

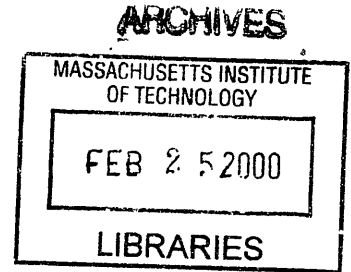
Genetic Manipulation: The Paradox of Control in a Flexible Corporation

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

This dissertation is a two-theme ethnography focusing on the early history of one company within the context of the turbulent business environment of the 1990's. One theme is the control exercised by a corporation to mold its people to achieve certain productive ends, focusing on three areas: culture, physical environment and technology. The second theme is the ability of a corporation to be flexible. Taken together, the two themes form the self-contradictory notion of trying to control a group to increase its ability to be flexible.

Many writers who focus on organizations have found the biological metaphor of evolution a useful way to conceptualize some aspects of a successful firm. In contrast I find the biological metaphor of genetic manipulation best illustrates the kind of control exercised by the leadership of this particular firm. From its inception, the leadership team wanted to create a flexible firm, one that could thrive in a turbulent environment. Rather than rely on a multiplicity of heterogeneous experiments, they actively manipulated specific aspects of the firm. The early results, the formation of a successful company, suggested that those controls and the decision to actively mold the firm using such controls were the right choices.

When faced with a radical change in the marketplace, the arrival of the Internet economy, the leaders of this firm responded with the same technique and once again were able to mold a successful firm. To the extent that the Internet economy requires companies to change at Internet speed, this firm's ability to manipulate its own "DNA" may well be a model for success for other firms in this environment.

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Preface

In the dissertation that follows I open the ethnographic window to one particular firm at one particular period in its recent history. To provide as much information as possible while protecting the privacy of the people involved, the name of the firm and the names of the individuals with which I people it are pseudonyms. In the text, quotations and footnotes, those pseudonyms are *italicized*. At times descriptive characteristics, such as gender and locale, have also been changed.

There is a second, unanticipated, level of camouflage that this dissertation provides to the company that I studied. In the year it has taken me to move from rough notes to a finished dissertation, the firm has changed. It has changed on many dimensions: organizational structure, espoused culture, standards in furniture and office layout, complexity of supporting infrastructure and profile in the marketplace. Because of these changes, the firm that exists today does not map cleanly to the firm that I describe.

I trust that the people who so graciously gave me their time and insights appreciate the irony that a dissertation about corporate flexibility in a turbulent environment cannot help but lag behind the actual experience that we all shared.

At this firm, I was -- with the permission of the founders -- both ethnographer and employee. Unlike those ethnographers who enter a firm either as an observer¹ or as a lower status employee,² I was a member of the senior leadership team. In that context, I had access and input to many of the strategic decisions the company made and I knew a great deal about the inner workings of the firm. That level of access resulted in its own set of challenges about what to include in this dissertation and what to omit. In choosing the material for this dissertation, I looked to present as full a picture of the firm as I could without compromising the firm's competitive position or violating the confidentiality of any of the firm's clients. Therefore, for example, this dissertation does not include detailed stories of client engagements or in-depth analyses of changes in corporate strategy over time.

While my dual position aided my ability to understand the firm from a "top-down" view, it limited my ability to construct a "bottom-up" portrait. The quotations that represent the bulk of the ethnographic detail of this thesis were obtained during formal interviews, where the interviewee gave his or her permission for me to use that information in this dissertation. My interviews were done with my peer group and

¹ For example, Gideon Kunda studied a high tech firm in the role of passive observer. Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992).

² For example, Jennifer Pierce did her participant observation in law firms where she worked as a paralegal. Jennifer L. Pierce, Gender Trials: Emotional Lives in Contemporary Law Firms (Berkeley: University of California Press, 1995).

those senior to me. As I rose in seniority in the firm, the pool of potential interviewees decreased; I chose not to interview people who reported to me or who might feel in any way coerced by my request for an interview because they were junior in rank to me.³ Therefore, much of this dissertation does not include first hand accounts from a wide spectrum of the firm. I have attempted to mitigate that situation by including survey information when it was available.

I am deeply grateful to the founders of this firm for giving me the opportunity to both participate and observe. Without their support this dissertation would not have been possible and I would not have had the fascinating experience of intertwining daily experience with academic theory. To those in the firm who took the time to be interviewed as well as those who, outside of the formal interviews, shared their insights and knowledge on the topics that are central to this thesis, I give my heartfelt thanks.

Hugh Gusterson, my thesis advisor, backed me throughout this process. I have benefited immensely from his support, encouragement, intellectual energy, wide-ranging knowledge of appropriate reading materials and disarming capacity to reject early drafts by enjoining me to do more with my material. He, along with the other

³ The research protocols for this dissertation were approved by MIT's Committee on the Use of Humans as Experimental Subjects (COUHES) in the spring of 1994. Each subsequent year COUHES has reviewed this project and extended its approval. The current COUHES approval expires in May of 2000, my work on this dissertation will be completed before then.

members of my thesis committee, Lotte Bailyn and Ken Keniston, have helped shape this work by their thoughtful critiques. I appreciate the time and focus that each gave to me and this project; I am particularly indebted to their style of collaboration that enabled me to see this material through contrasting lenses. Lotte Bailyn's keen eye for discerning the strongest idea of the many I explored aided me in sharpening the key arguments of this thesis.

My thanks also to those who have helped me along the way. The faculty and graduate students of MIT's Program in Science, Technology and Society have been my intellectual home for this past decade; they provided me with the tools and the context for my investigation. Tamasin Foote, Bruce Mazlish, and Heinrich Schwarz each took the time to read parts of the dissertation and forward me invaluable comments and suggestions. Michael Fischer encouraged me to place this material in the larger context of the current economic environment. Constance Perin helpfully pointed me towards existing research on environment and behavior. Lois Hurst and Branden Kornell transcribed the interview tapes. Deborah Fitzgerald and Judith Stein ensured that I did not run afoul of MIT's red tape.

I am fortunate to have a network of family and friends who have cheered me on. My parents, Nancy and Karl Peterson, have encouraged me to go the distance, often

providing a physical and emotional retreat that balanced my otherwise hectic schedule. The extended Bentley clan into which I married has never failed to articulate their pride in my studies; their on-going support has been invaluable. Particular thanks go to Terry Bentley and Maureen Clarke who provided key computer assistance in the final hours of the dissertation preparation. My friends Tamasin Foote and Kathy Magnuson have been sounding boards for the good, the bad and the ugly; their judicious use of humor, music, food and conversation has helped me keep things in perspective. My daughters, Kathryn and Laura, have never known me except as a student. With a patience beyond their years, they have given me the hours of quiet solitude I needed to read and write. At the same time their exuberance and zest for living ensured that I did not miss out on the things that really matter: a song, a story, a hug.

To my husband, Kevin, I dedicate this thesis. It was he who made sure I had the facilities I needed to work, including building desks in more than one car, so I could type while he drove. It was he who was always available to our daughters, so I could find more time to research and write. It was he who listened to my nascent ideas and let me ramble my way into a coherent structure. And it was he who has always been ready for a new adventure, who has consistently championed our joint ventures into the unknown, who has taught me the true value of a life-long companion.

Chapter One
Introduction: The Object of Manipulation

Chapter One

Introduction: The Object of Manipulation

This dissertation is a two-theme ethnography focusing on the early history of one particular company. The first theme centers on the attempt at control by a corporation -- how an organization molds its people to achieve certain productive ends -- and some of the ways in which that attempt falls short of its intent. The second theme of this ethnography looks specifically at the ability of the corporation to be flexible. Taken together, the two themes of this dissertation form the self-contradictory notion of trying to control a group to increase its ability to be flexible.

Many writers who focus on organizations have found the biological metaphor of evolution a useful way to conceptualize some aspects of a successful firm. In contrast I find that the biological metaphor of genetic manipulation best illustrates the kind of control exercised by the leadership of this particular firm. Thus, in this dissertation I will demonstrate that despite the inherent paradox of trying to control a group to make it flexible, the leadership of this firm felt it was successful in its manipulation of the firm.

The firm described itself as a business solutions firm. It solved problems for its customers using a blend of business consulting, brand and image design, and software design and development expertise. It created a wide variety of solutions, including:

- Using a variable compensation scheme to incent a sales force
- Launching a new Internet-based insurance company
- Reducing Medicare fraud
- Redefining a 100-year old greeting card business to capitalize on electronic opportunities.

The following two vignettes are the bookends of this ethnography. The first tells the tale of the company's inception. The other marks a point of significant change some eight years later that coincided with the conclusion of my period of observation of the firm. Taken together, these vignettes illustrate the distance the company traveled in those intervening years.

The First Vignette: The Ancient History of D&D

Matt Barr and Roger Brooks founded *Design and Develop, Inc. (D&D)* in November of 1990. The story of how this came about starts with one evening when, while discussing the strengths and weaknesses of the company where they both then worked, one of them announced that he could do it better. The other said that he had always wanted to

run his own company. They recognized the shared opportunity and *Matt* and *Roger* began to discuss in earnest the possibilities of opening their own company, one that would design and deliver solutions to business problems.

At the time of their discussion, *Roger*, a skilled systems analyst and programmer, had an offer to work as a consultant for a Wall Street firm. *Matt* was badgering him to start their new company and say “no” to that offer. *Roger* argued that his consulting job could be the foundation for their new business. As part of his consulting work, *Roger* would identify contacts that *Matt*, the salesman of the two, could then pursue. The day before he was to start at the Wall Street firm, *Roger* called to verify his new position. He was told that there was a new management group and his position no longer existed. *Roger’s* next call was to *Matt*. They launched their new firm then and there on the phone. They envisioned that *Matt* would market *Roger’s* skill in building custom software applications and, from that beginning, they would build a company.

Theirs was a bootstrap operation that was very similar to the inception stories of Apple Computer or Hewlett Packard. In this case, *Matt* and *Roger* funded their start-up with about \$50,000 from their own savings. They rented two small basement rooms and started working their network of contacts, looking for clients. At the beginning they had no name for the firm. Each time they submitted a name to the lawyers, they would hear back that that name had already been taken. Therefore, when they answered

incoming phone calls they would say, "*Matt Barr here*" or "*Hello, Roger Brooks,*" finessing the need to say the company's name.

After about six months, they got their first contract. A company paid \$1,200 for *Roger* to evaluate database products and recommend one as a corporate standard. Shortly thereafter, they received their second contract. A different firm paid \$8,500 for *Roger* to write a program to generate their payroll. *Matt* reminisced:

Two days before we were to go live, it turned out that there were some bugs in the program. So we went to my folks' house (they lived just a couple miles from the client) and I watched *Roger* code. I sat in the basement and watched him type lines of C code into a PC around the clock for almost two straight days...

We did go live when we promised. And as far as I know, it's still running, it's still feeding payroll.¹

That job was a watershed for *D&D* on two counts. As far as the company's culture was concerned, it launched a commitment to on-time delivery with a "whatever it takes" attitude. On a more prosaic side, from that job going forward, *D&D* operated in the black. The funds from that job enabled *Matt* and *Roger* to increase the staff size. In the fall of 1991, *D&D* hired its first three employees: two programmers and one project manager. All three had worked with *Matt* and *Roger* at their previous firm.

¹ Conversation with *Matt Barr*, August 1993.

The Second Vignette: Eight years later

Early in 1999, there was a multi-site international conference call with all 1,700 employees of *D&D* stopping work for one hour to take part in a course changing moment in the history of the eight-year old company. The speakers, the six leaders of *D&D*, announced to the entire company a new direction, a new purpose, a new vision. The audience heard comments such as:

Lead. Create. Innovate. It is time to reinvent ourselves from the ground up. We need to be doing business in an entirely different way.

This is about changing how we talk with the world and also how we communicate internally. We need to let go of some of our assumptions about who we are. We have to become one company. One voice. One brand.

We are truly trying to integrate seamlessly. To respect each others' differences. To become hybrids. Hybrids will win the game. We want to be the highest quality, one stop shop in this industry.²

The message of that conference call was consistent with other subsequent messages. All employees understood that:

- *D&D* was about to change.
- The opportunity was there for those who were willing to risk what they had to become a new hybrid.
- If the company did not change, it would no longer thrive.
- If individuals did not change, they would not stay with the firm.

² Corporate wide conference call, early 1999.

- There was no choice.

It was clear that, at least from the leadership's point of view, this was a moment of significant change for the company when any and all aspects of the firm were about to be transformed.

The Themes of this Dissertation

There are two themes in this ethnography about *D&D*. The first theme looks at a corporation's attempt to control its employees. The second theme looks at the ability of a corporation to be flexible. Combined, these themes form a paradox: the self-contradictory notion of trying to control a group to increase its ability to be flexible.

There are many ways to exercise control in a corporation. Like the analysis done by Gideon Kunda,³ this dissertation looks beyond the utilitarian control of the paycheck and examines other aspects of the corporation that can influence the worker's experience: the corporate culture, the physical structure, the technologies that are used. Not surprisingly, attempts to control are sporadically effective. Some controls are barely perceived as such; they are aligned with behaviors and habits of mind that some people brought with them when they joined the corporation. Other controls are

³ Gideon Kunda, *Engineering Culture: Control and Commitment in a High-Tech Corporation* (Philadelphia: Temple University Press, 1992).

resisted, sometimes with humor, sometimes with anger. Some controls that seem reasonable to some are anathema to others.

The second theme of this ethnography looks specifically at the ability of the corporation to be flexible. In the current turbulent economic environment, firms that can adapt quickly to new circumstances are believed to be more likely to succeed. This dissertation asks: "What features of a firm help or hinder it to be ready to change?"

It so happens that toward the end of my observation period, the firm faced a significant challenge. When the company founders started to respond to this challenge, they had to mobilize the entire firm to change. At this transition point a paradox became apparent. Some of the attempts at control by the leadership team were at odds with the need for the firm to be flexible.

In trying to capture the essence of the type of control exercised by the leaders of this firm, I leverage the biological metaphors that some writers have used to describe firms that have successfully changed in response to their environment. However, I find that one of the more popular metaphors, that of opportunistic evolution, does not explain why this firm has been successful. The metaphor that illuminates my story is that of genetic manipulation. I will portray the leaders of this firm as actively reaching into the

DNA of the organization and splicing in a different genetic structure in order to create a successful company.

A Brief Description of D&D

D&D was a firm that solved business problems for its clients, often with some form of computer software. Its customers came from a variety of industries, with a wide variety of needs. To solve its clients' problems, *D&D* utilized a blend of business consulting, brand and image design, and software design and development expertise.

One example of how *D&D* worked was an engagement with *BIG Corporation*, a firm in a highly competitive industry. It wanted its large sales force to focus its efforts in line with the marketing strategy, even when that strategy changed. For *BIG*, *D&D* created a flexible sales compensation management system that reduced the time required for sales administrators to design and modify compensation plans from months to minutes. The problem was a business problem: how to align the sales force activities with the corporate strategy. The solution included software that used a rules-based engine to model sales compensation plans across variables.

Another example was *D&D's* engagement with *eNOW*, a start-up firm. That firm saw the Internet as a technology which would transform the relationship between

consumers and insurance companies. To capitalize on that opportunity, *eNOW* worked with *D&D* to set *eNOW*'s launch strategy and then build its Internet site and 24-hour call center. The infrastructure *D&D* created for it allowed its end customers to review all the information they needed to select and purchase insurance. The product offerings covered over 3,000 insurance products from over 50 insurance providers. The business problem was to develop a strategy for launching a new business. The solution included the technology to support heavy usage and secure transactions across the Internet.

Designing and deploying such solutions had a number of dimensions. When *D&D* started, it emphasized one dimension, technology. It described itself as a firm specializing in "rapid client-server application development." At that time (the early 1990's), large scale client-server systems⁴ were just being implemented; companies that had successful track records delivering such systems were at a premium. *Roger* had already designed and deployed a significant client server system. His expertise enabled *D&D* to position itself successfully in this market. Over time, *D&D* continued to follow

⁴ Client-server technology, broadly speaking, created a distributed computing environment that was a very different paradigm from the mainframe environment of the 1960's, 1970's and early 1980's. The mainframe systems tended to be one (or more) large computer, often isolated in a climate-controlled room, that held all the data and performed all the computational processes required to support the business situation. People who wanted access to that information entered their requests at so called "dumb" terminals; the results most often came out in the form of paper reports after the request had been processed by the mainframe. If that request was low priority or queued after others, getting the results might take some time.

As personal computers (PCs) became more prevalent in the 1980's, people who were using them were able to do their own calculations without going to the mainframe. These islands of computational power had their advantages in terms of speed, but made it difficult to share data. Distributed computing found ways to link those PCs. In the client-server paradigm, the server (sometimes just another PC, but frequently a larger, faster computer) stored the shared data and some shared processes, while the clients

the technology innovation curve. As clients looked for more sophisticated solutions, *D&D* provided solutions based on different technologies and architectures: two-tier client-server, three-tier, n-tier, Internet, intranet, e-commerce systems.⁵

However, the kinds of solutions *D&D* provided had more than one dimension; technology was not the only factor that determined whether or not a solution was successful. Understanding the variety of factors that contributed to a solution helps explain just what *D&D* did for its clients. I will discuss a few: strategy, process, user experience, software reuse, deployment.

One factor in any solution was the amount of strategic planning involved: at one end of the spectrum, the engagement began with a full-blown strategy session; in the middle of the spectrum, the technology solution was created as an extension of the corporate strategy; at the other end, there was no explicit connection between a particular solution and the corporate strategy. Another factor was made famous by Michael Hammer and James Champy with the phrase "re-engineering."⁶ This factor focused on how much of

were the individual PCs that could manipulate and report on that shared data, do independent calculations, and trigger the shared processes.

⁵ A full description of the distinguishing characteristics of these technologies is outside the scope of this dissertation. For an overview, see Robert Orfali, Dan Harkey, and Jeri Edwards, *The Essential Client/Server Survival Guide* (3rd Edition: New York: John Wiley & Sons, 1999). To understand why designers might choose to migrate to the more complex architectures and how to understand the choice of tiers, see Douglass Bennett, *Designing Hard Software: The Essential Tasks* (Englewood Cliffs, New Jersey: Prentice Hall, 1997).

⁶ Michael Hammer and James Champy, *Reengineering the Corporation: A Manifesto for Business Revolution* (New York: HarperCollins, 1993).

the solution would require change to existing business processes, structures and reporting relationships. A third factor was the degree of end user involvement in the process: were they present at all, were their recommendations implemented without any change, was there any amount of research and design expertise used to create the user experience? Another factor was how much existing software could be leveraged: should the software for a solution be custom-built or could some of its features come from previously existing software or could the solution be implemented completely with a package from another vendor. A fifth factor was the deployment dimension: once the solution was created, would anyone use it? What level of involvement by *D&D* would ensure wide-spread acceptance and use? There were many other factors⁷ but the point is that *D&D*'s "product" was complex in a variety of ways: there was the complexity of the software technology itself and there were the many layers of complexity along the other dimensions of the engagement.⁸

Despite this complexity, most of the *D&D* engagements were fixed price/fixed time.

This meant that once *D&D* and the client agreed upon the scope of the engagement,

D&D would commit to a completion date and set a price. This gave *D&D* a competitive

⁷ For example, sophistication of project management, amount of input on content, level of industry expertise, creation of brand.

⁸ In any one engagement the variety of dimensions in play and the amount of focus on any one vary. This variety reflects not only the constraints of a particular engagement but also the level(s) of experience and expertise found in the particular *D&D* team members assigned to the engagement.

edge in its early years. Many of its competitors would offer to provide the same services but would do it on a time and materials basis (T&M). T&M engagements had the tendency to drag on, because if the vendor pushed out the completion date they could maintain their revenue stream that much longer. *D&D* offered to "share the risk," pledging to deliver on time, on budget.⁹

A typical engagement lasted about a year; some were completed in a few months, some extended into multiple years. All engagements were subdivided into phases, with specific milestones identifying the end of each phase. For a given phase (or set of phases) *D&D* assigned a team with the best match of skills and expertise available to solve the problem. While there were people with certain skills who worked with the team for a short duration and then left after they had made their contribution, for the most part there was a core team that would stay with that engagement from beginning to end.¹⁰ For many employees, this meant that their identification was very much with their project team. These were the people with whom they would be working for the next period of time -- whether a month or a year.

During most engagements, there were periods of time where the *D&D* team worked directly with the client, others where the team worked on its own, and others where the

⁹ *D&D* prided itself on its track record. While not all projects were on time, as recently as 1999 *D&D* claimed that over 90% of projects were on time and 100% were on budget.

team worked with the client's end customer. Work with clients or end customers was done in different modes; some were interview-based, some were workshop-based, some were ethnographic observations of customer (or end user) experience. Typically many of the team members would take part in each of these work modes. Early in the project, while information was being gathered, team members would take part in workshops¹¹ and interviews and subsequently distill the findings into written documents. Later, those findings would be used to build the appropriate solution, which might include writing custom-built computer software. Interspersed with information gathering and implementation, team members might test their assumptions by observing end customers in either their current settings or in mock-ups of future settings.

Roles in the organization reflected the history of *D&D*, the factors involved in the solution and the necessary support functions of a large organization. *Matt* and *Roger* epitomized the two roles that were the primary functions in the early days of the firm. An employee was expected to have at least one of two strengths: the ability to write software and/or the ability to manage a client engagement. Early on, as other talents were put to use, other roles became at least tacitly apparent: artist, chef,¹² negotiator, workshop facilitator, industry expert, user-experience designer, financial controller.

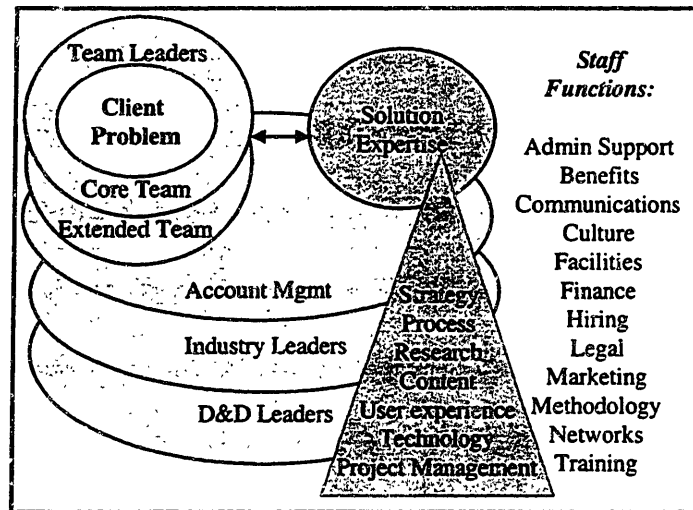
¹⁰ Large, long-term engagements had a staffing-up period and a staffing-down period, so that the core team (who started the engagement) was augmented when appropriate.

¹¹ An example of a workshop is found in Appendix A.

¹² In the early days, in order to reduce costs for the client as well as augment his own income, one of the *D&D* employees took on the role of caterer and cooked hot breakfasts for workshop participants.

Over time, roles became formalized based on specific expertise or staff function. The diagram below is one view of that *D&D* structure, emphasizing the centrality of a client problem and the support the project team received from various groups within the organization. A team would be made up of individuals with a variety of skills and expertise, depending on the problem. Account management focused on the relationship with the client that might span multiple engagements. Industry leaders were at the business unit level with responsibility for revenue targets. At the corporate level, *D&D* leadership set the strategic direction for the firm.

One View of the D&D Structure



In contrast to its small beginnings, by 1999, with over 1,800 employees, *D&D* had multiple offices in the United States and a few overseas. The number of employees in an office varied, from a handful in the new offices to hundreds in the well-established offices. Offices were designed to be full-service, with all the required expertise to support the client needs.¹³ Before *D&D* did any acquisitions, all office layouts were

¹³ In practice this ideal of "full-service capabilities housed in one location" happened only in the larger offices. Until there were about 60 people in an office, there were not enough people for a full complement of expertise to be represented by the local staff. In addition, industry expertise tended to be geographically skewed, based on proximity to client base. To mitigate this problem, it was a common practice to move people temporarily from office to office, in order to build a team with the requisite skills for a particular client engagement. Offices added during acquisitions reflected the specialties of the acquired firm and not the full range of expertise *D&D* offered.

designed with the same range of services in mind and were built out by the same contractors. Visiting any one of those offices created an eerie Doppler effect: the same tall skyscraper building, the same color scheme, the same furniture, the same pervasive whiteboards, the same layout for client meeting rooms. This sameness made visiting staff feel "at home" but could be unsettling when a glance around a room provided no clues identifying the surrounding city.¹⁴

Walking through those offices, a visitor would also have been struck by the similarities among the employees: young (for the most part under 35), male (nearly 80% of the employees), usually not black but evincing some ethnic diversity due to the prevalence of employees with Asian or Indian background. Indeed, it was no coincidence that the profile of *D&D* employees mimicked the demographics of people who graduated with computer science degrees. And, until the end of 1998, a visitor would have noticed a remarkable similarity of dress, as almost every male employee was wearing a white shirt, tie, dark trousers and dark shoes.

There were also similarities of office layout. As you entered an office, the receptionists were sitting to one side behind a counter. The other side had a grouping of chairs and sofas, tables with magazines and *D&D* press releases, a pot of coffee and cups. Near the

¹⁴ I do not know if other companies create this blueprint for an office. There are some that go out of their way to create internal environments that are unique to the location and culture. (Communication from Heinrich Schwarz.)

entrance there was a conference room, frequently with a glass wall on the corridor side, earning it the name: "The Fishbowl." Away from the entrance, there were four basic types of areas: small rooms that were used for hiring interviews, large rooms for client meetings, combined areas of open space and small rooms that were used for project teams and staff functions, and conference rooms and lounge areas for various meetings. As you toured the office, the noise level would vary. Some project team areas were very quiet, you would see each individual facing a PC, some with headphones on, with very little conversation. Other team areas were noisier, with concurrent conversations or perhaps a group meeting taking place. Walking past a client meeting room you might have heard a burst of applause, some raucous laughter, a heated debate, or the quiet of one voice speaking. Conversations in the hall or the lounge areas were loud or quiet. On certain floors, the victory cries from the ping pong table or pool table were quite audible. Intermittently the loud speaker would page someone to call the front desk or a specific phone extension. There was no Muzak.

The D&D Context

This story of *D&D* played out in the context of knowledge workers¹⁵ in the American economy of the 1990's. During this period, organizations faced a turbulent environment marked by a new economic context and a changing relationship between the knowledge workers and the corporation.

In the mid-1980's, Michael Piore and Charles Sabel identified this new economic context. They named it the Second Industrial Divide: the resurgence of flexible specialization. They contrasted this form of industrial development to the mass production mode that had held prominence in the US for nearly a century. Unlike mass production, flexible specialization results in small production batches that are specifically targeted for certain end user needs. Importantly, the hallmark of this mode is the ability to change as circumstances warrant because plants and people can re-tool easily.

Flexible specialization is a strategy of permanent innovation: accommodation to ceaseless change, rather than an effort to control it. This strategy is based on flexible -- multi-use -- equipment; skilled workers; and the creation, through

¹⁵ Knowledge workers are those whose primary workplace skills have more to do with intellectual proficiency than physical brawn or hand-eye coordination. Robert Reich calls these workers the symbolic-analysts. "Symbolic analysts solve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, juggled, experimented with, communicated to other specialists, and then, eventually, transformed back into reality." Robert B. Reich, The Work of Nations: Preparing Ourselves for 21st Century Capitalism (New York: Alfred A. Knopf, 1991), page 178.

politics, of an industrial community that restricts the forms of competition to those favoring innovation.¹⁶

David Harvey has characterized this new economy as one of "flexible accumulation" which he contrasts with that of Ford's mass production model. For Harvey, Ford's achievement was the ability to perceive that mass production could also enable mass consumption:

The purpose of the five-dollar, eight-hour day was only in part to secure worker compliance with the discipline required to work the highly productive assembly-line system. It was coincidentally meant to provide workers with sufficient income and leisure time to consume the mass-produced products the corporations were about to turn out in ever vaster quantities.¹⁷

By the mid 1970's, the benefits of mass production systems and entrenched labor markets were being overshadowed by the realization that the rigidities of those systems and markets were hindering organizations from responding to new customer needs in a timely fashion. The large plants with large-scale capital investments were unable to re-tool rapidly enough to meet changing customer demands. Long-term labor contracts hindered companies from experimenting with different work-force arrangements. Faced with these problems, firms operating in the Fordist model were no longer able to compete successfully.

¹⁶ Michael Piore and Charles Sabel, The Second Industrial Divide: Possibilities for Prosperity (New York: Basic Books, 1984), page 17. Piore and Sabel go on to describe flexible specialization as "a revival of craft forms of production that were emarginated at the first industrial divide."

¹⁷ David Harvey, The Condition of Post Modernity (Malden, Massachusetts: Blackwell Publishers, 1990), page 125.

In a few firms, Harvey sees the harbingers of a different economic system. One where production and consumption still have a symbiotic relationship but where that relationship is based on flexibility, not stability. Flexible accumulation:

... rests on flexibility with respect to labour processes, labour markets, products and patterns of consumption. It is characterized by the emergence of entirely new sectors of production, new ways of providing financial services, new markets, and, above all, greatly intensified rates of commercial, technological, and organizational innovation...

Flexible accumulation has been accompanied on the consumption side, therefore, by a much greater attention to quick-changing fashions and the mobilization of all the artifices of need inducement and cultural transformation that this implies. The relatively stable aesthetic of Fordist modernism has given way to all the ferment, instability, and fleeting qualities of a postmodernist aesthetic that celebrates difference, ephemerality, spectacle, fashion, and the commodification of cultural forms.¹⁸

While Piore, Sabel and Harvey were focused on manufacturing productivity and the need to move away from standardized production modes in order to achieve better economic performance, their arguments resonate with the challenges facing organizations outside of the manufacturing industries. There is the same need for flexibility and accommodation to ceaseless change. There is the same need for small units of "production capability" that are agile enough to re-tool smartly and quickly.

¹⁸ David Harvey, The Condition of Post Modernity (Malden, Massachusetts: Blackwell Publishers, 1990), pages 147, 156.

One of the factors in the relationship between production and consumption is the increased use of information technology. During the past twenty years, there has been a public debate around whether or not information technologies have increased the productivity in the workplace. Harley Shaiken, looking at manufacturing work in the late 1970's, found that increased technology was minimizing human input and creativity. He speculated that information technologies did not have any net effect on productivity as the loss of human potential and increased maintenance needs offset any productivity gains seen through automation.¹⁹ In the late 1980's, Paul Strassman pointed out that the much vaunted claims for increased productivity of the information age were false. He believed that the introduction of information technologies and computers merely re-distributed the workload but did not enhance productivity.²⁰ Similarly, Stephen Barley, looking at what technologies imply for the workplace, found no consensus among economists about the movement towards a service economy or the potential ramifications for productivity.²¹ Bennett Harrison has argued that when the costs of technology are factored in, productivity has actually decreased.²²

¹⁹ Harley Shaiken, Work Transformed: Automation and Labor in the Computer Age (New York: Holt, Rinehart and Winston, 1984).

²⁰ Gene I. Rochlin, Trapped in the Net: The Unanticipated Consequences of Computerization (Princeton: Princeton University Press, 1997), page xii.

²¹ Stephen Barley, "The Professional, the Semi-professional, and the Machines: The Social Ramifications of Computer Based Imaging in Radiology," (unpublished Ph.D. dissertation, Massachusetts Institute of Technology, 1984), page 11.

²² Bennett Harrison, Lean and Mean (New York: Basic Books, 1994), pages 72-73. Cited in Richard Sennett, The Corrosion of Character: The Personal Consequences of Work in the New Capitalism (New York: W.W. Norton & Company, 1998), page 50.

However, further analysis has led others, including the U.S. Federal Reserve Board, to state that information technologies *have* had a positive impact on the economic landscape. For them, the dilemma now is how to model the impact; the old models no longer work. The May 3, 1999 issue of Business Week described how the U.S. Federal Reserve Board had come to the conclusion that the widespread use of information technology *had* enabled increased productivity with high employment, strong economic growth and low inflation.

For two years, the Federal Reserve has been struggling mightily to fit what has been happening in the U.S. into traditional economic models. Growth was robust, stocks were soaring, job markets were tightening--yet inflation was nowhere to be found. Quarter after quarter, the pattern held. And try as they might, Chairman Alan Greenspan and the Fed's governors couldn't explain it using the old rules. Now, they have simply stopped trying. Just within the past few weeks, a majority of Fed officials have rallied around a new consensus view: The nation is in the throes of a technology-driven productivity boom that is letting the economy grow faster than once thought possible without setting off growth-strangling price and wage hikes. Sure, unemployment stands at a 29-year low, the U.S. expansion seems inexhaustible, and money supply is growing rapidly. But with inflation well in retreat, these indicators can no longer be read in the same way... The key to the Fed's new thinking is a new consensus around the belief that productivity growth --which languished at 1% during the 1970s and '80s--has taken a long-term leap to 2% or more as companies use information technology to become more efficient. Greenspan first spotted a rising productivity trend line in 1997, but most of his colleagues argued that it was an anomaly resulting from the strong economy and lucky circumstances, such as falling oil prices. No more. This spring, one top Fed official after another has embraced the argument that the adoption of productivity-enhancing technology has changed the way the economy operates.²³

²³ Owen Ullmann, Laura Cohn and Michael J. Mandel, "The Fed's New Rule Book," BusinessWeek Online (May 3, 1999).

The common theme in this new economic model is that productivity is not constrained by the limited supply of natural resources. Instead, productivity can continue to expand because of the increasing use of information technologies. This is easiest to see with a comparison of traditional tangible products to intangible products. With traditional products, such as cars, refrigerators, houses, each additional product requires its allotment of raw materials (so much metal, so much wood, so much energy, so much plastic). With many of the products derived from information technologies, such as computer software and data base searches, each additional item requires very little (if any) raw materials in the traditional sense. The next copy of computer software or the next search of a data base has value for its end user but (especially if down-loaded from the Internet) does not add any incremental cost to the supplier.²⁴ There has always been a mix of tangible and intangible products in the economy. However, in recent years there has been a rise in the demand for intangible products,²⁵ many of them derived or made possible through information technologies. Traditional economic models – when faced with a dramatic rise of intangibles and other products shaped by information technologies – no longer hold.²⁶

²⁴ There is clearly a cost for infrastructure (which is analogous to the capital cost of putting a manufacturing plant in place), but no additional raw materials for the item.

²⁵ For a thoughtful discussion on intangibles, see Stan Davis and Christopher Meyer, Blur: The Speed of Change in the Connected Economy (New York: Warner Books, 1998).

²⁶ Over and above the impact of information technologies on the economy, economists are now looking at the ways the Internet is shaping economic models. Traditionally, as companies grew, the economic models pointed to improved efficiencies in terms of economies of scale. However, at some point these improvements are overtaken by diminishing returns. The larger firm has increasing costs to support such pieces of its infrastructure as communication, transportation and coordination – and at some point no longer can afford to grow. A handful of economists and business leaders are now talking about the law of "increasing returns" as the new internet driven wrinkle in the economic model.

This transformation of the economic model is one of the aspects that differentiates the context of the American knowledge worker in the 1990's from what had existed earlier. The second aspect of differentiation centers on the workers themselves and their relationship with their employers.

As mentioned at the beginning of this chapter, one way to understand the control exerted by the company over its workers is captured in the phrase: "a day's work for a day's pay." That phrase, which summarizes the core of utilitarian control, ignores some of the other aspects that can bind a worker to the company. For the employee, the company can provide a sense of belonging and community. The worker identifies with a group of co-workers and with their goals. While this can be seen as merely the human

Internet based businesses can avoid many of the factors that cause diminishing returns because communication and coordination are easier and less expensive if you leverage the connectivity of the Internet; and transportation of intangible products over the Internet is inexpensive and is very quick. (Stan Davis and Christopher Meyer, Blur: The Speed of Change in the Connected Economy (New York: Warner Books, 1998), page 92.)

In addition, the connectivity and standards of the Internet changes the economic model. As each additional node joins, the value of the entire system increases -- for example, each additional connected fax machine only enhances the network of the existing fax machines; or each additional PC with a Microsoft Windows operating system only increases the market for compatible software and add-ons. With reference to megasites such as Amazon.com or Yahoo!, this is what John Levinson calls a "virtuous circle."

At a web portal like Yahoo!, for example, having many transaction offerings or items for purchase attracts a lot of members to the site. The more members go to the site, the more companies that offer transaction-based commerce are attracted to it. Simply put, the buyers want to be where the sellers are and vice versa. It becomes what we call a virtuous circle. (John Levinson, "The Emergence of the Internet 'Megasite'," June 1999 transcript of several earlier presentations, page 3.)

Levinson then suggests that the economic model for such a megasite is different from a traditional model because where traditional companies have variable costs that rise as they provide more goods and services (including the costs to run the infrastructure and acquire additional customers), the analogous costs are fixed costs for the Internet firm.

response to working with a group, this sense of community can also be enhanced by actions of the firm. As articulated in some organizational studies, firms can actively manipulate their cultural symbols to increase the sense of community and security for the employees.²⁷ As a result, many workers can experience a sort of psychological job security, even if there is no explicit company policy about lifelong employment.

Employees themselves help create this sense of commitment by their public support for the firm. Whether describing the company to a prospective employee during a hiring interview or to peers at a convention or to friends outside of the workplace, these public articulations reinforce the employee's link to the firm. Indeed, at times, the act of speaking positively about the firm can increase the level of commitment from the employee.²⁸ Therefore, while companies provide a sense of community in addition to a "day's wage," employees contribute more to the firm than their "day's labor." They provide

...not only their cognitive capacities and technical expertise but, more crucially, a willingness to put forth a form of what Hochschild²⁹ calls "emotional labor" -- a publicly displayed investment and passion for the work they do, the work relations they forge, and the company that employs them.³⁰

²⁷ See for example, Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992); Tracy Kidder, The Soul of a New Machine (New York: Avon Books, 1981); Douglas Coupland, microserfs (New York: HarperCollins, Publishers, Inc, 1995); Rosabeth Moss Kanter, When Giants Learn to Dance: Mastering the Challenge of Strategy, Management, and Careers in the 1990s (New York: Simon and Schuster, 1989).

²⁸ Erving Goffman, Presentation of Self in Everyday Life. (New York: Doubleday, 1959).

²⁹ referring to Arlie Russell Hochschild, The Managed Heart: Commercialization of Human Feeling (Berkeley: University of California Press, 1983).

³⁰ Gideon Kunda and John Van Maanen, "Changing Scripts at Work: Managers and Professionals" The Annals of the American Academy of Political and Social Science, Volume 561:1 (January 1999), page 65.

This tacit mutual bond has been shaken in recent years. By the end of the 1980's, when employees had experienced downsizing, re-engineering, outsourcing, layoffs and other forms of staff reduction, it had become very hard to maintain any pretense about job security and commitment to the corporation.³¹ Organizations were transformed as they reduced the number of full-time permanent employees and added new types of workers: the temporary, the contractor, the part-time associate. For the firm, this type of flexible labor pool had a definite advantage: labor costs could be variable, adjusted to meet production demands. For many employees this flexibility often carried the disadvantages of loss of security and benefits.³²

Within the firms, there were other signs that jobs were expendable. Managers were told to view their jobs as selling a product or service to other internal teams. If the managers could not find sufficient "buyers," then there was a possibility that their products (or services) would be discontinued and their teams reallocated.³³

³¹ Discussions of this situation are many. One example is found in Stephen Herzenberg, John Alic and Howard Wial, New Rules for a New Economy: Employment and Opportunity in Postindustrial America (Ithaca, New York: Cornell University Press, 1998), pages 29-31.

³² Richard Sennett makes the argument that workers in this flexible economy have lost more than mere benefits and job security. In a provocative book, he questions the ultimate value of an environment that undermines the individual's sense of self and connection to others. Richard Sennett, The Corrosion of Character: The Personal Consequences of Work in the New Capitalism (New York: W.W. Norton & Company, 1998).

³³ Gideon Kunda and John Van Maanen, "Changing Scripts at Work: Managers and Professionals" The Annals of the American Academy of Political and Social Science, Volume 561:1 (January 1999), pages 73-74.

Workers found their firms touting the benefits of "employability" in lieu of employment. When given a positive spin, employability meant

... offering people the chance to grow in skills and accomplishments so that their value to any employer is enhanced -- the present one or a future one or themselves as independent entrepreneurs. In the future companies will invest in people not because they are stuck with them for life but because employability security produces better performance from more highly skilled people.³⁴

When seen in a less positive light, employability nullified any notion of job security.

This environment is perceived differently depending on the individual. For some, the blur of change leaves ambiguity and confusion: what is the role of the firm, what is its relationship with the worker, how will I support my family? For others, there is a positive zest in controlling their own careers, exercising their own resourcefulness, finding opportunity in the midst of change. And for others, there is a negative backlash, a sense of being let down by the corporation and the system that had offered secure employment before and now has taken it away.

Facing a workforce that has varying responses to the challenge to be flexible, a corporate leader might think the solution lies in hiring and retaining only those who have the entrepreneurial spirit, who are self-starters and who thrive on constant

³⁴ Rosabeth Moss Kanter, When Giants Learn to Dance: Mastering the Challenge of Strategy, Management, and Careers in the 1990s (New York: Simon and Schuster, 1989), page 358.

change. Emily Martin refutes that notion and points out that this notion of the flexible worker as the acme of employees may be short-sighted.

At the moment, many (myself included) may feel delight at some of the changes being brought about in the new flexible corporations: the elimination of some old hierarchies between management and labor, the effort to include women and minorities, the integration of mental and manual skills on the job, the wish to treat workers as whole people. Equally appealing may be the ideal person who will hold jobs in these corporations: a lean, agile, innovative, flexible soul, who will be whole in mind and body and will nimbly manage a multitude of life relationships and circumstances to maintain a vigorous state of health. The trouble is that this ideal (as would any) rests on a narrow vision of the able person, one that will discriminate against many people. Keeping this in mind might allow us to broaden our notion of who is fit to survive in this world. Even as economic processes may seem to force our corporations to become flexible, lean, and agile, perhaps when it comes to persons we could relish both the flexible, lean and agile and the stable, ample and still... In the face of the incitement to be nimble and in constant motion, we need to remember the common human need for stability, security and stasis. The challenge is to sustain our critical perceptions in a culture that prizes being flexibly adaptive without allowing our perceptions to become so flexibly adaptive that they can only compliantly perpetuate -- instead of calling attention to -- the order of things.³⁵

Another view of employability requires seeing organizational boundaries as constructed and permeable, not inviolate and impervious. Because membership in an organization is clearly visible, it is easy to categorize a worker as an employee of a certain firm. A different categorization would focus on that person's set of skills and aspirations and put him or her within a pool of similarly characterized potential workers. This would reformulate a firm as "an arbitrary boundary around a collection

³⁵ Emily Martin, Flexible Bodies: The Role of Immunity in American Culture for the Days of Polio to the Age of AIDS (Boston: Beacon Press, 1994), pages 248-249.

of occupational subcultures that cross organizational boundaries."³⁶ Turn this mindset, where organizational boundaries are inconsequential, towards Silicon Valley. In that geographic locale, there is a large pool of knowledge workers whose set of skills and aspirations make that area especially fecund for certain types of corporations.³⁷ The workers find their satisfaction from particular projects, particular challenges, not from an association with a particular firm. Affiliation with a particular firm is transitory; affiliation with the Valley and the information technologies explored there is paramount.³⁸ For both the employee and the firm with this mindset, the topics of commitment and security have been transmuted.³⁹

In Silicon Valley, as well as in other environments where the percentage of knowledge workers is high, firms are looking for ways to attract and retain people. For these firms, the limits to growth are often based on the availability of the right people.⁴⁰ However, when workers feel allegiance to their project, not the firm, the firm is more likely to lose

³⁶ Joanne Martin, Cultures in Organizations: Three Perspectives (New York: Oxford University Press, 1992), pages 109ff. She also references K. Gregory's work on Silicon Valley programmers.

³⁷ Stan Davis and Christopher Meyer, Blur: The Speed of Change in the Connected Economy (New York: Warner Books, 1998), page 140.

³⁸ Robert Riech labels this phenomenon symbolic-analytic zones that "function as a kind of large informal organization all its own." He indicates that this occurs where there are knowledge workers because of the nature of their work. "When one's job is to think about and communicate abstract ideas, "work" occurs wherever and whenever ideas are communicated." Robert B. Reich, The Work of Nations: Preparing Ourselves for 21st Century Capitalism (New York: Alfred P. Knopf, 1991), pages 237, 236.

³⁹ Stephen Herzenberg and his colleagues envision a future where the firm-based system of employment is by-passed for a system that emphasized the networks of occupations, industries or geographical areas. Stephen Herzenberg, John Alic and Howard Wial, New Rules for a New Economy: Employment and Opportunity in Postindustrial America (Ithaca, New York: Cornell University Press, 1998).

⁴⁰ Peter Drucker looks at the demographic horizon and points to the collapsing birthrate in developed countries as the most significant factor in the future economy. This dwindling pool of workers will exacerbate the situation between workers and companies. Peter F. Drucker, Management Challenges for the 21st Century (New York: HarperCollins, 1999), pages 46ff.

the people it would like to retain. Thus, the context for the knowledge worker is a curious paradox where the corporation bemoans the turnover among qualified professionals while it tries to stay lean by minimizing the number of professionals to whom it will extend the traditional contract of job security in return for personal commitment to the firm.⁴¹

In the following pages, my saga of *D&D* is not the story of an isolated organism. The controls exercised by the leadership team were internal controls. However, the catalyst for those controls was the turbulence of the external environment, where age-old anchors of economic models and presumed relationships between worker and company had changed. Having assessed the external environment, the leaders of *D&D* sought to create a flexible, adaptable company that could thrive. They attempted to set the controls that would create a flexible firm.

Identification of the Author

The specific content of this ethnography is based on my seven-year tenure at *D&D*.

When I had completed my doctoral coursework and qualifying exams, I looked for paid

⁴¹ Van Maanen and Kunda speculate that this mini market organization works only as long as there is boundless economic expansion. Only during a period of seemingly unlimited opportunity will the talented workforce agree to the notion that "employability justifies the physical, cognitive, and emotional rigor of the trades." But when growth slows, this contract will no longer be attractive to the workforce. Gideon Kunda and John Van Maanen, "Changing Scripts at Work: Managers and Professionals" The Annals of the American Academy of Political and Social Science, Volume 561:1 (January 1999), page 76.

work to help support my family. I was the ninth person hired by *Matt* and *Roger*; at that time I expected to stay there only long enough to address my cash flow needs.

However, once I was working for *D&D*, I found that I truly enjoyed the challenge of my job and the creativity of my colleagues. My advisor pointed out that this could be a great opportunity for thesis research. When I brought the idea to *Matt* and *Roger*, I found they were willing to have *D&D* be the subject of my dissertation.

I joined *D&D* in June of 1992; I write this in the fall of 1999. In the seven years I have been with the company, it has grown at an astounding rate: from nine people to over 1,700 people; from four clients to over 750 clients, from less than \$200,000 in annual sales to over \$160 million in sales in 1998; from a fledgling firm to a well-established public company with a market capitalization of over \$2.6 billion; from a cohesive group to a diverse population.

This thesis is the story of *D&D* but I cannot be considered an unbiased observer. I have done more than observe. I have run workshops that have cemented relationships with new customers; I have managed projects that designed and developed custom software for clients; I have changed the way the company communicates internally; I have coached and mentored new hires; and I have been a member of the senior leadership team.

However, when the *D&D* workday ends, I put pen to paper – or fingers to keyboard – and piece together the story of this company. Part history, part ethnography, part autobiography, I want to tell a story of the rise of a new company, teasing out the issues of control and flexibility. At the same time, as I write about these issues, I am in a position to put into practice those ideas that come to me, and to note the results.

This dissertation is quite clearly recursive. I am describing the organization but my description is also creating the organization on two levels. First, by the stories that I tell and the choices I make on where to focus, this dissertation creates one particular view of *D&D*. As I create a text to display the organization, I am creating a story, a particular mode of representation. As Clifford Geertz points out:

In short, anthropological writings are themselves interpretations, and second and third order ones to boot... They are, thus, fictions; fictions, in the sense that they are "something made," "something fashioned" -- the original meaning of *fictiō* -- not that they are false, unfactual, or merely "as if" thought experiments.⁴²

Secondly, because I take my thoughts back to the organization and use those theories to construct different practices, I am tangibly changing the object of my observations.

These are parallel points of creativity, where the ethnographer and the ethnography are not reflecting some external "true reality" but messily intertwined with the molding of the artifact and its mirror. Donna Haraway sees this as both the challenge and the asset

of the writer. The writer is at risk "morally, politically, technically and epistemologically" because he or she is able to "turn the volume up or down on some actors more than others..." Or with even greater consequence, leave some aspects invisible and unsung.⁴³

Some social scientists and anthropologists have become quite self-conscious about their own voice and how it shapes and intrudes upon (whether explicitly or implicitly) the narrative. In many ways, the bar has been raised concerning the importance of inserting yourself in the text and making sure that whoever reads the text knows enough about you to come to their own conclusions about the material you present.

Dorinne Kondo, in her book Crafting Selves: Power, Gender, and Discourses on Identity in a Japanese Workplace, examines the ways in which people construct themselves and their lives. At the same time, she displays her specific experience in Japan as an embodiment of the theory she discusses. She acknowledges the complexities of bringing her personal voice (I and eye) into the ethnographic text: her identity being crafted by the Japanese, her crafting their identities in practice and then flash frozen

⁴² Clifford Geertz, The Interpretations of Cultures: Selected Essays (New York: Basic Books, inc, 1973), page 14.

⁴³ Donna Haraway, Modest Witness@Second Millennium.FemaleMan[®] Meets OncoMouse[™]: Feminism and Technoscience (New York: Routledge, 1997), pages 188, 202.

into text. Kondo also recognizes that being explicit about the layers of theory and practice is yet another layer that should be laid bare.⁴⁴

This is the point in my current efforts where it has been hardest to separate the ethnographer from the employee. My intellectual curiosity around "what," "how," and "what if" and my enthusiasm for and engagement with the company blur. For me, the act of writing has often been the time and place to retrospectively dissect my roles, to "show the connection, intellectual and emotional, between the observer and the observed."⁴⁵ At *D&D*, I was one person with multiple stances, sometimes simultaneous, sometimes asynchronous, and only intermittently cognizant of which one of me was making conscious choices.

