moments and through ongoing efforts which I defined as stabilization, coordination, team building, contextualization, and so forth, under the category of net work. In a sense, in virtual work, teams exist only virtually. In fact, in virtual work teams need to be unstable. Part of the micro-management of work-nets, as I called it earlier, are strategies to destabilize as well as stabilize structures by alternatively adding new members or making certain participants peripheral for certain activities or time periods. As I tried to demonstrate through examples, net work is in fact about the dynamic generation of shape-shifting, only temporarily desired stable work-nets.

By rendering invisible or deleting all this net work through the discourse of virtuality, the notion of team can be naturalized and blackboxed, i.e. made an unproblematic entity that can be used in the discourse without further questions. This rhetorical effort is not unlike efforts of the blackboxing of scientific facts and technical artifacts that has been identified in the context of science and engineering.\(^{23}\) Thus, deletion and blackboxing are complimentary processes: in order to blackbox a concept successfully much of the constructing, supporting, and enabling work has to be deleted.

\(^{23}\) The notion of blackboxing is used in science and technology studies to describe the process of bringing closure to the social negotiations and constructions that surround a fact before it is acknowledged as a fact, or an artifact before it is agreed upon as the best solution to a given problem. A blackboxed concept is unproblematic and stable, there is no need to look inside it, in order to further use it (Bijker 1987). This is also why the oversimplification of basic concepts is not just a result of the deletion of the extra work required, but can be also said to be its prerequisite: a simplified
A similar point can be made for other fundamental concepts such as 'communication' and 'collaboration'. They too are in danger of being blackboxed through deletion of all the work that goes into setting the stage for single acts of communication or collaboration under the conditions of "new work" and technologically mediated interactions. The examples of people bridging contexts and cultures and adeptly selecting media should have demonstrated this point. The deletion of much boundary, technology, and net work by and in the discourse of virtual, flexible, and mobile work hinders here as well an adequate understanding of what communication at work and working together really require. To be sure, communication and collaboration have never been simple processes - nor has 'team' ever been a simple entity - but the additional complexity of current transformations makes them even more constructed and thus blackboxing even more problematic. The changes make more urgent attempts to open the black boxes and complexify the very notions of team and collaboration by bringing to the fore, making visible, and articulating all the hidden work.\textsuperscript{24}

In this chapter, I showed that people such as my informants in a "world beyond the stable state" (Horgen et al. 1999) live and work in networked structures that are an increasingly important part of their work environment and organize their relationships to others. In addition, I tried to draw attention to what a certain discourse of virtual work tends to render invisible: the additional work that is necessary to make the virtual forms of work viable. By shedding light on the deletion of this extra work, I intended to reveal how the discourse of virtuality, mobility, and flexibility promotes the shift to virtual by hiding how the costs of

\textsuperscript{24} This is true although I agree with Bishop's (1999) argument that articulating or making visible invisible work is not always useful. She maintains that making explicit certain social and informal aspects of work may open the door for integrating them into the instrumental aspect of work. Although I share her concern, I think in the specific aspects of work I am concerned with here the danger of having additional costs erased exceeds the danger of making them visible. In addition, the distinction between social and contractual cannot be easily mapped onto the distinction visible-invisible. Technology work, some boundary work, and aspects of net work are invisible although they
this transformation are being individualized, underpins a techno-utopian celebration of
technology, and hinders the self-understanding of participants in the new economy.
Recognizing the deletion of this extra work and making it visible again, may help those who
work in those new jobs to improve their own complex life and work situations. It may also
help us to understand better what working together in networked worlds is about, including
what teams and collaboration may mean when organizational structures, geographical
location and technological modes of interaction become more and more fluid. Finally,
opening these black boxes may put limits on techno-utopian views that promise gain while
hiding the pain.

would presumably fall in the category of contractual or instrumental work.
CONCLUSION

In this thesis, I analyzed the substantial transformations of information and office work in the 1990s. I focused on the changing forms of work organization and the new regimes of space and technology that express and shape these transformations. I analyzed the emergence of experimental office concepts, novel types of workplaces and new ways to organize work during that period, fueled by a growing debate over the future of work and workplaces. This trend to new, alternative, virtual, or mobile workplaces questioned, at times vehemently, what was considered the traditional workplace: a dedicated desk surrounded by cubicle partitions or walls next to other such workplaces in a physical office space. The more radical proponents of this trend envisioned and promoted entirely virtual workplaces and the end of the office; they proposed that work needs no place.