Pierre Bourdieu has recommended that the ethnographer not be too distant from what is observed, that she find a place to stand that is within what is observed. He then delves into that point by chastising those anthropologists who reduce what is observed to a set of rules. Bourdieu explains that rules are what novices know and do not reflect what experts know.⁴⁶ This argument resonates with that put forth by Hubert and Stuart

⁴⁴ Dorinne K. Kondo, *Crafting Selves: Power, Gender and Discourses on Identity in a Japanese Workplace* (Chicago: University of Chicago Press, 1990).

⁴⁵ Ruth Behar, *Vulnerable Observer: Anthropology that Breaks your Heart* (Boston: Beacon Press, 1996), pages 13-14.

⁴⁶ Pierre Bourdieu, *Outline of a Theory of Practice*, translated by Richard Nice (Cambridge: Cambridge University Press, 1977).

Dreyfus (when positing why computers cannot think) who explain that, while novices deal with rules, experts deal with patterns covering thousands of specific situations.⁴⁷

I find a nice reflexive situation here. I am an ethnographer studying people who build computer systems --which by the Dreyfus definition cannot truly embrace the human processes they mimic. I am similarly challenged in my attempt to communicate the human processes observed without resorting to rules. Bourdieu touches on this obliquely by explaining that rules and models always seem non-problematic when applied to "alien" practices but are never convincing when applied to one's native practice.

Nevertheless, as I try to write a story that clarifies and makes coherent a set of experiences and themes, I face another irony. In my act of writing, like others before me, I am taking what is inherently messy and making it neat.⁴⁸ That style of writing can carry a great deal of credibility. But that act of making neat falls afoul of the critique of ignoring whatever does not fit in the framework: the confusions, the ambiguities, the conflicts. Therefore, in this dissertation I have tried to find a balance between a framework for coherence and the voices outside that framework that demonstrate that the framework is a mere construct.

⁴⁷ Hubert and Stuart Dreyfus, Mind Over Machine: The Power of Human Intuition and Expertise in the Era of the Computer (New York: MacMillan, 1986).

⁴⁸ Bruno Latour and Steve Woolgar, Laboratory Life: The Construction of Scientific Facts (Princeton: Princeton University Press, 1979), pages 257-258.

The Structure of this Dissertation

This chapter has introduced the company that I studied, its economic and employment context, and my dual role of observer and participant. Chapter Two looks in detail at the issues of control and flexibility that form the theoretical basis for this thesis. I focus on three opportunities for control: culture, physical environment and technology. I then explain how certain aspects of those can embed habits of adaptability and flexibility. Chapter Two closes with a description of the biological metaphor of opportunistic evolution used by many authors to portray features of successful companies. This is contrasted with a biological metaphor of genetic manipulation, which I find is a better portrait of the kinds the control exercised by the *D&D* leadership team.

Chapters Three through Six present the bulk of the ethnographic content. Chapters Three and Four explore how the culture of *D&D* was manipulated to reinforce certain behaviors among the employees. Chapter Three looks at formal socialization processes; Chapter Four looks at informal socialization processes. The focus of Chapter Five is the physical environment. That chapter demonstrates which physical features of the *D&D* offices embedded concepts of flexibility and open communication. Chapter Six presents a description of the final aspect of control at *D&D*, control through technology.

In the concluding chapter I revisit the three types of control exercised by the *D&D* leadership team: culture, physical environment and technology. I summarize the dilemma faced by the corporation as a paradox:

The leadership team manipulated aspects of the firm to create a successful company. However, they discovered that those controls did not necessarily create the flexible corporation they had envisioned. They found that they lived in a paradox: the self-contradictory notion of trying to control a organization to increase its ability to be flexible.

Finally, this dissertation reaffirms the appropriateness of the biological metaphor of genetic manipulation to capture the type of control exercised by the leaders of *D&D*.

Chapter Two Theory: The Form of Manipulation

Chapter Two:

The Form of Manipulation

Control and flexibility. These are the key themes of this dissertation. On the one hand is the concept of control: how an organization molds its people to achieve certain productive ends. On the other hand is the concept of flexibility: what aspects of a corporation help or hinder the organization's ability to change. When juxtaposed, this pair creates a paradox: the notion that attempts to control the behavior of a firm can result in a corporation that is not controlled and bounded but, instead, is flexible.

The quotes that follow illustrate these two themes. The first quote is from a staff meeting where *Matt Barr* explained how he perceived the company. He was trying to describe the lag time between someone's arrival at the firm and the moment when he or she became a fully contributing member. However, when read as a prescriptive statement, this model is a cautionary tale that explains what kinds of contributions were valued.

Imagine that being part of *D&D* is like being in a boat that is heading somewhere. Some people, the "old timers," synchronize their movements and actively steer the boat on an agreed upon course. There are others, who are in the boat but they do not yet know what their role should be nor do they know where the boat is headed. There is a third group: new hires and people who are still deciding if they like working at *D&D*. They are not even sure if there is any water, let alone if they are in the boat.¹

¹ Staff meeting presentation by *Matt Barr*, February 1995.

The second quote is from an interview with *H. Craig Adams*, one of the first twenty employees. Nearly seven years into his tenure at *D&D*, *Craig* felt that *D&D* was just not agile enough. Given the turbulent economic environment, he saw the need for the company to change readily. However, he did not see the appropriate response from the company. Aware of the street wisdom that said that a big company, by definition, cannot be agile, *Craig* was looking for analogies that would enable *D&D* to conceptualize how to be flexible even as it grew.

We need to think about making more change, more frequently – not bigger change – more smaller changes more frequently. We need to think like lots of little companies...

Here's an example: my uncle is fisherman in South Africa. There are lots of small boats – agile boats – working the waters off the coast. But they are competing with the Russian fleet. Which is also made up of many small agile boats. But they brought a canning boat with them. The South African fleet has to go back to land every time they have a boatfull. The Russians are leveraging the economies of the larger organization – but not by using big fishing boats. They've got the canning boat. The question for us [at *D&D*] is: How can we figure out what is our canning boat?²

More than any other time in a corporation's life, the first few years of existence have the clear mark of the founders' hands on the essence of the firm. Both *Matt* and *Roger* had a passion to see *D&D* become something great. They felt, if they could hire great people who would focus on meeting the clients' needs, they could create a company which would exceed even their own expectations. However, early on, they realized

² Interview with *H. Craig Adams*, October 1998.

that in order to achieve the company they envisioned, they would need to control those "great people" in ways they had not yet begun to imagine.

From an organizational standpoint, company leaders have certain levers available to them to control their employees and construct their company to achieve specific results. For example, leaders can shape the culture explicitly; they can design features into the work environment and they can make choices on technologies. However, that simplistic model does not work in reality. Individual employees do not accept mandates passively. They can refuse, they can negotiate an alternate path, they can agree but in the process of following the mandate create unforeseen results. Thus, the attempt to control the organization is not an easy one.

This chapter sets forth the theoretical concepts underlying this dissertation. It reviews the three specific areas of control used at *D&D*: culture, physical environment, and technology, including some of the specific aspects of these levers that could contribute to corporate flexibility. The discussion about each of those also points out where some of the opportunities lie for conflict and ambiguity. I will then compare two versions of the biological metaphor of a successful corporation: one from evolution theory and the other from genetics. The purpose of this chapter is to provide a theoretical context for the ethnographic material that follows in subsequent chapters.

Culture

Chapters Three and Four of this dissertation examine how the *D&D* leaders used culture³ as a tool to intentionally shape an organization. Based on his work with organizations, Edgar Schein has explicitly linked culture with leadership, defining the role of the leader as the creator and manager of culture. Schein sees that after the leader creates the culture, there are additional influences by others in the organization:

Cultures basically spring from three sources:

1. the beliefs, values, and assumptions of founders of organizations;
2. the learning experiences of group members as their organization evolves; and
3. the new beliefs, values and assumptions brought in by new members and leaders.

Though each of these mechanisms plays a crucial role, by far the most important for cultural beginnings is the impact of founders. Founders not only choose the basic mission and the environmental context in which the new group will operate, but they choose the group members and bias the original responses that the group makes in its efforts to succeed in its environment and to integrate itself.⁴

³ Theorists study a variety of aspects of culture. Ed Schein lists the following: Behavior, language, and rituals; group norms; espoused values; formal philosophy; rules of the game; climate; embedded skills; mental models; shared meanings; and root metaphors. Edgar H. Schein, Organizational Culture and Leadership (San Francisco: Jossey-Bass Publishers, 1992), pages 8-10.

Joanne Martin defines three kinds of cultural manifestations:

1. forms – rituals, stories, jargon, humor, physical arrangements (architecture, interior design, dress codes)
2. practices – (formal) org structure, task and job descriptions, technology, rules and procedures, financial controls; (informal) unwritten norms, communication patterns, standard operating procedures
3. content themes – common threads of concerns – external and internal – objectives, values, and assumptions.

Joanne Martin, Cultures in Organizations: Three Perspectives (New York: Oxford University Press, 1992), page 37.

At D&D, *Matt* and *Roger* latched onto culture as a way to explicitly keep the organization aligned with their vision for success. This was neither a random activity nor a device that they stumbled upon by trial and error. They had been reading about corporate culture and its role in successful corporations. Informed by various readings, especially Corporate Culture and Performance by John Kotter and James Heskett,⁵ *Matt* and *Roger*, with the help of the other members of the leadership team, enacted the "best practices" they could find, including the specific use of culture as a tool for control. They expected that this focus on culture by the leadership team would enhance the overall performance of the firm.

Kotter and Heskett have a particular definition of culture; this definition is also the one *Matt* and *Roger* used to guide their activities around culture. While culture can be broadly understood as qualities of human groups that are passed on to newcomers, Kotter and Heskett present a more formal definition that has two elements, values and behaviors, which influence each other:

We have found it helpful to think of *organizational* culture as having two levels, which differ in terms of their visibility and their resistance to change. At the deeper and less visible level, culture refers to values that are shared by the people in a group and that tend to persist over time even when group membership changes...

At the more visible level, culture represents the behavior patterns or style of an organization that new employees are automatically encouraged to follow by

⁴ Edgar H. Schein, Organizational Culture and Leadership (San Francisco: Jossey-Bass Publishers, 1992), pages 211-212. See Part Four, "The Role of Leadership in Building Culture."

⁵ John Kotter and James Heskett, Corporate Culture and Performance (New York: The Free Press, 1992).

their fellow employees. We say, for example, that people in one group have for years been "hard workers," those in another are "very friendly" to strangers, and those in a third always wear very conservative clothes. Culture, in this sense, is still tough to change, but not nearly as difficult as at the level of basic values.

Each level of culture has a natural tendency to influence the other.⁶

This model provided a framework that enabled *Matt* and *Roger* to talk with others at *D&D* concerning issues of behavior and underlying values. They interpreted the model as a recommendation to create a list of the values of the firm and then map sets of behaviors to align with those values. Armed with a list of values and corresponding behaviors, they would be able to enjoin the employees to change behaviors that did not fit with the espoused values. Ironically, the model they chose has been discredited within certain scholarly circles.

The model that *Matt* and *Roger* borrowed from Kotter and Heskett is akin to that promoted by the structural-functionalists.⁷ However, by the end of the 1950's, the strong critique of this model had led to its abandonment by many social scientists. They looked for more robust models because this model failed to acknowledge that:

⁶ John Kotter and James Heskett, Corporate Culture and Performance (New York: The Free Press, 1992), page 4.

⁷ Functionalism, which looks at social practices as having a purpose, starts with Emile Durkheim (Emile Durkheim, The Division of Labor in Society, translated by George Simpson (Glencoe, Illinois: The Free Press, 1933), originally published in 1893.) Talcott Parsons built on Durkheim's theories and emphasized the internalization of values as a structure within which to understand group behavior. (Talcott Parsons, The Structure of Social Action (New York: Free Press, 1937)).

1. Human agency is more than just the internalization of values, psychological motivations often drive behaviors.
2. Behaviors are not just automaton responses to stimuli. Individuals can choose to take conscious social action.
3. Power needs to be included as a significant aspect of any social theory.
4. Values (or norms) are not inviolable facts, they are negotiated and constructed, reflecting conflicting interests and presented through conflicting interpretations.
5. Knowledge of a list of values cannot predict a set of actions. There is often a gap between theory and practice.
6. The enactment of a value-based behavior does NOT imply that that value is a personally held belief. That behavior may be done to avoid sanctions that would result from alternate behavior.
7. In any setting there is conflict and social change. Often actions and behaviors suggest contradictory norms-in-practice.
8. Subjectivity is inherent in sociological interpretation.⁸

In addition to listing some of the short-comings of the older model, the above critique provides a discriminating lens with which to examine the *D&D* culture as it was

⁸ Anthony Giddens, *New Rules of Sociological Method: A Positive Critique of Interpretative Sociologies* (London: Hutchinson, 1976); Bruce Mazlish, *A New Science: The Breakdown of Connections and the Birth of Sociology* (New York: Oxford University Press, 1989); Pierre Bourdieu, *Outline of a Theory of Practice*, translated by Richard Nice (Cambridge: Cambridge University Press, 1977).

enacted. There are discussions in this dissertation about the values espoused by *D&D* and the behaviors the leaders thereby expected. My commentary will often showcase the gaps between theory and practice and the broken linkages between values and behaviors.

Gideon Kunda has aptly demonstrated the gap between company leaders' views and the rest of the company's experience. In his book, Engineering Culture: Control and Commitment in a High-Tech Corporation, Gideon Kunda looks at the entrenched culture of a high-tech firm in order to illustrate how culture can be used as an explicit tool to control employees. This use of culture as a tool requires that at least the management team, if not the whole company, has ideas about culture that are explicitly discussed:

...it soon becomes apparent that "the culture" is a popular explanatory concept, frequently used as a description of the company, a rationale for people's behavior, a guideline for action, a cause for praise and condemnation, pride and despair, a quality that is said to distinguish [the company] from other industries and even from other [similar] companies.⁹

Kunda points out that this type of control, normative control, where the organization shapes the employees' cognitive and emotive understanding of their work and its meaning, is different from a more utilitarian exchange where the corporation pays the

⁹ Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), page 3.

employee in exchange for time, labor and skill.¹⁰ He places his text within the debate over whether such normative control actually creates a more productive workplace with more satisfied workers.

Kunda concludes that while it is possible for a corporation to articulate its culture and embed it in the daily activities of the firm, the results do not mirror the expectations of the corporate leaders. In his research, he did not find a community of people who resonated with the common values of the firm and therefore committed themselves to the overall success of the firm. Instead, he found a variety of stances toward the firm, ranging from commitment to ambiguity to antagonism. These perspectives divided the community and resulted in a much less homogeneous stance than the corporate rhetoric had suggested. He finds a certain irony in the gap between expectations and results in this context where culture was seen as the ideal tool for control.

The culture I have attempted to describe is founded on self-awareness, reflection, and articulation in the service of a struggle for control. Consequently, it is a culture riddled with contradictions between ideological depictions and alternative realities: where democratization is claimed, there are also subtle forms of domination; where clarity of meaning and purpose is attempted, there is intentional and deeply ingrained ambiguity; where an overarching morality is preached, there is also opportunistic cynicism; and where fervent commitment is demanded, there is pervasive irony. These contradictions are perhaps inevitable in any authoritarian system, but they become all the more acute when the culture becomes its own object, when the seemingly objective, scientific concept of

¹⁰ Kunda refers to Amitai Etzioni, *A Comparative Analysis of Complex Organizations* (New York: Free Press, 1961), who labeled these contrasts normative control and utilitarian control.

culture is expropriated and drawn into the political fray by culture engineers and their various helpers in the service of corporate goals.¹¹

Kunda demonstrates that culture can be an explicit management tool but that the anticipated consequences may not be realized.

Kunda observed a conflict.¹² At its simplest level, the conflict was between management's espoused version of culture and its negation by the day-to-day experience of the individual worker. At its most complex, the layers of conflict result in ambiguity and paradox:

If the attempt to engineer culture and accomplish normative control is aimed at defining the members' selves for them, this very attempt undermines its own assumptions. The engineers of culture see the ideal member as driven by strong beliefs and intense emotions, authentic experiences of loyalty, commitment, and the pleasure of work. Yet they seem to produce members who have internalized ambiguity, who have made the metaphor of drama a centerpiece of their sense of self, who question the authenticity of all beliefs and emotions, and who find irony in its various forms the dominant mode of everyday existence.¹³

In looking at culture as one mechanism for control (at least attempted control) within *D&D*, the impetus for a particular mechanism was often driven by *Matt* and/or *Roger*.

¹¹ Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), page 222.

¹² Joanne Martin has categorized the ethnographic literature within organizational studies. She notes that some emphasize a consensual view of the firm, others highlight the conflicts, and others underscore the ambiguities and paradoxes. She finds the studies that paint a consensual view are too misleading to be useful. The organizations she knows do not have a clear and simple culture. There is ambiguity, discord, confusion and paradox. For her, it is the writer's challenge to present his or her research in such a way as to be "complex enough, and simple enough, to be both comprehensible and useful." Joanne Martin, Cultures in Organizations: Three Perspectives (New York: Oxford University Press, 1992), pages 145-153.

¹³ Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), page 216.

They anticipated certain results, which may or may not have been achieved. The measurement of such results was complicated by the concomitant voices of dissent and disorder. It was not unusual to find first order "success," followed in time by unintended consequences that were perceived as having a negative impact on the business.

While Schein gives the founders the starring role in shaping corporate culture, he also outlines the dynamic by which others absorb and re-create that culture, keeping those aspects that have been successful and discarding the others. After the founding group has created the fledgling organization, others are brought in.

If the group remains fairly stable and has significant shared learning experiences, it will gradually develop assumptions about itself, its environment, and how to do things to survive and grow.

As those assumptions come to be taken for granted and drop out of awareness we have the makings of an organizational culture. The stability of those assumptions derives from the fact that together they provide group members with a way of giving meaning to their daily lives, setting guidelines and rules for how to behave, and, most important, reducing and containing the anxiety of dealing with an unpredictable and uncertain environment. Culture stabilizes and normalizes events and thus makes day-to-day functioning possible. Once a group has a shared set of assumptions, it will tend to cling to those assumptions. Hence culture is very difficult to change unless one changes the people in the group.¹⁴

¹⁴ Edgar Schein, "The Role of the Founder in the Creation of Organizational Culture," in Reframing Organizational Culture, edited by Peter Frost, Larry Moore, Meryl Reis Louis, Craig Lundberg, Joanne Martin (Newbury Park, California: Sage Publications, 1991) pages 14-25.

Following Schein's notion, it is important to recognize at least three forces for creating and maintaining culture: the leaders (the top down approach), the rest of the community (the bottom up approach) and "business as usual." For most employees there is a period of socialization, during which they "learn the ropes" of a particular organization or particular role within an organization. This period is the nexus of those three forces. There is often top-down guidance concerning any formal socialization process. There is also the demonstration of business as usual by those who are chartered with those day-to-day activities.

John Van Maanen has written extensively on the issues of organizational socialization and has outlined various processes or strategies used by corporations to bring the newcomer to full productivity as soon as possible. He emphasizes that it is not only the content of socialization that is important; the choice of process is also important. For example, organizations have the choice to socialize newcomers in a group or individually. Van Maanen asserts that a group process of socialization creates relatively uniform results whereas a process that focuses on one person at a time produces more variety. In addition, by using a group process, the company can deliver the implicit message that being part of a team and working well with each other are part of the norms.

Sharing similar difficulties and working out collective solutions clearly dramatizes to a recruit the worth and usefulness of collegial relationships.

Without the assistance and support of colleagues, individuals in transition would be lost.¹⁵

Van Maanen lists a set of eight polar strategies.¹⁶ Like a series of and/or gates, each particular combination of strategies shapes the socialization experience and produces specific results. For example, he postulates that a process that is formal (segregated from the ongoing work context), collective, sequential (multiple stages, not just one event), is a tournament (up or out), and requires divestiture (stripping away the individual's incoming identity) results in a set of employees who are undifferentiated and passive.¹⁷

While this theory provides a tidy (although complex) conceptual framework, in practice it is hard to align the experience of socialization with a specific set of gates. Individuals actively participate and create their own socialization, sometimes resulting in unintended consequences. Any particular individual can experience both sides of the polarity, resulting in mixed messages and confusion. For example, an employee might ask: "Am I particularly valued and therefore worth some individual coaching? Or did I not 'get it' during the group session and is this really remedial help?"

¹⁵ John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" in Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982), page 94.

¹⁶ For further descriptions see John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" in Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982), pages 85-115.

¹⁷ John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" in Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982), page 110.

One of the aspects of *D&D* culture that I examine is the formal program that was part of the socialization process. Chapter Three looks at how that program was crafted, how it was experienced and how it set expectations about worklife at *D&D* that sometimes mapped and sometimes did not map to the lived experience at *D&D*. Chapter Three also looks at other formal aspects of culture: how the company leaders made culture explicit and what set of values and norms the leadership team wanted everyone at *D&D* to embrace.

Another aspect of socialization is learning "how we really do it around here." Joining a particular workgroup, a newcomer is socialized into the habits of dress, jargon and communication that currently exist. The period of transition from newcomer to member illustrates most vividly the sense of putting on new habits over old. Erving Goffman has articulated the notion of this external façade as a theatrical performance, a crafted role into which the individual steps when going "on-stage."¹⁸ By looking at aspects of dress and communication, I will look at how employees of *D&D* were socialized to manage perceptions about themselves and the company as a whole. Once again, the story of *D&D* involved conflicts over which facades carried which connotations, and confusion during transition periods, when new perceptions were deemed appropriate.

¹⁸ Erving Goffman, Presentation of Self in Everyday Life (New York: Doubleday, 1959).

Chapter Four of this dissertation looks at the informal aspects of the culture, many of which are implicit, less self-aware and more embedded in the daily fabric of *D&D*. The informal aspects of culture that are examined include: styles of dress, styles of communication, and gender issues. Once again, the *D&D* leaders attempted to shape the organization through certain cultural aspects. Once again, these attempts did not always succeed.

In this dissertation, the discussions of culture as a tool for the leadership team to manipulate *D&D* focus on both the formal and informal aspects of group behavior that were passed on to newcomers. The leadership team had a theoretical map about the relationships of values and behaviors that helped them choose which aspects to use as controls. In practice, the controls they instituted were not uniformly experienced. Some people experienced conflict, ambiguity and/or paradox; others were able to get in the boat and start rowing.

Physical Environment

Fixed feature space is one of the basic ways of organizing the activities of individuals and groups. It includes material manifestations as well as the hidden, internalized designs that govern behavior as man moves about...

The important point about fixed-feature space is that it is the mold into which a great deal of behavior is cast. It was this feature of space that the late Sir Winston Churchill referred to when he said: "We shape our buildings and they

shape us." During the debate on restoring the House of Commons after the war, Churchill feared that departure from the intimate spatial pattern of the House, where opponents face each other across a narrow aisle, would seriously alter the patterns of government. He may not have been the first to put his finger on the influence of fixed-feature space, but its effects have never been so succinctly stated.¹⁹

There is symmetry between the social relationships of a group (for example, a company) and the architecture and physical layouts that have evolved with that group. This symmetry suggests a mutually supportive symbiosis, where the implications of one factor resonate with other factors. Over time, the layout and physical setting reinforce certain social constructs. Simultaneously, the social habits find their articulation in the physical structures. For example, in a hierarchical organization, there are often physical divisions that mimic the social boundaries between those of higher and lower status. Bigger desks and fancier corner offices for senior staff reinforce their social standing, even to the extent of creating a level of prestige that is attached to the role, not the individual. In situ it is hard to divorce the chicken from the egg: did the setting so emphasize status distinctions as to create a divide that was not yet present in the social interaction? Or were the social distinctions so embedded in the existing relationships that the physical settings were merely mirrors? Richard Sclove paints a picture of the former, where the physical setting drives certain behaviors.

[In hierarchical settings,] ...work often involves a continuous immersion in social settings that induce unconscious accommodation to patterns of dominance and an uncritical acceptance of the apparent inevitability of technological forms that reinforce those social patterns. Authoritarian technologies [such as rows of desks

¹⁹ Edward T. Hall, The Hidden Dimension (New York: Doubleday, 1966), pages 106-107.

under a supervisor's watchful eye] establish unequal status and respect among people (contrary to the categorical imperative) and tend to block the formation of convivial relations (as authorities, wittingly or not, use organizational and technical means to help undermine intraorganizational solidarity among subordinates).²⁰

Sharon Traweek, in her work on high energy physicists, paints a picture of the latter concept, emphasizing how the existing social relationships shaped the use of space. Her high status theorists used space differently than the lower status experimentalists. By practice, not by mandate, the theorists used more of the building than the experimentalists did.

One rarely sees experimentalists in the offices of theorists. These people do occasionally discuss physics together, but their meetings typically occur on the second floor. Several theorists told me that an experimentalist would probably feel awkward among the theorists, who have more status. The third floor is very much the domain of the directors, theorists, and their staffs. People based on upper floors freely use the lower floors, but not vice versa...

In the use and access to space, there is a sharply defined, nearly military hierarchy between occupational groups...²¹

At *D&D*, the rhetoric and public stance called for an egalitarian company, a meritocracy, where teamwork and collaboration were the norm and hierarchy was to be avoided. In Chapter Five of this thesis I will explore the ways in which the office layout, office furnishings and use of space echoed and attempted to reinforce the social patterns that *Matt* and *Roger* sought for the company. Early hires, with easy access to

²⁰ Richard Sclove, *Democracy and Technology* (New York: The Guilford Press, 1995), page 64.

²¹ Sharon Traweek, *Beamtimes and Lifetimes: The World of High Energy Physicists* (Cambridge: Harvard University Press, 1988), page 33.

Matt and Roger and with egalitarian expectations, were comfortable with many of the physical arrangements. Later hires, and those who found the company not to be the "flat" organization they expected, chafed under the existing arrangements.

Architects and space designers recognize that the environment can influence social behavior in many subtle, and some not so subtle, ways. In their book, Designing Places for People: A Handbook on Human Behavior for Architects, Designers, and Facility Managers, Cornelius Deasy and Thomas Lasswell look at the relationship between environment and behavior. They start with the premise that designers should create places that help people accomplish their purposes with a maximum of satisfaction and a minimum of frustration. Deasy and Lasswell then translate certain human needs [motivations] into design recommendations:²²

Human Need	Design Recommendation
Group membership	Include places where groups can form, such as lounges, lobbies, rec rooms, meeting rooms. Where paths intersect are good focal points for such spaces.
Personal status	Distribute amenities to demonstrate parity among peers.
Territoriality	Establish clear boundaries for group territory
Communication	Provide correct ambient conditions (sufficient light to see someone's face; acoustics that allow the human voice to be heard)

²²Cornelius M. Deasy in collaboration with Thomas E. Lasswell, Designing Places for People: A Handbook on Human Behavior for Architects, Designers, and Facility Managers (New York: Whitney Library of Design, 1985). See also Robert Sommer, Personal Space: The Behavioral Basis of Design (Englewood Cliffs, NJ: Prentice-Hall, 1969).

	Create proximate, flexible seating arrangements
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In the case of *D&D*, *Matt*, *Roger* and *Earl Vickers* made the early choices about how the working environment would be laid out in order to support certain behaviors. To demonstrate the lack of hierarchy (a "flat" organization), they had one style of furniture for all employees. To physically embody the open communication that they valued, they followed an architect's recommendation that there be arches between walled spaces, not doors -- and, where there were doors, that they be made of glass. To model the flexibility they wanted, they chose chairs and file cabinets with wheels and had multi-purpose, multi-use spaces throughout the workplace. To improve communication among team members, they insisted that teams sit near each other, within a contiguous area, often without walls.

The design of space does matter. For example, increased physical proximity results in increased opportunities for communication. A study by MIT's Thomas Allen found that people at an R&D lab who worked within five meters of each other had a 25% chance of speaking with each other at least once a week. Doubling that distance to ten meters decreased the probability to 9%.²³

²³ Thomas I. Allen, "Communication in the Research and Development Laboratory," Technology Review, October - November, 1967, cited in Thomas J. Peters and Robert H. Waterman, Jr., In Search of Excellence: Lessons for America's Best-Run Companies (New York: Warner Books, 1982), page 220.

Of course, the theory that certain choices will produce certain outcomes does not play out cleanly in practice. In creating open-plan spaces, the *D&D* leadership team was emphasizing the importance of communication. While this worked for some people, others found the lack of personal space problematic because of a lack of privacy. Some researchers have found this need for a private personal space (and how "private" is defined) correlates with nationality.²⁴ Another possible correlation is with personality, whereby people who use conversation as a problem solving mechanism will prefer communal work areas, while people who solve problems through internal dialogue need a quiet space to complete their tasks.²⁵

Another issue that plays out in the physical environment is the response to demands to be flexible. In the Introduction, I have described how the context for American knowledge workers in the 1990's was turbulent. David Harvey has categorized the current environment as one of "ephemerality, fragmentation, discontinuity, and the chaotic."²⁶ Space planners need to create a physical environment suitable for the

²⁴ Edward Hall compares and contrasts views of space and time for Americans, Germans, French, British, Japanese and Arabs. Edward T. Hall, *The Hidden Dimension* (New York: Doubleday, 1966), pages 131-164.

²⁵ Sandra Krebs Hirsh, *MBTI Team Building Program* (Palo Alto: Consulting Psychologists Press, Inc, 1992). One of the Myers-Briggs types identifies individuals' preferences along certain axes. One of those axes describes those who, along a continuum, either prefer to talk things over to understand them, or those who prefer to think things through in order to understand them. Those preferences for gathering information and making decisions do correlate with certain spatial arrangements.

²⁶ David Harvey, *The Condition of Post Modernity* (Malden, Massachusetts: Blackwell Publishers, 1990), page 45.

current context. The more the environment is categorized as contingent, the more space designers must provide physical supports for flexibility. Robert Sommer calls for a spatial design that allows for change:

In a changing world it seems reasonable to establish *variety* and *flexibility* as important goals in a building program...By *variety* I mean a multiplicity of settings and spaces a person can select to suit his individual needs...*Flexibility* is expressed in such terms as multipurpose, multiuse, and convertible spaces. With rapidly changing technology and the inability to predict institutional practices even five years ahead, its importance seems obvious.²⁷

While spatial designers can create that kind of flexible space, there is not a problem-free solution. There are individuals who need a well-defined personal space to buttress their sense of self against the encroaching chaos. As the fragmentation and insecurity of the environment increases, this need to validate oneself through having a certain, non-transient space can increase. For those people, flexible space is problematic. As David Harvey says,

Place-identity, in this collage of superimposed spatial images that implode in upon us, becomes an important issue, because everyone occupies a space of individuation (a body, a room, a home, a shaping community, a notion), and how we individuate ourselves shapes identity.²⁸

At *D&D* where people were hired based on their professed ability to be flexible, the need for the security of one's own space was not a frequently articulated need.

However, that silence may reflect a person's public response to the strong cultural

²⁷ Robert Sommer, *Personal Space: The Behavioral Basis of Design* (Englewood Cliffs, NJ: Prentice-Hall, 1969), page 164, italics in original.

mandate to be flexible. That silence could well mask a private need for one's "own space" that certain individuals decided to disguise as part of their working persona.

There are layers upon layers of meaning. At *D&D* there were explicit notions of formatting the physical environment to support certain group norms and behaviors. However, there was nothing clandestine about the means or the goals. Thus, people at *D&D* were aware of how space was being constructed to support the articulated culture. Office tours for new hires and applicants pointed out the arches that supported the expected qualities of openness. There were free-flowing verbal and email discussions about the value of private space versus that of an open-plan work areas. There are two extremes on the spectrum of possible responses to the knowledge that your environment is designed to evoke certain responses. One is an acknowledgement that those designs and your personal views are aligned. The other response is one of negation and refusal, where the individual cynically underscores the irony of a failed control mechanism, or merely rebels silently.²⁹ At *D&D* people held the full variety of responses across that spectrum of possibilities.

²⁸ David Harvey, *The Condition of Post Modernity* (Malden, Massachusetts: Blackwell Publishers, 1990), page 302.

²⁹ See Robert Sommer's critique of the Hawthorne experiment, Robert Sommer, *Personal Space: The Behavioral Basis of Design* (Englewood Cliffs, NJ: Prentice-Hall, 1969), page 165.

Chapter Five examines how senior management manipulated the *D&D* architecture and physical layout to mirror the mindset they expected of their employees and demonstrates the variety of responses to that manipulation.

Technology

The things we call 'technologies' are ways of building order in our world. Many technical devices and systems important in everyday life contain possibilities for many different ways of ordering human activity... Because choices tend to become strongly fixed in material equipment, economic investment, and social habit, the original flexibility vanishes for all practical purposes once the initial commitments are made.³⁰

In his article, "Do Artifacts have Politics?," Langdon Winner works with the assumption that technical arrangements can limit choices by creating boundaries, that, once in place, are hard to change. He lays out two scenarios, one for technologies that can have different effects depending on their context and the other for technologies that are not as flexible. For technologies that are flexible, where any one can reflect a variety of social choices, he recommends that we examine the motives of those who influence the design in order to have a valid context for the consequences of those technologies. For technologies which lead inexorably to certain consequences, he calls for much more care in making the initial decision to use the technology or not.

In both cases, Winner is concerned about the significance of a decision concerning a particular technology. The weightiness of the decision is in part due to the difficulty of undoing that decision. As David Collingridge has noted, technologies provide both opportunities and limits. However, often by the time the limits or undesirable consequences are apparent, the technologies are entrenched in ways that make them hard to dislodge.

When change is easy, the need for it cannot be foreseen; when the need for change is apparent, change has become expensive, difficult and time consuming.³¹

At *D&D* there was an implicit premise that technologies were flexible, that they could be controlled to produce desired outcomes, and that, if they didn't work, they could be changed. Technologies, not merely constructed artifacts, but also processes and structures,³² have been used to provide different levels of control at *D&D*. At the basic level, employees were given common sets of computer tools. There were standards for computer brand and set-up to ensure that intracompany communications would be possible and that employees could move from machine to machine when necessary

³⁰ Langdon Winner, "Do Artifacts Have Politics?" in *The Social Shaping of Technology: How the Refrigerator Got Its Hum*, edited by Donald Mackenzie and Judy Wajcman (Philadelphia: Open University Press, 1985), page 30.

³¹ David Collingridge, *The Social Control of Technology* (New York: St. Martin's Press, 1980), page 11.

³² Gerald Weinberg broadly defines technologies to include:

- Social structures, such as formal and informal organizational relationships
- Social practices, such as technical reviews and planning approaches
- Standards, such as interface requirements, designs and paper forms
- Measurements, such as user satisfaction surveys and cost accounting
- Technical infrastructure, such as networks, hardware and software tools

Gerald M. Weinberg, *Quality Software Management*, Volume 4: *Anticipating Change* (New York: Dorset House Publishing, 1997) pages 407-408.

without having to learn a new configuration or operating system. From a training point of view, there were processes and procedures that became distilled to "best practices" which employees were expected to follow. And, from a financial control aspect, there were measurements and mechanisms to provide senior management with visibility into the day to day workings of the teams. What was observed at *D&D* was a consistent tale of unintended consequences. Those who had the power to influence design decisions were surprised either by consequences which, with hindsight, seemed predetermined or by second order effects which offset the initial anticipated consequences. In all cases, changing or removing an entrenched technology was more challenging than had been anticipated.

These "surprises" can be explained somewhat by looking at the larger context and the larger set of people involved. Thomas Hughes' emphasis on the technological *system*, is a reminder to look not only at a particular artifact but also to study the fuller context. The components of a system extend beyond the artifact itself to whatever else constrains or is constrained by that artifact, for example: other artifacts (which are coupled to the starting artifact), management structures, organizations, laws, regulations, external agencies, natural resources, and people.³³ At *D&D*, the system

³³ Thomas Hughes, "The Evolution of Large Technological Systems" in *The Social Construction of Technological Systems: new Directions in the Sociology and History of Technology*, edited by Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge: MIT Press, 1989), pages 51-82.

often extended across departmental lines as well as outside of the boundaries of the corporation, particularly as the company made the transition from private to public.

Hughes labels the ability of technology to influence a situation, "momentum." For him, technological systems with momentum exert a soft determinism on the other components in the overall system.

The durability of artifacts and of knowledge in a system suggests the notion of trajectory, a physical metaphor similar to momentum... Durable physical artifacts project into the future the socially constructed characteristics acquired in the past when they were designed.³⁴

While the systems at *D&D* were not of the scale of the electric light and power systems that Hughes examined, this notion of momentum still holds true. Over time, there is a tendency to become blind to the social characteristics that were embedded in the technology. The technology becomes perceived as "neutral," the boundaries it sets become "business as usual." The physical artifact adds its mass to the inertia of existing practices; the total momentum is hard to deflect or change.

At *D&D*, one example of momentum occurred around the issue of measurements and metrics. As technologies were created to record and analyze specific measurements,

³⁴ Thomas Hughes, "The Evolution of Large Technological Systems" in The Social Construction of Technological Systems: new Directions in the Sociology and History of Technology, edited by Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge: MIT Press, 1989), page 77.

these measures were embedded in the way certain technologies presented a summary of the company. Those measurements (and not others) become entrenched in the organizational mind. They also had priority in the minds of the leadership team. Donna Haraway has pointed out that the technologies that make certain concepts visual are, in many ways, creating those concepts and turning them into public objects.³⁵ In a similar way, the *D&D* measures that became embedded in technologies acquired more focus because the technologies showcased those measured as worthy of attention. The measures by themselves had a certain weightiness. The added mass and credibility of the embedding technology imbued those measures with more validity and importance than they would have had on their own. The technology, in many ways, took the measures and turned them into significant objects.

Measures that become embedded in technologies also illustrate the brittleness of technology. There are two critiques around the brittleness of information technologies. One critique points out that much knowledge is mediated by actual situations; over time knowledge can become stale if it is not continually refreshed.

Diana Forsythe has explained why systems, particularly expert systems, run into this problem:

First, the knowledge in such systems is static. In everyday life, the beliefs held by individuals are modified through negotiation with other individuals; as ideas and expectations are expressed in action, they are also modified in relation to

³⁵ Donna Haraway, *Modest Witness@Second Millennium.FemaleMan[®] Meets OncoMouse[™]: Feminism and Technoscience* (New York: Routledge, 1997), page 174.

contextual factors. But the information encoded in a knowledge base is not modified in this way.³⁶

The other critique concerns the boundaries of knowledge within a system. The issue here, again most visible within expert systems, is that a system is designed for some central set of purposes; it is programmed with the rules it needs to make choices within that framework. At the edges of its knowledge, the system is ill prepared to respond; it cannot make sense of the inconceivable.

Existing programs tend to focus on what is judged a priori to be "controllable," which means that information needed for improvisation, reframing, or repunctuation is not available. The observer is trapped into the conclusions coerced by the technology and has neither the time nor the data to question or override what appears to be a compelling synthesis.³⁷

Measures embedded in technologies can run afoul of both aspects of brittleness. These measures can reflect earlier assumptions and preoccupations and can become stale as experiences modify those original assumptions. Secondly, these measures are based on a set of bounded constraints that were considered valid at one point in time. The use of those measures can be extended into areas outside those original boundaries. But,

³⁶ Diana Forsythe "Engineering Knowledge: The Construction of Knowledge in Artificial Intelligence," *Social Studies of Science*, Vol. 23 (1993) page 466. Lucy Suchman also is concerned with situated knowledge, and the machine's insensitivity to the particular. Lucy Suchman, *Plans and Situated Actions: The Problem of Human-Machine Communication* (Palo Alto: Xerox Corporation, 1985).

³⁷ Karl E Weick, *Sensemaking in Organizations* (Thousand Oaks, Calif: Sage Publications, 1995), page 178. Similarly, Steve Woolgar has pointed out that the "successful" expert systems defines its own failure because "real expertise" is whatever the expert system cannot do. Steve Woolgar, "Reconstructing Man and Machine: A Note on Sociological Critiques of Cognitivism," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, edited by Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge: MIT Press, 1989), page 319.

unfortunately, often there is no signal that the measure is being used outside of its original frame of reference.

A final aspect of how technologies can be used to reinforce certain behaviors links back to the earlier discussion of informal socialization. In the process of learning "how we really do it around here," newcomers receive artifacts that contain implicit messages about what a member of the group is supposed to do. These technologies and processes are passed on to the newcomer as "sacred" and "sensible."

They are "sacred" in the lexicon of Mary Douglas. She has demonstrated that by defining what is pure and what is polluted, what is sacred and what is mutable, a group imposes order on its experience.³⁸ At *D&D* certain texts were sacred. Housed and delivered within certain technologies, the texts were removed from the mutable world of casual commentary. Portrayed as the distillation of past learnings, these inherited an additional aura of permanence and sanctity from their technological wrappings.

They are "sensible" in the lexicon of Karl Weick. He describes "sensemaking" as the activity whereby an individual or group of individuals makes retrospective sense of situations and then uses that interpretation to shape organizations and behaviors going forward. This interpretation is then shared with newcomers so that the group has a

common understanding. Sensemaking goes on all the time; it is a mechanism for creating organizational memory. Weick points out that the socialization process, which by definition includes sensemaking, helps to create interchangeable people.

What is unique about organizational sensemaking is the ongoing pressure to develop generic subjectivity in the interest of premise control and interchangeability of people... Pressures to move toward generic sensemaking are strong in organizations because of the need for swift socialization, control over dispersed resources, legitimacy in the eyes of stakeholders, measurable outcomes, and accountability. Generic subjectivity creates controlling structures in which people can substitute for one another. These structures also reassure people that if they do not look too closely, the world makes sense and things are under control. Whether theorists choose to interpret this scenario as evidence of organizational culture, institutional control, or the exercise of power and politics, at the core lie processes of sensemaking.³⁹

This consistent understanding of what is important to the organization exaggerates consensus but can be useful when things continue the way they have always gone. It allows the organization to have a steady influx of people who can repeat what the organization already "knows."⁴⁰ However, it can become a crippling crutch when things change. The environment within which *D&D* found itself was one of change. I will look at some "sensible," "sacred" texts that became hindrances to change.

³⁸ Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (London: Routledge, 1966).

³⁹ Karl E Weick, *Sensemaking in Organizations* (Thousand Oaks, California: Sage Publications, 1995), page 170.

⁴⁰ Rosabeth Moss Kanter, *The Change Masters: Innovation for Productivity in the American Corporation* (New York: Simon and Schuster, 1983), page 31 on segmentalism.

In Chapter Six I will look at a few technologies at *D&D* that influenced behavior. These particular technologies were developed to answer certain questions and provide a certain level of flexibility within a particular context. Over time, not only did the context change but the negotiated answers to those questions changed and even those questions were no longer seen as relevant. In addition, as "success" began to be defined in different ways, the technologies that only had windows into old parameters were no longer providing the key information needed for analysis.

While the other levers for control, culture and physical environment, provided the *D&D* leadership team some measures of success, this one did not. Their use of technology to manipulate behaviors ran afoul of unintended consequences and rapidly changing contexts.

The Biological Metaphor

At a macro level, there is at least one area of control that *D&D* has not leveraged. Many of the same writers who have been mentioned in the above sections on culture, physical environment and technology, have also recommended that organizations that want to be successful in the current economic environment create structural supports

for flexibility. Although *D&D* implemented a variety of controls, this is not one that they utilized with the same intensity.⁴¹

Both Rosabeth Moss Kanter and Peter Drucker recommend using organizational structures to support flexibility. The purpose of these entities is to enable the organization to figure out "what it does not yet know – for encouraging entrepreneurs and engaging the grass roots as well as the elite in the mastery of innovation and change."⁴² These are often mechanisms that recognize and reward individuals who identify opportunities for change and implement them. These mechanisms methodically promote flexibility, with goals such as

- organized abandonment (where, for example, a certain percentage of current products or processes are discontinued even though they still appear viable)
- organized improvement (where, for example, the company has processes to incent and track incremental change)
- the exploitation of success (where opportunities get first priority for staffing and resources).⁴³

⁴¹ *D&D* did take a brief, limited foray into creating a structural support for innovation. For one year in the 1994,1995 time frame, senior individuals were incented to implement process improvement in the company. This experiment was not repeated. Nor were other mechanisms tried.

⁴² Rosabeth Moss Kanter, *The Change Masters: Innovation for Productivity in the American Corporation* (New York: Simon and Schuster, 1983), page 205.

⁴³ Peter F. Drucker, *Management Challenges for the 21st Century* (New York: HarperCollins, 1999), pages 73ff.

There are numerous examples of this type of structural support to promote flexibility.

Collins and Porras showcase 3M as a "mutation machine," a company that instituted many mechanisms to stimulate change. For example,⁴⁴

The 3M Mechanisms for Flexibility

What	Why
<u>15 percent rule</u> -- technical people are encouraged to spend up to 15 percent of their time on projects of their own choosing and initiative	To stimulate unplanned experimentation and variation that might turn into successful, albeit unexpected, innovations
<u>25 percent rule</u> -- each division is expected to generate 25 percent of annual sales from products/services introduced within the past 5 years	To stimulate continuous new product development
<u>Own business opportunities</u> -- 3Mers who successfully champion a new product then get the opportunity to run it as their own product, department or division	To stimulate internal entrepreneurship
<u>High impact projects</u> -- each division selects one to three priority products to get to market within a short, specified time frame	To speed project development and market introduction cycles, which thereby increase evolutionary "variation and selection" cycles
<u>Small autonomous divisions</u> -- 42 product divisions in 1990, each with average annual sales of \$200 million; plants with a median size of 115 people	To stimulate individual initiative by promoting a "small company within a big company" feel.

These are just a few of the possible mechanisms to support experimentation. Other firms, such as Hewlett Packard, Texas Instruments and General Electric have implemented other structures. The point is not the particular mechanism but the decision to control for flexibility through a set of organizational structures. Those

⁴⁴ Table created from information in James C. Collins and Jerry I. Porras, Built to Last: Successful Habits of

structures are the petri dishes that allow companies to nurture many messy experiments in their infancies.

This kind of structure fits nicely with the biological metaphor of opportunistic mutation that some writers⁴⁵ have used to frame their recommendations for organizational structures that support flexibility and adaptability. This biological metaphor paints a capricious scenario. In this framework, adaptation cannot be planned, it has no preset schedule, there are no checklists that indicate which components will be necessary. The corporations that want to be flexible need to nurture many small experiments, so that there will be at least one that can thrive under whatever new circumstances present themselves. Corporations that plan for the future by focusing their resources on a narrow course are not embodying this model of opportunistic evolution.

Stan Davis and Christopher Meyer recommend a biological configuration that strives for inefficient variety.

[I]deas about adaptive systems currently being developed in the world of science can be applied to organizations. Take variety, for example: It's worth paying a price in efficiency for the *diversity* of thought that breeds innovation. Also,

Visionary Companies (New York: HarperCollins Publishers, 1994), pages 156-158.

⁴⁵ Emily Martin, writing about the concept of flexibility, catalogued many examples of the biological metaphor, including works by Rosabeth Moss Kanter, Peter Senge, and Tom Peters. Martin identifies a biological theme in organizational research: "...authors are advocating that American corporations must become like biological systems that successfully survive in nature." Emily Martin, Flexible Bodies: The Role of Immunity in American Culture for the Days of Polio to the Age of AIDS (Boston: Beacon Press, 1994), page 208.

making *boundaries permeable* makes it possible for new ideas to emerge and an organization is most robust if it's unstable, at "the edge of chaos."⁴⁶

Structures that support inefficient variety enable the organization to take advantage of the moment. Because of the contingent nature of experience, Daniel G. Bates and Fred Plog emphasize the need for mechanisms that are tuned to the available resources and that can leverage whatever happens to be at hand:

Happenstance rather than planning or strategizing, serendipity rather than adaptation, all play critical parts in shaping the present...

Adaptation is always opportunistic because organisms, ourselves included, use whatever resources are available to them at a particular time ...⁴⁷

These are not comfortable notions for organizations looking to control outcomes.

Control and order become questionable goals. Karl Weick joins the chorus of theorists concerned that internal structures that create more order than less actually hinder the long term success of the organization.

The more one delves into the subtleties of organizations, the more one begins to question what order means and the more convinced one becomes that prevailing preconceptions of order (that which is efficient, planned, predictable, and survives) are suspect as criteria for evolution.⁴⁸

⁴⁶ Stan Davis and Christopher Meyer, *BLUR: The Speed of Change in the Connected Economy* (New York: Warner Books, 1998), page 116, italics in original.

⁴⁷ Daniel G. Bates and Fred Plog, *Human Adaptive Strategies* (New York: McGraw-Hill, 1991), pages 15 and 16.

⁴⁸ Karl Weick, *The Social Psychology of Organizing* (2nd edition: New York: McGraw-Hill, Inc., 1979), page 120.

Peters and Waterman also shun orderliness. They found that companies that tried for too much consistency lost their ability to adapt. They recommend maintaining many small "messy experiments." They discovered that top companies

... experiment more, encourage more tries, and permit small failures; they keep things small; they interact with customers...more...they encourage internal competition and allow resultant duplication and overlap; and they maintain a rich information environment, heavily laden with information, which spurs diffusion of ideas that work...

Indeed, we believe that the truly adaptive organization evolves in a very Darwinian way. The company is trying lots of things, experimenting, making the right sorts of mistakes; that is to say, it is fostering its own mutations.⁴⁹

The biological metaphor of opportunistic mutation is a proponent of messiness and inefficient variety. One of the advantages of the opportunistic biological metaphor is that its turbulent and messy process mirrors the turbulence, mentioned in Chapter One, of the current economy and the job market. Stefan Helmreich examines how evolutionary theory resonates with the new economics. He finds that the new

...economic agents always act with imperfect knowledge, that their actions affect economic outcomes, and that economies are rarely in equilibrium. The focus is on how agents act "adaptively" in a world structured by contingency and subjective judgement.⁵⁰

Helmreich cites Blake LeBaron, who also equates the new economics with evolution:

Rather than reaching equilibrium, this economy is seen as being in a continuous dynamical struggle of adaptation and evolution. New goods are created which

⁴⁹Thomas J Peters and Robert H. Waterman, Jr., In Search of Excellence: Lessons from America's Best-Run Companies (New York: Warner Books, 1982), pages 110-111, 114.

⁵⁰ Stefan Helmreich, Silicon Second Nature: Culturing Artificial Life in a Digital World (Berkeley: University of California Press, 1998), page 173.

change the entire economic landscape for existing production processes. Financial markets struggle toward efficiency as price patterns, eliminated by adjusting strategies, are replaced by new patterns.⁵¹

LeBaron sketches the challenge of this environment as one where no factor can be "held constant," a favorite stipulation of economists in earlier ages. He illustrates the dynamic chaos, where attempts to achieve efficiency that are based on today's market condition are necessarily doomed to failure, because today's market conditions are immediately obsolete.

These theorists suggest that using the biological metaphor helps companies be successful in this turbulent environment. With it, companies have a model that embraces ambiguity and lack of orderliness without ascribing to it any negative connotation. Freed from any debilitating bias that suggests that ambiguity is intolerable, firms are better able to identify opportunities to leverage messiness and to increase their tolerance for amorphous boundaries and lack of orderliness.

I am concerned, however, that this opportunistic biological metaphor and the mechanisms that make sense within its context, may not be adequate for the current environment. Biological evolution, based on opportunistic mutation, is a time

⁵¹ Blake LeBaron, "The SFI Approach," in Emergent Structures: A Newsletter of the Economics Research Program at the Santa Fe Institute (Santa Fe, New Mexico: Santa Fe Institute, 1993), I - 2, cited by Stefan Helmreich, Silicon Second Nature: Culturing Artificial Life in a Digital World (Berkeley: University of California Press, 1998), page 173.

consuming and local process. That biological model is not fast enough nor global enough for the Internet economy. Davis and Meyer describe the blur of the Internet economy:

An "economy" is the way people use resources to fulfill their desires. The specific ways they do this have changed several times through history, and are shifting yet again – this time driven by three forces – Connectivity, Speed, and the growth of Intangible value...

[W]e are experiencing it as a BLUR. The BLUR of connectivity, as players become so intimately connected that the boundaries between them are fuzzy; the BLUR of speed, as business changes so fast it's hard to get your situation in focus; and the BLUR of intangible value, as the future arrives at such a pace that physical capital becomes more liability than asset.⁵²

In this Internet context, the biological metaphor that relies on opportunistic evolution might not provide the best guidance. The need to champion messiness and experimentation still seems relevant. However, the speed of evolution would need to be increased dramatically. The biological metaphor that is more appropriate is genetic manipulation, where strands of DNA are modified to create something novel.

The image of genetic manipulation comes from the discussions of recombinant DNA, "a technique whereby a fragment of DNA could be snipped out of one genome and spliced into -- recombined with -- another."⁵³ This process transforms the entity, allowing the impatient observer an immediate result, especially when compared to the duration of

⁵² Stan Davis and Christopher Meyer, BLUR: The Speed of Change in the Connected Economy (New York: Warner Books, 1998), page 2.

evolutionary change. As Evelyn Fox Keller noted, "in the vision inspired by the successes of molecular biology, 'nature' became newly malleable, perhaps infinitely so..."⁵⁴ She continues this thought, citing Robert Sinsheimer, who contrasts the power of this invasive genetic control against the slower process of cultural control:

The old dreams of the cultural perfection of man were always sharply constrained by his inherent, inherited imperfections and limitations... To foster his better traits and to curb his worse by cultural means alone has always been, while clearly not impossible, in many instances most difficult... We now glimpse another route -- the chance to ease the internal strains and heal the internal flaws directly, to carry on and consciously perfect far beyond our present vision this remarkable product of two billion years of evolution.⁵⁵

The ideology of biological determinism that is embedded in this quote has its critics, such as R.C. Lewontin. He recommends a more balanced perspective, recognizing that some of the rhetoric around the human genome project glosses over ethical issues involving unintended consequences for the generations downstream of the altered parent as well as the potential for conflict of interest between the scientists' research agendas and their opportunities for personal financial profit.⁵⁶

⁵³ Daniel J. Kevles, "Out of Eugenics: The Historical Politics of the Human Genome," in The Code of Codes: Scientific and Social Issues in the Human Genome Project, edited by Daniel J. Kevles and Leroy Hood (Cambridge: Harvard University Press, 1992), page 19.

⁵⁴ Evelyn Fox Keller, "Nature, Nurture, and the Human Genome Project", in The Code of Codes: Scientific and Social Issues in the Human Genome Project, edited by Daniel J. Kevles and Leroy Hood (Cambridge: Harvard University Press, 1992), page 289.

⁵⁵ Robert Sinsheimer, "The Prospect of Designed Genetic Change," Engineering and Science, 32 (1969), pages 8-13; reprinted in Ethics, Reproduction and Genetic Control, edited by Ruth Chadwick (London: Croom Helm, 1987), page 145; cited by Evelyn Fox Keller, "Nature, Nurture, and the Human Genome Project", in The Code of Codes: Scientific and Social Issues in the Human Genome Project, edited by Daniel J. Kevles and Leroy Hood (Cambridge: Harvard University Press, 1992), pages 289-290.

⁵⁶ Richard C. Lewontin, Biology as Ideology: The Doctrine of DNA (New York: HarperCollins Publishers, 1991).

Nevertheless, this biological metaphor is a powerful one and the transition from a passive evolutionary model to an active manipulative model provides an exemplar of control in the midst of a turbulent environment. Citing François Dagognet, Paul Rabinow examines the promise and the challenge of a model that allows for human manipulation:

Dagognet argues that nature has not been natural, in the sense of pure and untouched by human works, for millennia. More provocatively, he asserts that nature's malleability demonstrates an "invitation" to the artificial. Nature is a blind *bricoleur*, an elementary logic of combinations, yielding an infinity of potential differences. These differences are not prefigured by final causes, and there is no latent perfection-seeking homeostasis. If the work "nature" is to retain a meaning, it must signify an uninhibited polyphenomenality of display. Once understood in this way, the only natural thing for man to do would be to facilitate, encourage and accelerate its unfurling -- thematic variation, not rigor mortis. Dagognet challenges us in a consummately modern fashion: "Either one adopts a sort of veneration before the immensity of 'that which is' or one accepts the possibility of manipulation." The term manipulation carries with it the appropriate ambiguities implying both an urge to dominate and discipline as well as an imperative to improve on the organic."⁵⁷

In this dissertation I will use the biological metaphor of genetic manipulation to capture the essence of the types of controls utilized by the leaders of *D&D*. Theirs was not a time-consuming experimental laboratory where a variety of opportunities were nurtured in the expectation that a few would survive into the next competitive era. Instead, *Matt Barr* and *Roger Brooks* crafted their company carefully by splicing in key

⁵⁷ Paul Rabinow, "Artificiality and Enlightenment: From Sociobiology to Biosociality," in *Incorporations* edited by Jonathan Crary and Sanford Kwinter (New York: Zone Books, 1992), pages 249-250. François Dagognet, *La Maîtrise du vivant* (Paris: Hachette, 1988), page 12.

DNA strands. Even when the environment changed, they continued to use this technique as a way to shape *D&D*.

Summary

In this chapter I have reviewed the theoretical concepts that underlie this dissertation. The three specific areas of control used at *D&D*, culture, physical environment, and technology, are topics covered in the relevant literature. However, that literature suggests that attempts to implement these controls will not meet with universal acceptance. In the following chapters I will take each control in turn and describe how successfully, or not, it was implemented and whether or not that control contributed to the overall flexibility of the organization. Throughout this dissertation, the style of control exercised by the *D&D* leadership resonates with the metaphor of genetic manipulation, not with one of opportunistic evolution.

**Chapter Three:
Formal Socialization: The Manipulation of Value**

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Formal Socialization: The Manipulation of Value

This chapter examines how senior management attempted to shape the culture of *D&D* through a formal socialization process. The founders, as well as the senior managers, had read many books that explained that a strong culture was a key ingredient for a successful company.¹ They wanted to do everything they could to ensure that *D&D* would be successful. However, culture is a tricky thing to mandate. The people of the organization are the ones who embody the culture. Their collective choices may result in a culture different from the one that the founders and other leaders had envisioned. Additionally, the behaviors that people enact may appear to follow a particular set of values but may be based in very different motivations. Or, as the quote that follows indicates, claiming one set of values still allows each individual a great deal of latitude around what activities become prioritized:

I could probably go through a litany of things that have changed [in my 2+ years at *D&D*]. But I think if you simplistically go back to core values – I think those are just as fundamental today as they were before. They’ve evolved. And I think that’s positive as well. It doesn’t mean that who you are as a company changes. And, again, I use an analogy for that as well, which is “I’m still the same person with the same ethics and same values as I was when I was probably fifteen – but my priorities and what I pay attention to now, with a family, versus fifteen when I was in high school and having a great time, is very different.” I think that also

¹ For example: John P. Kotter and James L. Heskett, *Corporate Culture and Performance* (New York: The Free Press, 1992); Peter M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday, 1990); James C. Collins and Jerry I. Porras, *Built to Last: Successful Habits of Visionary Companies* (New York: HarperCollins Publishers, 1994).

parallels with the growth of a company. So, who you are stays the same, but what you pay attention to and what your priorities are change.²

In order to examine culture as a tool at *D&D*, I will describe how the leadership team explicitly tried to manipulate the culture of the company through the creation and dissemination of a set of core values. I will then look at both formal and informal methods of socialization. The formal method examined in this chapter is the new hire initiation program. Chapter Four focuses on a few of the informal methods of socialization: styles of dress, styles of communication, expectations around meritocracy and styles of decision-making.

Articulating the Core Values

The notion of culture itself is key to this discussion. Susan Wright has captured well the situation of "culture" in the organizations of the 1990's. "Culture has turned from being something an organization *is* into something an organization *has*, and from being a process embedded in context to an objectified tool of management control."³ This transition of culture in the business world from invisible to visible was, in part, driven by books that gained prominence in the popular press. In the 1980's and early 1990's, some business writers defined the components of successful companies. One common

² Interview with *Ben Frankel*, August 1998.

³ Susan Wright, "'Culture' in Anthropology and Organizational Studies," in *Anthropology of Organizations*, edited by Susan Wright (London: Routledge, 1994), page 4, italics in original.

theme was that successful companies have a clear set of shared values; these values permeate the atmosphere of the firm; they are used on a daily basis as guiding precepts for all decisions.⁴ For example, in the bestseller In Search of Excellence, Tom Peters and Robert Waterman outlined eight basic principles that they had found shared by excellent corporations (measured by level of innovation and sustained financial performance). One of those principles was entitled "Hands-On, Value-Driven."

We call the fifth attribute of the excellent companies, "hands-on, value-driven." We are struck by the explicit attention they pay to values, and by the way in which their leaders have created exciting environments through personal attention, persistence, and direct intervention – far down the line....

Every excellent company we studied is clear on what it stands for, and takes the process of value shaping seriously. In fact, we wonder whether it is possible to be an excellent company without clarity on values and without having the right sort of values....

Clarifying the value system and breathing life into it are the greatest contributions a leader can make. Moreover, that's what the top people in the excellent companies seem to worry about most.⁵

D&D was a company of its age; the people there read these books, actively searching the environment for ideas that would help the company be truly great. Therefore it was really no surprise when *D&D* decided to clarify its value system.

⁴ For example: John P. Kotter and James L. Heskett, Corporate Culture and Performance (New York: The Free Press, 1992); Thomas J. Peters and Robert H. Waterman, Jr., In Search of Excellence: Lessons for America's Best-Run Companies (New York: Warner Books, 1982); Peter M. Senge, The Fifth Discipline: The Art and Practice of the Learning Organization (New York: Doubleday, 1990); James C. Collins and Jerry I. Porras, Built to Last: Successful Habits of Visionary Companies (New York: HarperCollins Publishers, 1994).

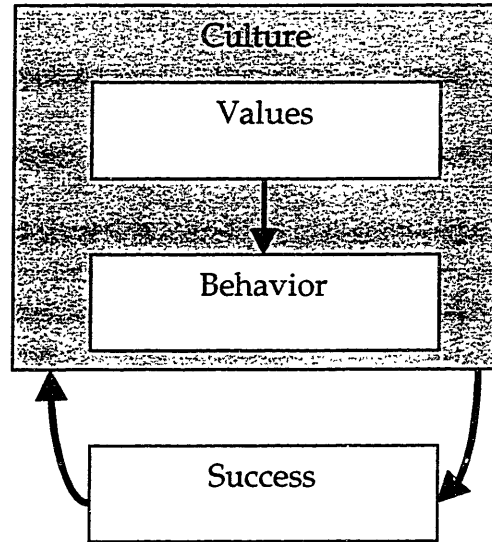
⁵ Thomas J. Peters and Robert H. Waterman, Jr., In Search of Excellence: Lessons for America's Best-Run Companies (New York: Warner Books, 1982), pages 279, 280, 291.

Early in 1995, with just over 100 people in the firm and a clear track record of successful client engagements, *D&D* was poised for rapid growth, planning to add 20 people a month. The senior team was concerned by the magnitude of the challenge of assimilating that many people. There was a perception that, if teams were formed with one or two "old-timers" and all the rest were new hires, what was uniquely *D&D* would be diluted by too much outside influence. *Matt* asked the senior team to define the *D&D* culture. He believed that, if the culture was defined explicitly, new hires could be taught the components of the culture (values and appropriate behaviors) and would thereby have a smoother transition into the company and the culture would be maintained. He also believed that the *D&D* senior team would be more likely to use culture as a leadership tool if it were defined explicitly because it would seem "real and not something soft."⁶

Matt had a very specific model of the relationships among culture, values and behaviors:

⁶ Interview with *Matt Barr*, January 2000.

The Model where Success Reinforces the Existing Culture



For *Matt*, "cultures arise when a group of people experience success, and they associate their success to the values and behaviors they practice. These values and behaviors are then repeated, to gain repeated success."⁷ In this model, there was a clear feedback loop: the experience of success caused people to repeat the behaviors that led to that success. There was a loose mapping, although not a one-to-one correspondence, between behaviors and values. Therefore, the feedback loop reinforced the value system as well as the set of behaviors. The model assumed that values were consistent, they changed very slowly, if at all. Conversely, behaviors were seen as fluid, they

⁷ February 1995 staff meeting presentation by *Matt Barr*.

could change, indeed they should change frequently as circumstances warrant. At any given time, behaviors were understood as the current outward manifestations of values. In *Matt's* framework, which he attributed to John Kotter's book, Corporate Culture and Performance,⁸ successful behaviors (those that produce a desired result and are rewarded) reinforced the culture.⁹

In order for the senior team to define the *D&D* culture, *Matt* felt they needed to articulate the current values and behaviors. Both he and the team saw this as a descriptive exercise: think about who we are and what we do that makes us *D&D* and write it down. The senior team went offsite for a strategic planning meeting; the articulation of the *D&D* culture was a key section of that meeting.¹⁰

The list of values and behaviors that follows was the result of the offsite meeting; the team divided the list into three sections. The first section included the values and behaviors that the senior team felt were shared across the company. The second section

⁸ John Kotter and James Heskett, Corporate Culture and Performance (New York: The Free Press, 1992).

⁹ As mentioned in Chapter Two, this framework has fallen into disfavor for some current social scientists. In this chapter I will use the theoretical critique of this framework to highlight some of the contradictory and ambiguous experience encountered by *D&D* employees. The critique points out that the framework ignores or overlooks

- issues of power;
- conflicting interpretations of the espoused values;
- the individual's ability to demonstrate certain behaviors without holding the values;
- the gap between the espoused value and the on-the-ground experience.

¹⁰ I was one of the fourteen people at that offsite; the group was made up of almost all the senior people at the company at that time. As I write this in June of 1999, those fourteen people are still with *D&D* and,

included the values and behaviors that were perceived as being held by the "old-timers," but were not seen as consistently shared or demonstrated by new hires. The third section included the values and behaviors that were not believed to be part of the existing culture but were deemed important for *D&D* as a whole to embrace.

(Therefore the third section was prescriptive, not descriptive.)

Shared Values and Behaviors

Values	Corresponding Behaviors
Client Focus	<ul style="list-style-type: none"> • Focus on value to the client • Business focus • Professionalism (white shirts) • Intolerance of failure • Responsiveness
Integrity	<ul style="list-style-type: none"> • Consistency to people • Consistency to principles • Do what you say • Credibility • Exercise judgement
Delivery	<ul style="list-style-type: none"> • Get it done • Do what you say • Scope management¹¹ • Set expectations
Time Criticality	<ul style="list-style-type: none"> • Do it now • Stand up meetings¹²
Pioneers	<ul style="list-style-type: none"> • Innovation • Willingness to make mistakes • Embrace risk • Throw people in at the deep end

with the exception of the two of us on leaves of absence, all hold key positions in the company.

¹¹ During a project it was not unusual for the client to request additions to the original agreement. Most *D&D* projects were fixed time/fixed price. Scope management refers to the process that kept the size of the project controlled so that the team could deliver within the agreed upon time and budget.

¹² Project teams had daily status meetings. During these meetings everyone stood. *Earl Vickers* instituted this practice in order to keep meetings focused and limit the amount of extraneous chit chat.

Team Work	<ul style="list-style-type: none"> • Do what you say • Recognize achievement • Trust • Shared offices
Ownership	<ul style="list-style-type: none"> • Stepping up • Explicit communication and closure • Taking responsibility
Commitment	<ul style="list-style-type: none"> • Do what you say

"Old-timer" Values and Behaviors

Values	Corresponding Behaviors
Openness	<ul style="list-style-type: none"> • Open door • Brutal honesty • Feedback • Ask for what you want
Listening	<ul style="list-style-type: none"> • Active listening • Communicate your understanding • No "know it all" • Facilitate, don't pontificate
Sense of Humor	<ul style="list-style-type: none"> • Have fun • Tool with style¹³
Leadership	<ul style="list-style-type: none"> • Communicate vision • Cheerleader • Redefine the game • Never whine • Create the environment where people are excited about what they are doing

¹³ A tool was a practical joke. Tooling with style referred to a joke that didn't hurt anyone, involved as many people as possible (including clients) and was of long duration.

Desired Values and Behaviors

Values	Corresponding Behaviors
Recognition	<ul style="list-style-type: none">• Be explicit about what is good behavior• Recognition at all levels
Well-balanced Life	<ul style="list-style-type: none">• Get it done and go home• Continuous learning

The process of creating a list attributed a misleading level of reality to the "values."

Values are better understood as intellectual fictions that help explain behaviors that can be observed. However, once listed, the *D&D* values themselves became tangible, existing independently of the behaviors from which they had been derived.

Reading through the list, it is clear that at many points it is self-contradictory. For example, pairing "Intolerance of failure" with "Willingness to make mistakes" creates a mixed message. It is difficult to imagine an environment where failure is not tolerated as being one where people would take the risk of making a mistake. In theory, these were explained as complementary: each individual was expected to deliver to very high standards but if someone made a mistake they would not be punished for it; they were expected to learn from it.

This theory did prove true in practice a number of times. One example is a project where the client was focused on the security of the system that *D&D* was building. The

agreed-upon standards were drilled into the project team so there would be no room for error. Nevertheless, in the middle of a presentation to the client, the project manager inadvertently demonstrated that the internal security procedures were not in line with what the client had demanded. The client stopped the presentation on the spot and angrily threatened to remove all its business from *D&D*. The project manager offered his resignation but his manager refused it, pointing out that this very valuable lesson would be lost to the firm if he left; the manager continued to give the project manager positions of responsibility.

There were other times when the theory and the practice were at odds with each other. "Intolerance of failure" became the primary message, creating a fear of failure, not a "Willingness to make mistakes." This fear had its genesis in some examples where people felt they took the blame for a failure. *Wally Church*, a project manager, explained how it felt when he was unable to deliver what the client wanted:

I felt this sense of failure that I had never had before. That I had never experienced before. And felt not only the sense of failure, but also the sense of being by myself in my failure. That I had become the scapegoat with the client and even in the eyes of the company. To some extent, I didn't have what it takes. The client is always right. And "You were wrong *Wally*." And "You didn't do this." And I felt it was because I was trying to defend a process that I didn't have all the requisite skills and understanding of. To be able to with conviction and example be able to demonstrate to the client. And that bothered me. It shook me for a very long time. Is this the right place? This trial by fire kind of learning experience. Is this what I want? Is this going to be right for me. And I wasn't convinced.

And I remember the way that I got through it... I drew on my [other experiences] so that no matter what happened, I knew that I was successful, no one could take that away. That I am good at what I do. And this experience does not shake 11 years in the industry and 32 in my whole life of being good at what I do. And I pulled through that. But it's still uncomfortable in the sense that I want to be in an environment that is going to nurture people in success and in failure. Now it's part of what I want to do in making that nurturing be real here.¹⁴

Some of the senior staff admitted that they contributed to a contradictory atmosphere.

At the same time that they would explicitly commend risk taking, they would lash out at someone who had fallen short of expectations. *Peter Tyler*, the CFO, saw this as a dangerous trait, one that needed to be corrected:

I guess the fear of failure is a big [issue]... I think there's a lot of things that we can do about that, I think we talk of not getting attacked when you fail, listening to different points of view, of saying, okay, this is an intelligent person, I may not ultimately agree with them, but there's something that's driving them to think that way, so let me pursue that a little bit more in dialogue with them to help understand where they're coming from. [One manager] may be on the extreme case of the culture and the people who show those characteristics, but I think to a certain degree a lot of us show that at a level, and I think we need to change that.¹⁵

Another example where this list of values and behaviors was self-contradictory was the attempt to achieve Client Focused Delivery and a Well-balanced Life. Again, the theory was clear: do just what you have to do to deliver a timely, quality project for the client and then go home. People were enjoined to think through their activities and not do any extraneous tasks. However, in practice, the drive to deliver for the client meant

¹⁴ Interview with *Wally Church*, October 1995.

¹⁵ Interview with *Peter Tyler*, October 1998.

weeks upon weeks of long, intense hours. While there were less intense periods where people could re-establish their outside friendships and activities, there were few outside activities that people were able to maintain with such an on/off mode of interaction.

The definition of what constituted a Well-balanced Life varied from person to person. For some it meant having time with their families; for others it meant being able to leave when their work was done and not feeling that they had to stay to put in "face time;" for others it meant having the time for outside activities: courses, team sports, church, volunteering; for others it meant being able to spend some time at their desk just thinking (with no "real" output visible); and, for the majority, the current arrangement was just fine, although some pointed out that when they got married or had children they would no longer be able to sustain their current work style.¹⁶

One employee pointed out that it was the responsibility of the individual to craft his or her own balance, not the responsibility of the firm.

I think for the most part we each control and set our own work/life balance. Premise - not everyone can have everything they want. Given that, we each choose where to spend our time to meet our own personal goals: work/career, family/friends, recreation etc. Because we are each talented in different ways, some will be able to accomplish more based on their desired balance and lifestyle choices (a single person has more time to spend at work to get ahead because he/she doesn't have a family). This isn't right or wrong, it's just a fact.

¹⁶ In June of 1995 about half the company answered a survey concerning Well-balanced Life. Over half (57%) were comfortable with the current state of affairs, with perhaps a few suggestions for improvement. Only 10% felt that they could not sustain their current pattern. The remaining 33% felt they were "paying the price," but wanted to improve the situation, not give up on it.

What this is leading up to is that in order to stay a healthy business concern, which is to all our benefit, *D&D* needs to do whatever is necessary to stay competitive. This may mean that some people have an "advantage" that others don't. In my opinion, that's life, get used to it. It's not *D&D*'s job to make sure that people balance their lives, it is *D&D*'s responsibility to make sure they are not putting unnecessary restraints on people.¹⁷

The contradictions and conflicting interpretations among the values became visible over time. However, when the list was first created, there was a sense of excitement and accomplishment. The senior team felt they had described the *D&D* values – and therefore its culture – very well. They acknowledged that this list of values needed to be validated by the company as a whole but did not perceive that these might give mixed messages. As the examples above demonstrate, each potentially contradictory pair could also be interpreted without contradiction – which was what the senior team tended to do. At the next monthly staff meeting, *Matt* presented this list, as well as his model of the relationship among culture, values and behavior, for discussion.

The choice of the *D&D* leadership to distill the culture of the firm into a list of values was an effective way for them to focus the company on a few factors. However, in the process they were able to block from official discourse any discord or paradox that was apparent to those working within the culture on a daily basis. The list made certain behaviors invisible, the behaviors that did not relate to one of the values. The explicit message was that *D&D* cared about its culture and thought a healthy culture was a key

¹⁷ Statement by *Marcia Barrymore*, June 1995.

factor in its success. The implicit message was that some aspects of the experience of working at *D&D* were not open for discussion. As described by Benson Snyder in his Hidden Curriculum, when the explicit messages of an organization are contradicted by the implicit messages, the people can become frustrated and disillusioned.¹⁸

The presentation of the values at the staff meeting was followed by three other socialization activities: a group effort to flesh out the description of those values and behaviors;¹⁹ the creation of a one-week initiation process for new hires that focused on those values and behaviors; and a launch of management training and leadership development efforts that would incorporate those values and behaviors as part of the core material.

The D&D Initiation Week

Of these three activities, it was the initiation week that made the most significant difference. Created and run by an ex-school teacher, *Vivian Dewey*, the initiation week used exercises, role-plays and discussions led by different "old-timers" to immerse the

¹⁸ "Each student figures out what is actually expected as opposed to what is formally required... What is critical is not the presence of formal rules and informal responses but rather the kinds of dissonance that are created by the distance between the two." Benson Snyder, The Hidden Curriculum (New York: Knopf, 1971), page 9.

¹⁹ By summer 1995 the core values were distilled to a shorter list: Client-focused Delivery, Openness, Pioneering, and Growth. Periodically *Matt* and *Roger* would drive a change to the list:

- Summer 1996, Relationships was added as a core value
- January 1998, Leadership replaced Pioneering

new hires in the *D&D* values and culture. Once it was put in place, almost every new hire went through this session. While there were some modifications, most of the key ingredients remained the same from March 1995 to June 1999, when a new version was introduced.

One measure of the impact of the initiation week was the willingness of office leaders to absorb the expense of this training for new hires. When it was first offered, the heads of two new offices, *Earl Vickers* and *Mahesh Patel*, said that they would not be sending anyone to the sessions. They believed that in small offices (with 20 to 30 people), the acculturation of new hires would happen rapidly merely by their proximity to the existing staff. In addition, they felt that their own offices would develop slightly unique cultures and, therefore, it would be inappropriate to train new hires in the culture of the first office. A month or so after the initiation sessions had begun, because of staffing needs, both of the new offices had people transfer in who had gone through the sessions. The project managers whose teams these "initiated" new hires joined, commented on the marked difference between a new hire who had gone through the session and one who had not. The new hires who had gone through the initiation week moved more smoothly into the team, worked more appropriately with clients with less coaching, and generally approached their work with a more risk embracing attitude than those who had not gone through the initiation week. Shortly thereafter, both *Earl*

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- June 1999, Creativity was added as a core value and Growth became Personal Growth.

and *Mahesh* told *Vivian* that all of their new hires would spend their first week in her initiation session.

With the senior people recognizing the value of the initiation session, it became unusual for anyone to join the company and not go through that week. Because of *D&D*'s rapid growth, the majority of people in the company went through the initiation session. The week it was rolled out, 15 new hires went through the session, less than 1/8 of the company. Four years later, with closer to 1,700 people in the company, nearly 4/5 of the firm had experienced the initiation session.²⁰

Thus the initiation session became the threshold to enter *D&D*. This rite of passage was structured with the three stages that Van Gennep defined: separation, limen, aggregation.²¹ The new hire made a transition from being outside the company to being inside the company. As Mary Douglas said:

[Van Gennep] saw society as a house with rooms and corridors in which passage from one to another is dangerous. Danger lies in transitional states, simply because transition is neither one state nor the next, it is undefinable. The person who must pass from one to another is himself in danger and emanates danger to others. The danger is controlled by ritual which precisely separates him from his old status, segregates him for a time and then publicly declares his entry to his new status.²²

²⁰ The majority of those who had not gone through the session fell into two sections: the people who were still with the company who joined before the initiation week was offered and those who had joined the company through acquisition. Conversation with *Joan Archon*, June 1999.

²¹ Arnold van Gennep, *The Rites of Passage* (London: Routledge & Kegan Paul, 1960), first published in French in 1909.

²² Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (London:

In this context the *D&D* initiation sessions were the rituals that enabled the new hires to put their old contexts behind them, to transition to the *D&D* context with a small group that was segregated from the existing *D&D* employees, and then to be publicly acknowledged as a full member of the group. These sessions were the vehicles to transmit the key aspects of the *D&D* culture; the new hires were expected to publicly embrace those concepts during this period of transition. Obviously, the extent to which any particular person embraced the concepts or merely assumed them as a façade was difficult to identify. A façade could mask a certain amount of cynicism towards the culture and/or the way it was transmitted during this formal socialization process.

One of the unintended consequences of the initiation sessions was the degree to which that group of people would bond to each other. Unbeknownst to the leaders of *D&D* who had spawned this environment, people from the same session would stay in touch, would have reunions, and even years later would describe someone else in the company not primarily by their capabilities but as having been part of their session.

Victor Turner, whose book *The Ritual Process: Structure and Anti-Structure* explored the social properties of the liminal phase of ritual, notes that during the liminal phase there is an absence of social structure. Without any imposed social structure, the group

Routledge, 1966), page 96.

can experience a communion, can see each other as equal individuals; Turner calls this experience *communitas*.²³ The experience of *communitas* is exhilarating; it carries a sense of magical power; it is the direct, immediate, total confrontation of human identities. Turner contrasts *communitas* and social structure:

- Social structure is norm-governed, institutionalized and abstract.
- *Communitas* is spontaneous, immediate, and concrete.

The two are only visible when they are in contrast to each other. Indeed Turner sees them as two interwoven dimensions of society, where society is "a dialectical process with successive phases of structure and *communitas*."²⁴ The initiation session was an opportunity for a group of strangers to work together to transform themselves into contributing members of the larger *D&D* community.

While I had seen the results of the initiation session, I had not known until I did the research for this thesis how minutely the experience was crafted. This was somewhat surprising since at an end of year offsite I had been given the ownership of creating the initiation session, along with a recommendation to enlist *Vivian Dewey* as the actual designer and creator of the session.

²³ Turner acknowledges that Rousseau's description of the natural goodness of man living in a propertyless state of absolute equality is a value associated with *communitas*. Victor Turner, *The Ritual Process: Structure and Anti-Structure* (Chicago: Aldine Publishing Co, 1969), page 136.

²⁴ Victor Turner, *The Ritual Process: Structure and Anti-Structure* (Chicago: Aldine Publishing Co, 1969), pages 108, 126, 203.

Vivian had joined the company six months earlier; prior to *D&D* she had been a school teacher. Her initial role at *D&D* was in the support group, one of the lower status jobs in the company. Nevertheless, I asked her to create and run an initiation session that would have a huge impact on the company.²⁵ As in the case of Turner's story of Muchona the Hornet,²⁶ it is appropriate to recognize *Vivian's* marginality: she was female in a predominantly male firm, she had no business background, her initial role in the company marked her as someone who was not contributing to the heart of the business. These were all disadvantages, making it easy for the senior team to have little respect for the skills she did have. Nevertheless, as Turner showed, her marginality can also be understood as an advantage for her new position: being herself someone who was betwixt and between, she could cross the threshold with the new hires, again and again.

There were a few steps necessary to go from the mandate of the offsite meeting to the first initiation session. The biggest was getting together a large group of people and having them all contribute their ideas as to what should be part of an initiation session.

²⁵ While her degree in education was pertinent, *Vivian* had no formal training background. At the time that was not a hindrance; many people at *D&D* were taking on tasks for which they had no previous training. In addition, a few months prior *Vivian* had had a conversation with *Roger* about her education background; he then had the notion that she might do well in a training role. *Roger's* willingness to try *Vivian* in this role was a key factor in her being chosen. She had also been working on some less formal orientation activities with the hiring group.

²⁶ Victor Turner, *The Forest of Symbols: Aspects of Ndembu Ritual* (Ithaca: Cornell University Press, 1967), pages 131ff.

Approximately twenty-five people from all areas of the company attended the afternoon meeting, including *Matt* and *Roger*. *Vivian* remembers the result of that session:

We came up with two huge white boards filled with stuff. My perception was that the boards were filled with all the stuff people wanted [new hires] to know. And they were tired of the hassle of cramming it into people in their first two weeks. It was a wish list. There was no focus. There were some ideas about how to do it, but not a ton of ideas. And then *Roger*'s inspirational comment: "I don't know what it needs to be, but it needs to be great!"

... [Our] values were mentioned as one of the things that would be part of it, part of the wish list. There was nothing explicit that they were any more important than anything else on the list.²⁷

We were going to create a course from that "list of stuff." This was where *Vivian*'s training in education made a difference; she had the tools to make something coherent. And she was probably the only person at *D&D* who could appreciate what she hoped to do: she saw a chance to create a learning environment where what was learned and how it was learned were reflections of each other. *Vivian* recalled:

At the end of the session we grouped things together. And you gave me those groupings and I said that I would figure out how to do this. I went home and started developing a curriculum map. I needed to figure out how these could fit together -- what kind of interactive activities could happen so people would really internalize this. Because there was so little clarity around what was supposed to happen, I saw a tremendous opportunity to really create something really great.

I was dying to create this amazing learning environment. I saw this as a great opportunity to apply everything I knew and believed in about how people learn. And in addition I knew I would replicate the *D&D* workshop process -- which I

²⁷ Interview with *Vivian Dewey*, June 1999.

thought mirrored really well how I thought people learned. I wanted to pull all that together. The information people learned and the environment itself modeled the ways of problem solving as groups and created a climate of learning that would be really motivating for people. I was so excited for a chance to finally do this.

So I created this web map thing and came up with different activities that would go with it... I always took a thematic approach and from the point that I went home and thought about this -- the only theme that made sense was our values. I put that out to you and *Roger* and both of you grabbed onto it.²⁸

Vivian designed each day of the program around a theme. One day was based on the value "Pioneering," another on "Ownership," another on "Openness, Delivery and Client Focus," another on "Leadership." On any given day there were usually three content sections. Members of the senior staff would come in and each one would engage in a dialogue on one of the topics. There were also experiential learning activities where the whole group would take part in an activity and afterwards they would discuss not so much the content of what they had learned but the impact of the experience on how they would work going forward. There were also skills training sessions ranging from how to work the phone system to how to create presentations.²⁹

Vivian described how the different levels of learning intertwined and how she crafted specific pieces to support key messages. She pointed out that there were three levels of

²⁸ Interview with *Vivian Dewey*, June 1999.

²⁹ See Appendix B for a sample week.

learning: content, method and tone -- and that each was designed to be consistent with the others:

What it is -- there is a content level of what people learn (which was derived from the whiteboard list). Then there is the method level -- how it happens that [this session] replicates how we do workshops and how we work as groups to solve problems together. [That is the method that we] do over and over in [the session]. At some point you talk about it -- but mostly you learn by doing. And then there is the tone of it, the environment which is completely intangible. The tone being... that we spend the first hour of the first day on introductions -- learning who the other people in the room are. You are sending a message that each person is unique, valuable. You build a climate of trust. You're starting off with them, not telling them "it" (whatever "it" is). The way you are sitting -- so that you can all see each other. Every single thing had to be consistent with the outcomes that you want -- which is creating this amazing culture. Some are explicit -- but the most powerful were the ones that were not apparent to people.

What's the magic of it, that is the question. The tiniest thing -- starting off by having them speak and listen to each other -- the outcome is that they go through the process of becoming this incredible team that does work together all week. Another magic thing is the way things happen and the method of it -- it is about creating an environment where people can show up being great. Where it is assumed that they have tremendous potential. They are told they are hired because they are very bright. And then you create an environment where people can find out that aspect of each other. The result of that is this tremendous rapport and trust with the other people in that group. But then more significantly, they extrapolate that trust and respect to the whole company.³⁰

It was clear that *Vivian* structured initiation so that the group would bond with each other first and then they would transform themselves from new hires to valued

³⁰ Interview with *Vivian Dewey*, June 1999.

company members, from focusing on their relationships with each other to their relationships with the larger *D&D* community.

This transition, taking outsiders and turning them into members of the community, was similar to the transition created by armies who transform young civilians into soldiers.

Gwynne Dyer outlines the goal of that transition:

The method for turning young men into soldiers ... is basic training...

Just how this transformation is wrought varies from time to time and from country to country... In more sophisticated modern societies, the process is briefer and more concentrated, and the way it works is much more visible. It is, essentially, a conversion process in an almost religious sense -- and as in all conversion phenomena, the emotions are far more important than the specific ideas...

[T]he selfless identification of the soldier with the other men in his unit is what makes armies work in combat, and the foundations for it must be laid in peacetime...

The way armies produce this sense of brotherhood in a peacetime environment is basic training: a feat of psychological manipulation on the grand scale which has been so consistently successful and so universal that we fail to notice it as remarkable.³¹

The *D&D* leaders who envisioned an initiation week to indoctrinate new hires in the *D&D* culture wanted to achieve a psychological transformation similar to that created by the military's basic training. From the outset, the working label for the *D&D* session was "bootcamp." Despite some voiced concerns about the military and manipulative

³¹ Gwynne Dyer, *War* (New York: Crown Publishers, Inc., 1985), pages 103-105.

connotations of that label, people in the company continued to call the sessions "bootcamp" throughout the period of time that they were offered.

The military version of basic training provided the recruit with experiences that simulated the anticipated wartime experiences. In a similar vein, *Vivian* expected bootcamp to mirror the experience of working at *D&D*. She explained how she set the expectations of the new hires to understand what they experienced in microcosm during the initiation was true at the company-wide level:

One of the things I used to do -- when [senior] people came in during bootcamp [to give their presentations] -- after they left I would ask the group what they got from that person, from the interaction. (Of course we picked the best people to come in.) The group would start to realize some of the same things they said about the different [senior] people -- intelligence, sincerity -- these were indicators about the outside environment.

Another way to get the group extrapolated [from the session to the larger company] -- I had to figure out ways to have bootcamp where the walls of the room were porous. When [new hires] come in they believe they are in a fake training session. There is a turning point in the bootcamp design -- which transitions people from being in a fake training session -- it changes their thinking -- from fake to being real. And they realize that it isn't about them in that room; it's about other people in the office. Shifting their context from "us as new hires" to "us as part of the company" -- to add value to the company that week. The turning point is the debrief around the failure exercise. But you start planting seeds on the first day. The interactive *D&D* live tour -- they get a feel for the people who are out there. They got a feel for the climate. One year into bootcamp, the live tour turned into a scavenger hunt where teams go out seeking information from the company -- they were acting --and you were modeling that resourcefulness thing. They were doing this on the first day. They met other people in the *D&D* environment and experienced the whole company. And people got used to this. And then they remembered when they did that the first day -- so people consistently tended to be open and receptive to the new hires

who wandered into their team areas. They would connect into people out there. You are pulling the two together.³²

And yet, for some, bootcamp was not a microcosm of *D&D*. Instead it portrayed an environment that only existed in theory, not in practice. One of the senior managers, who came to *D&D* with over twenty years of experience, commented on the extent of that disconnect:

Every person I have hired has gone through a falling off the cliff stage after bootcamp. They come out true believers and they are all excited. And then they encounter the reality of the organization. It is almost predictable: after about a 30 day period they are so disillusioned – I have to spend 3-4 hours pulling them out of the trough of disillusion. They get so excited in bootcamp about what a wonderful teaming cooperative environment this is going to be. And then they run into – the lack of internal courtesy – and other things that are contrary to what they learn in bootcamp. They have a crisis of faith. You have to really work them out of it. I didn't think of that for me. I'm too old to walk out of bootcamp as a true believer. I was a believer. The distance to fall wasn't that far for me...

During bootcamp you get a sense of clarity of visions and direction. People give presentations and sound compellingly put together. And then [the new hires] try to do their job in the environment and they realize that it's not that clear where we are going or whose accountable or what the next steps are or who the decision-maker is.³³

For others, the initiation was a bridge to the company, a very positive experience that they felt made a difference in their own ability to do well.

Now, since bootcamp, I have a greater sense of *D&D*, our culture. Before I felt distant from everything going on, but now I have a vastly improved overview of our business and where I fit into the mix. Thank you *Vivian!* Those evaluating

³² Interview with *Vivian Dewey*, June 1999.

³³ Interview with *David Bullett*, October 1998.

this need to know how important bootcamp was to me. It certainly bridged a gap I felt between myself and *D&D*.³⁴

At the end of the weeklong session there was a formal moment of recognition, when the new hires were welcomed into the larger office. While this was an appropriate act of closure for the week, *Vivian* saw it as not only closure but also as an explicit moment where the new hires crossed into the larger community:

[The presentation the group did on the last day of bootcamp] was an open thing for anyone to go to... It was this amazing welcoming thing for the new people. They thought people were coming for the presentation -- but people were really coming to welcome them... This had a life-blood effect in the office -- quite on purpose.³⁵

The initiation session was experienced and crafted as a threshold, over which the new hires would travel during their transition into the company. The group bonded together over the course of the week. And while people often knew what their roles would be in the company, those roles were in the future; during initiation all were treated as if they were of equal status.³⁶

Creating a group of equals is a common feature of many rites of passage. Often this comradely, unstructured society is achieved through some leveling process at the outset of the liminal phase, during which there is a painful stripping away of some existing

³⁴ Statement evaluating bootcamp experience, May 1995.

³⁵ Interview with *Vivian Dewey*, June 1999.

³⁶ *Vivian* built in conscious mechanisms that contributed to the feeling of a status-free zone. For example, on the first day when individuals introduced themselves, they were instructed specifically not to state

attribute (such attributes can be emotional, social, psychological and/or physical).

Turner describes the adult circumcision ritual of the Mukanda.³⁷ Tracy Kidder describes how engineers "sign up" and join the team, agreeing to forsake family, hobbies and friends.³⁸ Gwynne Dyer explains that the first step of a fledgling soldier's conversion process is "the destruction of an individual's former beliefs and confidence, and his reduction to a position of helplessness and need."³⁹ Erving Goffman's description of someone's move into a "total institution" includes the initial mortification of self where the new recruit is first abased, humiliated and degraded. Once stripped of the rights and liberties that had been enjoyed outside of the institution, the recruit can be colonized and embrace the standards of reference that are the norm within the institution.⁴⁰

During the *D&D* initiation session, usually on the second day, there was an experiential learning moment that many of the new hires have described as the most memorable point in the week. As *Vivian* noted above, this was the turning point where she planned that the new hires would stop seeing themselves as new hires apart from *D&D* and begin to see themselves as part of *D&D*. To understand the effectiveness of the exercise,

their expected role or title. Communication from *Vivian Dewey*, January 2000.

³⁷ Victor Turner, *The Ritual Process: Structure and Anti-Structure* (Chicago: Aldine Publishing Co, 1969) , page 108.

³⁸ Tracy Kidder, *The Soul of a New Machine* (New York: Avon Books, 1981), page 63.

³⁹ Gwynne Dyer, *War* (New York: Crown Publishers, Inc., 1985), page 111.

⁴⁰ Erving Goffman, *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates* (New York: Doubleday, 1961), pages 13ff.

you need to remember that every person who was hired at *D&D* was told that only the "best of the best" were hired and that most new hires had experienced significant success in school and/or in business. The first day implicitly augmented those feelings of self-worth through the moments that *Vivian* described above as well as having senior people⁴¹ take time from their day to talk with the group.

As *Vivian* had designed, this particular activity was introduced as a teamwork exercise; the leader for that bootcamp outlined a problem that the group needed to solve.⁴² The problem varied over time, sometimes it had to do with opening a new office, sometimes with acquiring a new company. The content of the problem was not important. The session leader outlined the problem, told the group to be ready to present its solution in 20 minutes, and then left to an adjoining room. At the appointed time, the group would describe its solution to the session leader. Regardless of the solution, it was the leader's task to point out how the group had failed.⁴³ Often the failure points included the group's choice not to ask additional questions to confirm its understanding of the problem as well as not including in its presentation the assumptions that underlay the

⁴¹ Whenever possible, *Matt*, *Roger* or *Earl* would spend an hour with the new hires on their first day.

⁴² By categorizing the exercise as a teamwork exercise, the leader distracted the group -- like a magician waving her non-working hand. Focusing on the importance of doing well as a team (this group of over-achievers knew how to take direction), the group was not expecting the rabbit to bite them.

⁴³ When *Vivian* trained other people to run bootcamp sessions, she would refer to this exercise as the "failure exercise," and make sure that the purpose of the exercise -- to make the group fail -- was clear.

solution. This negative response by the leader made the new hires both embarrassed at their failure and angry at having been set up.⁴⁴

This psychological abasement was what Goffman found to be the critical factor in transforming recruits. Without experiencing some form of emotional vulnerability, the pride and other psychological defense mechanisms of the recruits prevent them from embracing the norms of the group they are joining.⁴⁵

A key moment in the *D&D* bootcamp week was what happened immediately after the new hires realized they had "failed." After this, and every experiential learning activity, the session leader would take the group through what they had learned and what it would mean to them as they continued their careers at *D&D*. The failure exercise had at least six prominent messages:

⁴⁴ At least one person recognized the setup, but was unable to forestall the group from its preordained path. In an August 1998 interview, *Charlie Pedersen* told me about his roommate's experience going through new hire training at *D&D*. They both had a training background, but *Charlie* had not yet interviewed at *D&D*. "He'd come home every night, and I had a really good, clear idea what the experience was. And it was very similar to what I used to run. So I recognized all the training. And you know, he'd come back, and he had that experience also. 'Cause he'd been doing training galore and leading stuff... So he'd come back pumped up every night... He comes back [one night], "I know we were set up to [fail], nobody else on the team wants to listen to me, and they're like da-da-da-da, but they're not listening. Oh, but I know, and this is the design that I can tell.'"

⁴⁵ Erving Goffman, *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates* (New York: Doubleday, 1961), pages 13ff.

- You will fail again at *D&D*. We tackle tough problems and we do not always get it right the first time. Learn to fail graciously and learn from what you did.⁴⁶
- Trust your gut. As soon as you know something is wrong, speak up.
- Your team is your best support mechanism for making sure that you do your best. Solo work often produces only narrow thinking.
- Be resourceful. Get what you need to be successful and to manage client expectations well.
- You must get inside the client's head and understand, as best you can, his or her perception of the problem. Often this means going back after you have a tentative solution and getting the client's feedback.
- When you try and communicate your ideas to someone, one of the most significant pieces of information is the set of assumptions that you have. Making those assumptions explicit will always improve the joint understanding of the situation.

As Turner or Goffman would see it, the new hires had been stripped of their intellectual arrogance and their belief that their greatest self-worth came from their abilities to be solo performers. This could be very painful and was engineered to come as a surprise.

⁴⁶ The "failure exercise" was first discussed in the group meeting that created the "list of stuff" from which *Vivian* created bootcamp. *Matt* felt that people would not be so afraid of failure if they had experienced it in this relatively safe setting.

The pain and the surprise helped startle the new hires into understanding that the initiation session was for real, and was something that *D&D* took very seriously. From this point on, the group tended to be more engaged in the learnings that were part of bootcamp.

As Turner pointed out, one of the functions of the liminal experience is to transmit codified culture. During this transitional period, the participants are open to new ideas. One variety of absorbable experience is the cultural norms appropriate to the society they will be entering.

... the liminal situation of *communitas* is heavily invested with a structure of a kind. But this is not a social structure... but one of symbols and ideas, an instructional structure... a way of inscribing in the mentalities of neophytes generative rules, codes, and media whereby they can manipulate the symbols of speech and culture to confer some degree of intelligibility on an experience that perpetually outstrips the possibilities of linguistic ... expression.⁴⁷

The fourth day of bootcamp was the "project" day. As part of framing the "delivery" value, the group was given a project to complete. The project was real, the clients were two to five current *D&D* employees who had a problem that needed a solution. This was an all day event, with the clients arriving in the morning to outline their project and returning in the late afternoon to give feedback on the group's progress. Everyone from the office was invited to attend the presentation of the solution on the morning of the

⁴⁷ Victor Turner, *Dramas, Fields and Metaphors: Symbolic Action in Human Society* (Ithaca: Cornell University Press, 1974), page 240.

fifth day. It was not uncommon for the new hire group to stay late the night before to get their presentation into "client-ready" shape. Having the project day as part of the initiation week was important to *Vivian* for two reasons, one pedagogical, one personal. On a pedagogical level it enabled the initiation group to have a real *D&D* experience.

Vivian put it this way:

The project day -- I really believed was critically important -- because of the project based methodology [within the company]. This would get people ready to do the project thing.⁴⁸

Doing a real project was important to the participants. It validated their week and demonstrated that *D&D* expected them to be able to deliver immediately. A member of the hiring team talked about the impact of the project:

Here with bootcamp, you're given a problem to solve, the problem's not, kind of, "It would be nice to see a solution to this problem some day." These are real life problems that our company faces, so you're gonna present to the executives on Friday. This is just like a [real client engagement]. You better be prepared to get some tough questions. And I think people are blown away, because they think it's just filler work, and then they come to the executive checkpoint with *Matt* and *Roger* and all the executives are in the room looking for a solution, and they're asking, "Well, why didn't you do it this way?" And they understand well, wait a minute, this was not just filler work, we were really supposed to come up with a working prototype here. And I think that impresses people as well. No other companies that I know do that.⁴⁹

⁴⁸ Interview with *Vivian Dewey*, June 1999.

⁴⁹ Interview with *Zoe Whitman*, October 1995.

The role of the "clients" was key.⁵⁰ Not only were they the ones to frame the problem but their response to the group's presentation would set a tone for what that incoming group would expect from their senior managers.

Sometimes, that experience was not a positive one. The project day for one bootcamp of five people was memorably bad for at least one participant. *Malcolm Sage*, a senior manager who came to *D&D* with over twenty years' experience, talks about the particular project that wrapped up his first week at *D&D*:

Our bootcamp project absolutely crashed and burned... [At the presentation, the executive who gave us the problem to solve] got up and said, "You failed to solve my problem." Now this was a big crowd there. [The head of the office] was there, there were a bunch of other [senior] people there, and [this executive] said "This didn't solve my problem at all." And got up and left the room. There was like a silence you could cut with a chainsaw.

I felt like, well, first I was obviously disappointed, because you want to make a good showing at bootcamp. I've always carried that around, the pressure that people have to try to cut a swath at bootcamp . . . This is one of those situations now that I'm really very sensitive to, because they can go a positive or a negative way. They can learn something or they can just go right through the floor. The response of one of the senior managers in there, who shall remain nameless, in terms of supporting a learning experience, was maybe we shouldn't do these projects in bootcamp anymore. And poor *Vivian* had to deal with this, because we were just, we thought we'd been set up.