I investigated how the transformation of information work entailed changes in the way space and technology were used, designed, engaged with and thought about. Although my research revealed substantial shifts in the spatial and technological orders of office work, I found the vision of placeless work too simplistic. My empirical investigation revealed more nuanced changes in what I call the regimes of space and technology. The notion of regime includes not only physical and material arrangements, practices of use and behavioral rules, but also cultural values and discourses. Thus a spatial regime in the world of work is a complicated configuration that comprises many different dimensions, such as the designed spaces in the office, space policies, the spatial practices of workers, symbolic values attached to space, the rhetoric of space, and cultural sentiments about space. Thus, a spatial regime on the one hand expresses organizational and design ideas and people's attitudes and ideas, and on the other it shapes the social organization and culture in an organization. The developments
in office work were accompanied by the emergence of new spatial and technological regimes. Here, I will lay out what these new regimes were like.

The office design firm JFC offered a rich example of some of the more subtle changes in the use of space and technology. In chapters three and four I discussed the spatial strategies the designers employed in their mobile, non-territorial, and multi-site office. The non-permanent work allocation of the office abolished permanent, individual, private, and customizable work locations and instead introduced temporary workplaces and shared spaces and resources. The new design principle was no longer individual ownership of work space but the flexible and short-term use or renting of work space. Ownership still existed, so the firm's space planners, because all shared spaces in the office were considered communal and belonged to all employees. With the ban on individual territory, workplaces no longer functioned as stable and permanent home bases or could serve as means to self-expression. There was no personal place to personalize, and even when there was a semi-permanent place, the firm's spatial policies outlawed any personal items on display.¹

Another explicitly designed spatial quality of JFC's office was the open plan without enclosed spaces except for short-term use. The expected benefits of the open design were improved interaction and information exchange among employees across functional boundaries. The designers meant to alleviate the associated problems with privacy and distraction through the third design aspect: multiple zones of specialized work settings, such as quiet rooms, informal meeting places, and the central come-and-go club area, that were supposed to support different work activities and space needs.

I have discussed some of the potential pitfalls of such a layout for the social relations, hierarchy formations, and the social climate in the office. I have not yet explained what this layout meant from the perspective of the work space itself. The design of JFC's mobile,

¹ Footnote Hochschild on how the designers took pains to keep work as work and not make it like home...
flexible and non-territorial offices rested on a specialization and differentiation of space. While in traditional offices, a workplace, such as a desk or an office, serves one person who performs many different activities at this place, the workspaces at JFC were determined for specific activities, such as concentrated work or informal meetings, and for many different individuals. In other words, while the traditional workplace is single-person multi-function, the new workplaces at JFC are multi-person single-function. This shift from a person-centered spatial design to one centered on functions or work-activities meant that spaces were now differentiated predominantly by work activities. In traditional offices, workspaces are also specialized by function but in this case by job function. Secretaries need desks different from engineers, but the desk is still mainly defined through its owner. In the "multi-site" office, space was differentiated by categories of work activities. Work places no longer attached to specific people meant a certain decoupling. From the perspective of people it resulted in the use of multiple short-term places instead of one permanent one.

As a result, the nomads and independents at JFC circulated through the office in the course of a day not unlike the documents and files in the offices of the early and mid twentieth century. While it was the goal of the German planners of office landscapes forty years ago to optimize the work flow, path efficiency was not a goal in the circulation of mobile office workers today moving from the club to a quiet booth to a meeting back to the club.

Besides the ban of individual territory, the creation of an open layout, and the introduction of specialized work zones, the architect's office embodied another change in the

---

2 In traditional office there have always been specialized functional areas that served multiple users as well, such as the restrooms, the copy room, the mail room, and so on. Yet, the core spaces in traditional offices are, nonetheless, person-centered.

3 Home layouts mix attributes of the new office design with that of the old. While the majority of rooms in a family home are usually defined by function and the kind of activities one does in them - the kitchen is for preparing and storing food, the living room for relaxation and entertainment, the den for work - other rooms, such as bedrooms, are frequently 'owned' by people.
use and meaning of space for work. JFC's office concept deliberately opposed a space symbolism as a means to display status and rank, which until recently was a rarely questioned staple in the office world. At JFC, space was not supposed to be allocated by rank and employees not distinguishable by their bigger, better or more private spaces. The rejection of the status function of space - the symbolic side of territory - expressed the firm's intention to bolster communication and reduce hierarchy across the organization.⁴

One could argue that all these changes amount to a diminished significance of space and place for office workers in the new offices models epitomized by JFC. The old focus on the individual workplace and many of the material, social, and psychological functions that came with it are stripped from the new office concepts. Work in these offices is no longer centered on and defined by a place, and space no longer plays the same role for the organization of social relations. In the new order the setup and structure of space does no longer offer permanency or privacy, grant territory, and express social status. Thus, one could argue, that the relation workers have with their workplaces and the meaning space has for the organization of the firm was greatly reduced in the new arrangement. One may even conclude that the claims about the placeless future of work have come true.