[The sponsoring executive] eventually came back and apologized for what he had done. But *Vivian*, poor *Vivian*, this was a real test for *Vivian* to try to deal with us because we were really kind of [angry]...

⁵⁰ The "clients" were *D&D* employees with varying levels of responsibility. While the whole office was invited to the checkpoint presentations, senior staff such as *Matt* and *Roger* rarely attended. There was usually only two to four representatives from the senior team. The focus of the presentation was to the "clients," not to the executives.

I thought it was a real opportunity that was missed for somebody in the *D&D* mode to get up and create a positive experience for us. "What did you learn?" So when I do the Friday – I try to go to as many of the Friday bootcamp presentations as I can -- and I always ask them at the end (whether they've done well or not) "Let's go around the room, what did you learn?" And none of that was done that time. I felt I was really humbled by it.⁵¹

For this group, having been set up the first time with the failure exercise made them suspicious that this final project was also designed as an opportunity to fail. However, this second experience had a much higher cost in terms of humiliation -- humiliation outside of the new hire group, humiliation in public, humiliation in front of potential colleagues and bosses, humiliation in front of the senior executives. By having demonstrated that she was not always going to be up front with all of the aspects of the training, *Vivian* had to work hard to convince this group that they had not been set up this second time.

There were two reasons that the project day was an important part of bootcamp for *Vivian*. First, as has been discussed, it enabled the initiation group to have a real *D&D* experience, which could be either negative or positive. The second reason was a personal one: it enabled *Vivian* to mirror what she had experienced. *Vivian* put it this way:

I was shocked by the amount of responsibility given to me before I thought I was ready for it or worthy of it... I found it incredible to have the opportunity to have ownership. There was this sheer excitement to have this opportunity to solve a

⁵¹ Interview with *Malcolm Sage*, August 1998.

real problem and be empowered to act -- that was just amazing to me. And that fueled -- I would actively share that with people. My belief in the company was increased, and I would share that in the sessions...⁵²

It was important to understand the impact of the leader on the group. While others could have crafted a similar experience and others have led the sessions, Vivian brought a unique perspective as the leader of the session. Because she had been given the opportunity to "solve a real problem" even though she did not think she was "ready for it or worthy of it," she embedded and re-experienced that "sheer excitement" with each group that she guided through the initiation experience. *Malcolm Sage* pointed out that it was the people who created those sessions, the specific individuals who were part of the culture team, that really made a difference:

Culture team is successful because the people out there believe in that and put themselves on the line and stick their neck out from time to time to make each of those bootcamps successful, because they're all different. You know, they care about it, they agonize about it. That's why that's successful. And as I tell candidates, they say, "What's the culture contingent?" I said, "Well, we focus on it." You know, the culture can go in any one of many directions, and we can't keep the culture in a bottle. We can do something to really influence it in the hiring and in the culture team and in bootcamp and in staff meetings, and it's some of the same people who are involved in doing that same kind of thing. People who really care about that.⁵³

But what if the people running the initiation week had some doubts about the company? What if those people didn't truly believe everything they said? Could the participants tell? Did the senior executives know? Did the format of the weeklong

⁵² Interview with *Vivian Dewey*, June 1999.

⁵³ Interview with *Malcolm Sage*, August 1998.

session provide some sort of emotional shield that made it easier for the people who led the sessions to mask any concerns?

In her research on emotional labor, Arlie Russell Hochschild asked the question, "Where does the person end and the performance begin?" She goes beyond Goffman's premise that we all orchestrate the way we present ourselves to make specific (intentional) impressions,⁵⁴ and focuses on the potential for estrangement between the public and private persona. She defines emotional labor as work which

"...requires one to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind in others ... This kind of labor calls for a coordination of mind and feeling, and it sometimes draws on a source of self that we honor as deep and integral to our individuality."⁵⁵

Hochschild admits that there is a spectrum of public situations where mere good manners call for each individual to display the appropriate emotions. "The party guest summons up a gaiety owed to the host, the mourner summons up a proper sadness for a funeral. Each offers up feeling as a momentary contribution to the collective good."⁵⁶ Her concern is with one subset of those situations where there is conflict between the private self and the public self and there is no way to alleviate that tension. She explores the working life of flight attendants where part of the job is maintaining a

⁵⁴ Erving Goffman, Presentation of Self in Everyday Life (New York: Doubleday, 1959).

⁵⁵ Arlie Russell Hochschild, The Managed Heart: Commercialization of Human Feeling (Berkeley: University of California press, 1983), page 7.

⁵⁶ Arlie Russell Hochschild, The Managed Heart: Commercialization of Human Feeling (Berkeley: University of California press, 1983), page 18.

positive outlook and a pleasant demeanor, regardless of what the person is actually feeling. Hochschild recommends that the person who does emotional labor for a living should not try to fuse the real and the acted self, but should welcome the separation of the two. She states that older, more experienced people are more adept at this: "They speak more matter-of-factly about their emotional labor in clearly defined and sometimes mechanistic ways: 'I get in gear; I get revved up, I get plugged in.'"⁵⁷

In his ethnography of a high tech firm, Gideon Kunda recorded that separation of the public and private persona. He notes that this phenomenon actually broadened Hochschild's notion of emotional labor to include the labor necessary to engender commitment and loyalty to the firm. Kunda speaks of the public persona as a conscious role that employees enact when the situation requires.

[The employees] know they must often appear in ideologically correct garb and conduct themselves in public as agents of entrepreneurial zeal: productive, enterprising, flexible, self-regulating active – not reactive – corporate actors. Yet, offstage, as in times past, these same employees are quite able to construct themselves rather differently – as relatively powerless subjects buffeted by larger forces, unable to take control of their own destinies or pack their own parachutes."⁵⁸

⁵⁷ Arlie Russell Hochschild, The Managed Heart: Commercialization of Human Feeling (Berkeley: University of California press, 1983), pages 132ff.

⁵⁸ Gideon Kunda and John Van Maanen, "Changing Scripts at Work: Managers and Professionals" The Annals of the American Academy of Political and Social Science, Volume 561:1 (January 1999), page 75. Richard Sennett identifies teamwork as another example of a situation where the individual's true feelings are hidden, in this case by a "mask of cooperation." He comments on the "superficiality of the fictions of teamwork." Richard Sennett, The Corrosion of Character: The Personal Consequences of Work in the New Capitalism (New York: W.W. Norton & Company, 1998), pages 112-113.

At *D&D*, *Vivian* was an example of the potential for conflict between the public and private persona of an employee whose job required a great deal of emotional labor.

Vivian took seriously the importance of her role as a spokesperson for the firm.

Running new hire initiation week, her presentation, her style, her demeanor created for the new hires one of the key early impressions about *D&D*. Others who ran these sessions might create the appropriate impression by separating the public from the private self, when and if necessary. However, *Vivian* was not only the session leader, she was also the architect for this experience. The success of each session had private meaning to her. Therefore, it was harder for her to dissociate her private self from the public self. At the same time, she was concerned about some of the experiences people were having at *D&D* that made them unhappy enough to leave. *Vivian* recognized the two selves that she tried to balance:

[At one point] I was very frustrated and I felt like so many people who were at *D&D* weren't happy. And it [hurt] that some people left. And just the woman I am, if I'm gonna try to convince people that *D&D*'s great, and explain to them why and how they become part of the culture and understand it, I have to believe in it. And I have to believe that we're honest and that it works. And so many different [people] were unhappy ... I didn't feel like I could do that. And I have to say what I believe, [what] I think. And be willing to believe it myself. And so what came out ... was a personal commitment inside myself to try to help figure out ways to make us be better at it. And the way that I can do that with what I'm doing now is by modeling it in bootcamp. You know, hopefully that wears off on people like that. But making sure that people hear the vision, that they're sure what the vision is of the company, and feel like they're a part of it...

[I was] recognizing which needs I was having and the frustrations I was having, which ones were *Vivian*-specific and which ones were shared. And therefore which ones we needed to put in the bootcamp.⁵⁹

Hochschild's insights are relevant for the specific experience that *Vivian* had. However, they also pertain to all the people who went through the *D&D* bootcamp. Through exercises, debriefs and visits from senior staff, the bootcamp participants learned the kinds of behaviors that were expected of *D&D* employees. While there was an implicit hope that those behaviors and the corresponding list of values would resonate with the new employee's own sense of self, the explicit expectation was that employees would perform their new roles even if it meant suppressing something of themselves.

By mid-1999, the initiation session, run by *Vivian* and others, had been a rite of passage for 80% of the current employees of *D&D*. It had acculturated new hires; it had been a vehicle to embed the values explicitly into the fabric of the company.

Assessing the Effectiveness of Bootcamp

Even though for some there had been negative experiences, even though the values were at times self-contradictory, even though at times the session leaders and participants might have private thoughts that were at odds with their public presentations, the general feeling from participants, session leaders and senior

⁵⁹ Interview with *Vivian Dewey*, October 1995.
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managers was that bootcamp had been successful. The three quotes below are from senior managers over the course of a few years, describing their views on the success of bootcamp:

1995: Now everything's much better, especially with the introduction of bootcamp, which has been a tremendous, tremendous success... Bootcamp introduces *D&D*, our culture, our values, why we're in the business we're in, what does delivery mean to you? It gives [the new hires] some kind of a jogging start before actually having to run, and it helps people to learn the tools, and then learn what we do... Bootcamp helps address all of that. So people are much better prepared when the time comes to get in front of a client. And I think that's been a tremendous help in people's perceptions here. And I know that for a fact, because I've talked to so many people who've said, I've never gone through bootcamp, I would've loved to have that when I came in.⁶⁰

1998: I think we'd be in a very different place right now, if we hadn't [created bootcamp]. I do see that as one of the best things we ever did. One of the things that helped us get to 1000 people from 100... We were doubling every year. Half the people had a half-life of six months in the company. And the other people had a half-life of twelve months in the company. You know, only a quarter had been there more than two years. You can have tremendous pollution with people running everywhere doing the wrong thing. But I think bootcamp really helped articulate the values, to instill that in people from the very first day. I think that it was absolutely critical and part of why we have such a stronghold today and why we were able to double the workforce every year but keep our delivery, our quality, our cultures that are important to us at such a high level. I do see that as a huge watershed point in our history.⁶¹

1999: The original bootcamp ... I still think is a very effective tool. I still get positive feedback from people coming into the door. It gives an orientation around the company and helps people bond with other people immediately. It holds a lot of meaning for people (I talk with someone who mentions that "oh yeah, he was in my bootcamp." People stay in touch with those who were in their bootcamp. Across geographies and industries).⁶²

⁶⁰ Interview with *Zoe Whitman*, October 1995.

⁶¹ Interview with *Roger Brooks*, October 1998.

⁶² Interview with *Earl Vickers*, October 1999

The *D&D* initiation week was designed as a liminal transition that enabled new hires to join the company in the correct frame of mind. The company values, originally articulated as a descriptive exercise, were put center stage so that they became a shared language, a baseline prescription required for entry to the organization.

Mary Douglas points out that in order to achieve true solidarity across a group of people, there must be a common language. She posits that that kind of mental cohesiveness is only possible to the "extent that individuals share the categories of their thought."⁶³ Referring to Durkheim, she takes his notions of social control of cognition and focuses them into the smaller society found within the institution.

Classifications, logical operations, and guiding metaphors are given to the individual by society. Above all, the sense of a priori rightness of some ideas and the nonsensicality of others are handed out as part of the social environment...

[The] elementary social bond is only formed when individuals entrench in their minds a model of the social order...

[For there to be discourse], the basic categories have to be agreed on. Nothing else but institutions can define sameness.⁶⁴

Durkheim looked at the relationship of the individual to the group and claimed that the individual internalizes the prescriptions of the group. *D&D*'s bootcamp was designed to aid the new hires in that internalization process. For Douglas, those prescriptions

⁶³ Mary Douglas, How Institutions Think (Syracuse: Syracuse University Press, 1986) page 8.

⁶⁴ Mary Douglas, How Institutions Think (Syracuse: Syracuse University Press, 1986), pages 10, 45, 55.

have power because they categorize entities into the sacred and the profane. Those categories are socially constructed but the effectiveness of the initiation process can be measured by the resulting perception that the category of the sacred has an autonomous existence.⁶⁵

The *D&D* initiation session mandated a common language and a common set of values that gave the company a shared mental model. The active use of the values was reinforced in many ways: potential new hires were evaluated based on their affinity for the values ("fit interviews"); promotions were determined in part by the person's ability to live the values; terminations, while based on tangible shortcomings, often included reference to the gap between the perceived behaviors and the expected values; feedback from peers and others was framed in terms of the values; public recognition was stated in terms of the values.

This common language effectively shaped a common normative stance. When you held onto the values, you knew what was right and what wasn't. These were sacred. Over time, however, what was sacred became what was unquestioned. The group that first articulated the values had taken part in a descriptive exercise. That group tried to hire new comers who "fit," for whom the values had resonance. New hire initiation

⁶⁵ Mary Douglas, Implicit Meanings: Essays in Anthropology (London: Routledge & Kegan Paul, 1975), pages xiff.

reinforced the message of the importance of the values. But over time, the values became more prescription than description.

Even though the *D&D* leadership team articulated the values and created the initiation session with only the best of intentions, some of the long term consequences were not as beneficial. That which had been sacred became dogma and the company as a whole began to lose some of its flexibility. While Douglas looks at the existence of the sacred and the social forces that protect that which is considered sacred, Karl Weick's notion of "sensemaking" provides another way to understand the circumstances under which description becomes prescription.⁶⁶

Weick's vision suggests that, in order to grow, the organization must have a means of transmitting "sensible" activities while encouraging innovation at all levels. Weick suggests that this balance is a result of a pendulum which moves from one focus to the other. For a company to be successful over a long period of time, it must be able to walk away from activities that used to be "sensible" and embrace novel ideas. One barrier to that freedom of movement is a mandate that suggests that there is a "right way" of thinking or a collective protection of that which is considered sacred. By 1998/99, *D&D's* initiation session had contributed to the pervasive sense that there was only one right set of values and behaviors. This protection of that which was sacred

was a barrier to the agility that the company required to compete in a changing environment.⁶⁷

Matt Barr recognized that *D&D* had created its own problem. He wanted to have the employees adopt new behaviors in response to a new competitive landscape. He believed that by making the culture explicit, the company had implicitly underscored the notion that that particular manifestation of the values was the be all and end all. The more the explicit culture became shared, the harder it became for the organization to change.

It is helpful to remember that *Matt* had reified "values" to be independent realities. He did not have a mental model that understood values as useful but fictional labels for observed behaviors. His model required him to change the values in order to drive necessary changes to behaviors.

The following quotations from *Matt* cover a period of several months during which he focused on this concern:

November 1998: Very few of us were certain that as a 500 person organization we would have a culture that any of us would be proud of. Now, at 1400 we have a culture that's better than we thought it would be at 500... On the positive side -- we have common values that seem to contribute to our ability to do the

⁶⁶ Karl Weick, *Sensemaking in Organizations* (Thousand Oaks, California: Sage Publications, 1995).

⁶⁷ In the discussion that follows, I focus on just one contributing factor to a growing rigidity within *D&D*. This theme will appear again in this dissertation when I look at other components.

things we think are important. On the negative – we have burnt [the culture] into peoples' heads... We did culture at the expense of other things... I believe we believed that culture would solve all our problems. But that focus hurt other things ... It made it harder to bring in outside opinions and experience.⁶⁸

January 1999: A strong culture is better than a weak culture but strong cultures do have a flaw. When radical changes happen to the external world, groups with strong cultures often fail because they cannot evolve their culture – it's too strongly imprinted. In fact, the term "success becoming your failure" comes from the idea that a past success influences your future actions. This can occur to such an extent that your culture stops you from being able to change to compete in a new environment. Hence the idea that an adaptable culture is every bit [as] important as a strong one.⁶⁹

April 1999: It is time for us to review our culture, values and behaviors. We need to ask: Are they the right set for us to compete going forward?⁷⁰

David Bullett, a senior manager, concurred that the initiation week reinforced both the good and the bad aspects of the espoused values across all employees:

I believe that because the group is young they have collectively hit on a single style and reinforced that single style. This is because people have not had a lot of years. If you've worked 10 years and in five organizations – your style becomes a lot grayer – you have a whole range of styles you are comfortable with. If you have only been in the Marines, you only have one style. Until you go from the Marines to GE, you don't have to develop another style and you think the Marines is the best style there is. You are comfortable and the environment supports it. You don't have to be flexible... We are phenomenally good at teaching and reinforcing a particular style – the good and the bad of the bootcamp process and all the things we have put in place.⁷¹

⁶⁸ Interview with *Matt Barr*, November 1998.

⁶⁹ Article by *Matt Barr* in company-wide electronic newspaper, January 1999. In it he reiterated his values/behaviors/culture model and explained what he meant by "strong culture": "Culture 'develops' when a group of people with shared values experience success over time. The group tends to repeat their behaviors in an attempt to replicate their success. As this happens, both the values and behaviors become engrained in the group. This is why highly successful groups normally have 'strong cultures.'"

⁷⁰ Company-wide voicemail from *Matt Barr*, April 1999.

⁷¹ Interview with *David Bullett*, October 1998.

Similarly, *Richard Libby*, another member of the leadership team, commented on how a perceived strength could so easily be transformed into a weakness:

I have been thinking about what is the right way to build an organization from the ground up. To scale an organization well in a meaningful way and from a business pragmatic way, you have to build a strong organization. Strong values, systems, processes. For much of *D&D's* initial growth we did that. And that is why we were able to do the amazing things we did. But there is a downside. Because you have to build things tough, your values become dogmas. When you are faced with significant change you are at a weakness.⁷²

This notion of rigidity within *D&D* fit within a particular time and context. When I did a round of interviews in October 1995, there were no comments about rigidity; the overwhelming image painted by those I interviewed was one of challenge and flexibility. That sense of flexibility mirrored the flexibility of the new economic environment described in Chapter One. During interviews from October 1998, and on, many people raised their concerns about *D&D's* rigidity and loss of adaptability. The economic context had become more turbulent but *D&D* employees felt that the company had not kept pace. By that time, the concern had become strong enough that some people within the firm had been chartered with looking into ways to create a more agile organization.⁷³

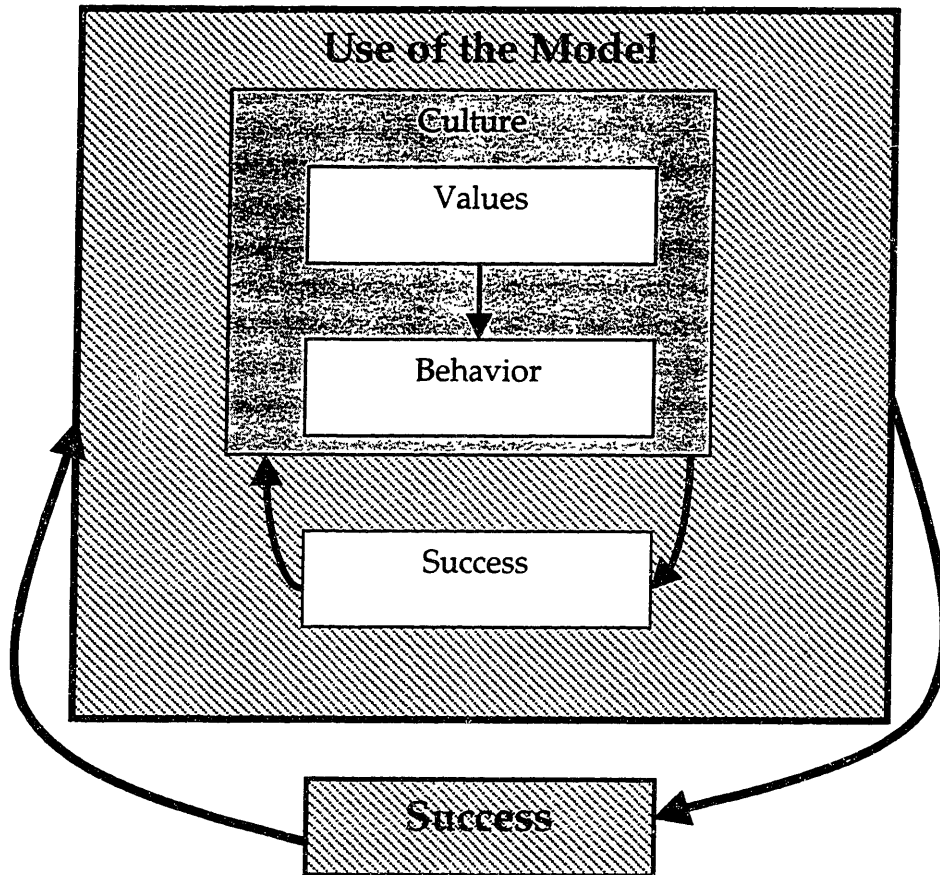
⁷² Interview with *Richard Libby*, October 1999.

⁷³ Turner and Douglas' structuralist models that are used in this chapter are notoriously bad at dealing with change. Business theorists who attempt to balance the need for a flexible culture and with a stable way of transmitting it, tend to recommend a bifurcated approach – where flexibility is the province of one aspect of the corporation and continuity the province of another. See, for example, Peter Drucker on balancing change and continuity: Peter F. Drucker, *Management Challenges for the 21st Century* (New York: HarperCollins, 1999); and Rosabeth Moss Kanter on the change-adept organization: Rosabeth Moss Kanter, *Rosabeth Moss Kanter on the Frontiers of Management* (Cambridge: Harvard College, 1997).

The transition towards rigidity was neither linear nor simple. There was one factor that was itself an example of how insidious mental models can be. In the earlier days, it was common for people to use *Matt's* culture/values/behavior/success model. People found it a useful model to explain why it was important to focus on values. Power was also a factor in this situation. The fact that one of the co-founders of the company wanted to use this model increased its attractiveness to those who worked for him. It also decreased the likelihood that anyone would critique it, particularly within the context of its apparent utility and success.

As *D&D* continued to experience success, the leaders continued to express no critique of the model. Indeed, because *D&D* had been successful, there was (at least implicitly) another layer of causality added to the model. Over time, the more success the senior team experienced at *D&D*, the more reason they had to continue to use the model originated by *Matt*.

The Model Where Success Reinforces the Use of the Embedded Model



In his work with shared mental models in corporations, Peter Senge has repeatedly demonstrated that a group of people will often take actions that are consistent with their mental models.⁷⁴ However, those models have often been collections of assumptions, where some assumptions were open to question. He challenges

⁷⁴ They also often take actions that are inconsistent with the mental models.

leadership teams to question the assumptions that underlie their mental models. His concern is that, "if managers 'believe' their world views are facts rather than sets of assumptions, they will not be open to challenging those world views."⁷⁵

At *D&D*, there was a shared model that people believed had contributed to past success. While there were many pieces to the model, the emphasis on culture was considered critical.⁷⁶ Now, with hindsight, the company leaders acknowledged that they had been trapped by their own success and were not looking for areas to improve or change:

Craig Adams: We got on the treadmill – and we thought that we had the winning formula for too long. We road this product too long. We don't have the new one ready.⁷⁷

⁷⁵ Peter Senge, *The Fifth Discipline: The Art and Practice of The Learning Organization* (New York: Currency Doubleday, 1990), page 203.

⁷⁶The senior team was also influenced by a book they all read. Recommended by *Harry Vaughan*, one of the members of the leadership team, *Built to Last* sought to answer the question: What makes truly exceptional companies different from other companies? The authors, James Collins and Jerry Porras, emphasized the importance of having articulated, authentic, core values that provide a bedrock on top of which strategies, cultural norms, products, goals, competencies, organizational structures, and reward systems can and must change.

A visionary company almost religiously preserves its core ideology – changing it seldom, if ever. Core values in a visionary company form a rock-solid foundation and do not drift with the trends and fashions of the day; in some cases, the core values have remained intact for well over one hundred years... Yet while keeping their core ideologies tightly fixed, visionary companies display a powerful drive for progress that enables them to change and adapt without compromising their cherished core ideals. (James C. Collins and Jerry I Porras, *Built to Last: Successful Habits of Visionary Companies* (New York: HarperCollins Publishers, 1994), pages 8-9)

This emphasis on core values as a key factor in building a truly exceptional company intensified the senior team's commitment to the processes that made the *D&D* culture explicit.

⁷⁷ Interview with *H. Craig Adams*, October 1998.

Matt Barr: Organizationally it is like Russia before Russia fell apart. There is an institutional memory – until the mid 80's most of the leaders in Russia had been in WWII ... That is good and bad – we have so much institutional memory around projects and clients. It is why we can execute better than any one else. But it makes it harder for us to change.⁷⁸

Roger Brooks: Well, it's certainly true, I mean we are wedded to the process sometimes and work blindly the way we have always done things. And I don't think the company has necessarily made a shift... And so we feel like it's [our methodology], or our culture that's made us successful... And so I think people are attributing the wrong drivers to our success.⁷⁹

As I write this chapter in mid-1999, there was a new orientation session being rolled out and a new set of values being introduced to the company. The values were selected using a process that engaged the entire company. The new orientation session was created by a team of trainers. These changes were enacted because the senior team believed that what had contributed to *D&D's* success in the past was a barrier to success in the future.⁸⁰

This ability to change in order to remove perceived barriers to success is important. However, the message that was sent to the company was complex and somewhat contradictory. On the one hand, there was a very clear statement that *D&D's* strong culture had become a significant impediment to organizational effectiveness when it developed into a rigidity of outlook. On the other hand, the company founders

⁷⁸ Interview with *Matt Barr*, November 1998.

⁷⁹ Interview with *Roger Brooks*, August 1998.

⁸⁰ These were only two of the many changes that *D&D* undertook in early 1999. Chapter Seven looks at the overall change effort.

personally drove the initiative to revisit the core values and ensure that a new list was developed. At the same time, new senior managers were being hired and given significant responsibility and autonomy but they did not necessarily demonstrate a belief in the importance of sharing a set of core values.

For *Albert Marchand*, a technology leader at *D&D* with over 20 years of work experience, the net result of these conflicting signals was that people stopped focusing on the values. From his vantage point, it appeared that employees no longer protected that which had been sacred.

It is amazing. If you look at the core values, except for adding creativeness, they haven't changed that much. But people can't recite the core values anymore. Some people in culture [the group that runs the initiation week] don't know them off the top of their head. We did the [revised] core values but then we didn't iconify them in people's minds. There wasn't enough time spent in [talking about them and their importance]. It's as almost as if assimilating these core values was more of a chore, not something vital. We lost focus. Everyone was off on their own... But no one was focusing on that.

This matters. I just read [a NY Times article⁸¹ which] had this incredible roundtable discussion on leadership. There were these 4-5 CEOs – talking about the leader's job. One thing is that it is the CEO's job to talk about the values. Roger always did that – but slowly that got lost...

Senior people don't have the unifying concepts. I don't know how many senior people know how to work and educate along the line of the core values. They don't know how to transmit that down. The baggage from their other companies is in their way.⁸²

⁸¹ October 10, 1999

⁸² Interview with *Albert Marchand*, October 1999.

Similarly, *Harry Vaughan*, who had consistently worked to keep values center stage at *D&D*, was concerned that the values had lost their prominence:

There are a couple of things that we've been good about that we have let slip... *D&D* has always been a strongly centered, value-based company. People could articulate the values and the actions people took have more or less followed the values. Now people don't know what the values are and they don't connect to them in the same way. There are some tactical things involved with responding to that -- improved communications and a need to reinforce the values. How the values are both articulated and understood and lived on a regular basis I see as one thing [we have let slip].⁸³

For some of the senior leaders, this drift from the values was of great concern. They believed that without a strongly shared set of articulated values, the company would lose what had made it successful and unique.

Albert Marchand saw an analogy between the core values and a house's strong foundation:

And why we survived at all -- there was a foundation that was built for years -- and that foundation was really strong. It was as if you had built your house on a foundation --and a terrible hurricane came by -- and it tore off the roof. But because of the strong foundation we were able to weather the storm. You need a strong foundation around values -- because without it when the first storm comes by, you have nothing left.⁸⁴

Marchand believed the strong foundation of values enabled *D&D* to effect change during the first few months of 1999. However, he was concerned that if *D&D* did not

⁸³ Interview with *Harry Vaughan*, October 1999.

⁸⁴ Interview with *Albert Marchand*, October 1999.

repair the damage and shore up that foundation, it would not have sufficient resiliency to weather another storm or time of turbulence.

Malcolm Sage and *Richard Libby* both still found the core values to be touchstones of the organization. Despite the changes in the environment, the changes in the company, and the arrival of many new hires, they could not envision a *D&D* without core values. They thought it was critical that new hires understand that *D&D* was the company it was because people embraced the values at a fundamental level. They believed any attempt to pay mere lip service to them meant that that individual would not ultimately succeed at the firm.

Malcolm: I think that *D&D* has always been very consistent with what was in the hiring [process], you know, the core values. I try to get that across to people I interview. That this is not just window dressing, it's not just a couple of words. It's the way it is. And, if you don't fundamentally believe in those, it's gonna be a tough go.⁸⁵

Richard: Because [the enthusiasm for the core values, the love of the company] is what we are really about. What we live and breathe.⁸⁶

Ben Frankel echoed those ideas when he described the company-wide reaction when a change was made to the core values. He was delighted that so many people raised concerns about the change – he felt that demonstrated how important the values were to people.

⁸⁵ Interview with *Malcolm Sage*, August 1998.

⁸⁶ Interview with *Richard Libby*, October 1999.

And, a lot of times in interviews I talk about that change [to the core values], and I say "The thing that meant the most to me about that change ... is two things: 1) the fact that we have the guts to change, which I think shows a lot about a company. If you're going to change what you call "core values" that's kind of open-heart surgery. So, have the guts to say "it's not broken, but let's make it better" tells a lot about a company. 2) The second is actually the reaction to the change. There was a whole bunch of reactions... some positive, and a lot very vocal about, you know, "[That value] is something very near and dear to me, and we have now taken it as a secondary value. And [a new value] is now the primary value... I understand that is important, but..." and it was just a whole bunch of discussion about it. And, to me that was wonderful. And people scratch their heads when I say that, but to me it means that the core values mean something to everybody. It means that it is a big part of who they are in the company. You could go to nine out of ten companies in the United States and say we're changing the core value from x to y and no one would care... just continue doing what they are doing.⁸⁷

Collins and Porras, after studying exemplary companies, came to the conclusion that in order for a company to thrive, it must have a core ideology. The content of the actual tenets did not matter; they found no common themes across the companies that they studied. What was key was the authenticity of those beliefs and the way that they permeated the organization.

We concluded that the critical issue is not whether a company has the "right" core ideology or a "likable" core ideology but rather whether it *has* a core ideology -- likable or not -- that gives guidance and inspiration to the people *inside the company...*

[The leaders of some visionary companies] didn't sit down and ask "What business values would maximize our wealth?" or "What philosophy would look nice printed on glossy paper?" or "What beliefs would please the financial community?" No! They articulated what was inside them -- what was in their gut, what was bone deep. It was as natural to them as breathing. It's not what

⁸⁷ Interview with *Ben Frankel*, August 1998.

they believed as much as *how deeply they believed it* (and how consistently their organizations lived it). Again, the key word is *authenticity*.⁸⁸

Or as Tom Peters and Robert Waterman put it: "The excellent companies are marked by very strong cultures, so strong that you either buy into their norms or get out."⁸⁹

Paradoxically, the stories that people have told to demonstrate the value and uniqueness of their company are often the same as the ones told of other companies.

Joanne Martin and some other researchers examined a variety of organizational anecdotes and found seven common themes. They found that the themes

...seem to express tensions that arise from a conflict between organizational exigencies and the values of individual employees, which are, in turn, reflective of the values of the larger society... The common organizational stories may be seen as both a description of the world as it exists (with its discomforting dualities) and, for most of the stories, a statement about how this organization alleviates or accentuates the tension created by the duality.⁹⁰

They suggested that these common themes exist because the tension between the individual and the corporation is often played out in a similar fashion in various situations. However, the individual has a need to present his or her organization as

⁸⁸ James C. Collins and Jerry I. Porras, *Built to Last: Successful Habits of Visionary Companies* (New York: HarperBusiness, 1994), pages 68, 76, italics in original.

⁸⁹ Thomas J Peters and Robert H. Waterman, Jr., *In Search of Excellence: Lessons from America's Best-Run Companies* (New York: Warner Books, 1982), page 77.

⁹⁰ Joanne Martin, Martha S. Feldman, Mary Jo Hatch and Sim B. Sitkin, "The Uniqueness Paradox in Organizational Stories" *Administrative Science Quarterly* 28 (1983), pages 447-449.

unique in order to explain their commitment to a benevolent organization (or their distance from a less desirable one.)

Summary

The *D&D* founders and other leaders had a vision of a truly great company. To achieve that vision they followed the best practices of the time and decided to use culture as an explicit tool. They embraced a mental model of culture where behaviors were related to values; they expected any group to repeat the behaviors (and thereby reinforce the values and culture) that had given them success.

In the early years of the firm, they used different mechanisms to explicitly reinforce the values. They used the values as criteria in hiring, recognition, promotion and termination decisions. They chartered the creation of an initiation program where the explicit purpose was the maintenance of the existing culture: "To acculturate new hires faster (by an order of magnitude). To maintain our culture, despite our accelerated growth."

They were successful in putting certain structures in place. They intended those structures to quicken the speed with which people entered the boat, understood the course and were able to synchronize their strokes with the others. However, not all

individuals experienced those structures in the way the leaders had imagined. Some followed the mandates of the leadership team not so much because they embraced that set of ideas but because the leadership team were the ones in power. Some had trouble with the ambiguity of the espoused values, despite the ever-present stream of rhetoric. Some found they enacted the looked for behaviors without necessarily embracing the values or the mission of the firm. And many found that the day-to-day lived experience was much more problematic than they had hoped; in practice, the values seemed contradictory. And, as values became dogma and culture became "the way," the leadership team revamped the values and the initiation process that had shaped the company for so long.

Throughout this process, the *D&D* leaders continued to manipulate aspects of culture in order to shape the organization to their own standards. Not content to watch the company unfold, they constructed the culture with the tools they understood. When the results did not match their expectations, they used the same tools in the hopes of attaining a different result.

Chapter Four: Informal Socialization: The Manipulation of Dress

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Informal Socialization: The Manipulation of Dress

This chapter continues the discussion of how the leadership team at *D&D* exercised control by manipulating the culture of the firm. While the previous chapter looked at aspects of formal socialization, this chapter focuses on informal socialization.

John Van Maanen has looked at the transitions in and out of roles and positions that make up the gates of a career. His model includes a period of socialization every time an individual crosses some organizational boundary, whether that boundary is functional, hierarchical or self-defined by a less organizationally visible group.

To come to know an organizational situation and act within it implies that a person has developed some rules, principles, and understandings, or in shorthand notation, a perspective, for interpreting one's experiences associated with participating in a given sphere of the work world.¹

These boundary crossings create anxiety for the individual on three levels: cultural, psychological and sociological. Entering a new situation, the neophytes are separated from their old comfortable routines and must learn the new routines. Depending on the newness of the tasks, there may be some degree of performance anxiety in this new role. No longer with old companions, the individual faces some degree of isolation and

¹ John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982) page 86.

loneliness until new relationships form. And only after those relationships form will the new member begin to feel a sense of belonging, a sense of identification with the group.

The individual is thereby motivated to reduce those anxieties as quickly as possible. This motivation aligns with the corporation's desire to achieve a smooth transition, which contributes to the ongoing stability of the organization. Van Maanen distinguishes two aspects of the socialization process, the formal and the informal. He points out that often a formal group process marks the new hire's entry into the organization. The informal process follows, as the new employee is "shown the ropes" in the context of his or her particular assignment and specific tasks. An important aspect of the informal process is the possibility that at times the new hire will be educated in certain patterns without any explicit articulation. Gideon Kunda put it this way:

You can't *make 'em* do *anything*. They have to *want* it. So you have to work through the culture. The idea is to educate people without them knowing it. Have the religion and not know how they ever got it!²

The previous chapter discussed two major components of the formal socialization process at *D&D*: the weeklong initiation session and the emphasis on values. Now the discussion will turn to a few aspects of the informal socialization process. First I will

² Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), page 5.

look at aspects of dress and communication, to show how employees of *D&D* were socialized to manage perceptions about themselves and the company as a whole. Then I will discuss some of the issues around merit and decision-making.

Dressing in White Shirts

The history of what men wear at *D&D* has a certain symmetry. When it was first founded, there were no strictures on dress. Eight years later, in 1999, the firm was 100% casual. But for seven of those intervening years, male employees at *D&D* were expected to wear white shirts and dark suits.³ That conformity of attire was orchestrated by *Matt* and *Roger*; they wanted to make sure that clients had a good first impression of the *D&D* staff.

My first day at *D&D* was the first white shirt/dark suit day. The story that follows explains the transition to a common way of dressing, but it was also part of the early *D&D* lore. I heard it from different individuals; I heard *Matt* tell it at staff meetings and other gatherings. It was a powerful talisman for two reasons: it explained why there was a dress code and it demonstrated the impact of a single employee's actions. The story is as follows:

³ This next section is a saga of male attire, women are conspicuously absent. This parallels the lack of women at *D&D*. Much of the debate happened when the company had 100 - 150 employees. During that time there were no more than 20 women.

When *D&D* was eight men in a room, there was no dress code and there were no official working hours. As long as you were not seeing a client, your attire was up to you. This changed when *Matt* and *Roger* were able to convince a hardware vendor to give *D&D* about \$30,000 worth of equipment. Receiving this equipment was an important milestone in becoming a "real" company; established companies often receive equipment from hardware vendors so that the software that is written runs well on those particular pieces of hardware. *Matt* and *Roger* wanted to make sure that the vendor had no reason to question the wisdom of its decision. They believed that if the vendor saw people in cutoffs and bare feet, *D&D* would not appear to be a real company but just a couple of college kids on a lark. They got the other employees to agree to wear business dress when the vendor visited.

The hardware vendor made a surprise visit one day. *Henri*, barefoot, wearing jeans and a T-shirt, did not want to be seen. So he went into *Roger* and *Matt's* office to hide. Murphy's Law being what it is, the hardware vendor stuck his head in the office to look for *Matt* or *Roger*, only to see *Henri* trying to be invisible behind the computer.

From that point on, the dress rule was altered: you had to have a suit and shirt in the office at all times so that you could become appropriately attired at a moment's notice.

The next time the hardware vendor was due to visit, there was a great deal of discussion early in the day, with everyone making sure that he had the requisite suit and shirt. Nevertheless, when the vendor arrived, *Henri* was barefoot. He grabbed his black socks and started putting them on. Unfortunately, he was not able to complete the process before the vendor approached him. Not wanting to be rude, *Henri* got up from his chair to shake hands. Unfortunately, with only one sock on, he literally hopped towards the vendor with his right hand extended while with his left hand he tried to work the sock onto his bare foot.

All eight employees agreed that this would not do. For a new company, clients and contacts were too hard to come by to risk the relationships by creating a bad impression. At that point *D&D* acquired a dress code.⁴

⁴ For the most part, the dress code was transmitted from peer to peer. At times however, it was presented more formally. In an October 1993 staff meeting and again in a July 1994 company-wide email, *Matt* described his definition of proper business attire. From the email: "For men: dark suit, dark dress socks (darker than suit), dress shirt (does not have to be white, but white with straight collar is best), dark dress shoes (shoelaces are best), dark dress belt (matching shoes), any tie. For women: information to follow from Pat."

I have told the above anecdote at some length because it made such a forceful impression on me as a cautionary tale that was seen as critical to the young company's

When *Matt* asked me to make recommendations for women's attire there were only 11 women at the firm. The women discussed the topic via email and agreed to some guidelines. Afterwards, the women of the firm continued to wear a variety of styles, not always conforming to those suggestions. My email follows with some of the comments I received:

From Pat, August 1994

As mentioned before, given that the men are asked to conform to the white shirt look, we need to come up with a standard that we would like to live by.

The way I look at it, the guys have to toe a pretty dry standard (white shirts, dark suit, black shoes). Therefore we have to come up with something that provides enough variety -- while still evoking the appropriate level of professionalism.

From the comments I have received, the tentative recommendation:

- 1st and 2nd interview clothes (this translates into something tailored, jackets not required). Another way to put it: Err on the conservative side -- if you are not sure that you would [work with the client] wearing it, put it back in your closet...
- Colors are never discouraged (after all, there are plenty of white shirts)
- Pant suits (or that level of professionalism) are fine -- but "casual" slacks are not
- T-shirts that are visible are not okay
- Legs without hose are not okay
- Maternity clothes (if/when this is an issue for you) -- should balance the tailored look with the cost issue.

The response from *Vivian Dewey*:

I spoke with [someone] about this yesterday and bridled against his "Should women dress like the Big 6?" query. I'm glad you reiterated the "colors are never discouraged." Do our male counterparts agree on this subject, I wonder? ALSO -- If the issue is professionalism, will others read us as "less professional" if we wear a dress and not a suit -- or at least a jacket? (I think it is worth the risk, personally, because I would not want to be trapped in a dark suit and a white shirt uniform every day -- but I'm curious about the implications of this choice.)

The response from *Kathy Burk*:

This is a broad sweeping generalization, but I have always felt that women have needed less direction with regard to our clothing choices than our male colleagues, and as such do not require the very specific guidelines that the men are "encouraged (read required)" to follow. However, in the spirit of fairness, I would be in favor of jotting something down. As was recommended from the August notes, "business tailored" is a good idea, particularly when you are with clients. However, I see nothing wrong with a blouse, skirt, or dress slacks when you're not with a client (but like our male counterparts, we should look like there is a jacket hanging up at our desks.....)

success. The repetition of this tale was one form of socialization. Other ways of guiding employees' choice of attire varied over time. In December 1992, it was quite blatant. The person doing the preliminary screening of potential new hires over the phone told them what to wear for their interview. If they did not pick up on the "hint," they were not invited back for a second interview.⁵

Towards the end of 1993, with a different person in charge of hiring, men were hired even if they did not wear a white shirt during the hiring process. However, once in the door, their peers would let them know that white shirts were what they were expected to wear. When the occasional blue shirt or striped shirt would appear, the wearer would explain that all his white shirts were in the laundry or some other comment to acknowledge that he had strayed from the norm. In December 1993, when senior clients were coming to visit for a day, *Roger* sent a voicemail to the company saying that that day would be a "white shirt" day. That request underscored two points: there was still a way of dressing that constituted the "right" impression (at least for *Roger*) at *D&D* and *Roger* had a perception that if he did not make an explicit request, what the client would see would not meet that standard. By 1995, when the initiation week became the new hire's first *D&D* experience, that week included a talk where a current male

⁵ The *D&D* interview process has varied over time, but there are some consistent elements. Once the applicant has passed a screening phone interview, he or she meets with a series of current *D&D* employees. Each meeting has a different purpose, examining the applicant for various skills, behaviors and apparent cultural "fit." This process can be spread out over weeks, or compressed into one day.

employee described the do's and don'ts of *D&D* attire.⁶ In general, employees took their cues from the attire of the senior staff in their office and mimicked what they saw.⁷

D&D was not the only company that was concerned with how its employees dressed. In the 1970's, the IBM stereotype was a man in a three-piece, dark blue suit, a white shirt and a conservative tie. That way of dressing was mandated by management. In his book about IBM, Buck Rodgers, a long time IBM marketing executive, acknowledged that everyone at "Big Blue" tended to wear a conservative business suit. That practice was started by the founder of IBM, Tom Watson Sr., who observed that the way people dressed influenced how they were perceived, and that perception drove how people were treated. Watson wanted all IBM employees to be respected by their customers; since those customers were in the business world, he called for all employees to wear business dress. Rodgers explained:

Now, IBM has no written policy that tells a person how to dress: that's a fact. But to be completely truthful, there is an unwritten dress code that's as effective as if it were engraved in steel -- or as if it had a loaded gun behind it... [O]ne of the points of IBM's unwritten dress code [is that] clothes should not be such as to distract people. Men and women who are on the job representing IBM wear business suits. That's because IBM is serious about its business and wants that attitude projected to its customers by its front people.⁸

⁶ After a while the presentation was dropped from the initiation week and there was no longer any formal socialization around standards of dress.

⁷ The day after *D&D* went public in 1996, the head of the New York office wore a non-white shirt to the office for the first time in his nearly five years at *D&D*. The office quickly followed his lead and became much more colorful than some of the other offices.

⁸ Francis G. Rodgers and Robert L. Shook, The IBM Way: Insights into the World's Most Successful

Of course, not all companies, not even all computer companies, follow IBM in requiring employees to dress in dark suits and white shirts. The high tech company Gideon Kunda studied chose a quite different route. There, people commonly wore much less formal clothes, such as khakis, plaid shirts, sneakers. Kunda noted:

The dress code is loose, if rather drab. Business attire seems almost theatrically out of place and suggests association with the outside world, usually with "business types."⁹

Matt and *Roger* echoed Tom Watson Sr. when they explained why they worried about what people wore. They did not want *D&D* to be perceived as a bunch of techies who cared only for "cool" technical things and not for the business problem. They wanted the entire staff to help position *D&D* as a firm with business sense by contributing to the "right" first impression. They felt that, especially with a firm of young employees, wearing professional business attire would lend people more authority. *Matt* put it this way:

[We wear business dress] because it supports our Client Focused Delivery value and our overall aim to be viewed as business focused. It also supports our Growth value in that it has signaled to outsiders that we planned on "going places." You cannot imagine how many people have taken notice of us because of our "different" dress. This was particularly important when we were smaller and might not have been taken seriously.

Business dress also works in conjunction with the other behavior of working on our site. Because we have clients in all the time, one of our best ways to differentiate ourselves is to have prospective clients, employees and investors come visit one of our offices. At times, business dress also makes it easier to

Marketing Organization (New York: Harper & Row, Publishers, 1986), pages 81-82.

⁹ Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), page 2.

facilitate clients... because the clients come in casual – almost like a referee in a sports event that wears a different uniform.¹⁰

Matt and *Roger* wanted any client to believe that the *D&D* employees could deliver what they said they would. Since the client could not see the employees' level of proficiency, clothes were used to deliver an intentional message of competence. Dick Hebdige has contrasted the "innocent" messages of conventional styles with the "intentional" messages of subcultures.

These [conventional] choices contain a whole range of messages which are transmitted through the finely graded distinctions of a number of interlocking sets – class and status, self-image and attractiveness, etc.... However, the intentional communication is of a different order. It stands apart – a visible construction, a loaded choice. It directs attention to itself; it gives itself to be read.¹¹

The *D&D* white shirt was an intentional communication, an explicit choice. It might not be as loaded or as expressive as Doc Martins with an evening gown, however, it was an anomaly in an industry where it was acceptable for software engineers to dress informally and where many considered the standard occupational garb to be jeans and t-shirts. The clients who visited the *D&D* offices expressed surprise at seeing so many white shirts and discuss the white shirt phenomenon at length. They asked employees if they ever wore anything else. They took part in the banter teasing an employee who wore a colored or striped shirt.

¹⁰ Article in company-wide newspaper, September 1997.

¹¹ Dick Hebdige, *Subculture : The Meaning of Style* (London: Routledge & Kegan Paul, 1988; original edition, London: Methuen & Co Ltd., 1979), page 100.

Employees also recognized that the dress code existed to present an appropriate face to the clients. While there were complaints, there was also conformity to the standard.

One programmer explained why he complied with the dress code:

In general, I object to any effort to stifle individuality -- in this case, through an imposed dress code. However, given the clients that *D&D* deals with, I believe it is completely appropriate. I would hope that we are all able to think "out of the shirts!"¹²

There was, therefore, by both *D&D* employees and clients, a public acknowledgement that *D&D* employees were costumed to play particular roles. Erving Goffman has looked at techniques used to control impressions, using the analogy of theatrical performance. He discusses the choice of clothing as a way to create a "front," where particular choices carry particular connotations. But the clothes are only one component of the total impression. An important component is the cooperation of the "audience," who actively protect the façade that has been created. However, it is easy to destroy the image: a slip of the tongue, a spoiled setting, an intruder who does not conform to the roles currently in use -- there are a variety of disruptive events that can undermine the impression the performance is trying to foster. As Goffman has said, the "impression of reality fostered by performance is a delicate, fragile thing..."¹³

¹² Anonymous response to company survey, February 1994.

¹³ Erving Goffman, *Presentation of Self in Everyday Life* (New York: Doubleday, 1959), page 56.

Part of that fragility is the potential for conflicting interpretations of the same "front." In the idealized version of the performance, audience and performers share a common interpretation of the stage setting and the costumes. In real life, the "audience" may take away a very different message from that which is intended. At *D&D*, not everyone interpreted business dress as a mark of professionalism.

As she was going through the interview process, *Joan Archon* had the opportunity to gather impressions of *D&D* from friends who currently worked there. For her and for her informant, the pervasive white shirts did not connote professionalism; they implied a stagnant, rigid company.

I knew a little bit about *D&D*, or actually did a little research on them because a woman I worked with [knew someone at the company]. So he gave me some information about the company, and he must have had a bad day, because all he told me about it was white shirts. He told me all the stuff that makes us look incredibly starchy and not at all an approachable kind of company.¹⁴

Similarly, when *Albert Marchand* was interviewing, the white shirts did not create a positive impression for him. He saw them as a mark of rigidity. His impression was confirmed by subsequent conversations:

Some people ... they associated [business dress] with professional behavior and distinguishing us from others. When I came here -- I would have felt very uncomfortable in [one office where] they all wore white shirts. Even on Wall Street -- and some of them are pretty psychotic -- they don't all wear white shirts. In [that one *D&D* office] they all wear white shirts. That implies rigidity, moonie like behavior, a cult-like atmosphere. IBM was a cult -- I worked with

¹⁴ Interview with *Joan Archon*, August 1998.

them. In [that office] I found some of that rigidity when I talked to people who didn't know me that well.... If I had interviewed [there], I might not have taken the job. The rigidity bothered me.¹⁵

And yet for others in the firm white shirts did connote professionalism. One of the hiring managers, *Zoe Whitman*, while explaining her process for letting applicants know about the dress code, discussed the impressions created by white shirts and dark suits and contrasted that to the dress standards in other organizations for which she had recruited.

How we work it is, on the tour, we show all the white shirts, and we leave it up to the applicant. If they come to the second interview in a white shirt, we know that they've caught onto the fact that we wear white shirts ... Most do, believe it or not, they come back in a white shirt... But their image -- I think it is about professionalism...¹⁶ Their appearance needs to be that as well. Somebody that I would say is polished, who comes in in matching clothes and professional business attire, they're not in sandals... but more so they look the part. They look professional. You're gonna be perceived that way. So professional to me is somebody that will look professionally dressed, shaven, well-groomed, things like that...

[At a different high tech company] it was funny; I actually put some people to work within [that company] that were more of -- "Yeah, that's exactly what we're looking for, we're looking for people with the ponytails that are only interested in technology and that's all." Actually, one of the managers said to me, "I'm looking for the person who doesn't need to shower in three days. Somebody that does not have to be well-groomed, who can just sit there and code and enjoy doing it, staring at the screen. They don't need to shower for three days, if you see someone like that, that's the person I'm looking for."¹⁷

¹⁵ Interview with *Albert Marchand*, October 1999.

¹⁶ In Chapter Three, I mentioned that by choosing a particular list of values, the leaders could mask other potential issues. This quote includes an example. The *D&D* rhetoric explains that the behavior of wearing white shirts reflects professionalism. But another interpretation of that behavior would say that the underlying value is conformity. The potential negative consequences of hiring people who were willing to conform to one standard of dress and who therefore might be risk averse, were masked by attributing the uniformity of dress to the "positive" value of professionalism.

¹⁷ Interview with *Zoe Whitman*, October 1995.

Ed Schein has a three part model of culture: he has looked at not only corporate values and behaviors but also at the underlying assumptions. His exploration of assumptions provides one explanation for such different interpretations of the same business dress. Assumptions are the unconscious, taken for granted beliefs, the habits of perception that are shared in common by a group. While these assumptions may have been debated at some point in the past, in the present they are no longer questioned; they are embedded invisibly in the cultural fabric.¹⁸ In this example at *D&D*, the espoused value was professionalism; the corresponding action was wearing business dress. The underlying assumption for old-timers at *D&D* was that dark suits and white shirts were the business attire that telegraphed professionalism. It was the newcomers to *D&D* who demonstrated that the *D&D* notion that white shirts signaled professionalism was an assumption, not a universal given.

Schein emphasizes that shared assumptions provide cognitive stability for a group. He suggests that any force that attempts to disrupt that stability will face extreme opposition.

Basic assumptions... tend to be those we neither confront nor debate and hence are extremely difficult to change... [W]e tend to want to perceive the events around us as congruent with our assumptions, even if that means distorting, denying, projecting, or in other ways falsifying to ourselves what may be going on around us. It is in this psychological process that culture has its ultimate

¹⁸ Edgar H. Schein, Organizational Culture and Leadership (San Francisco: Jossey-Bass Publishers, 1992), especially Chapter 2, "Uncovering the Levels of Culture," pages 16-27.

power... Once we have developed an integrated set of such assumptions... we will be maximally comfortable with others who share the same set of assumptions and very uncomfortable and vulnerable in situations where different assumptions operate either because we will not understand what is going on, or, worse, misperceive and misinterpret the actions of others.¹⁹

Schein posits that attempts to change behaviors to ones that are no longer congruent with the underlying assumptions can cause a backlash.²⁰ At *D&D* there have been modifications to the dress code. At first there were just a few more official "casual days." By September 1997, there had been enough complaints about the dress code²¹ and enough requests to have casual Fridays, that a new policy was instituted. Each team could select one day a week to come in casual -- with the goal that no more than 20% of the office would be casual on any given day. With this model there would still be a majority of employees in business dress when clients came in, but the strictures of the dress code would be loosened.

As Schein's model would suggest, there was push back. *Peter Tyler*, the CFO, saw from some people a very strong negative response to the loosening of the dress code:

¹⁹ Edgar H. Schein, Organizational Culture and Leadership (San Francisco: Jossey-Bass Publishers, 1992), pages 22-23.

²⁰ This phenomenon, of revealing hidden assumptions by trying alternate behaviors, was also studied by Harold Garfinkel. Harold Garfinkel, Studies in Ethnomethodology (Englewood Cliffs, New Jersey: Prentice-Hall, 1967).

²¹ Typical comments from programmers: "I understand the need to follow business dress codes, I guess, but it's very restrictive to develop in. I sometimes find it hard to focus with a tie on. I'm serious. I don't believe this can change in the near future, but it'd be nice..." (Response to a May 1995 survey). "To make *D&D* a better place to work we should have a California-style dress code - even IBM's done it... :)" (Response to February 1995 survey).

I think that [people got] caught up in behaviors, you know, versus values. When we [added] one casual day [per week], there were people in the company that just thought that was awful. And *D&D* was changing for the wrong, and our values have changed, and this is awful. They didn't understand [that] it was a behavior to help support a value, and the value hasn't changed. We're a different company now, and now it means that we can have other behaviors to support the value.²²

Overall, the topic of what to wear to work was a contested terrain at *D&D*. Despite some clear mandates from *Matt* and *Roger* and others on the leadership team, there was not a complete consensus. For many years the men of the company did conform to a certain style of dress but some found ways to conform that were less onerous. For example, some wore a white shirt and tie, but their dark trousers were chinos. Visitors walking through the office would see a sea of white shirts. If they had an assumption that all men at *D&D* wore suits and white shirts, they might assume that the jackets were hanging in a closet. Pierre Bourdieu points out that the official account often predisposes the observer to see what one is supposed to see and not be open to a different interpretation:

[The viewer] is disposed to take for gospel truth the official discourses which informants are inclined to present to him as long as they see themselves as spokesmen mandated to present the group's official account of itself. He has no reason to perceive that he is allowing the *official definition* of social reality to be imposed on him – a version which dominates or represses other definitions.²³

²² Interview with *Peter Tyler*, October 1998.

²³ Pierre Bourdieu, *Outline of a Theory of Practice* (Cambridge: Cambridge University Press, 1977), page 37. Italics in original.

However, if those observers looked in the closets they would discover too few jackets for the number of people. In practice, some of the men of *D&D* had found a way to appear to conform (the visible white shirt) without the cost or discomfort of wearing a wool suit. Many chose humorous or flamboyant ties that appeared to be part of the conservative "white shirt and tie" regalia to someone just walking by the team area. Others wore striped or colored shirts more and more frequently. These choices were based on a variety of factors, including cost, changing styles, personal taste and a sense of what would be tolerated. New hires were socialized about what to wear not only by learning the official dress code but also by observing the way their peers dressed on a daily basis.²⁴

²⁴ In March 1999, *D&D* changed its dress code to 100% casual. *Roger Brooks* commented on that change:

Roger: The real reason [we made the change] -- people wanted to do it. It makes it a better place to work. People can be more comfortable, more relaxed, more informal. People don't like to wear suits. Especially technical people and creative people -- that's not their favorite form of dress. It also positions the company in the Internet space -- the wild west. We didn't want to look like IBM or EDS. We wanted an informal look -- better positioning than looking like a button down old firm. We did the button down thing to give us credibility when we were small. Once we gained credibility in our own right and the world changed and the world was looking for the new age approach, IBM and EDS were the last thing we wanted to look like... First reason was for our people. The second reason was to better position us as an e-business, an Internet firm. And send a strong message that we were doing things differently, breaking from our past -- a cultural icon to be smash on the ground. We are doing things differently...

Pat: What do you see?

Roger: It is more informal. Better blend of work and life. I infinitely enjoy it more. When I have to put a suit on, I am going to work, going to work mode. When I can put on casual clothes, it doesn't feel like going to work -- is about doing what you want to do, what you enjoy -- not going to a job -- with the negative connotations of work. It is an equalizer - it takes down the barriers -- takes down the formality. It was a formal thing. Less formality. Not barriers because we are different, because in a formal environment there tend to be more barriers. I definitely like this more.

Speaking with Whiteboards

Working inward from the outward presentation layer, another aspect of the informal socialization process at *D&D* was a particular style of communication. New hires were coached to seek consensus and use the whiteboards. While there were many benefits of having whiteboards everywhere, there was one particular paradox that identified some shortcomings of whiteboard use. In theory, the style of communication that sought consensus and used that particular artifact was said to embody the openness of the firm. In practice, these could be used to obscure conflicting ideas, exclude certain people from the group and control group dynamics.

Almost all non-windowed walls in *D&D* offices were covered with whiteboards. Some rooms had floor-to-ceiling, corner-to-corner whiteboards. Most installations were large rectangles that spanned the entire width of the wall and rose from waist-high to just a foot or so below the ceiling. Serving the same purpose as the more familiar schoolroom blackboards, whiteboards allowed you to write or draw on the walls with colored felt tipped markers and then erase what you had written.

Pat: What did you hear from our clients?

Roger: Toward the end of the business dress era -- our clients were all in casual dress -- we were one of the last companies to go casual -- we were getting flack from our clients. "We are all casual

There were many benefits to working in an environment where you could always find a nearby surface upon which to write: you were not limited to a verbal description, you could use pictures and diagrams to clarify your point; the people you listened to could verify that you understood them by what you wrote on the whiteboard; people in the group focused on what they shared in common: the conversation and what was written on the whiteboard, they did not remove themselves from the dialogue by burying themselves in individual note taking.

There were whiteboards everywhere at *D&D* and the employees used them seamlessly. Once in the environment you felt as if you couldn't talk without a whiteboard to illustrate your points. One of the project managers, *Priya Gupta*, discussed what it was like to work with whiteboards always within reach:

I am somebody who does very much better if I've got a whiteboard... Where I can say, "Okay, you go. Here's a pen. Explain to me what you mean, because I'm not sure I follow you." And it helps cover up for me, maybe not picking things up as quickly or whatever. But it's a tremendous tool. And I think the investment of wall space is far better in that than it is in fancy art...

I now instinctively know that I just turn around, and there's a whiteboard there. My instinct is just to take that route and say, "I'll draw you a picture." Though I, historically, used to do that a lot on paper. So, to me the whiteboard has somewhat replaced, "Let me grab my notepad and I'll, let me sketch it out for

and you are all dressed up as the bosses. But we want to be one team." All I have ever heard: "We do not like your formal dress. We want to be one team, no barriers."

you." The benefit of the whiteboard is, obviously, it's bigger. And you can show it with more people.²⁵

Zoe Whitman, the hiring manager, found the use of whiteboards implicitly increased the value of someone's ideas. For her, the whiteboard signified the importance of people's ideas and a general commitment to listening to others:

To me it means that we're serious about listening to other people's ideas. We're discussing something, "That's great! Hang on, let me grab a whiteboard marker." And you get up and you see someone actually get up and draw on it. So it's a commitment that we're interested in seeing people's ideas and designing things so people can actually see it. Rather than just talking about it, they can actually get to draw it up there and explain it to them, "This is what I meant by that." You see them in every team area, and you see people up drawing something or other. Some of the stuff I can't make out, it's code. But other stuff you are actually visually able to see it. And that's important.²⁶

During client workshops, *D&D* employees emphasized the mechanics of information capture. All the clients were directed to watch as an employee wrote on the whiteboard the highlights of what was being said. At the same time, another *D&D* employee was transcribing those points into a computer. The computer-recorder was expected to capture everything from the whiteboard and type (depending on skill, speed and accuracy) additional statements for clarification. It was that computer record that was saved and from which all reports back to the client were made. Given such a visible mechanism, the client was enjoined to eschew any note-taking of their own. "Don't bother to take notes," they were told, "Watch your ideas written on the whiteboard. If

²⁵ Interview with *Priya Gupta*, October 1995.

²⁶ Interview with *Zoe Whitman*, October 1995.

you don't like the wording you see, please correct it." *Ben Frankel*, a senior manager at *D&D* who had run many workshops, talked about the value of not needing to take notes in a meeting:

What I have noticed... I've noticed clients and I've noticed myself coming into the company - where you walk into a meeting and you're continuing on the lookout to be sure you're getting stuff you need to get, capturing things and taking notes and things like that ... that is a distracting event for the team or for the group that you're with. Because as you're capturing a point another point can be being made and you can miss it completely. And I see it happening at the [client meetings], people are fidgeting and [we] tell them up front that they don't need to [take notes], but they don't quite trust it. And then I see that comfort level go up dramatically over the course of the [meeting]. To the point where everyone is engaged, and it's almost like everything is being videoed, if you will, to refer back to. And that comfort that it is being taken care of, and I think that is a huge value that we [provide]. When I think about it now it's silly, but it's part of what I did for a long time. You know, ten people sit in a room all with notebooks, all taking notes in the exact same style, and not even necessarily interpreting it the same way. And then walking out with their notes when they probably missed 30% of the meeting because they were off taking notes.²⁷

Whether during a client meeting or a *D&D* only meeting, from a *D&D* point of view there were two main drivers to keep pads of paper out of the meeting participants' hands. First, if they were not taking notes, the participants were more likely to

²⁷ Interview with *Ben Frankel*, August 1998.

contribute to the dialogue. Secondly, whatever consensus the group reached was phrased according to what was on the whiteboard. The group agreed to one idea and one particular way of phrasing it, rather than agreeing to a point but having each person write it in their own notes differently. For *D&D* employees and for their clients, what was written on the whiteboard was thought of as "what really was said."

For many people at *D&D*, whiteboards were invaluable. They improved communication by adding a visual component, they were a tool to implicitly acknowledge the importance of what someone said, and they allowed a group to focus on a common set of themes. In theory, this mechanism helped create consensus. However, in practice, it could also obscure conflicting points of view and prevent some people from taking part in the debate. *Wally Church* talked about using whiteboards with clients and one of the pitfalls he had come across:

...I can't talk anymore without a whiteboard. I used to be a very effective communicator and now I need a whiteboard. There is something very powerful about being able to put your ideas up for other people to target at, focus on, close on, shoot down. It's visual... The shortcoming is that sometimes writing is a reinforcer for people. And sometimes the freedom we give them is a freedom from brain cell usage. [Freedom from] remembering what they said... remembering the issues.... [The client] doesn't feel it's important [to remember] because they knew it was captured by the recorder or in someone's head...

The process is very valuable – the whiteboard and being able to capture and freeing people to think. But we have to make sure that we don't free them up from remembering.²⁸

As *Wally* pointed out, the participants were supposed to be able to more fully engage in the dialogue because they were freed from taking notes. However, in practice, some participants used this freedom to disengage from the conversation altogether.

The accuracy of the notes on the whiteboard was debatable. The person at the whiteboard was not attempting to transcribe the entire conversation; what was being captured was filtered at least twice. The first filter was the *D&D* employee who was moderating the discussion. At times, the moderator would choose who would speak. Even more frequently, the moderator repeated what was said, rephrasing or paraphrasing the original comment. Depending on the speed of the discussion and the ability of the client to be concise, that paraphrase by the moderator might be the only set of words that was recorded on the whiteboard. As a second filter, the whiteboard recorder might choose to write only a subset of key words spoken by the moderator. Sometimes the moderator or a meeting participant might suggest a change to the wording on the whiteboard but, generally, what was first written was what was kept.²⁹

Ben Frankel explained the moderator's role in shaping the final output:

²⁸ Interview with *Wally Church*, October 1995.

²⁹ The roles of moderator and recorder were explicit roles at *D&D*. There were internal training workshops where people were taught techniques for controlling the conversation, driving to consensus and recording what was said. Only recently did those courses include the idea that some people work

Facilitating though, is interesting because sometimes as a facilitator there is an end goal. And you know that end goal. And sometimes you know, or you have a real good feeling of what the answer may be. And, your job is to allow the group to come to a conclusion. If you already have a conclusion in your head there is a very delicate balance with how you facilitate that. I think it is a skill that a good facilitator has to constantly use to be able to bridge that gap between leading a client on and truly coming up with something different. Because everyone has opinions. God, everyone at *D&D* has opinions, so the fact that facilitating a client without having an opinion is something real difficult for us. But I think we do a great job. So it's that whole balance ... Because I never want to walk out of a session feeling like, "Wow I really did a good job of getting the client where I knew we were going to get anyway." Because I think if you do that you may have totally missed the boat, or totally missed an opportunity for the client to come up with something very different.³⁰

Most of the moderators who were interviewed explained that they were most effective when they had a model in their head; they then used that model to guide the discussion. They used their internal model as a litmus test to determine which topics were relevant and which were not. Sometimes the group discussion demonstrated that the model was inappropriate; it was then the moderator's challenge to develop another internal model. Some people never shared these models with the group. Others made their models public. *Wally Church* used his model to influence the final result.

You have to work real hard [to get to a solution]... and sometimes as a joke I'll say: "I railroaded you that way..." And bring it out. Because as my own influencing style I will use disclosure; I will tell a lot about myself. But I'll bring it out, so it's conscious.... I'll facilitate in that direction and then say, "But are you happy with it. Have I pushed you to something?... Let's talk about it."... You know, sometimes in the interest of time, in the interests of closure, you are the facilitator. And that means you are necessarily leading people in a direction.³¹

through ideas by exploring a variety of options (divergent process) while others prefer coming to agreement (convergent process).

³⁰ Interview with *Ben Frankel*, August 1998.

³¹ Interview with *Wally Church*, October 1995.

Gideon Kunda, looking at a high tech company, has studied the inherent conflict between the needs of the group and the needs of the individual. He points out that in an environment where the overt ideology is one of openness, any centralized control has to be exerted quite subtly. Moreover, the very symbol of open expression can be used as a tool for controlling the collective memory.³²

At *D&D*, the whiteboard was the quintessential symbol of open communication. A group would meet in one room with the purpose of getting ideas out into the open. As the meeting progressed, the whiteboard, covered with comments, would stand as a witness that all remarks and reflections had been caught. It was the moderator's role to reinforce the perception that everyone's voice had been heard. One technique was to call on people who had not contributed to the discussion and actively elicit their comments. Another technique was for the moderator to voice an idea that might (or might not) be pertinent as a catalyst for additional dialogue. At other times the moderator would lead the group in a review of what was on the whiteboard, to demonstrate the breadth and depth of what had been covered. The explicit and implicit message was that everyone had been heard and that the final product represented the group consensus. Nevertheless, because I have been part of some contentious debates, I

³² Gideon Kunda, Engineering Culture: Control and Commitment in a High-Tech Corporation (Philadelphia: Temple University Press, 1992), pages 155ff.

am sure that people have walked away from those meetings feeling that their points were not appropriately incorporated into the resolution.

However, there have been some strong social forces at work to make it hard for the group to publicly deny that they have reached consensus. One force is the power of inscription. As Bruno Latour and Steve Woolgar have demonstrated, within the laboratory the construction of a "fact" is a social process that is aided by the process of writing down a description of the laboratory activities. Scientists produce articles and papers to persuade their peers that what occurred in a particular laboratory is not speculation or accident or biased interpretation but fact. Paradoxically, the construction of "fact-ness" requires that those who then use those facts "forget" that there ever was debate over those items.

The production of a paper depends critically on various processes of writing and reading which can be summarised as literary inscription. The function of literary inscription is the successful persuasion of readers, but the readers are only fully convinced when all sources of persuasion seem to have disappeared. In other words, the various operations of writing and reading which sustain an argument are seen by the participants to be largely irrelevant to "facts," which emerge solely by virtue of these same operations...

We [have] presented the laboratory as a system of literary inscription, an outcome of which is the occasional conviction of others that something is a fact. Such conviction entails the perception that a fact is something which is simply recorded in an article and that it has neither been socially constructed nor possesses its own history of construction.³³

³³ Bruno Latour and Steve Woolgar Laboratory Life: The Construction of Scientific Facts (Princeton: Princeton University Press, 1979), pages 76,105.

Similarly, within *D&D*, the construction of consensus was a social process which was aided by the use of whiteboards. The appearance of words on the whiteboard created an immediate "out-there-ness" of a set of statements. They became divorced from the speaker and the context. Not merely a proxy for the discussion, the recorded statements became "what really happened." The words that had been inscribed acquired a permanence; all other concepts that were shared (or not) by the participants were much more short lived.

Ben Frankel explained it this way:

Whiteboards in and of themselves aren't going to make a company, or change a company... but, what it sends as a message... is "Make things be open enough to share something on a wall with everyone that you're talking to." And it also says a lot about communication, and it is, "Don't just rely on verbal communication to get your point across. Rely on multiple medium in order to help communicate." And, we have actually taken it to the next level, which is now a whiteboard type of thought process. It is very difficult to get a group of people and take them together, without after five or ten minutes someone getting up to whiteboard. And sometimes it is absolutely unnecessary. But, it helps the conversation. Sometimes that person gets up and draws three circles and puts a couple of labels on them which didn't need to happen, but it helps the conversation. I found myself doing it in interviews, standing up and drawing a picture or something. So, yea, that is very different... And then the whole aspect of closure, which is, I have attended a whole bunch of meetings in my life which been intended to solve a particular issue, and you go in and you talk about an hour about the issue, nothing gets put up on any whiteboards, it gets discussed. Typically then, you have four issues you want to talk about, because those four issues blow up to fifteen issues. Everyone sits around and either laments or discusses those fifteen issues. And then everyone closes their book at the end of the meeting and walks out and says "Wow, this was a good meeting. We really uncovered a lot of issues." And there is no closure... and then, you know, people wonder why two months later you have the same meeting over again. So the whole closure aspect as I walked in the door was something else that was just

real interesting and rewarding, to kind of see, ok we're not leaving here until everyone walks out with "what are we going to do about this thing?" Ah, so, that's just another piece.³⁴

Another factor that contributed to the illusion of consensus had to do with power. The results of many of these whiteboard enhanced discussions were slated to be reported to one or more senior managers. There was an expectation that the group -- which had been asked to make a recommendation for some solution -- would present a unanimous front. It would take someone either with very strong convictions or no business savvy to say to senior management: "This group of my colleagues believes X but I disagree and recommend Y." Someone who disagreed with the outcome was more likely to stay silent in public and look for other ways to derail the recommendation.

At the point of presentation to senior management, the managers could be viewed as the audience, the meeting participants the performers. Goffman would point out that the performers -- all of the participants -- would tend to cooperate, even collude, to produce a single consensual definition of their collective output.³⁵ Foucault would point out that the potential for normative judgement by the seniors is a powerful force that shapes behaviors to conform with what the participants believe the seniors

³⁴ Interview with *Ben Frankel*, August 1998.

³⁵ Erving Goffman, *Presentation of Self in Everyday Life* (New York: Doubleday, 1959).

expect.³⁶ To the extent that the participants were chartered to come up with the (one) answer, that was what they would do.

A third factor that tended to create the impression of consensus was embedded in the culture of *D&D*; that factor was the focus on delivery. In order to deliver to their clients, *D&D* employees needed to determine what should be delivered. The sooner that decision was made, the sooner the activities could begin that would achieve that end, and -- in theory at least -- the sooner the goal would be attained. Therefore, a *D&D* meeting was considered satisfactory only if closure was reached on issues and people walked away with action steps to complete. A moderator fully steeped in the *D&D* mindset would judge herself on her ability to bring a group to consensus. A client who had hired *D&D* had bought into the notion that its entire team needed to be "on the same page" to resolve the business problem. *D&D* employees who were part of a group discussion expected to achieve resolution. With these expectations, there was a script for the meeting, even if it was not explicitly discussed. The group expected to reach consensus, so it was more likely to reach consensus. *Ned Powers* described the *D&D* focus on achieving consensus:

I believe that facilitators with subject-matter knowledge can very effectively shape and move the group to a certain definition. I am not cynical where I would say that that's being manipulative. But rather it's the ability, if you know the application area, to ask the right questions, and then given our iterative nature, to ... come back in after having a chance to think and synthesize about

³⁶ Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Random House, 1980).

what they said. . . Come back to the group or a different subset of the group and say, "What about this? What about this? What about this?" ...

I think each facilitator has a separate personality and that, to some extent, we shape the conversation... What's the alternative? You could let it stay mush, but that's not our culture. You've got 62 minutes, and we've gotta have something ready, if not on the press, at least a walk-by. And I would say that if you went down a road that was clearly not in their interest, I'm hoping they'd say, "Wait a minute, *Ned*. What are you doing? You've taken something that was ninth on a list of ten and made it first."³⁷

Priya Gupta added that the ability to get a group to focus on one issue had as much to do with physically isolating them as it did with the moderator's ability to guide the discussion:

I think facilitation is part of it, but my personal read on that is, I think a lot of the reason that we take this kind of cloud of Brownian goop out here and we achieve this nice outlined thing coming out the other end, it's attributable to a combination of facilitation, but I think probably the preeminent factor is getting people out of their environment. . . . A lot of the times when clients have us come in to do a workshop, it's not because they don't know what the right answer is, and it's not because they don't have some people who could get to that answer, it's just that they don't recognize that you've got to focus; it's the focus issue. People are people, and they tend to get distracted, and they kind of meander around, and what we do by pulling them out of their environment, combined with the facilitation is we force them to focus and make some decisions. . .

[The group] agrees on a set of specific, a set of goals for this session, and those goals will force us in the process, you know, we're gonna meander, but in the process of meandering, it's like we see all these interesting little side roads. And the reality is we only have so much time in our journey, and we want to get to the other end, so instead of going down each of these little side roads and getting lost three times, the facilitation forces you to stay on the main road...³⁸

³⁷ Interview with *Ned Powers*, October 1995.

³⁸ Interview with *Priya Gupta*, October 1995.

However, regardless of the nuances of perception, the goal was clear: gain consensus. This drive to consensus is one way of seeing the uniformity of white shirts as analogous to the use of whiteboards. Both echoed a convergent style, where the destination was conformity.

Recently, as *D&D* acquired other firms, the focus on driving for consensus and closure has been shown to be a style, an assumption, not the only way to successfully moderate a group dialogue. Part of *D&D*'s earlier success had been attributed to bringing disparate groups into alignment. In the hiring process, only candidates who demonstrated a convergent style passed the early stages of the interview. People who tended to explore options and leave topics open for further investigation did not get hired. The result was that the majority of people in the firm had a convergent style. However, that style is not the only effective style. In certain situations it can be counter-productive. As *D&D* embarked on more strategic consulting assignments and entered more creative genres, the convergent mentality became a hindrance. *Roger* discussed the conflict between the convergent *D&D* employees and the newly hired strategists and creatives who had a different way of approaching assignments:

We had a religious way of doing things -- that had made us successful to date... Scope down and scope down -- and don't tolerate meandering thoughts. We had a convergent orientation and a "get it done" orientation. These were behaviors and processes that were not helpful for the new process...

Because we were fixed time/fixed price, there were cultural norms in the workshops -- from fines [if you were late] to timed breakouts. Everything

bangbangbangbang. There was not a lot of time for reflection and stepping back and creating and exploring. All of our procedures [were designed] for very rapidly driving to closure with the knowledge that was in the room. Our processes were geared toward predictability...

We valued people who could close issues, not raise issues. Strategists like to raise issues and open issues -- explore and open the box. That was just a pain in the ass for people who were trained to close issues and nail the box shut. There was a fair amount of conflict there. And some similar things with the creatives -- we were trying to figure out what we were going to build, not try and create something. People who are creative could be brilliant in the Internet space -- but that was not the people that the culture embraced.³⁹

D&D hired people who had a certain style, a style that had contributed to the company's success. The interview process, where a key attribute was cultural "fit," increased the likelihood that there would be little diversity in communication style. Not only did *D&D* hire for convergent thinking, it also hired for comfort with using whiteboards. *Albert Marchand* pointed out to me that, in the interview process, there was a segment where the candidate was asked to use the whiteboard to scribe a solution. People who were not comfortable using the whiteboard or senior people with bad "whiteboard technique" were less likely to be hired.

For the longest time, we self-selected [using the whiteboards]. It was made clear to me that during my [technology] test that I had to use the whiteboard. So we self-selected people that would use the whiteboard. I would prefer to use a yellow pad first -- but I could adapt. Those that didn't feel comfortable just didn't make it.⁴⁰

³⁹ Interview with *Roger Brooks*, October 1999.

⁴⁰ Interview with *Albert Marchand*, October 1999.

Earlier in this paper, the discussion about formal socialization described some of the conflict and ambiguity that surrounded the values and the initiation week. While conflict and ambiguity also colored the issues of what to wear, the informal socialization of communication styles resulted in much more uniformity. By selective hiring and various reinforcing mechanisms, those consensual styles became norms and eventually became unquestioned givens. It was only recently, with the acquisition of firms where other styles had valence, that *D&D* has been forced to realize that its reliance on one set of communication styles has effectively cut off contributions from people – clients as well as employees – with other styles.

This recognition -- that characteristics that had been touted as significant factors in the creation of a successful company were now deterrents to future success -- came as a surprise to the firm. This is an example of the underlying paradox that *D&D* faced: attempts to manipulate the firm so that it would be able to thrive in a turbulent environment turned out to prevent what they had been engineered to accomplish.

Do What I Say, Not What I Do

As the new hire continued to experience "how we really do things" and became aligned with the *D&D* styles of dress and communication, there was another layer of

socialization. This layer had to do with the concepts of meritocracy and internal consistency.

During its hiring process, *D&D* described itself as a meritocracy, a flat organization where there were no limits, where the individual could achieve his or her own goals without being hindered by arbitrary timeframes. Indeed, there were people who had experienced that as true; their stories were told as exemplars: the college hire who went on to run an office after only two years with the company; the programmer who became the head of operations for the firm. However, others found their personal experience at odds with the rhetoric. They saw favoritism and cronyism; they learned to distrust the official platitudes. As Van Maanen says, "when the gap separating the two sorts of learnings [formal and informal] is large, disillusionment with the first [formal] wave may set in causing the individual to disregard virtually everything learned in the formal wave socialization."⁴¹

Van Maanen points out that in many companies there is a self-fulfilling prophecy where the label that gets attached to the individual becomes their predestined path.⁴² This

⁴¹ John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" in Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982) page 91.

⁴² John Van Maanen, "Boundary Crossings: Major Strategies of Organizational Socialization" in Career Issues in Human Resources Management, edited by Ralph Katz (Englewood Cliffs, New Jersey: Prentice-Hall, 1982) page 101.

predisposition had been noticed at *D&D*. *H. Craig Adams* and *Charlie Pedersen* saw the tendency for people to make quick assessments of people they had just met and for that assessment to stick for a long time, even in the face of conflicting information.

Craig: We do have grace period. When we don't know you well, we listen. But as soon as we know you well, we feel free to dismiss you. People need to establish credibility early on... As the little black book grows up on you, it doesn't matter what you come up with – it's going to be hell to get that into the company. The entrepreneurial thoughts get squashed.⁴³

Charlie: The other thing that struck me right away was that quick “We like. No we don't” which is not too pretty. People say how good we are and all that stuff, but people [make] decisions in the first two weeks of whether someone can succeed or not. And then everything we show them [to do] doesn't succeed... It's like there's that initial judgement...⁴⁴

For *Craig Adams*, the issue boiled down to an increasing importance of who you knew, not what you did – although he emphasized this was a result of the increasing size of company, not necessarily an increase in politics:

The core processes in the company [such as compensation and staffing] are more relationship based than they really should be. If someone in the organization doesn't know Pat – who sits in the comp[ensation] discussion – they don't get represented too well. Because we are relying on Pat to know people well. There are too many people who are not represented well. Which creates an environment where people see that you have to know people to get ahead. But the reality is that you can't know your people well... This is not politics – this is not reacting properly to scale – and leaving processes in the hands of relationships. Same thing for staffing – people pull from the group they trust. This slows us down tremendously. We spend cycles talking about politics—but the root cause is not politics. The root cause is not scaling effectively.⁴⁵

⁴³ Interview with *H. Craig Adams*, October 1998.

⁴⁴ Interview with *Charlie Pedersen*, August 1998.

⁴⁵ Interview with *H. Craig Adams*, October 1998.

Similarly there was a contradiction, a lack of consistency, between the standards *D&D* set for its clients and the ones it set for itself. There were various examples of this dichotomy between the espoused standards and the lived reality.

Jason Hanrahan discussed the notion of being "on time." At *D&D*, timeliness was demanded of the clients during workshops and enforced with fines. But *D&D*-only meetings were notorious for starting late and ending raggedly, as people gradually left for other commitments. *Jason* also questioned the *D&D* notion of "ownership." In theory, if a group had the ownership of a decision, once they had gone through due process, no one could countermand their decision. In practice, this did not always hold.

It's kind of interesting also, with respect to our clients, what I was very proud about, you know, we always start at 8:00 a.m. With ourselves, we're terrible about it, which I think is an interesting cultural thing, a *D&D* thing. When do we ever start a staff meeting on time? I don't know. We've never started one on time. We might finish one early... We're terrible about time boxing around ourselves. I don't know what the deal is but I think that we do a very poor job of applying our process to ourselves in general.

And across the board... We had a [meeting to decide] about the web page two weeks ago... "Here's what we're gonna do, we're supposed to do." And then we did it, and then six other people came on and said, no, we can't do it that way. Well, wait a minute, wasn't that [meeting] empowered to [decide] what we were gonna do? You know, the same thing happened, I felt, about bootcamp. I thought that group was empowered to do it and then other people came on and said, no, we're gonna change everything. Well, wait a minute, then, if our clients did this we'd have a fit. If a client came out of a [decision-making meeting], and the members of the [meeting] said "Here's what it's gonna be." And the executive [sponsor] said "Yes, that's how it's gonna be." And then someone else

in the company said, "No it's not." We'd have a fit. But we do it to ourselves all the time.⁴⁶

David Bullet echoed Jason's comments on the differences between meetings run for just *D&D* people and those that include clients:

There was a cognitive dissonance between our expectations of clients and ourselves. I was shocked at how unwilling we are to have any discipline in our internal meetings. We still don't. I had much more discipline in internal meetings at [my previous company]. Always had agenda, always clear on objectives, always know why you were there and the roles. I try to do this here. I am amazed that the worst meetings are the ones with the most senior people in the room. [Senior] meetings have never stayed on track – no one has accountability for keeping the meetings on track. That is so weird to me. And you can't call it. I tried it – and I was roundly put down for not understanding how we do things. We are so organized with our clients – it's almost as if we make a point to not do it with ourselves. The result is that there is some rudeness of behavior – lack of consideration of each other that is rampant. We are not considerate of each other's time. The amount of time that meetings start late, people don't come, – how much effort you have to go to to get people in a room even when they said they would be here. That's different than what you expect.⁴⁷

Harry Vaughan thought of this dichotomy as a separation between internal and external priorities. He found all the *D&D* creative energy was focused on the clients and not on internal processes:

In some ways we were always change resistant. Maybe it is as simple as a separation between the client work we did and the ways we ran the company. Once we establish an internal process we are loath to give it up. But I see creative responsiveness coming out from our teams for our clients.⁴⁸

⁴⁶ Interview with *Jason Hanrahan*, October 1995.

⁴⁷ Interview with *David Bullett*, October 1998.

⁴⁸ Interview with *Harry Vaughan*, October 1999.

These were examples of deviation between what was described as "the way things are done around here" and what was experienced. Such disjunctions were not necessarily intentionally harmful. However, for some of the people at *D&D* experiencing those divergences, there was a sense of outrage, a sense of being treated poorly. I emphasize this to indicate that the meaning of the contradiction is constructed by the individuals who experience it. Someone with less sensitivity to being "on time" or less concern about closure might have taken no umbrage at the experience, might not have perceived it as a contradiction.

Another aspect of what it was really like to work at *D&D* had to do with the level of work effort that was expected. *D&D* had a norm of working intensely to do whatever it took to deliver to the client that had been in place ever since *Matt* sat in his parents' basement and watched *Roger* code for two straight days. In the interview process, people were told that "We work hard, we play hard." Nevertheless, new hires were often surprised at the intense focus that people commonly brought to their work. Many people thrived on it; many wondered if it was sustainable. It was usually easier for younger people to sustain, people who had fewer ties and commitments outside the organization.

Michael Welsh, a programmer at *D&D*, talked about the intensity of the work and the irreconcilable conflict between delivering for the client and having enough time for yourself:

When you're in a fixed price/fixed time business, trying to get to an hours minimum, there's a disconnect there. You can't get there. I've heard [someone quote *Matt*], I think, as saying, "Well, hey, if people are working and they're tired of working, then they should just go home." Fine. If [my project manager] has a schedule board, and I've got a deliverable, and if I just go home, I'm gonna do that once, maybe, and that's it. That's not an answer; you can't just go home when the clock is ticking and you have miles till your deadline. That doesn't compute. You need another kind of answer.

And the answer is work smarter and all that stuff, better tools, all those things can help. But at some point everything changes, and this changes and that changes, and you have scope creep on your day-to-day schedule. And you say, "Whoa, I have to do that and that. I have to stay here a long time." So that's the big downside...

I don't know how you reconcile [people's individual needs] with a fixed-price/fixed-time business. If we were billing out so many hours, and you had blank checks, you wouldn't have a problem. But that's not what we have.⁴⁹

This conflict between delivering for the client and having enough time for yourself has challenged *D&D* for quite a while. A May 1994 survey of the company found 30% found the hours too onerous: people were concerned about burnout as well as the potential for compromising the quality of work. In 1995, the company looked at it as a sustainability issue and mandated certain changes. That attention to the internal environment was a significant event in *D&D*'s history from *Matt's* point of view:

⁴⁹ Interview with *Michael Welsh*, October 1995.

There was another watershed event – we decided that we needed to embrace the idea that people satisfaction was important as others key items...

Sustainability drove it – it felt like we couldn't do it at the pace forever. I don't remember any particular event. It was probably a couple of key people trying to quit. We were forced to ask ourselves: "What are we becoming? How will we become great without the key people agreeing to stay?"

We took more of a rounded view. We hammered hard on face time a number of times. We reduced hours. We began to track hours. We tried to alleviate the negatives. [A group assessed the situation.] The group recommended 16 things and we accepted 15. We were serious about getting it done. We tried to do a multi-faceted approach to improving the environment, improving rewards, listening more to feedback.⁵⁰

As a result of those tactics, average hours dropped by 10-15% in three months. In addition, many saw a change in the general attitude towards people's commitments away from the office.⁵¹ A project manager, married with small children, commented:

When I get away at a reasonable hour, people have stopped making jokes. This is a big win.⁵²

Nevertheless, by May 1998, a culture survey of 95 *D&D* employees confirmed that this conflict was still quite real:

Our culture is like a "double-edged sword." The same things that make people excited about *D&D* (key adjectives: fun, driven, ambitious, challenging, dynamic, committed, focused), make their lives hard at times and wear them out (key adjectives: stressful, hectic, tiring, frustrating).⁵³

⁵⁰ Interview with *Matt Barr*, November 1998.

⁵¹ August 1995 survey.

⁵² Comment from *Warren Kelty*, August 1995.

⁵³ May 1998 survey.

Laura Cash described the positive side and the negative side of that sword:

The way that I always described [my old job]... There was maybe like one or two, and I don't know if this is right label to use, but Type A personalities. And those Type A personalities certainly kept me on my toes. The reason I left [my old job] was because I didn't think there was enough people that had the work ethic or the drive that I had, and I felt that the company was failing because there wasn't a lot of people that really, really would give it their all to make the company work.

So coming into *D&D* it was...the way that I described it when I would talk to people at [my old job]: There was this one particular guy at [my old job] that was very driven, and I said, "Just think about (*D&D* was probably 60 people then) just think about there's 60 of so-and-so, and that's it, and that's what you're working with, and you just, you go in overdrive 110% of the time. And, so I loved it in a lot of respects because I really felt, wow, this company really is gonna succeed. And I always said the things that I loved about *D&D* are, if I was to leave *D&D*, those are the things that would ultimately make me decide to leave. Because it was just so damn tough to be in overdrive, to be on your toes, 120% of the time, to be challenged 120% of the time. It offered incredible growth. But it's tough to do that 120% of the time.⁵⁴

The norm of giving 120% all of the time was seen as being hard and hugely demanding -- but hugely rewarding. However, there remained an open question: how can that intensity be sustained? For some, having a job at *D&D* was only possible because they were single or had a spouse who was at home; this arrangement was similar to what *Lotte Bailyn* has found in other high stress jobs in various occupational arenas.⁵⁵ *Vivian Dewey* identified the breaking point as the point where you have children:

I think that it would be fascinating to see how it changes, as the people here -- you know, everyone seems to be getting married right now, and a lot of people seem to be having kids right now -- but as this group of people, ten years from

⁵⁴ Interview with *Laura Cash*, October 1998.

⁵⁵ *Lotte Bailyn* Breaking the Mold: Women, Men and Time in the New Corporate World (New York: The Free Press, 1993) pages 44-45.

now, how are we gonna look different? Because, that group of people, if they have been able to stay, how that's gonna change [what it's like here]? Because right now, the energy and the drive and the investment is such that it's tough to balance that...

I have to tell you that if and when I ever have kids, I don't know how people who work here have them. I don't know, and talking to a lot of people here who've been around for a while, I think they feel that the level of how personally we take it and the level of commitment you have to have, that there's a window of time of how long you can last.⁵⁶

While this issue was a high profile issue for *D&D*, it did not result in large numbers of people leaving. Through the early part of 1999, *D&D* had one of the lowest voluntary turnover rates in the industry (under 15%).⁵⁷ Thus, despite any initial surprise, most employees had found a way to achieve their own personal balance between work at *D&D* and the rest of their lives. It remained to be seen if the various sustainability initiatives would be successful or if there would be a demographic change -- both because of acquisitions and because employees entered different stages in their personal lives -- that would make the intense working style at *D&D* less tenable for a greater percentage of people.

⁵⁶ Interview with *Vivian Dewey*, October 1995.

⁵⁷ 1998 Annual Report.

The Way of Knowing

This final section in the chapter on informal socialization discusses ways of knowing.

While in theory it might seem that a person's view on the world is a given, in practice it is mutable. In trying to fit in, some people are willing to shift their native style to be more congruent with their peers.⁵⁸ At *D&D*, there was one preferred way to view the world. The following passage from Robert Pirsig's Zen and the Art of Motorcycle Maintenance contrasts two styles: the classic and the romantic.

What we have here is a conflict of visions of reality. The world as you see it right here, right now, is reality, regardless of what the scientists say it might be. That's the way John sees it. But the world as revealed by its scientific discoveries is also reality, regardless of how it may appear, and people in John's dimension are going to have to do more than just ignore it if they want to hang onto their vision of reality...

What you've got here, really are two realities, one of immediate artistic appearance and one of underlying scientific explanation, and they don't match and they don't fit and they don't have much of anything to do with one another.⁵⁹

For Pirsig, the classic style is represented by the narrator who maintains his own motorcycle; he is concerned with the underlying form of things. His friend, John, represents the romantic style; concerned with appearance, he keeps his motorcycle clean but has a mechanic do the actual maintenance work.

⁵⁸ In the discussion that follows I will admittedly make some broad generalizations that are not necessarily true at the granular level. Nevertheless, I will use them as a simplistic window to the atmosphere at *D&D*.

⁵⁹ Robert M. Pirsig, Zen and the Art of Motorcycle Maintenance: An Inquiry in Values (New York:

It is useful to think about these as ways of knowing. These are personal triage systems that determine which external signals are important and which are not in making decisions. These can be painted as polar opposites with the following attributes:

Classic Style	Romantic Style
Rational	Inspirational
Straight-forward	Imaginative
Unadorned	Creative
Unemotional	Intuitive
Facts	Feelings
Science	Art
Dull	Shallow
Awkward	Frivolous

Sherry Turkle has found that many engineering students identify with the classic style. For them, this book provided cultural vindication that their style of knowing was not somehow truncated from the ecstatic. Through Pirsig's book, they find confirmation that a rationalist can have soul-satisfying experiences.⁶⁰

Another lens of style is provided by the Myers-Briggs Type Indicators. The Myers-Briggs Type Indicator has four preference scales. One scale looks at the individual's preference in decision-making. Simplistically, the T-Type person prefers to make decisions using objective, impersonal, rational inputs; the F-Type person prefers to

Bantam Books, 1974), page 49.

⁶⁰ Sherry Turkle, The Second Self: Computers and the Human Spirit (New York: Simon and Schuster, 1984), page 201.

make decisions by weighing the impact on others and the consistency with personal values. At *D&D*, a consultant used Myers-Briggs to build awareness that people have different styles in order to improve communication in the company. Once many people had gone through this course, the consultant noted that compared to the general population -- and even in comparison to other organizations -- *D&D* had a different distribution of styles. At *D&D*, there were far more people concerned with competence and rational decision-making (T-types) and far fewer people concerned with people issues (F-types), than she had seen at other organizations.

At *D&D*, there was a preferred style, Pirsig's "classic" style. It was the native style of the majority of employees, particularly among the earliest hires. Like the wearing of white shirts or the convergent style of communication supported by the whiteboard, this decision-making style had credibility because it was shared by many people. Once Myers-Briggs provided an objective language for distinguishing these two styles, the "classic" style gained more credibility because it was "only" a style. People were expected to be able to adopt such a style, much as they had been able to put on a white shirt and learn to communicate with a whiteboard.

However, it is, in truth, harder to change your style than it is to change your clothes.

Kathy Burk, a project manager, described how she had to adjust her style to conform to the *D&D* norms in order to be successful. She chose to use Myers-Briggs to explain the

difference in styles, I had not used that concept in questioning her. In the section that follows she explains that she was unable to maintain her native "F" or "romantic" style when she came to *D&D*. She felt herself bulldozed into a more rational decision-making style with no allowance for her nurturing side. She put on a carapace of the "classic" style.

One of the things that this culture has done to me, that is not necessarily good is that, was confirmed for me, again, in this round of Myers-Briggs, that I was a ENTJ. That's great. But I used to be sort of borderline T/F. You know, on the T side. I was very proud of that, because I do fight that emotionalism that would creep into me, but *D&D* has driven me to the wall T.

And in fact [the consultant] picked up on it. She was like, "Anybody that scores that strongly is either just really set in their ways or compensating." And it is a behavior that I absolutely compensated for, being here, because it is for me an issue of survival. And that's not always good...

I feel like that's given up something what I used to value in my management style particularly, to feel a part, because I am a nurturing person. I am a feeling person, kinda touchy-feely, I'm going to take you under my wing, sort of maternal for me. And I've always liked that. But it's not embraced here, and so I've shed that. And now I'm fighting to bring it back for me, because we need it. It's necessary. And I want it to be part of the culture.

It's funny that, when we went through the Myer's Briggs, *Vivian* and I were the only, well, *Vivian* was the F and I was sort of the F-hiding out. And we answered things in the terms of F, and [the consultant] said, "Do this for me, *Kathy*. I recognize where you are, but do this for me, because people need to see it. People don't understand it here, that feeling side." And, so I need to get that back...

Her sense was that "You both, *Kathy* and *Vivian*, are very uncomfortable about this." Especially me, who compensates for it so. That's too much of me exposed

for someone. And it's true. It is, I go, like, "No no no no." I put all the layers on, all the shells on.⁶¹

While both men and women can have either style, these styles do have gender biases.

Pirsig's romantic tends to be a woman. The MBTI scale for decision making is the only scale that has a gender bias: while 50% of the overall population has Type T; 66% of men are T and 66% of women are F.

Carol Gilligan's studies have also linked gender with different modes of decision-making. In her research, she found that men tended to seek impersonal answers through systems of law and logic and women tended to seek connective answers through communication and relationships.⁶²

The first part of this section examined some of the issues around styles of knowing without highlighting the embedded gender issue. However, because there was a marked gender imbalance at *D&D*, the two concepts become intertwined. In the early years, women rarely represented more than 15% of the workforce. By mid-1998, the percentages were still skewed when compared to the general population: with the headcount just under 1,000, 23% of the employees were women.⁶³

⁶¹ Interview with *Kathy Burk*, October 1995.

⁶² Carol Gilligan, *In a Different Voice: Psychological Theory and Women's Development* (Cambridge: Harvard University Press, 1982).

⁶³ Data from June 1998 *D&D* gender statistics. I do not have statistics on gender from comparable firms.

Zoe Whitman, the hiring manager, talked about her impressions of why *D&D* had a hard time hiring women. Notice that in her description of female candidates, she said that those who wanted to do more than just coding were by-passed. In the interview, I asked her, "Why are there no women here?"

Because we're prejudiced, we don't think that women can handle it here. I'm totally kidding.

It's probably the most asked question, when we interview with a woman. We show her around, first question is, "Where are all the women? Where are all the women?" For whatever reason, the schools that we're going after, the [women there], they don't have the background, a lot of them don't have the background that we look for here. For whatever reason we see more males doing it than female. I say, when we do find the women at that, they're top notch, they're the best of the best, and we have a company full of them...

It's a hard question we've been trying to answer; we've even had clients come to us and say, wait a minute, where are the women? Where are the women? By no means is it strategic that we're trying not to hire women.

I think that the biggest weakness as I look back and think of some examples, the women that we've interviewed, certainly a lot of them have had excellent business savvy and sense, but when it comes time to code, and technically, they weren't as strong as people like them to be, for whatever reason. When we hire for [client workshops], we see a lot of women go in and do a phenomenal job. They're terrific. But when we ask them to code, either they're not interested in it, even though they've come up with a computer science [degree], or they don't want to do that. They want to do more of the project management side of things...

I will promise you that I have more guys calling me, we have more men in the company saying, "Where are the women? Where are the women? We need more women in the company!"...We're looking... The biggest concern was they're not technical enough. That's what we've heard.⁶⁴

⁶⁴ Interview with *Zoe Whitman*, October 1995.

Even those that *D&D* had an interest in, once they saw that there were few women, decided not to join. *Zoe* continues:

A year ago, maybe a year and a half ago, we had, actually three or four different [women] leave us, or not leave us, but not come to work here, because there weren't enough women, and they were intimidated working in an all-male environment. And they were right, everywhere you look there was just another white shirt, a male, and they all said, "Where are the women? I don't want to be the second or third woman in the company. It would be hard for me to do that." So we have seen other people in the interview process step off because they're not interested in being the third or fourth woman. I think we've gotten better at it. I think we see a lot more females here now, and I think we'll see a lot more as we continue to grow. I hope we do.⁶⁵

While *Zoe* had seen examples of women interviewing at *D&D* who decided not to join because of the all male environment, I believe that the converse is also true: *D&D* disallowed some female applicants because of their "non-male" style. To the extent that women tend to have a different style than men, women interviewing at *D&D* would tend to not "fit" with the prevalent style. One of the criteria for being hired was "fit," it is my theory that women were less likely to be hired because they had the "wrong" style.

One woman, *Megan Warren*, who did decide to join the company, described her interview process and her impression of *D&D* as a very male environment:

⁶⁵ Interview with *Zoe Whitman*, October 1995.