Yet, this conclusion is too hasty. JFC's office concept expresses not so much a decline in the significance of space for the organization of work, but a shift in the spatial regime. The firm's design presented new spaces intended to help employees to connect, communicate and socialize rather than stay separate. The fact that there was no longer one central place for many office employees does not imply that their workplaces did not matter. I demonstrated how the specifics of places still mattered and how people need to make their workspaces their own places, even though they are changed frequently. Furthermore, the fact that social prestige was no longer expressed through corner offices does not indicate the absence of

⁴ The space planners and architects at JFC did not abstain from all space-related symbolism. They were fully aware that their office represented their firm to the outside world.
spatial components to hierarchy - or the absence of hierarchy. Rather, in the reconfigured hierarchy of the mobile office a new symbolism evolved. At JFC it was a nomadic space use and the absence of territory that expressed status and power of the nomads and independents in the office. The new spatial regime favored the absence of personal territory and valued the use of multiple spaces. It rewarded mobility and privileged those who were mobile. It did so through a combination of new layouts, rules, values and rhetoric.

The spatial order of the virtual and distributed work configurations in Silicon Valley was both similar to and different from the mobile work patterns at JFC. Many of the information and knowledge workers used, like their colleagues in non-territorial offices, multiple rather than a single workplace. Yet, one of the important differences between work in traditional office structures and work outside was that the work spaces in the latter case were far less specialized than the work settings in alternative offices. Many of the workplaces of consultants at home or traveling executives were improvised hybrids with mixed functionality crossing boundaries between traditionally separate spheres, such as work and home, or transportation, or leisure. For example, home workplaces could be not only temporary but also filled with other functions, such as child rearing or guest entertaining. When one of the contracting consultants in the architecture office of JFC told me that she was not only "hot-desking" here in the office but also at home, she meant that she had no fixed work space at home. Sitting down with her laptop wherever it was convenient, she said, lately she ended up frequently at the piano. This illustrates that whether outside or in the physical office, knowledge workers had to engage in workplace making. Yet, the blurring boundaries between different spheres that are common in the types of remote and virtual work I observed in Silicon Valley demanded particular spatial strategies. The boundary work I reported on included the use of liminal, transitional and hybrid spaces to construct, maintain, or transgress boundaries.

Perhaps the main difference between office space use and distributed, remote, and virtual
work, however, lies in the presence or absence of a shared physical location. As I discussed in
detail in the last chapter, the only shared space that collaborative projects involving a
number of participants in various organizations and different locations commanded was the
electronic space of technologically mediated interactions. Although these electronic forms
of communication and interaction usually lacked some of the vivid qualities that accorded
virtual environments their space-like appearance, this kind of virtuality was a major
dimension of the new spatial regime of work.

To summarize, the emerging spatial regimes that both expressed and helped form the
reorganization of information work in the last decade were characterized by a number of
different qualities. The regimes promoted the social and connective aspects of space while
also pushing individual ones. They featured either specialized workplaces in contrast to the
multi-purpose spaces of old, or functional hybrid ones in locations outside the office. They
encouraged multiple and temporary space use over use of single and permanent space and
favored mobility over territory. In short, in the new regime, space still mattered, but in a
different way. It was about connections, multiplicity and temporariness, hybrid functions and
improvisation, decentering and movement. This emerging spatial regime was closely related
to technology.

In this thesis I show that the role of technologies in the reorganization of work was as
important as that of space. I have shown how in non-territorial offices, technologies were
involved in several ways. They helped to make the new spatial arrangements work, acquired
symbolic functions, and were critical in the production of new types of spaces and places -
including new types of territory. In virtual work contexts, technologies were the main way to

---

5 Similar remote and virtual work structures were part of the work of the architecture firm as well. I
ended up not focusing on those aspects of their work that took place outside the physical boundaries of
the office, in part because I had no access to their electronic mail and little to their file servers.
communicate and collaborate, to build project structures, and to manage the new socio-professional networks. In close relation to the evolving spatial regimes, technological regimes changed as well.