I did notice it was all men, first thing. But I definitely got a sense of, there's teamwork here... And the first person I interviewed with ... took me on a tour. We went, it was right around the corner here, we walked right around the hall, and the first thing she wanted to show what a [client meeting room] was, so she opened the door. It was a client [meeting], and they were on a break. When the door opened, everyone shot at the door. They all had those zap guns, so one piece of me was very confident, this is a very male environment. I've only seen men so far, and they have weapons. But on the other hand, the teamwork and the fun were very, very obvious.⁶⁶

Kathy Burk, who described her forced transition to a different decision-making style, portrayed *D&D* as a male environment. My question had been broad, I asked her about the notion of *D&D* having a specific culture and if there was one, what it meant to her. She responded in gender specific terms:

There is [a *D&D* culture]. It's real. And sometimes, you know, from my perspective, I struggle with it, probably a lot. For me the *D&D* culture is aggressive. It's focused. And, these are words that might not necessarily come up, but this is what I see, male, [laughs], sort of ... testosterone-oriented. It's like, just, bulldozing in a lot of ways. Successful. Gregarious. There's a can-do spirit that I actually like very much...⁶⁷

The women I interviewed frequently used the Myers-Briggs lens to discuss why it was hard to work at *D&D* as a woman. I believe the reason many women who talked with me on this topic referred to Myers-Briggs is that its neutral stance concerning which style is "better" meant that they did not have to "apologize" for their native "F" style. This was an objective language with which they could describe their experiences.

⁶⁶ Interview with *Megan Warren*, August 1998.

⁶⁷ Interview with *Kathy Burk*, October 1995.

In my conversation with her, *Vivian* detailed the irony of people at *D&D* attempting to mandate a more humane atmosphere. She recognized that people who prefer to make decisions in a logical rational manner often implement change through decree and a list of action steps. However, from her point of view, a more humane atmosphere is not the kind of thing you can mandate.

Vivian: But there are definitely things we are missing, and maybe [being more humane] is one of them.

Pat: *Matt* has a theory ... "If we just put our minds to it, we can do it" ...

Vivian: No, because everything else overrides it. We're so delivery focused, we're so unaccepting of not having the highest quality all the time, unless somehow we are mandating or conveying to ourselves that that [becoming more humane] is gonna be one of those things, it will always fall out... I mean you have to be committed to this whole humane thing. That's what we tend to do. We have a tendency to hire people for their drive and commitment and this and that. The whole Myers-Briggs thing has been such a window in for me to understand why we are the way we are. I mean, in the scheme of *D&D*, I am so far F, compared to other people. In the actual scale, I'm not, I'm not that far from T. But it's just compared to other people here, I seem so F, and if you're a little T here, you're F. And it, it's like well, if you give that, if those people put their minds to it and do it, that's a T answer to how to become more F as an organization. It's like, no. It isn't a "mind to it" kind of thing.⁶⁸

In her ethnography on women and men working in law firms, Jennifer Pierce examined the different gendered approaches those people used for their work. While Pierce acknowledges the structural pressures and social norms that create and reinforce sex

⁶⁸ Interview with *Vivian Dewey*, October 1995.

segregated occupations,⁶⁹ she also explicitly examines the influence of different -- gender aligned -- preferences for ways of working.

Finally, women and men perform different kinds of emotional labor. As a group, women did not embrace the adversarial role as emphatically as men did... Although women face strong pressures to conform to professional norms, they do not passively acquiesce to them. Their alternative practice of law, which values an ethic of caring and mutual respect, and their efforts to create a more humane office environment at once challenge and disrupt the male defined adversarial role and norms for professionalism.⁷⁰

Laura Cash believed she had been successful at *D&D* because she responded to stress more like a man than a woman. Because of that, she felt she was not the best role model for women joining the company.

You know, I am probably women's worst enemy, just because it works for me [here]... So when people ask me, do I think *D&D* is favorable to women, well, it's favorable, they're favorable to me...

The Myers-Briggs... I was in the [quadrant] that 70% of the men are in. I was in the male dominant one. When I started reading the book *Men are from Mars, Women are from Venus* or whatever it is, I read the first couple of chapters and I put it down because I was relating to the men, and I thought that was too weird, I couldn't handle the concept. With that being said I think I clearly still bring a different perspective, I mean, I still think I think different... [than] men. You know, it's funny because *Matt* and I had a talk about, and this was a long time ago, but he was trying to understand, "Why do I work better with you than [other women in the organization]?" And the bottom line is, and this is a generalization, but the way that I deal with stress, you don't know that I'm under stress, and whatever the reason why, I think most men, the way they deal

⁶⁹ "Studies emphasizing structural factors in the reproduction of gender asymmetry examine formal and informal organizational practices, personnel policies, the labor process, and firm and industry structure. Those that utilize actor-oriented approaches examine the gendered meanings that women and men attach to the work they do." Jennifer L. Pierce, *Gender Trials: Emotional Lives in Contemporary Law Firms* (Berkeley: University of California Press, 1995), page 2.

⁷⁰ Jennifer L. Pierce, *Gender Trials: Emotional Lives in Contemporary Law Firms* (Berkeley: University of California Press, 1995), pages 141, 142.

with stress is, you don't know they're under stress. There are always some clues that they're under stress, but it's kind of an even keel... I'm not emotional at work, I'm getting my work done. Now when I go home I cry myself to sleep. So I think he's saying that "The way you deal with stress I like...In the business world I can't deal with the way a lot of women deal with stress in the work world, and I can't deal with women breaking down and crying every time we have a tough discussion." So I'd sit back and I'd say, "Are those kind of the qualities that are preventing women from being promoted, versus the way they think?" ...

So it's hard, you know? So I don't know if I agree with, just because we think differently, that we're valuing the thought process of men at a higher level. I'm just thinking that there's something else there. And I'm sure it's a combination.⁷¹

Sherry Ortner points out that there is a cultural construct that defines most women as fitting into a certain profile. However, that construct is continually reinforced by specific events -- because those are the events that resonate with the cultural view.⁷² At *D&D*, the few women who were given chances to perform at senior levels -- because they were in the numerical minority -- faced greater performance pressures and received more scrutiny. There would be implicit (and sometimes explicit) pressure to conform to the dominant norms.⁷³ Crying was an event that deviated from those norms.

In her book, Reflections on Gender and Science, Evelyn Fox Keller seeks to understand the "culturally pervasive association between objectivity and masculinity." The parallel

⁷¹ Interview with *Laura Cash*, October 1998.

⁷² Sherry B. Ortner, "Is Female to Male as Nature is to Culture?" in Women, Culture and Society, edited by Michelle Zimbalist Rosaldo and L. Lamphere (Stanford: Stanford University Press, 1974), pages 67-87.

⁷³ Rosabeth Moss Kanter, Men and Women of the Corporation (New York: Basic Books, 1977).

between systems building and science has some inconsistencies, but her arguments build a foundation that helps to understand some of the difficulties *D&D* has faced. Keller stresses that while the successes of science must not be ignored, there is a paradox to be studied: the community that defines what problems are worth studying may be ignoring a class of problems and solutions because of their perspective, not because of the inherent non-worthiness of those other problems and solutions. She outlines the basic arguments of her book:

[I]t is the thesis of this book that the ideology of modern science, along with its undeniable success, carries within it its own form of projection: the projection of disinterest, of autonomy, of alienation...

[But in practice] actual science is more faithfully described by the multiplicity of styles and approaches that constitute its practice than by its dominant rhetoric or ideology.⁷⁴

At *D&D*, there had been one style of approaching problems, the rational classic style, that had been distilled and decanted as the best approach. Over the years, only a few people -- both men and women -- were hired who worked outside that style. Those who stayed, found ways to adapt to the dominant style. As *D&D* acquired companies -- and therefore people who were hired through a different qualification process -- it found itself with more and more employees who did not "fit." At the same time *D&D*, had entered a competitive arena that demanded certain skills, creative and strategic skills, that seemed to be in greatest strength among those people who did not fit the old

⁷⁴ Evelyn Fox Keller, Reflections on Gender and Science (New Haven: Yale University Press, 1985), pages 71, 11, 70, 125.

preferred style. *D&D* faced its own paradox of theory and practice: its implicit ideology of the effective rational actor was at odds with the practical necessity of building a staff of creative people.

Summary

This chapter has looked at informal socialization at *D&D*. This category has covered a wide spectrum of issues: styles of dress, methods of communication, expectations of a meritocracy, internal/external inconsistencies, work/life balance, and ways of knowing. While many of these issues were covered in the bootcamp curriculum, the new hires had to come to grips with them on the ground, in the context of their daily work. Some of these aspects, such as the dress code and work/life balance, were contentious -- but individuals created their own solutions while continuing to lobby for change. Other aspects had less opportunity, in practice, for the individual to stray from the norm. There tended to be only one communication style and only one preferred decision-making style or way of knowing. Other aspects created a more ambiguous atmosphere, where the inconsistencies around meritocracy and internal/external standards led to confusion and uncertainty.

These were informal methods of socialization. As such, the *D&D* leadership team had less opportunity to directly manipulate these factors. However, they had a great deal of

indirect influence. In practice and by their example, they upheld certain standards that then became instantiated across the firm. They wore white shirts, they ran meetings in a convergent style, they shared the dominant decision-making style. In the metaphor of genetic manipulation, they did not splice in a different piece of DNA; they were that inserted piece of DNA.

**Chapter Five:
Physical Environment: The Manipulation of Space**

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The physical environment at *D&D* was manipulated to reinforce certain behaviors and habits of mind. The physical space was reconfigurable, mirroring the expected flexibility of the employees as well as that of the external economic environment.

Matt, Roger and Earl made many of the early choices about the physical layout of *D&D* and how the working space would be arranged. They shared an expectation that certain arrangements would reinforce certain social norms. To demonstrate the lack of hierarchy (a "flat" organization), they had one style of furniture for all employees. To physically embody the open communication that they valued, they followed an architect's recommendation that there be arches between walled spaces, not doors – and where there were doors, that they be made of glass. To model the flexibility they wanted, they chose chairs and file cabinets with wheels and had multi-purpose, multi-use spaces throughout the workplace. To improve communication among team members, they insisted that teams sit near each other, within a contiguous area, often without walls. To demonstrate the importance of the clients, they designed a work area (a set of four interconnected rooms with space for catering) specifically for client

meetings, and made sure that every *D&D* office had at least one (if not seven or eight) of these client facilities.¹

This was a conscious use of space to express the company's ideology. And people within the firm could speak of these features explicitly. *Zoe Whitman* explains how she introduced the *D&D* environment to potential employees:

As I give my tours -- and that's my favorite part of the interviewing process -- I show them. I can certainly sit in the room and explain how we differ, but to get them up and to bring them through the environment is probably, if somebody was a skeptic in the interview, to take them through, you literally see a transformation. People are excited, they're "Wow!" I explain to people, "We've designed our space specifically for clients and for teams." They hear that and they, you know, "We've heard that before." Now I show it to them. We have a team area, just an open space, people sitting next to each other with different responsibilities on the project. As they're taking [the tour], [they] get to see somebody who's actually working on a piece of the system in Unix coordinating a [release] for the next one who's doing Sybase, and there may be a client in the middle of it. So again, they're seeing the people interacting and doing [work] with each other. We have what we call pods, for lack of a better word, and I think maybe upstairs, there are four or five pods that are actually in full-scale development. Every one of them is a different project, and that blows people away that we've actually designed space for specific projects, not just one bullpen type area and little areas in that bullpen. Clients will come and see that's their space, and know that everybody in that space is focusing on solving their problem... The fact that we have a library set up, that we're interested in not reinventing the wheel, but reusing whatever we can reuse to solve a business problem, and we have a space designed for a place we can go to reuse things...

What blows people away is the people may think this was an accident, that we found the space the way it was, and that was great, but when I explain to them that if they went to New York, they went to San Francisco, they would see

¹ *Matt* and *Roger* (and others) did not have total freedom in translating their designs into actual physical layouts. Any given space has certain constraints that allow only so many permutations, only so many possibilities. Design decisions were constrained by the givens of concrete and steel: exterior walls, elevator shafts, landlord decrees.

identically, down even to the color of the rugs, what they see here. So it's been well thought-out. It's been thought-out for teams and for clients ... There's a focus area for [different activities]. It shows people that we have made that commitment.²

Matt and *Roger* were not alone in crafting their space to support certain behaviors and embed particular views. Architects and anthropologists have been aware of the reinforcing relationships between physical layouts and social interaction; what one group designs, the other comments upon. For example, as noted in Chapter Two, architects Deasy and Lasswell incorporate certain design recommendations in their plans to accomplish specific behavioral goals.³ Design architect Turid Horgen tells the tale of building a workplace where the boundaries between different types of work spaces were intentionally ambiguous, triggering and eventually mirroring the fluid work practices of the researchers housed there.

This incomplete workplace, with its ambiguous and permeable boundaries, stimulated a kind of working interaction among the researchers that was new to the research group. The ambiguous, incomplete work environment seemed to lend itself to tasks of collaborative inquiry in which problems were unclear and needed to be framed and where data were being explored whose meanings were as yet unclear.⁴

² Interview with *Zoe Whitman*, October 1995.

³ Cornelius M. Deasy in collaboration with Thomas E. Lasswell, *Designing Places for People: A Handbook on Human Behavior for Architects, Designers, and Facility Managers* (New York: Whitney Library of Design, 1985). See also the discussion of the ecology of organizations in Franklin Becker and Fritz Steele, *Workplace by Design: Mapping the High-Performance Workspace* (San Francisco: Jossey-Bass Publishers, 1995).

⁴ Turid Horgen, Michael Joroff, William Porter and Donald Schön, *Excellence by Design: Transforming Workplace and Work Practice* (New York: John Wiley & Sons, Inc., 1999), page 197.

When anthropologist Sharon Traweek wrote her book, Beamtimes and Lifetimes: The World of High Energy Physicists, she paid particular attention to how space was structured by the physicist communities she visited. In her Preface she noted:

As I gradually learned to read the spaces at that lab [Stanford Linear Accelerator Center] and others, I realized that almost imperceptibly the lab sites elicited certain forms of action and discouraged others.⁵

Others have commented on the elusive relationship between physical setting and productivity. Neither clearly causal nor fully independent, the relationship between these two entities is complex.⁶ Tom DeMarco and Timothy Lister have done various productivity studies during the ten years from 1977 to 1987. From 1984 to 1986 they structured these studies in the form of Coding War Games. In these games, pairs of programmers representing different organizations competed “to complete a series of benchmark coding and testing tasks in minimal time and with minimal defects.” They took the assigned problem back to their own organizations and work areas and tackled the assignment during normal working hours. While this enabled the individuals and firms involved to learn how they compared against each other, DeMarco and Lister also used the results to better understand issues around productivity. Some factors had no

⁵Sharon Traweek, Beamtimes and Lifetimes: The World of High Energy Physicists (Cambridge: Harvard University Press, 1988), page x.

⁶ See H. McIlvaine Parsons, "Work Environments," in Human Behavior and Environment: Advances in Theory and Research, Volume 1, edited by Irwin Altman and Joachim F. Wohlwill (New York: Plenum Press, 1976), page 196; and Francis Duffy, The Changing Workplace, edited by Patrick Hannay (London: Phaidon Press, Ltd, 1992), pages 38-39.

correlation to performance: coding language, years of experience, number of defects and salary.⁷

Lister and DeMarco tested the hypothesis that the quality of the workplace correlates to the performance of the programmers. Prior to the exercise, they asked programmers who were taking part in the coding games to describe their work areas. They then segmented those answers by how well the programmers did in the competition. Some of the results are as follows:

Environmental Factor ⁸	Best Programmers (Top Quartile) ⁹	Worst Programmers (Bottom Quartile)
How much dedicated workspace to you have?	78 sq ft	46 sq ft
Is it acceptably quiet?	57% yes	29% yes
Is it acceptably private?	62% yes	19% yes
Can you silence your phone?	52% yes	10% yes
Can you divert your calls?	76% yes	19% yes
Do people often interrupt you needlessly	38% yes	76% yes

DeMarco and Lister admitted that there was no demonstrated causality here; they were not making the statement that a better workspace will cause programmers to improve their performance. They explained that the causality could come in the other direction:

⁷ Tom DeMarco and Timothy Lister, Peopleware: Productive Projects and Teams (New York: Dorset House Publishing Co, 1987). Tom DeMarco, Controlling Software Projects: Management, Measurement & Estimation (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1982).

⁸ Tom DeMarco and Timothy Lister, Peopleware: Productive Projects and Teams (New York: Dorset House Publishing Co, 1987), pages 49-50, Table 8.3.

⁹ Average performance in the top quartile was 2.6 times better than that of those in the bottom quartile.

better performers may tend to choose to work in organizations that offer better workspace. Nevertheless, they found that the physical environment was directly correlated with performance levels.¹⁰

One surprising result was the “clustering effect.” DeMarco and Lister found that people from the same organization tended to have similar results.

That means the best performers are clustering in some organizations while the worst performers are clustering in others...¹¹

This was more than a little unsettling to them. Managers for years had affected a certain fatalism about individual differences; they reasoned that the differences were innate, so you couldn’t do much about them. DeMarco and Lister found it harder to be fatalistic about the clustering effect. It seemed that some companies were doing a lot worse than others. DeMarco and Lister surmised that something about the environment and corporate culture was failing to attract and keep good people or was making it impossible for even good people to work effectively.

¹⁰ What is not clear from their discussion of this research was how the effectiveness of a “best” programmer related to the successful completion of a team project. The Coding Games were designed to match solo performers against solo performers, this test did not look at collaborative work. Nevertheless, even for collaborative work DeMarco and Lister’s results can be extrapolated to recommend working environments that provide some amount of privacy and quiet to enhance productivity.

¹¹ Tom DeMarco and Timothy Lister, Peopleware: Productive Projects and Teams (New York: Dorset House Publishing Co, 1987), page 48. See also Stan Davis and Christopher Meyer, Blur: The Speed of Change in the Connected Economy (New York: Warner Books, 1998), page 168.

At *D&D* the environment was crafted to emphasize the importance of flexibility, collaborative teamwork, and openness -- and was expected to be attractive to its employees. In this chapter I will trace these topics in two ways. The first is a historical saga of how space was designed at *D&D* in the early days. This saga demonstrates how serendipity, contingent actions and personal bias contributed to the particular layout that *Zoe* described in the passage above as "well thought-out." Using that history as a context for understanding some of the *D&D* habits about space, I then discuss the physical environment at *D&D* in more detail. Not all people responded positively to the environment as it was designed; I show how this attempt to control or shape the experience of working at *D&D* created discord and discomfort for some people. Parts of this chapter are based on my own experience of designing the physical environment for one *D&D* office.

The Early Spaces of D&D

When *Matt* and *Roger* first looked for office space for *D&D*,¹² they knew they had certain requirements: a location that would be relatively convenient for clients, enough space for employees, a workshop area, and a building that would give a good impression. In early 1992 *Matt* and *Roger* moved the fledgling *D&D* into a 19th century

¹² When *Matt* and *Roger* started *D&D*, the two of them sat in basement rooms. Once they began hiring, they moved into "real" office space.

landmark building, taking two rooms on the third floor, plus the loft space that constituted the fourth floor. The smaller room on the third floor had no windows. The larger room was an open space, perhaps 30 feet by 20 feet, with 20 foot ceilings and two chest-high dividers. The only windows were three tall elegant French windows, the bottoms of which were eight feet off the floor. Opposite the windows, one wall of the large room was taken up by a very steep and very narrow staircase to the loft.

Within that third floor suite, one employee sat at the front door, the rest sat in the main room. Here pairs of employees sat in each area created by the dividers. The dividers suggested separation, but you could hear everything anyone said and frequent conversations happened over the divider without anyone bothering to stand up. However, if there was going to be more than just an exchange of information, people stood up and leaned, arms-folded, on the dividers.

In this space, there were no private offices for most employees. But it was not an issue. With under a dozen employees, with the company in its infancy, with no one knowing for sure if *D&D* would exist for the next twelve months, there was a bunker camaraderie that flourished in that open space. The dividers were so low that it was easy to hear anything that was being said and rarely was the pretense made that a conversation was private. The employees knew each other; over half had worked together at a different company. The group spent their days together, ate together,

socialized together, and a few lived together.¹³ The notion of needing "privacy" was very foreign.

Prior to my arrival in June 1992, everyone (at this time there were less than 10 employees) sat in the one large room. *Matt*, co-founder and the only salesperson, was on the phone most of the time. Some employees found it distracting to work in the same room with him. People began to ask that *Matt* be put in the smaller room – which had a door – so that he would not disturb the others.

One day, *Roger* came back to find that *Matt* had moved into the private office, while he was still in the large open area. *Roger* liked working in the open room with all the others. He liked the camaraderie; he liked the informal sharing of ideas. However, as much as he wanted to work in the open area, he wanted to sit close to *Matt* so that as co-founders and leaders of the firm they could exchange ideas easily. By the time I joined, they shared that smaller room on the third floor as a private office.

Groups of clients would come to *D&D* for workshops. The group sessions were conducted in the loft area; smaller sessions were held in some of the cubicles downstairs. Obviously, if a group of clients were working in the cubicles, the employees who usually worked there lost their desks and chairs for the duration of the

¹³Early *D&D* employees frequently shared apartments, sometimes on a temporary basis, sometimes for

workshop.¹⁴ The increased noise level also inconvenienced employees who were not part of the workshop. Some of the staff were able to work at client sites. Others were given the option of working at home. It was clear that this was not going to be a long-term solution.

In the fall of 1992, a client asked *D&D* to build what had been designed in a workshop. This development job started immediately. *D&D* hired three more people to fill out the project team and leased another room, the only other room on the third floor. This was a small room (perhaps 20 feet by 15 feet) that had no windows to the outside; people's desks were arranged along the walls.

Even though moving into that particular space was mostly a matter of convenience, having the team in one space was seen as the right thing to do. *Earl* and *Roger* agreed that an open space for a work area was the best way to foster communication among programmers, thus resulting in a more cohesive final product. They had experienced the informal give and take that was possible with proximate seating; they expected the resulting product to be more cohesive and robust because of the ease of communication. This room also had the advantage of being separate from the other space, so that the people working on this project would not be inconvenienced by clients attending

the longer term.

¹⁴ Workshops could be as short as half a day or could extend for weeks.

workshops in the other area or interrupted by other employees. One of the most significant changes for this newly created team was that everyone had a desk that was his own (I was still the only woman) so that desks were no longer liable to be appropriated for some client activity.

There were problems early on. With six people in one room, the noise level was always too high. The group finally instituted a quiet policy: for certain hours during the day there would be no talking in that room. If you had a question for someone or wanted to talk on the phone, you had to go outside. The closeness of the quarters and ventilation problems resulted in team epidemics. As soon as one person got sick, it was only a matter of days before everyone was incapacitated. During that fall, it seemed as if half the team was always sick, while the others were either recovering or coming down with the current bug.

This project had been planned on a very tight schedule. It began to slip seriously. The team said that they could not meet the deadline unless they worked in a different space.

At that point *Matt* and *Roger* had already been looking for new office space. It was clear that *D&D* needed more room; they were looking to make a move that would accommodate the company for a couple of years. Once that building was found it

would take a few months to get the space ready, and they had not yet signed a lease anywhere.

The project team needed a solution faster than that. *Earl* (the team leader) found and leased temporary offices across the street on the top floor of a 1950's brick box. With its low ceilings and many small rooms, this space was as different from the first as possible. But it was convenient, affordable and available. So the team moved.¹⁵

The team fell in love with their new space. It was quiet. Everyone had an office, with at most one other person in the room. All offices had doors. The team developed a door policy: a shut door did not mean you could not come in, it only meant that if you came in you had to have a very good reason for the interruption. There was a separate conference room, so if you wanted to have a discussion, there was a place to go where you would not disturb anyone.

Bobby Ortega, at that time a programmer in his twenties, described what it felt like to work in that space:

The team really moved in, made it their home, took it over, had the space, tailored it, angled floor and all. It was an environment where you could yell across the hall. You could yell down the hall. You could yell and scream if you

¹⁵ This was not a trivial move. There was no elevator in the new building; chairs, computers and tables had to be carried up the three flights of stairs. No moving company was involved; *D&D* did not have that kind of cash. The team moved itself, wired the new office space so that the computers were linked, set up the offices – and were ready to work the next morning.

did something good. You could yell and scream if you screwed something up. It just fostered, it was almost like, this is a stretch but, dormitory living. There were shared common spaces and there were personal spaces. And like in any dormitory your personal spaces are only really so much your personal spaces, and people can walk in and come and go as they please all the time anyway... I don't know if that's the best space. The team was a group of guys, all about the same age, all about the same mentality, all very similar demographically, so the fraternity dorm room worked well. Probably doesn't work as well in a more diverse group...¹⁶

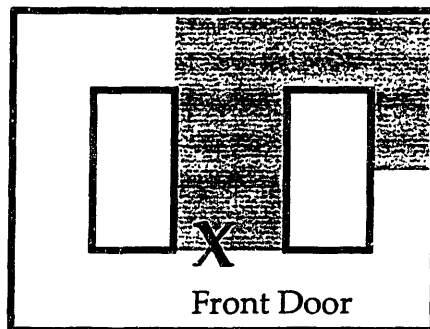
Meanwhile the search continued for a new larger space for the entire staff. With the company split in two locations, working in two very dissimilar office buildings and spatial arrangements, the *D&D* employees held conflicting opinions as to how new permanent space should be arranged. While everyone thought a team should work in contiguous space, some people were quite adamant that the team should be in an open space while others (especially those who were working in the temporary offices) were equally adamant that only with closeable doors would anyone get any work done.

Emotions ran high in the staff meetings where these concerns were aired. While not stated explicitly, there was an underlying assumption that the new space would be designed to suit the employees' stated needs, once they came to agreement. Some of those who still worked in the landmark building rhapsodized about the camaraderie and almost symbiotic relationship that a team could achieve if there were no walls. Others, particularly those who had moved into the temporary brick box were equally

¹⁶ Interview with *Bobby Ortega*, October 1995.

fervent in their views. They explained that they had believed a shared working space was critical to the success of a project until they moved and discovered how much more productive they were when working in separate offices. *Matt* and *Roger* took no sides in the public debate.

When *Matt*, *Roger* and *Earl* made the decision to move out of the landmark building, they chose a converted warehouse. At the turn of the century this complex of buildings was a furniture manufacturing facility; it was renovated for office use in the mid-1980's. The building was shaped like a rectangular "8." *D&D* had about 1/3 of the space on the third floor. (The shaded area of the diagram)



With the new building announced, everyone in the company scrambled to look at floor plans. The previous tenant had had a mix of open areas and offices with doors; because of cost constraints *D&D* made only a few changes. It was clear from the floor plans that some people would get offices and others would not. Employees took surreptitious trips to the building to scope out the actual space and then go and lobby for their preferences.

The actual assignment of work areas was done by *Matt, Roger and Earl*. Their decision was formally presented to the company as non-negotiable. However, given the amount of lobbying done before the announcement, few of the assignments were a surprise. *Matt and Roger* continued to share an office (as they had done in the first building); *Roger* also had a desk in his team's open area. Each project team had a contiguous area of offices and open space. Almost everyone (including me) had half an office; only one team assigned people workspaces in the open areas.¹⁷ As additional people were hired, they were given work space in the open areas.

One of the striking aspects of the layout was that the path from the front door to the farthest point of the office was through the middle of all of the team areas. Once you were past the reception area you were in the first of many team areas. Each team area included the offices along the walls as well as the "corridor" between the offices; that corridor housed the desks for the team members who did not have office space. As distracting as the passing parade was for those who sat in the "corridor," there was a sense of community. When you arrived for work, when you went to the bathroom, when you got your mail, when you went for lunch, when you had a meeting in the big conference room, when you went home — all of those activities required that you walk

¹⁷ I do not know why those four people were so assigned. Two were the most junior employees and were scheduled to travel a great deal; the others were senior employees who were in favor of working in offices.

in the middle of many team areas. While the person seated could concentrate on some work and ignore the person passing by, for the most part people acknowledged each other. Even those in the offices were part of this rapport; office doors were invariably open and those inside smiled and said hello to those who passed.

In this building -- and in subsequent buildings -- very few of the senior staff had a workspace in the open areas. It was the junior people and new hires who worked in the open spaces. However almost no person had an office to themselves. Pairs and trios were the norm; *Matt* and *Roger* continued to share an office. Thus, by their example, the senior people codified open spaces as low status spaces while at the same time codifying shared space as the preferred working arrangement.

Matt and *Roger* had originally planned to be in the converted warehouse for a couple of years. In reality, *D&D* grew so quickly that the company moved into another space the following year. This space was in a tall modern office tower; *D&D* took two entire floors. *D&D* gutted one of the floors and built it out to its specifications; the other floor was built out the year later.

The Influence of History on Future Spaces

The experience of designing and working in those first few buildings gave the early *D&D* employees a common history upon which to base their subsequent decisions about their physical environment. Through those situations, they developed a set of assumptions that informed their future choices.

1. Teams work best when they can collaborate; collaboration is enhanced by proximity.
2. There is no need for privacy; open communication improves collaboration and coordination.
3. It is important to be able to respond to a situation rapidly; flexibility and mobility are critical to success.
4. The debate between working in open spaces or behind closed doors is best handled on a case by case basis.

These assumptions caused the *D&D* leadership to make certain choices about physical layout. They chose to manipulate the environment to instill habits of collaboration, openness and flexibility. These design choices made by the *D&D* leadership team have a certain resonance with the office landscaping trend (*Bürolandschaft*) that started in Germany in the 1960's. This open plan architecture placed many people in one large room, but gave the semblance of smaller groupings by the arrangement of the desks, file

cabinets, free-standing dividers and plants.¹⁸ The goal of office landscaping was to optimize communication and participative decision-making while removing the physical symbols of hierarchy, such as private offices. The office was landscaped to mirror a more egalitarian organization.

All this [physical embodiment of status and hierarchy] was swept away by the new breed of Bürolandschaft office designer. It was held to be inconsistent with the aims of the modern organization run along democratic rather than autocratic lines. Participation and joint responsibility teams had been substituted for armies of workers governed by supervisors, junior, middle, and senior management. The pyramid was being flattened...

[This] [e]galitarianism was worn conspicuously as a badge of progress. This resulted in the early days in undifferentiated layouts where all workplaces were similar and it was not obvious who was general manager and who was the clerk.¹⁹

The pros and cons ascribed to the landscaped office are the same as those experienced by *D&D*. The factors on the positive side include: improved communication, more efficient flow of work, heightened sense of teamwork, significant cost savings due to the absence of walls and doors, and a more malleable layout that is easier to reconfigure.

¹⁸ There are two other office arrangements that help clarify the open plan: the private office and the bull pen. The earliest office layouts were comprised of many small offices, often with only one person in each office. As construction technologies (the steel beam) allowed larger spaces to be built, the bull pen gained prominence. In this configuration workers sat in endless rows in a large central space while managers sat in private offices along the perimeter. The landscaped office with its work groupings scattered in an open space was driven by a practical need to improve communications and the rise of an egalitarian philosophy that stemmed from American management relations theory in the 1930's and 1940's. See Francis Duffy, *The Changing Workplace*, edited by Patrick Hannay (London: Phaidon Press, Ltd, 1992), pages 68-69; and John Pile, *Open Office Space* (New York: Facts on File, Inc., 1984), pages 6-8.

¹⁹ Francis Duffy, *The Changing Workplace*, edited by Patrick Hannay (London: Phaidon Press, Ltd, 1992), pages 70-71.

On the negative side, the factors include: a loss of adequate privacy, increased noise and distractions, and the loss of the status symbol of the private office.²⁰

Despite the similarities in outcomes, the *D&D* internal architecture was not an example of true Bürolandschaft. The *D&D* leaders did want the physical environment to embody the key concepts of the organization: a flat organization where hierarchy was minimized, a team based organization where collaboration was the norm, a candid organization where open communication was encouraged, and a flexible organization with easily changed team assignments. However, the original proponents of office landscaping claimed that in order to design the best layout, the first step was a detailed analysis of the organization and its work and communication patterns. *D&D* did not undertake that kind of detailed analysis, it looked no further than the communication needs for an individual team.²¹ The architect Francis Duffy acknowledged that the requisite analysis lacked any practical utility:

The key to the shape of office buildings lay in understanding the shape of the organization.

Or so it seemed at the time. It took, in fact, several years of reflection to realize the major intellectual flaw in arguments for office landscaping: why, if detailed analysis of particular organizations was so important, were all office landscapes the same?²²

²⁰ John Pile, *Open Office Space* (New York: Facts on File, Inc., 1984), pages 12-14. See also Paul Bell, Jeffrey Fisher, Andrew Baum, Thomas Greene, *Environmental Psychology* (Fort Worth, Texas: Holt, Rinehart and Winston, Inc., 1990), page 444.

²¹ Over time *D&D* has discovered some communication links that have been weakened by choices in physical layout. Those include cross-team communication and linkages with billing, hiring and legal.

²² Francis Duffy, *The Changing Workplace*, edited by Patrick Hannay (London: Phaidon Press, Ltd, 1992),

The concept of flexibility -- particularly when tied to physical environment -- has two distinct meanings. At *D&D* flexibility most often meant the ability to respond to dynamic changes over time (diachronic). Another meaning of flexibility would be variability at a single point in time, supporting a diverse set of needs (synchronic).²³ As will be demonstrated, the *D&D* environment was crafted to support the former, not the latter.

In the rest of this chapter I will examine how each of the legacy assumptions caused the *D&D* leadership to make certain choices about physical layout. By embedding these assumptions in physical features, the leadership team was reinforcing certain behaviors and habits of mind that they deemed critical for success. They sought to manipulate the environment to instill habits of collaboration, openness and flexibility.

Manipulating Space for Collaboration

In crafting the space in the tower, *Matt* and *Roger* had their first significant opportunity to take what they had learned from the prior spaces and use that knowledge to drive the design. The layout that they chose for the tower building emphasized the

page 79.

²³ This distinction is more fully explored in Amos Rapoport, "Flexibility, Open Endedness and Design" in *Thirty-three Papers in Environment-Behaviour Research* (The Urban International Press, 1990), pages

importance of collaboration within a team. The central elevator shaft was surrounded by a corridor. Jutting out from that corridor were hallways, each hallway led to different -- and separate -- team area. The only way to go from one team area to the next was by returning to the main corridor. When walking around the entire corridor, you would never pass a team member's desk or a window, except for the view at the front reception area.²⁴

Each team area was composed of a few contiguous rooms. Team members shared two and three person offices; some had doors, most had arches. One room generally held the team printer, fax machine and other shared equipment. The total amount of space within each team area varied; the number of people on the team determined where the team would be located. As teams changed size (for example towards the end of a project the team size would drop dramatically) they moved from location to location, always looking to optimize the space used.

Franklin Becker and Fritz Steele explain some of the reasons why a firm might provide a separate space for each team:

[W]orkspace design can be a very effective tool in helping to create a sense of identity and teamwork in new groupings. In general, if you create a new, hybrid work entity or group, give it some concrete reality by also giving it a place of its own. This accomplishes a couple of things: it makes a clear commitment to the

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²⁴While the floor that was totally gutted followed this pattern, the one where *D&D* used some of the existing layout did not.

success of the new group; and it helps change the interaction patterns of the group, making it more likely that they will see and get to know one another and therefore begin to really think of themselves as a group.²⁵

Bobby Ortega -- who had so enjoyed what he described as a fraternity space -- was one of the key contributors to the design of the tower building. He explained that his experience in the temporary space shaped what he thought was important for a work area. The positive aspect of being in an "incubator" influenced his design

recommendations:

Bobby: I was a contributing author to the space as it is now, so for the most part I like it. I think the pods work really well.

Pat: Why?

Bobby: Because they offer enough privacy that you can get some quiet. Because you can do two or three people in a room. And at the same time, they're open enough that you can yell across and get somebody's attention. They're fairly self-contained, so this is a good and a bad thing: you have to go out of your way to bother somebody from another team; at the same time, if somebody from another team has to go out of their way to bother you. So it's good in the regards that it really provides a little incubator to work in.²⁶

For *Bobby* there were two positive factors in the pod design: the proximity of his teammates that allowed good collaboration and his team's relative isolation from the rest of the office that allowed them to focus and concentrate. Turid Horgen and her

²⁵ Franklin Becker and Fritz Steele, Workplace by Design: Mapping the High-Performance Workscape (San Francisco: Jossey-Bass Publishers, 1995), page 206.

²⁶ Interview with *Bobby Ortega*, October 1995.

colleagues point out that mere proximity is often not enough, for them "reciprocal visibility" is the feature that enhances the opportunities for collaboration.²⁷

Housing each team in its own space underscored the importance of tight teamwork. But this also caused isolation, team from team, that made cross-team communication difficult. For some people, that isolation was a significant problem of the "pods." *Lisa Chang* had started at *D&D* in the "8" building. When I talked with her she was working in the tower building. She compared the layouts of the two buildings, referring to the autonomous team spaces as "pods."

The pod takes the isolation to the team level. You don't get the cross-pollination as easily. Before we had a linear office. If you worked in the front you saw everyone go by in the morning. If you worked in the back you went by everyone. You pretty much saw everyone everyday. [Now] I'll go weeks without seeing some people here. Granted we are also five times as large – but that's a whole separate issue in itself.

It [pods] cuts down the communication between teams. We have to figure out how to encourage more [communication]... Email doesn't help... Our biggest challenge is how to deal with the pods. How to encourage people going pod to pod. I don't spend any time out of my team pod.²⁸

Conrad Mason, a project manager, felt that it was one of his responsibilities to be a bridge from his team to other teams. He explained that he had this perspective because he had worked, not only at other companies, but in some of the earlier *D&D* offices.

²⁷ Turid Horgen, Michael Joroff, William Porter and Donald Schön, Excellence by Design: Transforming Workplace and Work Practice (New York: John Wiley & Sons, Inc., 1999), page 232.

²⁸ Interview with *Lisa Chang*, October 1995.

[In the tower building] we are pod people. One of the advantages of being here relatively early, not early, but relatively early at *D&D* is knowing where we came from. Knowing [the various layouts, you know]... at a project manager level how important it is for you to get out of the pod in order to do your job. If you're not out of the pod on a frequent basis, learning, bringing information or asking for help -- whether be it email or voice mail or talking in the hallway -- you will get into trouble. Do pods, does the layout, entice people to stay in their areas and cause that trouble? Yes, but [there are] benefits associated with being with the team. [We] force the project manager to physically get out. So yes, we are pods and pod people... I like what that does for us...as long as we living in the pods recognize there's life outside of it and go looking for it.²⁹

When the company first moved into the tower there was a contest to see who could come up with the best suggestions to reduce the isolation, so that teams would not become "pod people." Three ideas won: Monday morning coffee and donuts to be rotated from team area to team area; cross team lunches (one person from each pod) subsidized by the company; and around-the-floor miniature golf game. The Monday morning coffee stayed in existence for almost a year and was then disbanded because people did not use it to socialize, but just to grab free food and scurry back to their pods. Lunches were organized for only a few months, after that it became too hard to find different people to attend; the golf game was never implemented.

There were other activities and ways of working that did reduce isolation. Some that promoted cross-team communication included the monthly wine and beer parties that happen after the mandatory staff meetings; corporate softball, pool and basketball

²⁹ Interview with *Conrad Mason*, October 1995.

teams; the orientation workshop and other training classes. Despite all these measures, in the first months in the tower, communication across teams was often cited as a problem for the company.³⁰ Probably the most successful strategy to promote cross-team communication -- and also the slowest to emerge -- was based on the dynamic nature of team assignments. People were assigned to a team for a period of time: up to twelve or fourteen months for a development project, just five days for a workshop. As people moved to new assignments, they kept in contact with those on their previous team -- having lunch, going out for a drink or a game of pool after work, or stopping by to ask someone for their help. Just a year later, the issue of cross-team communication was no longer top of mind; when surveyed about their concerns, company employees did not mention the isolation of teams.³¹

Another way to foster cross-team collaboration is by providing areas for informal interactions. Turid Horgen and her colleagues define informal meeting spaces as those that are not scheduled and can be used by anyone.³² If the office is designed around formal work areas, opportunities for informal interactions are lessened. The value of such informal spaces is not just social, there can be a direct correlation to productivity.

³⁰D&D does quarterly employee surveys. In February 1994 there were 45 employees; 39 responded to the survey. A key concern voiced in those responses was the need to increase cross pollination among teams. In November 1994 there were 105 employees; 56 responded to the survey -- and the need for better cross team communication was still present.

³¹ By mid-1995, this issue was not raised in the survey responses.

³² Turid Horgen, Michael Joroff, William Porter and Donald Schön, Excellence by Design: Transforming Workplace and Work Practice (New York: John Wiley & Sons, Inc., 1999), page 197.

Research by MIT professor Thomas Allen has shown that the number of informal contacts individuals have with those *outside* their formal work group directly influences the performance of that R&D group.³³ Office designers can support this form of communication by including informal meeting spaces such as lounge areas, the space around copiers or printers, kitchenettes, or eating areas. The use of informal meeting spaces has varied across the different *D&D* offices, often reflecting the preferences of the local leadership team. Choices included in-house gyms; lounges with sofas and easy chairs; game rooms with darts, pool tables and ping-pong tables; and in one office, a café-styled coffee bar.³⁴ In the early days at *D&D* space was at a premium, informal meeting spaces were rare.

Becker and Steele offer another mechanism to increase cross-team interaction. They believe that a design approach of functional inconvenience has value for building community. They recommend that shared services that people value and need to use frequently, such as conference rooms, photocopying rooms, break areas and mail rooms, be distributed throughout the building without minimizing the travel distances. The resulting movement throughout the floorspace and natural congregation at these

³³ Thomas Allen, *Managing the Flow of Technology* (Cambridge: MIT Press, 1977), cited in Franklin Becker and Fritz Steele, *Workplace by Design: Mapping the High-Performance Workscape* (San Francisco: Jossey-Bass Publishers, 1995), page 72.

³⁴ The coffee bar was built because *Thomas Hingham* heard Howard Schultz, the founder of Starbucks speak on the importance of the "third space," -- not home, not work, but an informal place to meet, such as the French sidewalk café. See Howard Schultz and Dori Jones Young, *Pour your Heart into It: How Starbucks Built a Company One Cup at a Time* (New York: Hyperion, 1997).

focal points would encourage interaction between groups that otherwise would not meet.³⁵ In the tower building, each team tended to place a fax machine and printer within its pod, thus reducing the need to travel outside of the confines of the team area.³⁶

As other offices were built out, the use of pods diminished. The design concept that was retained was separate team areas, where the entire team sat in some contiguous space. The use of separate team areas throughout all *D&D* offices emphasized the importance of teamwork and collaboration. With almost no individual offices, the physical architecture embedded the dominant message: we only work as teams; we always collaborate.

The Manipulation of Space for Openness

The second assumption that came out of the early history of *D&D* was the preference for openness and a disinterest towards privacy. One physical embodiment of that assumption was the use of arches throughout the tower floors. The entrances to the team hallways and the entrances to many of the offices had no doors, they were arches.

³⁵ Franklin Becker and Fritz Steele, *Workplace by Design: Mapping the High-Performance Workscape* (San Francisco: Jossey-Bass Publishers, 1995), pages 76-77, 80-81. See also the discussion of designing an "internal street" in order to bring the entire organization together, Francis Duffy, *The New Office* (London: Conran Octopus Limited, 1997), pages 38, 236-237.

³⁶ Often the decision to place these machines within the team space was not merely a matter of

The use of arches was first suggested by the design architect. When the architect visited *D&D* in the converted warehouse, he noted that even though all of the offices had doors, those doors were never closed. Regardless of time of day or day of week, whenever this architect wandered through to see how the company used its current space, the doors were open. He recommended that there be a few offices with doors, so that private conversations could take place. But for the most part he recommended that doorways be archways embodying the openness he had witnessed.

Zoe Whitman explained the symbolism of the arches and the open doors:

You can come in. You're welcome. You don't have to knock on the door and you don't feel like you're interrupting; but you're a part of it. It's a team, and any part of that area is your area as a team member, and that's important for people. The project managers and architects aren't above it all, they're not off somewhere else, away from it, but they're in the thick of it, and they're with the rest of the team, all of them focused on delivering that one project. It just, it harnesses the team, and I think that people appreciate and see that.³⁷

There was a mixed-message in the tower layout: on the one hand there were the arches (as well as the open space of a particular team area) that reflected the openness of the *D&D* culture. On the other hand there was the overall floorplan that isolated teams of pod people. In the original design, this conflict was not quite as marked. When first conceived, the walls between the corridor and the team areas were supposed to be glass. With that design, teams would have relative quiet, but would be able to see and

convenience. Another factor would be the importance of keeping the confidential client information within the physical boundaries of the team space.

be seen by those going by. This would have greatly reduced the isolation factor.

However, *Roger* and *Matt* finally decided that that much glass was too costly.³⁸ The only wall of glass that stayed from the original design was the wall between the reception area and the front conference room. Since that space has been nicknamed the "fishbowl," the plan for many walls of glass might not have been universally popular.³⁹

As *D&D* moved into additional floors in the tower there were some modifications to the original build out. In particular, some of the walls that had enclosed the pods were broken down. After the changes, when you walked around the floor there were some team areas where you could see in without walking into the pod space itself. This reduced the isolation of the team and emphasized the importance of openness.⁴⁰

The removal of some walls did create a corresponding problem. Without the walls there was a much greater possibility that the team would be distracted by people passing by. *Jason* described the noise issue for such a team:

³⁷ Interview with *Zoe Whitman*, October 1995.

³⁸In that same line of thought, replacing doors with archways also saved money.

³⁹ In a different office there was a team space with one wall of glass. That wall served two functions: to allow the team to have a stunning view of the cityscape and to separate the team from a sitting area that filled the corridor between the team area and the view. Only one team used that space; the disadvantage of being on display was much stronger than the advantage of the view.

⁴⁰ Francis Duffy assesses office space along two organizational variables: interaction and autonomy. Using those concepts as axes, he characterizes four types of offices: "hive, cell, den, and club. 'Hive' because such offices can be compared to beehives occupied by busy worker bees; 'cell' because these recall the monks' cloister...; 'den' because these are busy and interactive places where it is easy to work informally in teams; 'club' because one of the nearest models to the new transactional office, despite its unfortunate and outmoded élitist overtones, is the old-fashioned gentlemen's club." Duffy believes any

There are a few areas here that are, like this area here is actually pretty good, but having the team area flush against the main hallway, there's a potential for disruption there, and the distraction factor when you really need to work hard. I noticed on the second floor that [one] team has "Quiet Time" signs posted, because apparently they've been [distracted], even within their team, but then from people walking by and all. They want to discourage people from coming in. And during those, I think it's only a couple hours a day, which I think is pretty reasonable, during that time, [they want to] keep it a little bit quieter so they can work. I've noticed that at the other times there's just too many people walking by. It's important that everyone socialize, but there's times where you want to work, and sometimes you can't if there's a lot of people walking by.⁴¹

The leadership team was committed to building a physical environment that embodied open communication. At the team level this meant some amount of collateral distraction. This ideology also caused some problems at the individual level.

Lisa Chang, a programmer, talked about the pros and the cons of sitting in an open area with her team:

I mean it's easy to talk to people. The converse is sometimes it's hard to concentrate. I mean you have a couple of conference calls going on. Some people asking questions. On the other hand, probably once a week I hear a conference call going on and some people saying things and I turn around and say, "That's not the way that works; we've got to think about this." You can head off potential problems instantly....There's distractions but you can tune them out enough so that until someone says something that interests you can just ignore it and keep going...⁴²

organization will use a mix of types, with one being predominant. *D&D's* pods are an example of what Duffy calls a den. Francis Duffy, *The New Office* (London: Conran Octopus Limited, 1997), pages 60 - 67.

⁴¹ Interview with *Jason Hanrahan*, October 1995.

⁴² Interview with *Lisa Chang*, October 1995.

The increased noise of an open seating area represents both a distraction and an added source of information. Noise as a distraction is one of the largest problems of any kind of open plan work area.⁴³ But many people are willing to make the trade-off -- learning to "tune out" the distractions in order to monitor the things of interest.

Both at the team level and at the individual level, work has a dual nature. At times teams need to focus on their project; at others they need to converse with others to expand their knowledge base. Similarly, at times individual programmers need to collaborate with others to complete a task; at other times they need to concentrate on their own work.⁴⁴ It is difficult to create one static physical configuration that supports both; it is often cost-prohibitive to build sufficient facilities to support both activities.

Gerald McCue was the architect IBM hired to design its Santa Teresa facility. Before he started on his plans, McCue studied the work habits of those who would use that space. One thing that he noticed was that programmers spend 70% of their time working with others and 30% working alone. This creates a basic conflict in any team workspace: at

⁴³ H. McIlvaine Parsons, "Work Environments," in Human Behavior and Environment: Advances in Theory and Research, Volume 1, edited by Irwin Altman and Joachim F. Wohlwill (New York: Plenum Press, 1976), pages 191-195.

⁴⁴ This dual nature of work is not unique to software developers; it is found across many industries. See Constance Perin, The Moral Fabric of the Office: Organizational Habits vs. High-tech Options for Work Schedule Flexibilities Working Paper # 2011-88, Alfred P. Sloan School of Management (Cambridge: Massachusetts Institute of Technology, 1988), pages 8-9.

any given moment, the majority of the team is working by making noise while the minority is trying to focus on getting work done quietly.⁴⁵

The additional constraint is that during those periods of solitary work, the optimum state is one of uninterrupted concentration. The ability to hold that focus, to be “in the flow” raises the individuals' productivity as well as their personal satisfaction.

Albert Marchand, a senior technology specialist, talked about people getting into the “zone.” *Albert* described how frustrating it is to work in an open space, where the constant stream of interruptions prevents you from working in the “zone.”

This is partially due to the focus required by developers, and the ease with which that focus can be broken. It typically takes a person of reasonable intelligence 15 minutes to get into that deep zone of concentration. Once that zone is hit you can see the incredible focus on an individual, as the object that the person is working on becomes the sole focus of mental energy. Interruptions like people walking by, playing music, arguing; or the PA system paging someone, tend to prevent the 'zone' from being attained. People feel very frustrated when that zone cannot be achieved, it's like a sneeze that beckons but never happens.

When I was involved in direct management in a production environment, ... production issues would arise that required developer intervention. On occasion I would have to interrupt people while they were in their 'zone.' I could see them turning their chair around to listen to me, but the eyes revealed that they did not understand a word I said, because their mind was still in the zone. It took usually 30 seconds for them to really concentrate on the interruption.