I demonstrated how the non-territorial and mobile arrangements at non-territorial offices required sophisticated technological systems to function. Temporary and changing work-locations, for example, needed navigation and orientation systems, programmable phone systems, and, most of all employees' ability to work and communicate while moving around the office. We have seen how mobility relied heavily on the use of system of mobile technologies that promised uninterrupted connectedness for the mobile and nomadic employees.

Yet, these technologies were more than enablers of new ways of working. The culture of mobility at JFC, for example, with its reconfigured hierarchy was built on technology-based privileges and status displays for the mobile elite. The new mobile technologies, prominent among them the office internal mobile phones, offered new forms of privacy and turned into markers of social status. Through their ownership of mobile phones, non-territorial employees could exert a new kind of control over space. The new regime substituted a symbolism of mobile territory for the outmoded symbolism of spatial territory. In a sense, the mobile phone replaced the corner office, while the laptop replaced the personal workplace.

This new regime of mobile territories is the outcome of changing spatial and technological orders. It engages new physical and electronic spaces, spatial and technological practices, rules of use, attached symbolisms, and cultural attitudes and values. I called this new regime "techno-territory," to express how ownership of technology in its practical benefits and through its symbolism, resembled the previous system of individual workplace ownership.

There are costs associated with the current transformation of work. The new forms of mobile, flexible, and virtual work demand a considerable amount of extra effort and extra work. Especially distributed and remote work structures among professional knowledge workers required invisible work to deal with the emergence of network-like work structures, shifts in boundaries between work and leisure, and the increasing ubiquity of communication and information technologies for all types of work activities. The three types of hidden work that I called "net work," "boundary work," and "technology work," were mainly carried out by individuals and largely hidden. Virtual work demanded ongoing efforts to contextualize, translate, and standardize, while contract-based employment relations translated into novel social forms that demanded a constant building and managing of professional networks. Other forms of invisible work took place in the alternative office. I demonstrated the extra work that clean-desk rules and tight space policies could impose on employees in the non-territorial office. As it did not fully appreciate the materiality of work at JFC, the firm's office concept of mobile and flexible space use potentially produced unnecessary work to clean up, store, and deal with unaccounted for material. Workplace making, as I pointed out earlier, is another type of invisible work, a by product of mobile, temporary, or virtual work patterns. One type of "invisible" work was not invisible at all. Not one day passed without a complaint by one of the mobile workers at JFC about the heavy shoulder bags he or she was constantly schlepping around. Without a permanent place, the office mobiles came to look like nomads who carried all their belongings with them. As symbols of power, the mobile work tools could be quite heavy.
BIBLIOGRAPHY


Becker, Franklin. 2001. Planning and managing the workplace. Course website in
Department of Design and Environmental Analyses, College of Human Ecology, Cornell University, Spring 2001, (course web site online at instruct1.cc.cornell.edu/Courses/dea453_653/ideabook1/3jin_ting/Ideabook3/defintion.htm; downloaded August 2002)


Frank, Samuel. 1994. "Reinventing the architecture of work. A virtual team creates a virtual


Jacobs, Karrie. 1994c. "Waiting for the Millennium. Part III: Dinosaurising the ruture: office will be virtual, cities will be empty, nouns will be verbs, at least that's one scenario." Metropolis. October, 86-90.
John Law and Annemarie Mol. 2000. 'Situating Technoscience; an Inquiry into Spatialities' (draft) Published at the Centre for Science Studies and the Department of Sociology, Lancaster University, and the Department of Philosophy, the University of Twente, at: http://www.comp.lancs.ac.uk/sociology/soc052j.html

267


Press.


Osram. 196?. *Unser Haus Osram*. Marketing brochure.


Sutherland, Duncan. 1997. "Perspectives on Officing: Are workplaces information technology?" Internal document Haworth Inc. (online at www.haworth.com/resources/fpm/wiktkful.htm)


Wakeford, Nina. 1999. "Gender and the landscapes of computing in an Internet cafe." In M. Crang, Crang, Ph., and May, J., eds. *Virtual geographies: Bodies, space, and relations.*


Whittaker, Steve and Bonnie Nardi. (in preparation). "Revisiting the issue of media choice."


Figure 0.1: Planned online virtual office environment for Chiat-Day, ca. 1994
Figure 0.2: Advertisement for freeagent.com, 1999
Figure 0.3:  "We are tunnelling out after lunch - pass it on." Cartoon, The New Yorker, April 15, 2002
Figure 0.4: Cubicle skeleton. Cartoon, The New Yorker, October 20, 1997
"You don't get an office. You get cargo pants."