⁴⁵ Gerald McCue, “IBM’s Santa Teresa Laboratory – Architecture Design for Program Development,” in IBM Systems Journal Vol 17, No.1 (1978), pages 320-341, cited by Tom DeMarco and Timothy Lister, Peopleware: Productive Projects and Teams (New York: Dorset House Publishing Co, 1987), pages 53-54, 62.

I have found the same problem when I am interrupted in that state. Some people would become so frustrated at this constant barrage, that they would arrange to work on weekends or off hours just to attain the zone. What I have found equally interesting is that management in most organizations is so used to being interrupted that they have trouble sitting down for an hour in order to compose a piece of individual work, such as a plan, because they anticipate the interruption in the back of their mind. So the idea that others need to focus deeply for extended periods of time eludes them.

When I made the transition from managing direction of a production environment involving 10 systems, to a software engineer three years ago, I found it difficult to sit for any period of time, despite the fact that I knew that this problem might arise. I needed to reset my reaction threshold. It took me two weeks. The whole point of this last paragraph is to emphasize that management perspectives and development perspectives differ for VERY fundamental reasons.⁴⁶

For Mihaly Csikszentmihalyi the times that people are in the zone are the best moments in their life. Calling these optimal experiences of total absorption "the flow,"

Csikszentmihalyi explains:

[These] usually occur when a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile...

Often her concentration is so intense that she forgets to have lunch, and by the time she realizes that she is hungry it is dark outside. While she is immersed in her job every piece of information fits: even when she is temporarily frustrated, she knows what causes the frustration, and she believes that eventually the obstacle can be overcome...

⁴⁶ Email from *Albert Marchand* to a group of people at *D&D*, May 1997.

[The individual is completely absorbed], the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing.⁴⁷

In that context, not only is working in the zone highly productive, it is immensely rewarding for the individual at an emotional level. Employees who have had this experience will strive to orchestrate their working environment so that they can replicate that experience.⁴⁸ For some people this means finding a private area, where no distractions will interrupt their thinking processes.

In assessing physical environments, Edward Hall specifies two kinds of spaces. Citing Humphry Osmond, he describes sociofugal spaces which tend to keep people apart, for example a railway waiting room, and sociopetal spaces which tend to bring people together, for example the tables at a French sidewalk café. His point is not that one kind of space is bad and the other good, but that both meet certain needs. His recommendation is that for any environment, the designers provide a variety of spaces so that people can be involved with each other or not, as they desire.⁴⁹

⁴⁷ Mihaly Csikszentmihalyi, Flow: The Psychology of Optimal Experience (New York: Harper & Row, 1990), pages 3, 40, 53.

⁴⁸In his research on optimal experiences, Csikszentmihalyi found a curious paradox: most of his subjects had had their most positive experiences while on the job, and yet most say they would prefer not to be working. After exploring various explanations, he concludes that the mindset of believing you have to work, rather than that you choose to work, causes you to greatly devalue the flow experience that you have while on the job.

⁴⁹ Edward T. Hall, The Hidden Dimension (New York: Doubleday, 1966), pages 108-110. See also Philip Stone and Robert Luchetti, "Your Office is Where You Are," Harvard Business Review, March-April 1985, pages 102-117.

At *D&D* there were plenty of sociopetal spaces designed to bring people together. The team areas were bounded spaces designed for collaborative work. When there were separate rooms within a contiguous team area, the archways and open doors emphasized the continuity of the space. In contrast, those individuals looking for the private quiet space where they could maintain the level of concentration required to reach the zone were frequently frustrated. *D&D* did not include enough sociofugal spaces -- such as private office areas -- to meet the need for intense individual work.

At *D&D* there was explicit acknowledgement of this issue. *Ralph Fisher* -- who had orchestrated many of the buildouts of new floors -- explained his perspective on the challenge:

At the front end [of a project] you need a high degree of collaboration with no walls. You need senior people communicating with junior people to create an effective team. [The whole team] needs to understand the problem. Once you get past that -- 30 to 50% into the project -- you want the opposite of that. You want isolation. You have discrete parts that have been parceled out to the team that then need to be worked on. Then the open environment is a detriment. There have been all kinds of studies of what is required for people to get into the zone. Open environments don't allow for that. There is a trade off.

Isolating people -- they are much more effective when working on one problem. But left to their own devices, those people remain in isolation -- and the project gets off track -- because people stay too isolated.⁵⁰

⁵⁰ Interview with *Ralph Fisher*, February 1999.

In watching teams over time, I noticed one method of adapting to the physical environment. As development teams started out and moved into their space, there was a need for a lot of conversation. Each person needed to understand his or her own task and understand how that piece fit in with all of the other pieces. Individuals were charged with a set of tasks, they needed to plan and draft their work, and then review that with other team members. Desks and chairs kept moving as sub-teams formed and reformed. All of this activity, conversation and collaboration was well suited to an open space. At some point the team would hit its stride. After a morning team meeting where all team members reported to the group how they were doing, the individuals went to their desks and focused on their work. This was often accompanied by putting on headphones and using that music to create the aural walls of many virtual offices. I have walked by teams where everyone had their headphones on. As the development continued, there began to be a greater need for ongoing coordination among team members. At that point headphone use became sporadic; you saw more and more pairs and trios of teammates conversing and working through their coordination issues. In this pattern the space and physical layout remained sociopetal, but the use of headphones created a sociofugal reality.

This phenomenon illustrates the possibility of shaping space with non-physical barriers. In defining his sociopetal and sociofugal spaces, Hall appears to have focused solely on how space is constructed physically. The use of headphones at *D&D* is an example of a

different kind of construction, one that uses aural barriers.⁵¹ This suggests that a space with a particular physical construction can actually be a variable space, depending on the other kinds of barriers that can overlay that original physical construction.⁵² Another option is building a space where territorial boundaries are blurred.⁵³

The *D&D* employee faced a contradictory message every day. On one hand there was the emphasis on teamwork and open communication -- these were reinforced by the physical layout and the cultural norms. On the other hand, this results-driven organization expected high levels of performance -- which often required intense individual concentration -- but provided no space suited for that activity.

Thus the leadership team manipulated the physical environment to emphasize openness and easy communication. The issues of noise and distraction which caused discomfort for the employees were not addressed by changing the design of the physical environment. Instead, those problems were mitigated by individuals by the use of headphones and "quiet hours."

⁵¹ I am grateful to Heinrich Schwarz for pointing out the distinction between aural and physical barriers.
⁵² In his study of the Lawrence Livermore National Laboratory, Hugh Gusterson, describes another kind of barrier that can overlay physical construction. In his chapter on secrecy, he depicts a physical space that is made up of "zones of greater or lesser exclusion, " "an enormous grid of tabooed spaces." While there were different physical aspects to some of these different zones, the categorization of physical space solely by level of access is an example of another type of barrier. Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley: University of California Press, 1996), page 70.
⁵³ Turid Horgen, Michael Joroff, William Porter and Donald Schön, *Excellence by Design: Transforming*

The Manipulation of Space for Flexibility

Another assumption that was based on the early history of *D&D* was the notion that flexibility was critical for the success of the firm. In practice this meant that all employees would change the location of their workspace as their roles and teams changed.⁵⁴ When I started at *D&D* there were already too many people and too many activities to fit in too little space. This resulted in a kind of bohemian office life style where you never sat at the same desk as the day before, and sometimes there was no desk from which to work.⁵⁵ I attributed this fluid use of space to the fact that this was a start up.⁵⁶ I fully anticipated my own desk and work space at some future date. I was way off the mark. The thing that has given my office life stability is my filing cabinet. It has stayed with me as long as I stayed in a given office. It has my name on it. It is on wheels. There were days when I first joined *D&D* when I would wheel my file cabinet to a quiet area, commandeer a chair and work on my file cabinet. I have continued to

Workplace and Work Practice (New York: John Wiley & Sons, Inc., 1999), page 231.

⁵⁴ This physical variability within the workplace echoed the turbulence of the external economic environment.

⁵⁵ Individuals also did not have phones with specific extensions. The few handsets that we had displayed all the incoming lines; when a call come in the person who answered it first would say something like "Pat, for you on line three," and you would go to the nearest free phone and pick up your call.

⁵⁶ Stewart Brand has explored the notion of "lifespan" as it relates to work spaces. He has a model that distinguishes six aspects of a building and its space, each with a different lifespan, a different level of permanence. The "site" has the most permanence, followed by "structure, skin, services, space plan and stuff." The last is the most flexible: the chairs, desks, phones, bookcases and pictures that paradoxically appear to be the defining attributes of the work environment. *D&D's* sense of working space as mutable echoes Brand's argument. Stewart Brand, How Buildings Learn (New York: Viking Penguin, 1993), cited in Francis Duffy, The New Office (London: Conran Octopus Limited, 1997), pages 74-76.

move throughout my career at *D&D*; my file cabinet moves with me, nothing else is constant.

Those first few months were very turbulent. *Bobby Ortega*, who joined shortly after I did, reminisced:

Pat: When you first came to *D&D*, did you have a desk?

Bobby: No.

Pat: What did you have?

Bobby: Nothing. My file cabinet.

Pat: What did it feel like?

Bobby: It actually didn't really bother me. I felt, well, the sort of work that I was doing was so turbulent and so volatile that I never would've sat down at a desk anyway. Or I was running all over the place, I was working with clients, I was jumping through hoops and doing whatever needed to be done, that I would've spent more time at the copier than I did at my desk. So it didn't bother me not having a desk. I had a filing cabinet; it was a place where I could put my stuff, and there was usually a desk available somewhere if I needed one, so I could wheel my filing cabinet over and sit there for a couple weeks. But that was, I think that was largely because my emphasis and my thoughts and my mentality was so much focused elsewhere. It was so much focused on starting the company and bootstrapping the company and being a start-up and roughing it and all that sort of stuff that the concept of not having a desk never even came onto my radar scope. I know lots of other people, I know other people did find it bothersome, but for me it never really bothered me that much.⁵⁷

⁵⁷ Interview with *Bobby Ortega*, October 1995.

Even as recently as 1999, when someone joined *D&D*, they were given a file cabinet on wheels because their seat assignment was going to keep changing. Unlike some firms, where your space or office remained the same regardless of your assignment, at *D&D*, when your assignment changed, you moved to the location that will best support your new role. If you joined a team you moved to that team's area. If your team outgrew its space, you moved with your team. If a new team was formed and took over space that included the spot where you were sitting, you would move.

It was common to see people pushing their file cabinets down the hall, into the elevator and to a new location. Computers and accumulations of past projects, got loaded onto chairs (which were on castors) and pushed to the new location. Sometimes people searched out a dolly or asked for assistance for a move; but often they used the expedient route of self-relocation.

When I asked people about their moves, many could not state how many times they had moved, even in a year. Ten moves were not considered onerous; twenty-five moves were worn as a badge of honor. When I interviewed her, *Lisa Chang* had been at *D&D* for two years and had no idea the number of times she had moved. Nevertheless she explicitly linked the notion of mobility to the importance of flexibility for the firm:

That's another things we do a lot of, that is move around. That is just the most amazing thing... You don't get a place where you sit. You're part of a team and the team figures out where the right places for people to sit are...

Not having a phone, not having a PC, not having a place to sit -- makes it hard for people to get rooted. [A team member] used to complain about this.... It's hard for new people to get comfortable without a reference point: This is where I sit. After a while you realize you don't need to have your place to sit forever, you just need a place to sit. So moving around is no big deal. I don't have any problem doing it... It's kind of fun. I've been sitting in the same desk for around four months; it's time for a change....

Our culture is based on change. That's why we don't have any chairs without wheels. Why we don't have file cabinets without wheels. It's not so much that it is based on change. It's based on the ability to change. And be flexible.⁵⁸

Bobby Ortega also felt that moving frequently was a positive thing. For him, the move clearly marked the beginning of a new project. It was a physical reminder that this was a new beginning. A catalyst for getting rid of bad habits:

The way we work is we work on assignments, on jobs, and every job is a new assignment. Every new job is a fresh start; it's a new beginning. And I think it's good that people move, up and move, and really make the fresh start a fresh start. For me, every time I move, I reorganize my desk, I reorganize my files. I, at least for the short term, I get rid of a lot of bad habits that I fell into when I was in that old space. Examples are the piles of paper on my desk. First two months I move into a new space, my desk is cleaned and well-organized, and then it slowly degrades and I end up back where I am. But if I move once a year, that means two months out of the year, I've got my stuff together, so that's good.⁵⁹

It was not only new people and teams that moved. Three Vice Presidents moved four times in as many weeks as they experimented with a common working space to improve their communication.⁶⁰ Every time they moved, others moved either to open

⁵⁸ Interview with *Lisa Chang*, October 1995.

⁵⁹ Interview with *Bobby Ortega*, October 1995.

⁶⁰ This was not the first time they had moved. Each had probably moved two or three times in the six months prior.

up the new space or fill the recently vacated space. One of their moves was driven by a team need. *Lisa* tells the story:

All of a sudden it became apparent that the Phase I guys were in a crunch and we had to do something. So we moved [two people] off into their own little room. They got a private room with a door they could close. Shut everyone out and they just coded. We had to kick a VP out of his office. There aren't that many places I can think of where you could kick a VP out so that two developers could go in and be productive...

We use space in a way that makes sense because we are focused on our core values, we're focused on delivery, on getting things done.⁶¹

Not everyone responds to this mobility in a positive fashion. Edward T. Hall has pointed out that some people tend to claim certain spaces as their own and that having such a space is very important for them.

Territoriality... is the act of laying claim to and defending a territory... In humans territoriality is highly developed and strongly influenced by culture... Americans tend to establish places that they label "mine" – a cook's feeling about a kitchen or a child's view of her or his bedroom...⁶²

While it is debatable whether or not this need to have your "own space" is a characteristic of one particular nationality, it is clear that for some people having a "place of their own" is more important than it is for others.

At *D&D* a few people indicated a need to have a fixed desk because that desk gave them a sense of belonging, of security. *Wally Church* had worked in a large corporation

⁶¹ Interview with *Lisa Chang*, October 1995.

⁶² Edward T. Hall and Mildred Reed Hall, Understanding Cultural Differences (Yarmouth, Maine:

before he joined *D&D*. After nearly one year at *D&D*, he compared the cubicle-based environment he had known with the one he discovered at *D&D*.

[Where I worked before], the cubicle was where your stuff was. Your cube was your home base. Here there was no home base. There was just this rolling cart. That took some getting used to...

[Since I've gotten here, I've moved over ten times.] The first time I moved I was really unnerved by it. Because I need a place. I need a place to anchor. I want to have a place that is mine. That I can come to and say this is my home base; this is my timeout place. So when I had to move I felt all of that being disrupted. I've learned to deal with that. ... It's not as disruptive...

[I no longer have a home base.] That's something else I've given up. The whole notion of a home base. You don't have one.

That was real difficult to get used to.... On my way in [to the office today] I was thinking what MBTI⁶³ types *D&D* rewards. The E, the N, the T and the P. And the P part is the go with the flow very spontaneous kind of thing. I am a J. Strict, strict J. I need structure, I need things, I need stuff.... So that has been very difficult to get accustomed to.⁶⁴

For some, moving frequently added to their sense of security because they were being treated like everyone else.

Michael Welsh, developer: [Moving] didn't seem like a big problem. Expectations were set properly, that that was the norm. And it was said, you need to move from this point to this point, and it's pretty much take your three-drawer file and move it, so it was not logistically a problem for me. ... So it was not a problem. It didn't bother me . . .

Pat: Why didn't it bother you?

Intercultural Press, 1990), pages 10-11.

⁶³ *D&D* has used the MBTI (Myers-Briggs Type Indicator) for many years as a way to provide a common language about personal style and how differences in style may hinder good communication.

⁶⁴ Interview with *Wally Church*, October 1995.

Michael: Because once you're here, you see everybody's in the same boat... You see other people moving, too, so it's not like people have these nice big offices and they don't have to move and it's just you. Everybody does it. It's a very dynamic, resource-allocation environment. And so, once you're here a few days or a few weeks, it becomes very clear, I would think. It became very clear to me, that that was the norm. And it was just okay. And you saw people doing it constantly.⁶⁵

I have framed the importance of "one's own space" in terms of security; that is how I interpreted what I heard. But Paul Bell and his colleagues have pointed out how easy it is to conflate two factors: the personal need for security and the personal need to have a physical manifestation of status.⁶⁶ At *D&D*, where the tenets of the firm espoused no hierarchy, the physical touchstone of your own space could provide an implicit status marker.

D&D is not the only firm that has experimented with office layout and the degree to which having your "own space" is important. Francis Duffy has examined a variety of different office spaces, one was the New York offices of the advertising agency Chiat/Day. There the founder, Jay Chiat, had a space created that reflected the importance of teamwork and the mutability of assignments. With staff considered visitors, this club-like atmosphere was a base for work, but not a full-time home. Employees were expected to reserve places to work, like in a restaurant. This model is

⁶⁵ Interview with *Michael Welsh*, October 1995.

⁶⁶ Paul Bell, Jeffrey Fisher, Andrew Baum, Thomas Greene, *Environmental Psychology* (Fort Worth, Texas: Holt, Rinehart and Winston, Inc., 1990), page 441.

at the other extreme from one where each employee has his or her "own space." The response from the employees has indicated that this model was sub-optimal.

Many [employees], it appears, find the total absence of territorial space something of a trial. "It's rather as if the only place you have to work is an airport business lounge – comfortable and acceptable, but far from ideal and nothing to do with you." [Laurie Coots, the agency's director of administration and business development]...

The future, Coots believes, lies in the "village" rather than the "club." A more recent office opened by the company in Canada is seen as a pointer in this direction, less prescriptive, more inviting, more conducive to "bonding."... Coots compares the culture of an office to the culture of a city. Manhattan is a vibrant place because of the interaction of East Side and West Side, uptown and downtown, Chinatown and Little Italy, Chelsea and Soho, the sub-cultures of the city. "We need to provide space for office sub-cultures to which people relate," says Coots...

The experience of some staff, who find the office disorienting and comfortless, has to be tackled, not dismissed. There are limits, it seems, to the virtual office.⁶⁷

For the most part, people at *D&D* were very comfortable with a transient style.

However, *Albert Marchand* had a different point of view. He felt some people might object to the frequent moves because it left an ownership void. Without a space of their own, the employees might treat the office space with less care.

The experienced perspective – people with experience find the *D&D* physical plant offensive. File cabinets on wheels, the ability to plug your laptop in anywhere. The resulting physical plant is one where people don't feel ownership. People with experience are appalled. There is an overall sloppiness because there is no sense of ownership. That is another perspective on how space works...⁶⁸

⁶⁷ Francis Duffy, *The New Office* (London: Conran Octopus Limited, 1997), pages 196-197.

⁶⁸ Interview with *Albert Marchand*, October 1999.

This opinion corresponds to a thesis proposed by Eric Sundstrom, who suggested that only when a worker has a designated workspace would that worker show responsibility for it and take better care of it.⁶⁹

There was a technology component to this fluid use of space in *D&D*. There was a network of wires in the walls throughout the space. Anyplace you were, there was a "connector" in the wall -- analogous to a telephone jack. However, it was not a telephone, but a computer that could be attached to that connector. At *D&D* you could attach any computer to any connector; the technical infrastructure took care of knowing which specific machine was attached to any specific location. This meant that when a team wanted to move from one floor to another, they could unplug their machines, wheel them to the next space and then plug them in -- with no assistance from a system administrator. Without this kind of technical infrastructure, that move would have required manual intervention to specify which machine had moved to which connector. While defining machine addresses is a doable process, it adds an overhead that might well constrain some movement, such as team members moving machines to "the next desk over" for ease of collaboration.

⁶⁹ Eric Sundstrom, Work Places: The Psychology of the Physical Environment in Offices and Factories, 1986, cited by Paul Bell, Jeffrey Fisher, Andrew Baum, Thomas Greene, Environmental Psychology (Fort Worth, Texas: Holt, Rinehart and Winston, Inc., 1990), page 441.

In addition to a physical capability of connecting any machine anywhere, there was a logical capability of using any machine anywhere. You could log in to any machine at any office of *D&D* with your ID and password; you now had access to your email and other personal files that you had stored on the network. You did not need to sit at one particular machine or in one particular office.⁷⁰ Since most machines were set up in the same way, you could do your work regardless which machine you chose to use. *Priya Gupta* explained how this felt:

Priya: We're a very fluid company, you know, things change from week to week because of the nature of the business we're in...At the level of project manager or developer, you may find yourself moving, and the idea that we have the [infrastructure], I think it's great. I can move myself, if I need to move, it's not a hassle. I can unplug my phone, you know, the fact that the phones are very mobile. We've got a net, completely wired-in network. So all I need to do is unplug my laptop, unplug my phone, put it on top of my filing cabinet, wheel my filing cabinet, and I'm up and running in another location. It is great.

Pat: Why is that great?

Priya: I want to be where the project that I'm working on is at. I hate the idea of having to get up, walk across the building. Since we have this fluidity of projects... our project lifespan is relatively short. I may be on a very meaningful project, but it only lasts a month. Or three weeks. So rather than, you know, I'm in one part of the building, and [my teammate] is in the other end of the building, I can up myself and be close to where [my teammate] is so I can get that dialogue going. It's all about making the 80-20 rule of communication, let's facilitate the 80 percent and hope that the other 20 percent happens, because I don't think you'll ever get it ideal. And that's just a tool that I've seen has helped me personally...

⁷⁰ Files that are stored on the central server are accessible from anywhere on the network. Files that are stored on a particular PC can only be used on that machine. Computers that are used by project teams tend to be used by the same person each day; those people will store information on that machine. Other computers are in areas where different people use the same machines; in those instances very little is stored locally, people will save their work onto the central server.

I like change. Change is fine... I used to move offices quite frequently in my old job. It was just a much bigger pain in the neck because, you know, it took forever to get things moved and . . . I like variety. I would get bored after a while if I was just sitting in the same place over, you know, year after year.⁷¹

At *D&D* the ways that teams were expected to work and interact were codified into particular architectures. The expectation of individual flexibility was reinforced by mobile office furniture, seating arrangements based on the team, and a networked infrastructure. *Paul Kleeman* recognized the paradox that *D&D*'s preoccupation with flexibility was in itself a form of dogma.

We like group interaction. Hence the group work areas. We like people to share and share ideas -- hence the shared offices. I believe that the fact that we move teams around en masse means that we expect people to be flexible and move with the assignment and wherever the assignment goes.

[But there is a downside. There is] a lack of privacy to think and create. I happen to believe that open seating is not conducive to quiet time for thought. Even if it is flexible it is monolithic -- because that is the way we do it.⁷²

Some architects who design office settings have emphasized the importance of having a variety of work spaces to accommodate differences in personal style. They recognize that different people need different settings in order to work optimally. In addition, any particular person may prefer a variety of settings to accommodate the different types of work that individual does.

[E]ven within disciplines there can be great differences in personal work style; that is, in how, where, and when people work best. Environmental equity, from this perspective, lies in giving employees access to those physical resources

⁷¹ Interview with *Priya Gupta*, October 1995.

⁷² Interview with *Paul Kleeman*, October 1999.

(work spaces and surfaces, privacy, views, storage, display space, and so forth) they need to work effectively, not in giving everyone exactly the same thing.

Another principle guiding the design was that as an individual's work varies over time (day, week, year), the optimal setting for accomplishing that work should vary as well. We don't cook, eat, sleep, and entertain in the same room in our homes. Why should we always discuss a project, type a report, or read a technical article in the same workspace?⁷³

It was just this diversity of work settings that was missing at *D&D*.⁷⁴

The Open Debate on Open Space

The considerations of how to lay out work space became personal for me when I was given the assignment of planning the build out on a newly acquired floor in what was the sixth *D&D* building. Some of the design considerations included:

- maximizing the positive relationship between productivity and the environment
- supporting the need for both collaborative work and individual work
- optimizing the team relationship

⁷³ Franklin Becker and Fritz Steele, *Workplace by Design: Mapping the High-Performance Workspace* (San Francisco: Jossey-Bass Publishers, 1995), page 73.

⁷⁴ A discussion of what constitutes a "good" workspace illuminates the constraints of the stereotypical notion of what "work" is. Often "work" happens in a variety of ways, not only when the individual is sitting upright in his or her own chair. "Work" happens: over coffee in the lounge, during the cross-team ping-pong challenge, within the fleeting exchange while passing in the hallway. This expanded notion of work explains the designers' preoccupation with how the entire setting is embraced, not just the desk-and-chair work space. Franklin Becker and Fritz Steele, *Workplace by Design: Mapping the High-*

I was aware of the tradeoffs: I had already written some of this chapter; I had spoken with many people about their preferences; there had been an extensive office-wide e-mail discussion about the attributes of the “ideal” space. While there were nuances to the respective arguments, one basic polarity remained. This polarity was the fourth legacy assumption from the early days at *D&D*: common spaces improve communication and coordination among team members, private spaces improve individual productivity.

The space that I was responsible for was a full floor on an upper story of an office tower. The most recent tenant had filled the floor with cubicles, except for the offices along the outside walls. There was approximately 30,000 square feet, so there was a lot of floor space between the central elevator shaft and the outside row of offices. The outside walls were floor-to-ceiling glass. With almost no nearby buildings of similar height, the view was extraordinary. The north side looked up the Hudson to the George Washington bridge; the east side looked at the Manhattan skyline; the south side saw New York harbor including the Statue of Liberty; the west side looked across parts of New Jersey. When the cubicles were removed, you saw this extraordinary view from almost any place that you stood.

Performance Workscape (San Francisco: Jossey-Bass Publishers, 1995), pages 78ff.

I knew that one option was to create team areas where each person had a private space or shared an office with at most one other person. But in order to make that work, there would need to be many offices with no view. Choosing cubicles would allow everyone to have natural light, but as they sat at their desk each person would be isolated by those barriers. Whether cubicles or offices, it would be hard to encourage communication among team members. And this extraordinary view would be lost to most of the people who worked on the floor.

Both *Wally* and *Lisa* had worked in offices where people were in cubicles. Their responses represented the two polar opinions about working in cubicles. One on hand *Wally* saw cubicles as home, “your own space.” On the other hand *Lisa* saw cubicles as isolating and impersonal.

Wally and his group had found a way to transform their set of cubes into a home base, an identifiable sanctuary in a Levittown of cubicles, a place where learned ways of working provided privacy.

I came from environment of rows of cubicles. When you entered my team’s area you came to my cube first... For a while there was nothing that differentiated group from group. We grew into identifying our area and we chose plants. Oddly enough having all these male engineers. We had these great big palm trees. So you could say: These are my people.

So when I came to *D&D* I was absolutely intrigued by the team area; everyone was together. I was a little daunted by the fact that there was no real privacy. Everybody’s right there...

[Where I used to work] had this environment where you had some privacy... You would think not. But you would learn to speak very softly if you were having a conversation that you didn't want anyone else to hear... In fact I used to lose my voice when I first got here because I had to turn the volume up again on my voice...⁷⁵

Lisa had a very different response to working in cubicles. For her the cubicles were isolating, while team areas provided connection to her teammates. Where *Wally* appreciated the privacy of the cubicle, *Lisa* chafed against the isolation.

I like open areas. It's helpful. I like being near the people I have to work with. My team area is a wide open area. The five people there are the ones who have to talk with each other. There's a lot of interaction. That works out very well.

It's not so much the open space. It's taking what you have and ... The way we use space is to maximize communication. Which is different than just putting everyone in a cubicle. [At a different company] you just got a cubicle and if you were lucky you were near the people you were near. If you weren't you weren't. Because people had been there for a while. People were senior so they got windows. All the politics about who gets the good cubicle. Who gets to be near other people. When I was leaving they were getting two or three new people on the project, they were going to be on a different floor. Which is not the way to promote communication. The way we use space is designed to promote communication.

[A cubicle] is lonely. Which is an odd thing to say about a [programmer] who's heads down all the time. You just feel isolated. You don't feel private -- because you can hear conversations going on around you. It's got walls you can't really see over. You can kinda [*Lisa* stretches her neck] look over as if you're trying to crawl out of jail.⁷⁶

⁷⁵ Interview with *Wally Church*, October 1995.

⁷⁶ Interview with *Lisa Chang*, October 1995.

Another aspect of the cubicle vs. open space dialogue had to do with communication.

Wally saw the cubicle as enhancing personal communication; the ability to conduct the necessary logistics of life without thinking that everyone with whom you had a working relationship knew your personal business.

It's a fact of life [you have] personal business that you have to attend to... So it's awkward at times to feel that you have to squirrel away to make some personal phone call -- that everybody has to go through....but it's my business, it's not your business to know that I've got a doctor's appointment and why.

Or even the phone call to say: "Honey what are we having for dinner tonight?" Well, no, I don't want everybody on the team to know that I am having that conversation. The rest of us are also, but I tend to be a little more unnerved by not being able to do that without other ears. And maybe I'll get used to that to.⁷⁷

Lisa, on the other hand, did not talk about the need to separate her personal life from her teammates. Instead, she relished the open spaces because of the enhanced team communication and productivity that that provides.

After working at *D&D* for a year and a half I went out [to a client site] and sat down in a cubicle and immediately felt myself getting less productive. It was a physical reaction. "I really hate this." Within minutes of sitting down.

[The cubicles are] isolating. It's hard to go ask someone anything. You have to either call them or get up and go to their cubicle. And if they're busy -- well, you say: Do I wait around? What do I do? Do I go back to my cubicle and come back later? As opposed to where you have your group right around you. You just turn around and you see they're on the phone: OK. Gotta get back to them later. Send them an Email. It's just a very different way of interacting with people. Because without much effort you can look to see whether you can bother someone. That's helpful. You get a feeling that there are people around to ask questions of.

⁷⁷ Interview with *Wally Church*, October 1995.

[The cube walls] are barriers to communication. Loneliness is not being able to communicate. Being shut off. That's really what a cubicle is. It's like an office but cheesier. If you have an office at least: ooh big guy got an office...

You feel cut off from everything around you... I would have preferred to have sat down in a room with other people who I didn't know sitting next to me. There would have been problems with that. One of the problems we have with big open areas is that there is sometimes too much communication so you can't get any work done. But it is easier to impose structure on that so you have times when you just turn communication off. As opposed to creating communication where there isn't any. Where that just can't happen...⁷⁸

As I thought about what *Wally* and *Lisa* said, as others added their voices to this dialogue, I was faced with the need to make the decision on the build out. There was a strong message that private space improved productivity by removing distractions and giving you the sense of having a spot of your own, of being important enough to have your own space. And there was another message about how an open space enabled the team to work more effectively by improving communication between team members.

Early in my conversation with *Wally* he contrasted the cubicles he had known with the open space he faced when he arrived at *D&D*. Later in our interview, he reflected on how he had changed, how his concerns about privacy lessened as he got to know his team mates better.

I actually like [the open team area] very much. There are some real benefits to what it does for the team from a cohesiveness perspective. Being able to work together. Being able to become friends. And perhaps this is why I am beginning to become comfortable with letting go of the privacy.

⁷⁸ Interview with *Lisa Chang*, October 1995.

[There] is something I've done with [my team] during team days. I wanted to know more about their lives. We drew pictures of ourselves: the you that is outside of *D&D*. Part of being a team and being together all the time is that those pieces come out. So being together as a team lends itself to understanding more about the person and not just the role that they are here. Being a team also helps us take our defenses down when we are struggling with something. It's a lot easier when we are across a desk from each other. Or within shouting distance from each other. As opposed to I've got to call you on the phone. Or I've got to get up and travel to where you are. It builds on a camaraderie, an esprit de corps that you often didn't get in the [cubicle structure].⁷⁹

I decided to build open team areas and tear down many of the existing offices. I added walls and part walls to create irregularities in the team areas that broke up the larger space into a few smaller spaces. My goal was that wherever a person sat, they should have an unobstructed view through some window; I was successful for about 90% of the space.

I know that my own bias was reflected in the layout that was built. I enjoy sitting in an office with others. I like bouncing ideas off my colleagues; I enjoy the camaraderie. Looking at a great view lets me refresh my thoughts and return to the task with renewed focus. But I also must acknowledge that as I write this dissertation in the basement of my house I close the door and ask for no interruptions.

⁷⁹ Interview with *Wally Church*, October 1995.

A little over a year after that floor was built out, *D&D* was planning to expand into additional office space. *Albert Marchand* took the opportunity to survey the people in the office and determine what they thought of the space.⁸⁰ Forty-two people replied, approximately 20% of the office; thirty-seven of these worked in team areas. He then enlisted the new hires to follow-up on the survey for their bootcamp project and make recommendations on the work environment. In addition to analyzing the surveys, the new hires interviewed six teams. The responses demonstrated the difficulty in balancing collaboration and individual focus in the environment.

The survey respondents felt that environment mattered in a work setting. The surroundings at *D&D* were considered good; having natural light and a great view were seen as positive attributes. While many felt they could use some more space,⁸¹ most thought their work area was acceptably quiet (70%) and private (63%). People acknowledged that interruptions happened, but felt that the frequency was not

⁸⁰ A copy of the survey appears in Appendix C.

⁸¹ The concept of how much space is enough has been studied by Edward Hall. His research showed that people felt they had enough space if they could do what they needed to do to get their work done without bumping into something. He distilled his findings to three areas:

- The workspace of the desktop
- The area within arm's reach from the normal sitting position
- The space required to push the chair from the desk to stretch, without getting up

What Hall found was that if the employee only had free movement within the first area, the work space was considered cramped. If the second area was the limit, then the office was considered small. But if the person could push away from the desk without hitting anything, then the workspace was considered adequate. Edward T. Hall, *The Hidden Dimension* (New York: Doubleday, 1966), page 53.

particularly burdensome. When asked to outline the best and worst aspects of their environment, there was a great deal of agreement:

- The worst aspects were the lack of privacy and the level of ambient noise
- The best aspects were the open environment, the ease of communication and the view⁸²

When asked what they did to create an optimal work environment, most people mentioned using headphones to create a zone of privacy. Other strategies included working from home, working at the office when fewer people were around (early morning or later in the evening), and instituting "quiet hours."⁸³

Zoe Whitman, as she interviewed potential employees, recognized that not all people would find the open environment attractive.

When they see the spaces, it's funny, I sometimes after I just showed it to them, I don't say anything, I just watch the expression on their faces... To get to the cubicle question, it shows them that they can communicate what they're doing with the person next to them, and that's encouraged, all the way down. There's no walls, there's no barriers in the way. And people sense that. They don't want barriers. They want to communicate, they want to solve a problem with a team. Or if they don't, this is not the place for them. It's either you do or you don't. But when they see that we've designed the space to help them do that, usually people are quite interested in that. We have certainly changed more cubicle types of people into our environment than the other way around. Most people

⁸² Excerpts from the survey analysis appear in Appendix D.

⁸³ In retrospect, I believe the floorplan I created would have been improved by the addition -- along the inside walls of the team areas -- of a few windowless "hotel" rooms with doors. These would have increased the options for privacy. Ideally team members would move in when they had the need for quiet and privacy (from a personal phone call to a week-long concentrated work effort), and move back out when they didn't. In practice -- for reasons of status and a chronic shortage of floor space -- I fear those rooms would acquire permanent occupants, thus denying the entire team the intended environmental variety.

don't like to work in a cubicle. They want to be part of a bigger sense. They want to know what's going on more.⁸⁴

Clearly, with potential employees having the opportunity to opt out of the interview process once they saw the physical layout, for the most part *D&D* hired only those people who expected to be successful in an open environment. That hiring screen may have been more limiting than *D&D* intended. At least one study found that employees from many different industries prefer to work in spaces that are "enclosed and visually inaccessible."⁸⁵ Perhaps the *D&D* willingness to work in communal spaces is something of an anomaly when compared to the larger population.

Summary

The *D&D* leaders used their experiences from the early days of the firm to explicitly craft the work environment to support specific behaviors that they believed had created a successful company. The offices they built had physical expressions of collaboration, open communication, flexibility and lack of hierarchy. Thus the space they built to house their employees also had a symbolic function as it mirrored their ideology. They

⁸⁴ Interview with *Zoe Whitman*, October 1995.

⁸⁵ Tim Davis, "The Influence of the Physical Environment in Offices," Academy of Management Review, Volume 9, Number 2, 1984, page 274, cited in Constance Perin, The Moral Fabric of the Office: Organizational Habits vs. High-tech Options for Work Schedule Flexibilities Working Paper # 2011-88, Alfred P. Sloan School of Management (Cambridge: Massachusetts Institute of Technology, 1988), page 24.

extended their control across all offices, mandating a standard design -- to the extent permitted by the building structure and the available financial resources.⁸⁶

Their expectations that workers would be nomadic and flexible reflected their understanding of the outside environment. As mentioned in Chapter One, the economy of the 1990's demanded that firms demonstrate flexibility and find ways to accommodate ceaseless change. *Matt* and *Roger* wanted to build a firm that could thrive in that environment. Their choices for the physical environment were one set of controls that they used to reinforce flexible habits of mind and body. They actively manipulated the working environment.

However, they created spaces that supported diachronic change, the ability to support serial variation. There was only one layout, one authorized physical environment. This lack of concurrent variety meant there was no support for synchronic change. By defining one layout, the leadership team exercised firm control over the physical environment. But that very control was an obstacle to the flexibility they sought.

As detailed in this chapter, the individuals who chafed against the given environment were the early warning signs that this particular layout might have some shortcomings. The standard *D&D* communal spaces appeared dogmatic and not at all

⁸⁶ While it would seem possible that different offices with similar physical layouts would evoke different

flexible to those who had different perceptions about what constituted a "good" work space. In these changing times, Francis Duffy has enjoined corporate leaders to recognize the diverse needs of their staff:

What matters for managers is to realize that the meaning of the working environment cannot be taken for granted in times of changes because the office is such a precise mirror of attitudes. Neatness and order are appropriate for low-paid nine-to-fivers. Stimulus, excitement and commitment may be much more appropriate messages to convey visually to enthusiastic, multi-disciplinary teams in a high-tech firm in its growth phase...The office environment is inextricably linked to motivation.⁸⁷

responses because of cultural differences among cities, I have no data to support that concept.

⁸⁷ Francis Duffy, The Changing Workplace edited by Patrick Hannay (London: Phaidon Press, Ltd, 1992), page 186. See also Constance Perin, With Man in Mind: An Interdisciplinary Prospectus for Environmental Design (Cambridge: MIT Press, 1970), page 38.

**Chapter Six:
Technology: The Manipulation of Matter**

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Technology: The Manipulation of Matter

At *D&D*, where people built technological systems to help solve business problems, there was an awareness that technologies had the potential to shape the environment. This was an obvious causal link that people at *D&D* had experienced when they built systems for their clients as well as systems of metrics and measurement for internal use. Those internal systems gave the senior team visibility and therefore control of certain keys measures, such as sales forecasts, revenue and project completion rates. However, there was a less apparent connection of technology and control that often arose with hindsight. The second order effects became apparent over time as people realized how certain systems reinforced particular behavior patterns – patterns that turned out to be undesirable. *Richard Libby* describes one such situation:

We can't just change *StaffMap* [a staffing system] and change the staffing call. We have to fundamentally change how we think about staffing. This is an example of how a system reinforces the old world.¹

Langdon Winner makes a careful distinction: situations, where the working day is transformed by the mediation of technologies, are not examples of technological determinism. These situations are made up of interdependent systems connecting people, processes, structures and technologies where people make real choices that alter the outcomes. But at the same time, the technologies embed certain assumptions,

patterns and ways of ordering situations. These technical arrangements can limit choices by creating boundaries, which, once in place, are hard to change. Winner's term for this is technological somnambulism.² Thomas Hughes calls it technological momentum.³

In this chapter I will flesh out two stories in which the senior team used technology to control the outcomes of certain situations; I will use technology in its broadest sense, to include both tools and processes.⁴ These are tales of unintended consequences: those who had the power to influence the design of certain technologies were surprised either by consequences which (with hindsight) seemed predetermined or by second order effects which offset the initial (anticipated) consequences. In both cases, the momentum of the overall system made it difficult to change or remove the offending, entrenched technology. There are two problems that I will explore:

¹ Interview with *Richard Libby*, October 1999.

² Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 1986), page 10.

³ Thomas Hughes, "The Evolution of Large Technological Systems" in *The Social Construction of Technological Systems: new Directions in the Sociology and History of Technology*, edited by Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge: MIT Press, 1989), page 77.

⁴ Stephen Barley describes three aspects of technology:

- apparatus, actual machines and physical devices
- technique and processes
- organizations and associations of people that get work done

Stephen Barley "The Professional, the Semi-professional, and the Machines: The Social Ramifications of Computer Based Imaging in Radiology," (unpublished Ph.D. dissertation, Massachusetts Institute of Technology, 1984), page 78.

- As *D&D* grew the leadership team looked for better ways to collect and share management information. In hindsight it became clear that the choice of tools and techniques to gather that information made a difference. What was reported as well as how it was reported shaped the thinking of those who were reviewing the information. Those choices also shaped the thoughts and actions of those who were providing that information. Shoshana Zuboff has demonstrated that technologies are not neutral, they embody essential characteristics that shape the possibilities for control.⁵ In this chapter I will show the results -- both expected and not expected -- of some attempts to control through technologies.
- In addition, as *D&D* grew it looked to teach new hires “what people do who work here.” The technologies used for that training were wide ranging: from instructor-led training programs to computer-based training (CBT) to career growth plans to task checklists. These were the technologies and processes that were passed on to the newcomer as sacred. Mary Douglas has demonstrated that by defining what is pure and what is polluted, a group imposes order on its experience.⁶ In this chapter I will discuss what happens when that order becomes perceived as overly restrictive.

⁵ Shoshana Zuboff, *In the Age of the Smart Machine: The Future of Work and Power* (New York: Basic Books, 1984).

⁶ Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (London: Routledge, 1966)

A common theme in both of these scenarios is unintended consequences. A company of over 1,000 people is a complex entity. Even with the best of intentions and a great deal of forethought, the people who have put these structures and technologies into place have been surprised – and at times dismayed – by the results.

But the stories I am about to tell are not purely cautionary tales. In each case there were immediate results of the technology that were positive; the people who made the decisions and put the technologies in place received at least some of the first order benefits that they had hoped for. It was only after a period of time, when the second order results were apparent, that there was reason to question the original decision. The time lag is important to note. Often the context changes over time, so that the negative results are only negative because they are perceived within a different context.⁷ The technology embeds the assumptions of the context that existed when it was built; it rarely is updated to reflect the newer context.⁸

⁷ Andrew Ross, Strange Weather: Culture, Science and Technology in the Age of Limits (London: Verso, 1991), page 56.

⁸ Karl Weick and D. Meader, "Sensemaking Support Systems" in Group Support Systems: New Perspectives edited by LM Jessup and JS Valecich (New York: Macmillan, 1993), pages 230-252.

The First Scenario: The StaffMap Saga

For the longest time, *D&D* was like the shoemaker's children. The company built software for other firms and for client-related activities, but relied on manual processes for internal needs. One of those internal needs was the staffing process. When *D&D* was small, the staffing process was easy: there just were not many people from which to choose who would be assigned to any given project. As *D&D* got larger, it became necessary to track who was assigned to which project and who was available (either currently or in the near future). *Earl Vickers* developed the "Staffing Board" for just that purpose. Using one large whiteboard area on the wall of his office, he created a grid where each row represented a project and each column a given week. By writing in the people assigned to a particular project and a particular duration, he could see at a glance who was still not staffed and when there would be enough people available to take on additional work. Importantly, not only could *Earl* see the full staffing picture at a glance, but anyone who walked by his office could also see the whole picture. Staffing decisions were done mostly while sitting in front of that board; *Earl, Matt* and *Roger* made those decisions collectively.

One striking aspect of the staffing process was the fluidity of the decisions that were made. Prior to the beginning of any project, assignments of people changed radically. Entire teams were restructured repeatedly, based on new information about start dates,

required skills, individual availability, and the needs of other projects. Even after a project had begun, it was not uncommon to have additions and deletions.

As the company grew, people other than *Earl, Matt* and *Roger* became responsible for the staffing decisions. The Operations Group was formed to allocate and track resources: people, space, equipment. Started in mid-94, this group included the CFO, the head of recruiting, all account managers and vice presidents, and *Matt* and *Roger*.⁹ The catalyst for creating this group was *Matt's* desire to have less involvement in some of the day-to-day decisions. Meeting every Monday morning, the group would make decisions on a variety of questions:

- Who goes on what team?
- Is there sufficient space and hardware to support the expected work for the next few months?
- Which needs that require cash outlays should be funded and which should be tabled?
- Which employees are not working to expectations and what should be done about it?

⁹ Matt and Roger explicitly stated that their absence should not preclude any decisions making, nevertheless, they attended most of these meetings.

With multiple issues to be covered in the meeting, many people found it pragmatic to work out potential staffing choices outside of the meeting.¹⁰ Not surprisingly people had different ways of working out their potential solutions. One person who had sold a project might use the white board to list potential team members for that project. Another might talk to various people to gauge their potential interest in his project. Another might enlist the support of a few decision-makers about the importance of his upcoming project, and therefore the validity of “holding” a few key team members available.

This variety of approaches guaranteed that there would be conflict and confusion about staffing during the meetings. At one level, the conceptual level, there was lack of clarity about the process: Was the Monday meeting the point of closure for staffing, where you announced your choice and determined if anyone objected? Or was the Monday meeting the first step in staffing, where the group consensually decided a potential staffing scenario after which the owner of that project verified that that scenario was valid? At the tactical level there was lack of clarity about the purpose of the *Staff Board*: was the *Staff Board* where the group recorded the final staffing choice? Or was the *Staff Board* the place where the draft and revision process was enacted?

¹⁰ While in theory individuals could refuse certain assignments and request others, in the early days of the firm there were not enough people for there to be any real choice in the matter.

The problems around staffing were compounded as the company grew. With a larger number of people in the company, keeping the white board up to date was a tedious and time-consuming activity. New hires needed to be added as they joined, people rolling off projects needed to be added as they came available, people joining projects needed to be removed from the available list, projects that did not get funded needed to be removed from the Board, new potential projects needed to be added. Not only was it tedious to make all those changes by hand, but the potential for error was high. There was often a weeklong lag between the time a staffing change happened and when it appeared on the white board.¹¹ Even more worrisome, sometimes new hires did not get onto the board at all. A week or two would pass before the people making the staffing decisions learned that someone had been overlooked. Sitting in those meetings, the level of frustration was palpable; we were making decisions based on information on the *Staff Board*, but the information was wrong.

The ramifications of these issues were significant. At *D&D* it was common for there to be more work in the sales funnel than there were people to do that work. Therefore it was key to know exactly which people with which skills were available. “Missing” five percent of the company for any given week meant under-utilization of the true capacity. In addition, if you were a person whose name was missing from the board or whose

¹¹ There was also the possibility that the person who knew about a change in status of an impending project did not reflect that change on the Board. This was not necessarily because of an intent to mislead, but more often because of forgetfulness or a sense that “everyone already knows.”

assignment as written on the board was not what you believed it to be, you got worried about what others perceived your true value to be to the company.

Imagine yourself as a new hire who had been brought in to be a project manager. From the time that you were hired to the point where you were running one particular long-term project, you were something of a free agent, working on various client workshops and internal initiatives as the need arose. During the week you checked the *Staff Board* a few times, noting which projects were moved, which were added and who had been assigned to what. What did you feel if you always seemed to be the “last choice” for a project, if other people’s names were slotted in early on, but yours was not? What did you feel if one day you were assigned to *L&M Corporation* for a six month project and the next day you had been removed, even though the project was still slated to go forward and there were still openings for team members?

Word filtered back to the Operations Group (OG) that the staffing process was a source of great anxiety for those people not currently on a long-term project. In response, one of the OG members spoke at the next company-wide staff meeting that took place at the end of 1994. He described the dynamic nature of many of the assignments. He asked for feedback, indicating that the OG was interested in any ideas that would help reduce the anxiety. The overwhelming response was that access to information, even drastically changing information, was better than any alternative that limited access.

But in addition, people were emphatic that the manner of communicating new assignments should be improved. People complained that often they were not informed directly of changes to their assignments. Too often they would find out third hand from someone who happened to glance at the *Staff Board*. They asked that those who made the decisions also communicate them directly to those involved.

Based on this input, as well as their own frustrations, the senior team at *D&D* decided they were ready to use some technology to help solve this problem.¹² They reasoned that a system that included all the employees and their projects would be able to provide a snapshot glance of current and projected staffing. Everyone in the company could have access, resolving the lack of access issue. The technology could be leveraged to ensure that no one was “missed” or double counted. And the tedium of keeping the *Staff Board* up to date could be relegated to the system itself. These factors combined to be the catalyst for the system called “*StaffMap*.”

Using their own processes for defining a technology solution, the senior team at *D&D* included people from finance and sales in the discussion of what functionality *StaffMap* should include. They then looked to see if there were any existing pieces of software that could provide that functionality. The kinds of functionality they envisioned did

¹² There is a subtle irony here. The employees complained about a problem with communication between people, the leaders chose to implement a technology. The short-comings of the whiteboard were not the ultimate issue that the employees raised.

not exist in any off-the-shelf software, so they decided to go ahead and build the system in-house. *Thomas Hingham*, one of the senior managers who was involved in the creation of *StaffMap*, remembers that decision:

We did look into buy vs. build; we did it several times. We kept thinking to ourselves that there was something out there that we could leverage... At one point we were thinking about [a particular package], but it was going to be a real kludge to get it to do the things we do in our business. The percent fit in any of the tools out there was very low. And of course at the time we were arrogant enough to think we could build it in ten days. That fed into our decision to build, not buy.¹³

By the time, many months later, that *StaffMap* was built, it did much more than log which people were assigned to which projects. It also tracked forecasted sales, measured capacity and utilization, and monitored change in revenue per employee by project.

Reactions to *StaffMap* were mixed. Some people embraced it; others shunned it. Three years after its inception, *StaffMap* was a key component of the *D&D* infrastructure.

However, how it was used and where it caused an impact were quite different from the original vision.

The people who raised the first request for *StaffMap* expected to mechanize the staffing process: do away with the Staffing Board and have a system that matched people with

¹³ Interview with *Thomas Hingham*, January 1999.

projects (based on criteria such as skills, experience, and availability) while providing access to staffing information to everyone in the company. *StaffMap* did not fulfill those expectations. All of the envisioned functionality was built into *StaffMap*. The people who used it, chose to not use that functionality. The staffing process did not become mechanized. The *Staff Board* did not vanish. *StaffMap* was not used to systematically match people with projects. People in the company who were not involved in the staffing decisions did have access to *StaffMap*, but did not use it consistently to view staffing information.