Figure 0.5: "You don't get an office you get cargo pants." Cartoon, The New Yorker, August 17, 1998
Figure 1.1: Office furniture on wheels, SEI (Albrecht & Broikos 2000)
Figure 1.2: Workstation at Chiat Day's office in New York
Figure 2.1:  German office landscape; NINO, Nordhorn, Germany, ca. 1966 (Boje 1968)
Figure 2.2: Groundplan of office landscape, Orenstein-Koppel building, Dortmund, Germany, early 1960s (Wankum 1969, 37)
Figure 2.3: American style open plan office, ca. 1935
Figure 2.4: Communication lines in traditional building, according to Quickborner Team (Lappat & Gottschalk 1965, 36)
Figure 2.5: Communication lines in office landscape, according to Quickborner Team (Lappat & Gottschalk 1965, 38)
Departmental groupings in the office landscape

Figure 2.6: Group arrangement in office landscaping, Osram building, Munich, Germany, mid 1960s (Wankum 1969, 31)
Figure 2.7: "Just like in your open plan office." German cartoon, ca. 1976 (Köchling & Drinkuth 1976)
Tropfende Regenmäntel, Schirme, Gummistiefel und ähnliche an die freizeit erinnernde Kleidungstücke sind am besten ganz in der Nähe Ihres Arbeitsplatzes aufzuhören. Hängen Sie die Sachen kurzfristig über die Blumenkübel oder über die Stellwände oder auch über Ihren Schreibtisch. Das durchbricht die monotone Raumaufteilung und verleiht Ihrem Arbeitsplatz eine individuelle Note. Die Garderobe aufzusuchen wäre eine unverantwortliche Zeitverschwendung.

Figure 2.8: Satirical illustration depicting life in office landscapes (Reinhard Mohn GmbH 1968)
Figure 2.9: Interaction matrix I used by Quickborner Team (Lappat & Gottschalk, 1965, p. 33).

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>H</td>
<td>I</td>
<td>J</td>
<td>K</td>
<td>L</td>
</tr>
<tr>
<td>M</td>
<td>N</td>
<td>O</td>
<td>P</td>
<td>Q</td>
<td>R</td>
</tr>
<tr>
<td>S</td>
<td>T</td>
<td>U</td>
<td>V</td>
<td>W</td>
<td>X</td>
</tr>
</tbody>
</table>

Abb. 2.9: Interaktionsmatrix I verwendet von der Quickborner Team (Lappat & Gottschalk, 1965, S. 33).

(1) Jeder Interaktionsbereich
(2) relative Werte
(3) relativer Beitrag
(4) partielle Korrelation

Alle unmarkierten Felder wurden im Berechnungsverfahren in der Matrix markiert.

* Wertens und Summenberechnung (* - nicht genannt)
* Wertens und Markierungsverfahren
* Wertens und Summenberechnung
* Wertens und Markierungsverfahren
Figure 2.10: Interaction matrix 2 used by Quickborner Team (Lappat & Gottschalk 1965, 35)
Figure 2.11: "America's first landscape" - DuPont's Freon Division in Wilmington, Delaware, ca. 1967 (Interior Design 1969)
Figure 2.12: Office layouts before redesign according to principles of scientific management (Leffingwell 1917)
Figure 2.13: Office layouts after redesign according to principles of scientific management (Leffingwell 1917)
Figure 2.14: Union Carbide offices, New York, NY; architects Skidmore, Owings & Merrill, mid 1960s
Figure 3.1: Groundplan with zones, JFC (colored in original)
Figure 3.2: Table in the club occupied with coat, laptop, and bag, JFC
Figure 3.3: Messy table surface, JFC
Figure 4.1: Workplace in violation of clean desk rule, JFC
Figure 4.2: Jack Lemmon in The Apartment, 1960 (Antonelli 2001, 26)
"We don't offer bonuses, but the size of your desk will be adjusted quarterly."

Figure 4.3: "We don't offer bonuses, but the size of your desk will be adjusted quarterly." Cartoon, The New Yorker, April 22 & 29, 2002
Figure 4.4: Phone rack, JFC
Ah, the joys of the office. Where the hours can slip by faster than gossip at the water cooler. A change of scene could do wonders for your productivity. And new Symantec pcTelecommute™ is just the solution. It has everything you need to work from the one place you can get things done – at home. You can send faxes, synchronize files with your office PC, and access office files and applications. You can even monitor your work and quickly create status reports for your manager. (Who says you can’t impress your boss from home?) Leave the chaos for your coworkers. Run a demo of pcTelecommute or download your free trial version at www.symantec.com/pctelecommute.

Figure 5.1: pcTelecommute advertisement, May 1999
Figure 5.2: GPS advertising, late 1990s