What happened? The first version of *StaffMap* did have the capabilities that would allow *D&D* to mechanize the staffing process. But as the senior people started to use it they found that what they had asked for was not what they wanted. For example, part of the vision of *StaffMap* was to do away with the *Staff Board*. When *StaffMap* was rolled out, people stopped updating the Board¹⁴ and referred instead to what was in the system. However, the system could only display the amount of information that could fit on a PC screen. This was nowhere near the “whole picture” that the people who did staffing had come to expect. In many offices the *Staff Board* wrapped around the room, a “wallpaper” of white board some 10 feet tall by 40 feet wide. Sitting in the middle of the room, you could read the names printed on the white board. In a single glance you

¹⁴ An internal announcement of the system read: "As of August 16, 1995 the [*Staff Board*] was erased for the last time! *D&D* is running its business using *Staff Map* after a successful pilot of the application. Expect email shortly on where you can go instead of 'The Board'."

could see all of the office business: all the current projects and all the people in the office. Once you had had that kind of comprehensive information, the bar had been set as to what constitutes sufficient information. Even if it were possible to make staffing decisions with a subset of that information, it seemed a waste of time to try and make staffing decisions without that comprehensive view. When the senior team tried to use the *StaffMap* system they found it to be inadequate when compared to what they had had. They rebelled. One after another, each office resurrected its *Staff Board*.

Stephen Barley has pointed out that it is inherently difficult to introduce a new technology into an existing framework. People have developed processes and habits around their old technologies, making it exceedingly difficult to swap in a new technology without addressing those processes and habits.

Most technologies are introduced into work settings with a past. For this reason a technology becomes embedded in an ongoing cultural and historical context that also shapes the meaning of the technology as a social object and influences the social order that grows up around its use. It is certainly no fluke of sampling method that the most successful introductions of new technologies occur in those instances where new plants have been constructed to house and new staffs have been hired to operate a new technology. In such cases no previous cultures or histories shape the technology's meaning to give rise to what is often called "resistance."¹⁵

¹⁵ Stephen Barley, "The Professional, the Semi-professional, and the Machines: The Social Ramifications of Computer Based Imaging in Radiology," (unpublished Ph.D. dissertation, Massachusetts Institute of Technology, 1984), page 87.

Wally Church, one of the people making those staffing decisions, talked to me during the transition period when the *Staff Board* was not being used. He talked about some of the implications of the change:

I miss the board. Because it was one of the ways – I talked about earlier – of getting to know people. It was a big rally point. Everybody gravitated there, especially after [staffing] meetings to see what happened. So you get to run into people that you might not otherwise get to run into. And then there was this easier way, from my perspective a more efficient way of gaining a very quick snapshot of what was going on. I have to now go in [to the *StaffMap* system] and look from client to client to find out what's going on and who's where. And I liked the lazy way of just seeing it on the board. It is very visual for me; it was great. I didn't have to go to some tool. So I miss the board.¹⁶

For some people at *D&D*, the new technology had an unintended social consequence, the loss of a natural meeting place, a place that functioned to bring people together.¹⁷

Richard Sclove has told a similar tale of the people of Ibieca, a small Spanish village.

When running water was installed in the 1970's the people were able to forego many arduous tasks. However, the new ease of access to water meant that no one went to the village fountain any more. With no communal meeting place, the town became fragmented.

The public fountain and washbasin, once scenes of vigorous social interaction, became nearly deserted. Men began losing their sense of familiarity with the children and the donkeys that had once helped them to haul water. Women stopped congregating at the washbasin to intermix their scrubbing with politically empowering gossip about men and village life. In hindsight, the installation of running water helped break down the Ibiecans' strong bonds –

¹⁶ Interview with *Wally Church*, October 1995.

¹⁷ This resonates with the discussion of sociopetal spaces in Chapter Five.

with one another, with their animals, and with the land – that had knit them together as a community.¹⁸

Even though the intended material and social goals are met, for the Ibiicans the unintended consequence of communal fragmentation appeared a high price to pay.

The introduction of *StaffMap* and the concomitant attempt to eliminate the *Staff Board* ran into two problems: it did not allow people to work in the way they were used to working and it removed one of the few areas that promoted functional proximity.¹⁹ The return to the original white board-based process was universal. Some offices returned more quickly than others. Not surprisingly, the headquarters office – where *StaffMap* had been developed and where one of the senior staff was the key sponsor for *StaffMap* – was the last one to return to using a white board process. In that office there was a high degree of ownership for *StaffMap* and a recognition of the cost to create the system. The senior team there did not want to seemingly belittle the effort by not using the system they had requested. Nevertheless, in a short time every office had returned to the *Staff Board*.

¹⁸ Richard E. Sclove, Democracy and Technology (New York: The Guilford Press, 1995), page 3.

¹⁹ Deasy distinguishes physical proximity from functional proximity. One merely describes static closeness, the other describes a space that by its nature draws people together when they use it. Cornelius M. Deasy in collaboration with Thomas E. Lasswell, Designing Places for People: A Handbook on Human Behavior for Architects, Designers, and Facility Managers (New York: Whitney Library of Design, 1985).

Both Lucy Suchman and Donald Norman have explored situations in which the artifacts that designers create fall short of the needs of the ultimate user. Suchman highlights the differences between the planned usage of the artifact and the on-the-ground experience of a particular individual in a particular circumstance. She recommends that designers take into account those situated actions to better inform their designs. Norman focuses on how the design can make the use of the artifact more apparent to the user. He recommends that the design signal what actions the user should take, provide feedback about what actually happened, and offer a good conceptual model of the role the artifact can play in a particular scenario. The examples they use suggest that there is a strong need for the designer to be more aware of the needs of the end user. One of Norman's simple examples looks at the clues people use to determine if the door they are approaching will open toward them or away from them. Handles suggest the person should pull the door, flat plates suggest the person should push the door. Doors with handles that open away from the person are misleading.²⁰

At *D&D* part of the design philosophy was that the end user must be deeply involved during the design process in order that the kinds of issues raised by Suchman and Norman could be mitigated. The saga of *StaffMap* appears to demonstrate the other end

²⁰ Lucy Suchman, Plans and Situated Actions: The Problem of Human-Machine Communication (Palo Alto: The Xerox Corporation, 1985). Donald Norman, The Design of Everyday Things (New York: Doubleday, 1988).

of the pendulum: the point where the user has too much influence. During the process of designing *StaffMap*, the end users, the people who made the staffing decisions on a daily basis, might have had too much decision-making power. In the ideal setting there would be a balance: a set of users who understand what they are trying to achieve and a group of designers (with an objective viewpoint) who translate those needs into the appropriate technologies. Both groups would need to have the authority to veto bad ideas, “bad” based on the standards that are the currency of their own areas of expertise. My memory of the *StaffMap* design sessions includes the discussions about the difference in visibility between the *Staff Board* and the PC screen of *StaffMap*. The end users acknowledged that the screen was less convenient than the board – but we assured each other that the other benefits of the proposed system outweighed that inconvenience. There was no one who called us on that decision. No one stood in that staffing room, pointed to the expanse of white boards and questioned our ability to leave the white board behind. I believe one of the explanations for that silence was that the then current design philosophy at *D&D* ceded decision-making authority to the end users. Another contributing factor was that the designers of *StaffMap* reported to the end users.²¹

Both David Noble and Donald MacKenzie have documented situations where the designers and technicians recognize the interests of those in power and make sure that

²¹ This short-coming of *StaffMap* is showcased to illustrate a single point about control over design. I am

recommendations and plans for future development map to those interests. In the case of *StaffMap*, the end users of the system being designed were the leaders of the office. They were the ones in power, their voiced position that the loss of the *Staff Board* would not be an issue could certainly have influenced the designers (who reported to them) to refrain from challenging that position. MacKenzie also points out that technical people can and do work to influence what those in power decide that they want; this is not just a one way street.²² In the case of *Staff Map*, the technical people used their influence to determine the outcome on other issues, such as performance and scalability.

Another feature of the *StaffMap* vision was the capability of matching people with projects. During the planning, this piece of functionality was seen as a way to save time. The system, containing people's skills and preferences and the project requirements, could allocate people to projects. While there might be a need for fine-tuning by the people doing the staffing, the bulk of the work could be done automatically. In practice, this functionality has not been used. One reason was that the level of effort required to enter and maintain the appropriate information into

not making the larger claim that the end users mis-guided the entire design.

²² David F. Noble, Forces of Production: A Social History of Industrial Automation (New York: Knopf, 1984), page 43. Donald MacKenzie, Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance (Cambridge: MIT Press, 1990), page 390.

StaffMap was seen as greater than the potential benefit of the automatic allocation.

Thomas Hingham commented:

The part of the vision that we did not deliver on was the auto-magical mapping of people to projects. We had a hard time to get people to input information and use the information. We are still dramatically underutilizing the information that is there and the tool. By and large – the way people get on projects is still driven by what is in people heads.²³

At least in one office, there was another reason why the automatic matching of people to projects was not pursued. As the company grew, a common complaint was that the senior team was too distant from the rest of the company. In one office the senior team decided that by keeping the matching process as it was -- by not using the system -- they would help mitigate that problem. The manual staffing process ensured that the senior team talked about the individuals in the office as they sought to identify the best match for an assignment. This maintained – at the collective leadership level – some knowledge about the people in the office: their skills, experience and preferences.

When I discussed this with *Tom* he was surprised; he had not seen that as a factor. He felt that in larger offices it was just not possible for the people making the staffing decisions to have first hand knowledge of everyone in the office. In our discussions he pointed out that at any particular staffing meeting there was only a subset of the leadership team. Therefore it was frequently the case that a particular individual came

²³ Interview with *Thomas Hingham*, January 1999

up for discussion about whom no one in the meeting had first hand knowledge. From his point of view the frustrating aspect was that this lack of knowledge had not lead to a more proactive use of the information that was already in *StaffMap*.

We're at the other end of that spectrum [in a larger office]. When there's a need for developer and *Kerin Smith* is on the board, too often no one knows about the person. Someone might say "I heard in the hall that she maybe thinks financial services is a good thing" – and she is assigned to a financial services project. There is just not enough knowledge in peoples' heads. That's the difference between a large office and a small office. But no one looks at the preferences [in *StaffMap*]. There is a lack of willingness to look for the knowledge that is there. That's more about the process and how it is managed, than the tool. There is more we could do with the tool. But we tend to use the process that we know.²⁴

Similar to the resistance to abandoning the well-known *Staff Board*, there was resistance to using *StaffMap* to match people with the appropriate skills and experiences to particular projects. David Noble has written extensively on the importance of changing the social environment before attempting technological change. He recognizes that the two are intertwined, and that technological change without social change is destined for failure. While he focused on events of greater magnitude, such as the impact of machine tools on the people on the shop floor, his comments aptly describe the tight relationship between a technology like *StaffMap* or the *Staff Board* and the people who use it:

...technology is always more than this, more than information, logic, things. It is people themselves, undertaking their various activities in particular social and historical contexts, with particular interests and aims.²⁵

²⁴ Interview with *Thomas Hingham*, January 1999

²⁵ David Noble, *America by Design: Science, Technology and the Rise of Corporate Capitalism* (Oxford: Oxford University Press, 1977), page xxii.

There was a third part of the *StaffMap* vision that did not come to pass: even though everyone had access to *StaffMap* from the PC on their desk, people did not use it to learn about upcoming projects. Questions about staffing opportunities were much more easily answered by visiting the *Staff Board* or talking to the staffing coordinator in the office. Just as *StaffMap* was unwieldy for the staffing team to use to view the big picture, it was also unwieldy for an individual to use to identify upcoming opportunities. More importantly, expecting people to use *StaffMap* to determine their new assignment proved to be counter-productive. The access was there, but the human contact was not. As *Hingham* recalled:

We improved the access, but not in a usable way. There was an improvement, people did not have to wander to the resource room to see what they were doing next week. It's true, not a lot of people used it. But when they did use it – they were learning about their assignments through an electronic medium – and that was a cold process. There was no human contact. That was one of the learnings that we had. In the old manual process there was a reasonable amount of human communication. You talked face to face or over the phone about the new assignment. In the course of that dialogue people could get comfortable about what they were going to do. With automation, if they didn't like it -- what were they going to do? They had no one to talk to. It made it automated and impersonal.²⁶

Langdon Winner has written about his concerns about the increasing use of computers.

Two of those concerns are reflected in the above discussion of loss of human contact:

issues of sociability and community. To the extent that all *D&D* work assignments

²⁶ Interview with *Thomas Hingham*, January 1999

would be done electronically, there would be much less face to face contact and therefore a diminution of the existing sense of community.²⁷

Three years after *StaffMap* had been created, much of the original vision had not been realized: it did not replace the *Staff Board*, it was not used to automatically match people to projects, and it was rarely used as a source of information about upcoming projects.

However, there was one piece of the original vision for *StaffMap* that had been achieved. Prior to *StaffMap* it was common to “lose” people from the *Staff Board*. An errant shirtsleeve brushing across the board and erasing someone’s name, a hasty change to a project that wasn’t fully recorded, a new hire who arrived but whose name got overlooked – all these routes and more were ways that people got lost and vanished from the Board.

StaffMap tracked all projects and all people; it was an electronic version of the information on the *Staff Board*. Twice a week, each office printed out a listing of the people that *StaffMap* thought were available. That listing was used to update the Board. Using *StaffMap*, there was a set of checks and balances that greatly reduced the number of errors and missing people. This was one way in which *StaffMap* had achieved part of its original charter.

²⁷ Langdon Winner, “Mythinformation” in *The Whale and the Reactor: A Search for Limits in an Age of*

But despite its failure to meet most of the original expectations, *StaffMap* had become a key technology for *D&D*. But the features that made *StaffMap* a cornerstone of the organization were not the ones centered on the mechanization of the staffing process, the ones that the end users shunned. Instead the features that made *StaffMap* successful were ones that were added by other constituents, those who were not directly involved with staffing.

As mentioned above, when the system was first designed, people from different areas of the company were involved in the planning. The people who first pushed to get this system built, those who did staffing, wanted a system that tracked people and projects. On top of that core of information, the finance people added the capability of tracking revenue and allocating it to particular projects. The sales people had different interests, they wanted to track forecasted sales. Others saw an opportunity for an integrated system, one that compiled a wide spectrum of information into a coherent story. The system that was created reflected the merger of those interests. The *StaffMap* story is an example of what Michel Callon has demonstrated in his description of electrical cars in France: the outcome of the technology development process is determined by the complete network of actors, all the various constituents who act to influence the outcome. One of the implications of this model is the demonstrated mutability of a

High Technology (Chicago: University of Chicago Press, 1986), pages 98-117.

technology prior to its final form. As the power of the different constituents waxes and wanes over time, the technology similarly varies to reflect those variations. The final version (or the version at the moment of description) is a frozen moment of negotiation, embodying the net momentary summation of the set of influences.²⁸

One way of looking at the saga of *StaffMap* is to see a story of multiple actors. The people who first asked for *StaffMap* were the people who were making the staffing decisions. They wanted more visibility into what they were doing. If they had been the only people involved in the design of the system, once they discovered that the system did not meet their intended needs, they might well have mothballed the system or used it in a very limited fashion. However, involving people who had a broader view, who looked at the corporation as a whole and needed windows with which to view the firm, kept *StaffMap* alive in a new incarnation. Indeed, at this point in its history *StaffMap* was renamed. Its new name, *Athena*, reflected its transformation into an integrated base of knowledge for the company, not merely a tool to aid staffing decisions.

²⁸ Michel Callon "Society in the Making: The Study of Technology as a Tool for Sociological Analysis," in The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology edited by Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge: MIT Press, 1989), pages 83-103. See also Bruno Latour, The Pasteurization of France (Cambridge: Harvard University Press, 1988) as well as Bruno Latour, ARAMIS or the Love of Technology, translated by Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 1996).

Hingham, who had been the key sponsor of the *StaffMap/Athena* project for most of its lifetime, was one of those who saw the larger potential for this system. Prior to joining *D&D* he had worked in much larger organizations. Therefore when he joined *D&D* he knew the kind of integrated information that would be a very powerful tool. He also assumed that *D&D* would have the kind of structures and strategies that would immediately uphold his vision. He was wrong.

I had imagined from the outside looking in, that under the covers things must surely be more organized and thought out and strategic and planned. I was sure that what I was seeing (from the outside) was just the edges. I found that that was a bad assumption. Things were very chaotic. *D&D* was very much a “fasten your seatbelt and hang on” kind of place. That may sound negative – but that was appropriate for the time period. That allowed for a lot of things to be happening in parallel. Some things worked and some things didn’t. But that chaos allowed for a lot more progress. If everything had been well planned and structured, we would not be where we are today.²⁹

Having guided *Athena* into existence, *Hingham* was proud of the difference it made for *D&D*, a difference that other experienced hires recognized:

Recently, new senior hires from other organizations have commented on the power of *Athena*. It has in it all of the key information about the company and it is all integrated in one place. It is an extraordinary, powerful tool. I believe that lots of other organizations could be more effective if they took the time to create such a tool.

The good news is that we have the tool and it is effective. A lot of technology tools do not become mainstream; they are not used. The test is, if *Athena* stopped working tomorrow, what would happen? In our case there would be a material impact on our business. It is the other case in other organizations. There – where what was thought to be critical information tools -- if they stopped working, the business would continue to go on.³⁰

²⁹ Interview with *Thomas Hingham*, January 1999.

³⁰ Interview with *Thomas Hingham*, January 1999.

As *Athena* became used as a critical information tool, its impact on the company was clearly seen in the area of financial control. For the purpose of financial control *Athena* had three key functions: track forecasted sales, measure capacity and utilization, and monitor change in revenue per employee by project. The fact that these functions were built into a piece of software that could be accessed by the entire company altered people's behaviors.

Prior to *StaffMap*, a salesperson's forecast was not widely known. While there was a discussion of the forecast between the salesperson and his or her manager and the roll-up of that information went to top management, the information was not updated frequently and the lack of update could be used to mask the sales person's lack of true prospects. As *StaffMap* became the record-keeping system for the sales forecast, sales people were directed to keep it up to date. It became difficult to mask lack of prospects, because the forecast was scrutinized once a week by the entire senior management team. As a result, sales people became quite conservative in their forecasts, not wanting an overly optimistic estimate to be flagged as invalid during the weekly conference call, resulting in some set of senior people having a negative perception of that sales person. Of course, having conservative estimates was also problematic. For one thing, when actual sales were higher than expected there could be significant problems in staffing

and facilities allocation, causing delays in project start times, which might result in lower client satisfaction.

Barbara Garson has examined the use of computers to monitor workers in a variety of industries. In many cases she found that the workers, uncomfortably aware they were being scrutinized, discovered the ways to work within the system that gave them the greatest latitude and (relative) autonomy.³¹ Like those workers, the *D&D* sales people were able to surreptitiously beat the system.

Doing research similar to that done by Garson, James Belasco found a much more positive response to computer monitoring. He describes the pervasive measurement systems used by Mrs. Fields stores:

Every store, every hour, gets a detailed report, complete with action recommendations, based on the measurement of last hour's sales. The report includes when to prepare cookie mixes, what cookies to prepare, when to bake, crew staffing, suggestive selling ideas, and ways to drum up new business.

Store managers and employees know exactly what's expected -- what gets measured in their hourly computer report. Clarity empowers action -- and produce 'feel good feelings' for employees, customers, managers, and owners alike.³²

³¹ Barbara Garson *The Electronic Sweatshop: How Computers are Transforming the Office of the Future into the Factory of the Past* (New York: Simon and Schuster, 1988)

³² James A Belasco *Teaching the Elephant to Dance: The Manager's Guide to Empowering Change* (New York: Crown, 1990), page 162.

This bifurcated aspect of monitoring (where it has positive and negative aspects) was also true at *D&D*. At the same time that *Athena* was negatively perceived as some sort of "Big Brother" that demanded information, it also was seen as a valuable tool. Senior managers could view the roll-up of sales and sales forecast information in their industry, compare that with projections and past results, and use that information to inform their decisions. *Harry Vaughan* described the enormous value provided by the measures in *Athena*:

There are some things that we are creatively adding to the ways that we measure our business. We have found some very effective tools for measuring. For example: we have a sales forecasting model -- with a weighted percentage of the sales pipeline and some of the forward views and comparisons to past quarters, the way we compare momentum quarter over quarter. We can at an instant see the pipeline at a certain percentage of close at any industry in the company. That's a level of visibility that other professional services companies would kill for.³³

Athena also changed the way *D&D* understood capacity and utilization. Prior to *Athena*, any kind of projections (comparing expected hires and known staff with known jobs and forecasted work) were time-consuming and prone to error. Indeed, the high likelihood of errors meant that projections were done infrequently and, when they were done, their validity was a matter of debate. As a result, discussions of capacity and utilization relied upon at least one person in each office having "a feel" for what

³³ Interview with *Harry Vaughan*, October 1999.

was going on. Not surprisingly, there were times when imbalances between available staff and client demand arrived as a surprise.

With *Athena*, capacity and utilization was visible to senior management across the company. This visibility allowed the senior team to make strategic choices about sales and hiring. There were still individuals who were expected to have “a feel” for what was going on in their office. But instead of having only their own intuition as input, they could review the profiles displayed by *Athena* and compare their gut feel with the *Athena* projection.

Clearly there was a danger in this situation. As people relied on *Athena* to analyze information and answer questions about capacity and utilization, any inaccuracies in data would result in errors in the conclusion. The system itself could not tell whether someone was available or not, it needed to rely on the accuracy of the information that was entered into it. In her work on expert systems, Diana Forsythe has looked at the boundary conditions that limit the usability of computer systems. Invisible inaccuracies are one of those conditions.³⁴

³⁴ Diana Forsythe, "Engineering Knowledge: The Construction of Knowledge in Artificial Intelligence," *Social Studies of Science*, Volume 23 (1993), pages 454 - 469.

In addition to forecasting sales and monitoring capacity and utilization, *Athena* provided one other key capability: the ability to monitor change in revenue per employee by project. Because *Athena* tracked who was assigned to what project and for how long and tracked revenue per project, it could calculate the revenue per employee by project. That piece of data would change when revenue and/or timelines and/or staffing assignments changed. Tracking that data over time was one measure of how well a project was doing. *D&D* bid most of its projects on a fixed time, fixed price mode. If the revenue per employee changed, the overall profitability of the project changed.

When I first managed a project at *D&D* I tried to understand what was important for me to track. I was told that the client feedback was important, not the profitability. In that context, adding some people to the project to do the right thing for the client was a correct decision, despite the decrease in the project profitability. That continued to be the explicit message given to project managers.

However, the implicit message – because of what was being measured – was quite different. There was a weekly report that tracked the changes in revenue per employee by project. This report was generated by the finance department (using the information in *Athena*) and sent to the senior team. Projects that had a significant drop in revenue per employee were reviewed closely. Project managers learned that such a drop meant

being called on the carpet, therefore they went out of their way to avoid or mask such a drop. The explicit message: “take care of the client” was at odds with the experience of being called out if revenue per employee dropped.³⁵

Ben Frankel had experienced the paradox first hand:

[We] become so fixated on [revenue per employee], as an example, and we have done some of this, that we will focus on that number, and then the vice president will focus on that number, and then the director will, and then the project manager will, and then the architect will, and the whole team will, and everyone will, and this is an example of how we can become inwardly-focused. So now all of a sudden we run into a client situation where we should have done something for the client that we just didn't anticipate, and now we make a bad client decision that kind of reflects who we are. It's one measure, but it's one of a whole series of measurements that I think we should look at on an on-going basis across clients. Otherwise it becomes a measurement so that I am only a successful vice president if all of my projects have acceptable [revenue per employee]. Or, if all of my projects have under a 10% [change in revenue per employee] – and wow, that feels a lot like companies I used to work for. So that now I would make decisions that would help my [revenue per employee] and not make decisions that would help my client. And who cares what my client thinks about it because I'm successful because of my numbers. And that's definitely not cool.³⁶

Roger, one of the CEOs, was sensitive to this situation. Talking about the metrics of the business, he pointed to revenue per employee as a key measure. On the other hand, he

³⁵ The conflict between explicit and implicit messages is a central theme in Benson Snyder's book on the hidden curriculum at MIT, where he contrasts the different messages students receive. He found the imbalance – between the official prescriptions of the university and what the students discovered they actually had to do to succeed -- resulted in disillusionment, alienation and gamesmanship. Benson Snyder, *The Hidden Curriculum* (New York: Knopf, 1971).

³⁶ Interview with *Ben Frankel*, October 1998.

recognized that excessive focus on that one measure could result in making decisions that were not in the best interests of the team, the client or *D&D*.

[Revenue per employee] is something that's clearly very important to our business, the profit driver for our business. It is our economic model. It is the metric that most closely measures the economic strength or how the economic engine is running. It's the speedometer. It's an important metric and it's important people understand our economic model and our profit drivers and how we make money. On the other hand because it's concrete and tangible and measurable people do focus on it. People focus on what you measure, that's human nature. You measure something, suddenly, boom, everybody is fixated on it. So measurement is a powerful tool that creates focus and improvement around something.

Some of the downside is people focus on it over people. Will they burn a team out? Will they not ask for more resources? Will they hide resources? Will they do something that is not in the open, not in the best interest of the clients? [Will they try and do this] if they can get away it and the client won't see it, in order to preserve their [revenue per employee]?

The message has always been: do the right thing for your client, your team, for your project. So we actually have never compensated people for [revenue per employee] for that reason, because we don't want to drive it that hard. We want people to be aware of it, understand it, but focus on your client, your people. We have compensated people on client satisfaction, morale, communication, the people-oriented metrics.

We believe in something that we can all look at and see and hear about. The [revenue per employee] drops 24% and suddenly you get a call from me asking what happened. So there is a lot of reinforcement around the importance of the [revenue per employee] measure. People focus on it more and more. I don't have any answer for that. I struggle with that.³⁷

Not surprisingly, when a drop in revenue per employee on your project resulted in the CEO calling you and asking you what happened, people found ways to mask changes

³⁷ Interview with *Roger Brooks*, August 1998.

to revenue per employee, or chose to put the project at risk by not adding critical people when they were needed.

It was the CFO who drove a change in behavior. He was concerned that by focusing on revenue per employee as a measure, the company had caused behaviors that were counter-productive. In addition, he noted that change in revenue per employee was a trailing indicator. By the time it was visible, the project had been in trouble for a while (especially with the masking behaviors that had come into play). The CFO pushed to have different measures created, pointing out that “We are asking the wrong questions.”

Peter Tyler: At some point *Athena* became the tool that we used to do record revenue recognition.³⁸ And I think at that point in time, the need to have *Athena* very accurate raised up a major level, and so the visibility, the scrutiny on *Athena* became much more important. And I think that may have been one of the factors that contributed to kind of the focus on [revenue per employee], change in resource plans, because it became very visible. And I think in the beginning it was very good. Because it became visible so we started saying, “Okay, what’s going on here?” But it shifted, for whatever reason, because Finance had their little focus point, which was the numbers. But ... I don’t think the organization was large enough or strong enough to bring in the other side of just the numbers. So I think everybody, *Roger* especially, focused on the numbers, because there was nothing else to focus on. I think since then, now that [we have] done a lot about the risk profile and getting in to really understand what’s driving the numbers, I think we’ve made a lot of improvements on not focusing on the numbers as much as we have.

³⁸ *Athena* was *D&D*’s system for revenue recognition. The bulk of *D&D*’s revenues came from projects that were billed periodically; often clients paid only at key milestones. As a public company, *D&D* wanted to show revenue growth that was even. To achieve this goal, using accepted accounting practices, *D&D* utilized a revenue recognition process that (in simple terms) accrued revenue for the portion of work completed. This allowed *D&D* to show revenue growth that was even, and not as “spikey” as would be the case where revenue was recorded only when invoices were generated.

Pat: It was my perception that you were really the catalyst to do something different. Is my perception true?

Peter: Yeah, I think that I sat down, I raised the issues with *Matt*, and I think *Matt*...heard what I said and agreed and talked to *Roger*. So I think my asking *Matt* that question [drove the change]... I was really saying, "What are we doing here? Are we not looking at the right things from an operational standpoint?"... And I think just because we focus on numbers doesn't mean to say, the collective action is, okay, let's stop calculating the numbers, I think that's the wrong response. The right response is continue to look at the numbers differently, continue to gather different numbers and to do different analysis, but also bring in kind of the intangibles to the equations, you know, look at both sides. So I'm gonna continue to try to push to have more number information and more data, but I'm also trying to push for people to make opinions based on not just the numbers, but other things that are going on around the numbers or outside of the numbers.³⁹

As a result, while the weekly reports on changes in revenue per employee by project continued, the senior staff no longer focused only on that measure. Instead there were additional metrics as well as qualitative reports that outlined the key risks factors and current status for a number of projects. This textural information led to a more robust understanding of the company status. Many of the senior staff appreciated this change. They recognized the need for metrics, metrics that were appropriate for the level of complexity at which you want to operate your business. *Paul Kleeman* commented:

Some metrics are better than no metrics -- because they imply logic and fairness-- but the wrong metrics can drive the worse behaviors. In the early days we were only worried about [revenue per employee] erosion -- as opposed to setting up a series of metrics to understand how a project was going. We were looking at only one key measure --- in a simplistic way. A key indicator is just that. It does not allow for complexity. There might be other reasons outside your measurement why things are trending up or down ...

³⁹ Interview with *Peter Tyler*, October 1998.

[Revenue per employee] erosion could take place -- for a number of reasons -- mis-estimation, enormous staffing changes, [personnel issues], client scope may have changed, an unreasonable customer, we may have decided to do it just to get into the business. But [revenue per employee] only indicates that there is erosion -- so you get beat up and everyone forgets that we wanted the business or it was our entrance into Atlanta -- or that we've had 100% turnover on the team because the customer is impossible.

We have become better -- but we have a long way to go. We are looking at other measurements. But we have much further to go... We are simplistic -- we have gone from 1-2 measures to 4-5 measures. We may want to go to 7-10 measures.⁴⁰

The senior group as a whole slowly learned the lesson about the dangers of reading too much into numerical measures. Shortly after the focus was removed from revenue per employee, one person gave a report noting how in some projects revenue by employee was actually rising -- and praised those projects as exemplars of what could happen when good process was employed. On the following week he revised his report. One of the projects he lauded was actually in trouble; some of the team had been pulled off in order to start afresh, thus momentarily increasing the revenue per employee number. He apologized to the senior team, acknowledging that he had assumed the numbers told enough of a story that he could report on them without knowing why the numbers looked good.

This awareness that the use of a particular metric may be dysfunctional is consistent with the experience in other organizations, particularly those that have reached a size

where the management team no longer has direct, personal knowledge of what is going on. As technology has provided an access channel to many tiers of data, the complaint resounds that the measures that are easy to quantify are often the ones that are the most misleading.

One of the issues is the perception that numerical measures can give a clear picture of a situation. Constance Perin has asserted that too often numerical measures are "sharp pictures of fuzzy objects." Under some circumstances, those examining the numbers can be lulled into a false sense of complacency, when they believe that the numbers tell the whole story.⁴¹

Shoshana Zuboff has examined this type of situation and pointed out that information technologies are significant because they create information about the process upon which they focus. One of her concerns is the potential for misunderstanding and erroneous conclusions when the technology-delivered information is separated from the context that created it. One of the managers she interviewed put it this way:

There is a great opportunity for misinterpretation of data when everyone can see what is happening but their narrow perspective means that they can't tell why it is happening.... It gets worse in that the technology lets you look down that data

⁴⁰ Interview with *Paul Kleeman*, October 1999.

⁴¹ Constance Perin, "Making More Matter at the Bottom Line," in Corporate Futures: The Diffusion of the Culturally Sensitive Corporate Form, edited by George E. Marcus (Chicago: University of Chicago Press, 1998), pages 67-68.

tunnel at lightening speed – then the tunnel turns into a dot. You end up with one number, one reason, and you react to it.⁴²

Discussing the use of statistics by the United States to drive its strategies in the Vietnam War, Barbara Garson demonstrates the huge divide that can exist between a statistic and the understanding someone is trying to achieve by examining that statistic. In what follows she quoted a helicopter pilot with 1400 combat hours in Vietnam.

"In Vietnam they tried to turn everything into numbers, because that's what they could put into their computers...

"At first the big number was body-count, enemy killed. The number crunchers thought they could judge how the war was going by body-count. But killing the enemy doesn't mean you're winning the war. Especially not in Vietnam, where we could wipe out some of their units four times in a year and they'd flesh them out again with new conscripts. Breaking the enemy's spirit is how you win a war. And you can't get a number that will tell you when you're doing that...

"After a while they stopped talking body-count and we went for sorties. The number of sorties you flew. So our pilots would go off five times a day with two bombs. They the word would come down from Washington, "No more sorties. This week the big number is tonnage." So now you flew only two sorties (especially over North Vietnam, where they could hit you) but with bombs strapped on everywhere. Since tonnage was the big number you had to drop all those bombs somewhere, even if it was on an outhouse...

"The number crunchers were happy. They were looking at the numbers and they thought they were looking at the actual war."⁴³

Tracking revenue per employee became easier at *D&D* once *Athena* was in place. Over time the company changed its level of focus on that one measure, having learned that

⁴² Shoshana Zuboff, *In the Age of the Smart Machine: The Future of Work and Power* (New York: Basic Books, 1984), page 360.

too much focus could result in unwanted consequences, including manipulation of the statistic as well as making decisions on too narrow a range of information.

Clearly the use of *Athena* raised employees' awareness of the kinds of information that were reviewed by the senior team. The senior team used the information in *Athena* to review the sales forecast and change in revenue per employee. For those on the project teams there was a sense of being on display, without being able to know who was watching. This aspect resonates with Foucault's insights about surveillance.⁴⁴ Barbara Garson makes explicit the power dimension of such a technology:

I enjoyed talking to the outspoken admiral because he didn't obfuscate the question of power. He understood that if you control the computer it's a tool, if it controls you it's a weapon. I have heard dozens of corporate consultants explain middle-management resistance to computers as "fear of typing," or "resistance to anything new." They never suggest that responses are based on corporate geography: which way data flows. If a management information system brings information to the managers, they usually learn to use it quickly. If it collects information about them, they tend to resist. At least Admiral Moorer understood that the question is political, not technical. Whether in the corporate world or the military, it all depends on one's position in the chain of command.⁴⁵

The catalyst to create *StaffMap* was the perceived inefficiencies of the staffing process.

As it became *Athena* (three years later), the system changed many behaviors and activities – but not the staffing process. In that sense, the result of embracing *Athena*

⁴³ Barbara Garson, *The Electronic Sweatshop: How Computers are Transforming the Office of the Future into the Factory of the Past* (New York: Simon and Schuster, 1988), pages 248-249.

⁴⁴ Michel Foucault, *Discipline and Punish: the Birth of the Prison* (New York: Random House, 1979).

⁴⁵ Barbara Garson, *The Electronic Sweatshop: How Computers are Transforming the Office of the Future into the Factory of the Past* (New York: Simon and Schuster, 1988), page 245.

was a set of unintended consequences. Importantly, these unintended consequences are a result of the interplay of the technology with the culture.

Another aspect of the saga of *StaffMap/Athena* is that it underscores the flexibility of a technology under construction. In ARAMIS or the Love of Technology, Bruno Latour compares two attempts to construct automated transport systems, VAL and Aramis. Part of his argument is that as long as a system does not exist, the various interest groups can ascribed a wide spectrum of interpretations to the expected outcome. However, once the system (or artifact) exists, all interpretations must fit within the boundaries of the existing object. This still allows for a certain degree of latitude, but not the same degree that existed before the object was completed.

About technological *projects*, one can only be subjective. Only those projects that turn into objects, institutions, allow for objectivity.... The VAL object gathers to itself so many elements that it ends up existing *independently* of our opinion of it. Of course, the descriptions... are going to vary... There are as many points of view as there are heads. But these points of view are all focused on a *common object*, as if, while walking around a statue, each person were offering a different description that was nevertheless compatible with the others... VAL, because it exists, unifies points of view... With Aramis there is nothing of the sort. Since it does not exist, it cannot unify points of view.⁴⁶

Latour emphasizes how the existence of the object in question forces the surrounding actors to be somewhat more consistent in their descriptions. With an artifact at center stage, there are limitations on the possible interpretations that any group can

⁴⁶ Bruno Latour, ARAMIS or the Love of Technology, translated by Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 1996), pages 75-77, italics in original.

maintain.⁴⁷ To make this argument Latour allows the artifact to congeal, to take on a static final form, so that the actors and their stories can be played out against it.

Paul Rabinow treats his artifact differently than Latour. In his book Making PCR: A Story of Biotechnology, Rabinow demonstrates how different actors had differing perceptions about PCR. In the early 1990's he interviewed key participants about their recollections of the events around the development of PCR that occurred in the 1980's. By the time these conversations took place, PCR had become a reality. But unlike Latour, Rabinow does not let the artifact become the frozen backdrop in front of which the various actors decant their interpretations. Instead, Rabinow goes to great lengths to show the fluidity of PCR, not only during the period of time enclosed in his book (during which it moves between technique, concept and experimental system), but moving forward into the future.

Thousands of scientists and technicians around the globe began using PCR, multiplying the modifications and feedback – nested PCR, inverse PCR, single-molecule amplification, universal primers, direct DNA sequencing, multiples amplifications, quantitation, single-gamete genotyping, dUTP/UDG, combinatorial libraries, aptamers, isothermal amplification, sequence-tagged sites, ancient DNA, *in situ* PCR, single enzyme Rt-PCR, long PCR, etc., etc., etc. Learning and making and remaking: new variants of the instruments, practices spaces, discourses. PCR is more than any of its specific uses – it has the distinctive quality of continuing to produce events.⁴⁸

⁴⁷ This is not to say that the different interpretations no longer conflict, only that they are bounded by the artifact.

⁴⁸ Paul Rabinow, Making PCR: A Story of Biotechnology (Chicago: University of Chicago Press, 1996), page 169.

With *StaffMap/Athena* I have told a Latourian story, a retrospective story, where the definition of the object changed over time, accommodating the attributes that different interest groups ascribe to it, first in expectation and then in practice. But like Rabinow, I must leave open the possibility for additional mutations to the artifact. As *D&D* changes, the metrics and systems it uses to measure itself must change.⁴⁹ Or it runs the risk of using out-dated metrics to guide its course. *Richard Libby* explained:

[Would I throw out *Athena*?] Well, at a minimum you would spend a lot of money changing it. The key is changing people's mindset about how people are staffed and allocated and how you grow people.

I may be overly weedsie -- do we throw out all of *Athena*? No. Maybe we keep the financials -- change the resourcing part and rename the system -- so it symbolizes a shift in mindset...

It means we have to rethink how we think about happy clients and re-evaluate what that means. We want to continue to have happy clients. But the way that we measure their happiness and how we get them happy changes...⁵⁰

The Second Scenario: Going to the Well

The second technology scenario centers on how *D&D* trained its new hires. All new hires went through two weeks of training when they first joined the company-- one part focused on the *D&D* culture (discussed in Chapter Three), the other on the workshop methodology. There were additional role specific training sessions that a new hire

⁴⁹ As of January 2000, *D&D* decided to stop using *Athena* and use a different system provided by an outside vendor.

⁵⁰ Interview with *Richard Libby*, October 1999.

might participate in immediately after those first two weeks or at some subsequent time, whichever was more appropriate. In addition, new hires learned that there was a repository which contained key “how to” information; they were encouraged to go to “*The Well*”⁵¹ whenever they had a question.

The Well was a corporate-wide intranet which housed information that was of value to a cross section of the company. For example you could:

- Find instructions and forms to complete all the paperwork for an address change across multiple groups: payroll, insurance, 401K provider
- Find out about anyone in the company: their phone numbers, where they sat, a picture of them, a listing of their skills and a listing of the projects/assignments they have completed
- Find a description of every project, including the team members, timeline, technologies and lessons learned
- Explore the company’s current best practices in a wide range of technology and business areas
- Determine “how to” do any frequently executed task – from running a workshop to setting up a test cycle.

⁵¹ The name “*The Well*” is a useful pseudonym for the intranet being discussed. It has no relationship to any existing web site called “the Well.”

- Review the current projection of *D&D*'s future financial performance (based on the consensus projection from the Wall Street analysts who followed *D&D*)

There were pieces of information that were available to only certain subsets of the company, those were not available through the *Well*. The kinds of information that were not on the *Well* but were used for managing the firm include:

- Compensation
- Personnel records such as offer letters, exit interviews, etc.
- Corporate financials (prior to public release)
- Hiring and sales targets
- Acquisition targets

The *Well* was not the first time *D&D* attempted to retain important information in a single location; it was, however, much more successful than the earlier attempts. Part of the success came from having a full-time dedicated staff (from one or three people) to structure and maintain the site itself. The other side of success was reflected in the high usage of the site. High usage created an audience for the improvements done by the full-time staff, leading to additional improvements, leading to even higher usage.

One category of information provided by the *Well* was the checklist. A checklist provided you with a guide of what needed to be done in a particular situation. There

were checklists for many different activities: for preparing for a client engagement, for setting up a meeting room, there were even checklists to guide you through the final interview when someone quit their job at *D&D*.

The reasoning behind creating the checklists was simple: there were activities that were done frequently, but not always by the same set of people. Therefore, there needed to be a mechanism so that someone who was not familiar with the activity could still carry it out appropriately. Since the checklists were centrally maintained, they could also be updated as new tasks were identified for inclusion (or modification).

Karl Weick postulates that one of the defining characteristics of an organization is the ability for the firm to continue some set of activities from the past into the future, despite a growing or changing workforce.

...organizational activities are social rather than solitary,... these activities are specified sufficiently that a variety of people can contribute the necessary components that allow the pattern to persist.... It is the persistence of the pattern through contributions made by interchangeable people that distinguishes organizations from other collectivities... The fact that forms [of organizations] transcend specific individuals means that it is reasonable to say that an organization acts, because it is the persisting form that coordinates actions of transient personnel and that produces outcomes.⁵²

⁵² Karl Weick, The Social Psychology of Organizing (2nd edition: New York: McGraw-Hill, Inc.), pages 34-35.

At *D&D* checklists were seen as the ideal tool to transmit the firm's "best practices." By distilling a successful engagement into a "how to" list of key components, *D&D* expected to repeat that success in the next engagement -- even if the team was made up of a different set of people.

There were two aspects of how the checklists have worked out in practice that were not considered when these mechanisms were put in place. These issues were particularly prevalent when the person using the checklist had not done the activity recently or had little experience with the activity. In those cases people tended to see the items on the list as both required and sufficient for the activity at hand. Those two assumptions have been wrong at times.

The checklist was never meant to be a substitute for thought. But at times, individuals would treat the checklist as the required response to a problem, regardless of the specific situation. "You have a problem? We can help you. First we'll do a workshop..." Secondly, even if the checklist was the best way to approach the problem, some individuals decided they were done if they had completed all the items on the list. Unfortunately, while the checklist would contain items that had been sufficient in many cases, any particular situation might have required additional responses that the existing checklist might not have included.

Lucy Suchman has compared plans with what really happens. She points out that after the fact, an event can be shown as a hierarchical structure of topics and sub-topics. But that construct is a result of hindsight, it did not exist in the actual moment. She labels what really happens as "situated actions," actions that depend in essential ways on the context of their particular, concrete and social circumstances. In order to create plans -- or checklists -- people often look at the activities of the past and condense them into a common pattern. This pattern holds the similarities across situations, it did not create them:

The recommendation ... is that instead of looking for a structure that is invariant across situations, we look for the processes whereby particular, uniquely constituted circumstances are systematically interpreted so as to render meaning shared and action accountably rational. Structure, on this view, is an emergent product of situated action, rather than its foundation.⁵³

She recognizes that it is up to the individual to interpret the lived experience and use whatever plans exist only so far as they are appropriate to make the situation successful. There is a danger that the plans will be used as exact methods. For Suchman, that result demonstrates a lack of understanding of the inherent difference between plans and situated actions, or between checklists and doing the right thing:

The function of abstract representations is not to serve as specifications for the local interactions, but rather to orient or position us in a way that will allow us, through local interactions, to exploit some contingencies of our environment, and to avoid others.⁵⁴

⁵³ Lucy Suchman, Plans and Situated Actions: The Problems of Human-Machine Communication (Palo Alto: Xerox Corporation, 1985), page 67.

⁵⁴ Lucy Suchman, Plans and Situated Actions: The Problems of Human-Machine Communication (Palo Alto: Xerox Corporation, 1985), page 188.

At *D&D* the checklists and processes were *post hoc* plans, products of past situated actions. But they were the tools given to people to help them in their current client engagements. *D&D* realized that new hires were given mixed messages. On one hand the new hire was given a "checklist" and told to complete it. On the other hand the new hire was told to be creative and flexible and to listen to the client. Like the middle manager of the 1970's who knew he would not be fired as long as he recommended an IBM solution, the *D&D* new hire often took the safe route of following the checklist to complete a task.

I believe there were many reasons why the checklists implicitly encouraged behaviors that *D&D* leadership did not condone. First checklists were pervasive: there were checklists for many activities and everyone had easy access to those checklists on the *Well*. Secondly checklists broke down a task to discrete steps, making it possible even for a neophyte to use it. The first assignment many new hires received at *D&D* was the responsibility of making sure the checklist was completed for a particular activity. Thirdly, it was a metric within *D&D*: when you were taking part in an activity your progress would often be judged on where you were on the checklist. Fourthly, *D&D* hired a large proportion of college graduates. Without a great deal of work experience to draw upon, this group was more willing to adopt checklists unquestioningly than more experienced hires.

There was a strong focus on process at *D&D*. Clients, new hires and potential investors had been told repeatedly that the strength of the company lay in its methodology, in its repeatable processes. Some of the earliest marketing materials had a graphic depicting a high level view of the methodology as the centerfold. As *Roger* said:

We set expectations around following the process. That was the whole center -- it was the foldout of our brochure -- that's how we sold. The process was our centerpiece. We had to convince people we could do what we said, especially when we were just starting. Well, we had this magical process -- we sold hard on the process. We gave it its religious experience for people; it was core to our identity. People all through the hiring process, all heard about [the methodology]. It did have this very very high significance.⁵⁵

Roger explained that the pervasive emphasis on process made it hard for people -- when they were in an ambiguous situation -- to make choices outside of the process, outside of the checklist. He felt that the aspects of the culture that focused on delivery to the clients and doing the right thing would help offset the focus on process:

It is the culture that makes it easier. We talk about "Don't just blindly follow the recipe book." We hire smart people and tell them to use your own judgement and do the right thing. People know they had the intellectual freedom to adopt to the new thing. We never asked people to blindly follow a set of rules.⁵⁶

But that was a mixed message, a sometimes ambiguous message, that people had to figure out in practice. And often people did the safe thing and followed the process.

Joan Archon described it this way:

⁵⁵ Interview with *Roger Brooks*, October 1999.

⁵⁶ Interview with *Roger Brooks*, October 1999.

I think that it's maybe some of the reason that we're having, (it's not just the new people coming in, it's our people), the craziness. Our huge process focus, process is great, but, it has become this: instead of being a tool kit, it's become this ridiculous path. You must follow every single step or the world's gonna blow up. And we let ourselves do that. You know, the thing for me has just become another extension of that... we need every single step laid out or we don't know how to function. And that causes behavior that I don't think we want. We want to stay sharp and innovative and able to turn on a dime. That's really hard when you've boxed yourself into all these different things... I think we need to try to keep it kind of simple and we need to keep it kind of flexible, and leave it a little bit ambiguous and have everybody have that little bit of discomfort, because it keeps you sharp. I'm worried that we'll become complacent if we lay out too much, too much out there. And if you lay too much out there, I think it's incredibly hard to change. Really hard to change.⁵⁷

Checklists and recommended processes are some of the tools used by Weick's sensemaking organization. These are technologies that embed past successes. But unfortunately, in a changing environment, when innovation is called for, often these technologies prevent the organization from being nimble. Checklists and processes are based on past successes, they have no information about factors that have not yet been experienced. Therefore the people who rely on these technologies in novel situations will create sub-optimal recommendations.

Existing [technologies] tend to focus on what is judged a priori to be "controllable," which means that information needed for improvisation, reframing, or repunctuation is not available. The observer is trapped into the conclusions coerced by the technology and has neither the time nor the data to question or override what appears to be a compelling synthesis.⁵⁸

⁵⁷ Interview with *Joan Archon*, August 1998.

⁵⁸ Karl E Weick, *Sensemaking in Organizations* (Thousand Oaks, California: Sage Publications, 1995), page 178.

Because there was a focus on process, some *D&D* people began to rely on what had been done before, rather than use their own judgement -- despite some rhetoric that exhorted people to be creative. This preference for the known process was compounded by an overall rigidity, a pervasive aura of the "*D&D* Way." *Richard Libby* linked this rigidity to an engineering mentality, a stereotypical desire to reduce all solutions to known formulas:

There is still the behavioral side -- just use the checklist. The nature of checklist -- well that is very engineering -- "What is my list, what are my actions?" A lot of what we need now in leadership is much more liberal arts. If I am your mentor, I can't just check off an item on a checklist, and tell you "You need an appreciation for design." What does that say to you? How do you go get that? If I had the answers, I'd be running the company...

We built a rigid culture by design. We never talked a lot about change in the early years and how important it is to change. This is at the basic, behavioral level. [We have checklists, reviews, fit interviews.]... Most of our formal and informal systems enforced "Follow the formula." We used to struggle with people who said, "Why is it a 5-day [workshop]? Why not 3? Or 1?" We built a rigid place.⁵⁹

This tendency to follow the checklists, to follow the process occurred at all levels of the organization, by people with a variety of backgrounds. The occurrence that was often showcased was the one where the offender was young, without much experience, and new to the organization. *H. Craig Adams* described it this way:

The old timers sit around and wonder why the new timers are doing the things, why they make the choices they do. When we started we had nothing to rely on, we had to listen and make things up. So we wrote them down and documented

⁵⁹ Interview with *Richard Libby*, October 1999.

processes. Now people get hammered when they follow the process – because they aren't listening anymore.⁶⁰

Malcolm Sage recognized that junior people might fall into the trap of following the "recipe," he felt it was up to the leadership team to make sure that mistake did not happen:

People who usually do that [follow the checklist blindly] are people lower down on the experience scale. It's up to the rest of us, who've either done that or are in a leadership position, to not let that happen. To be reviewing what's going on, to be stepping back, ...and saying, "Why are they doing that stuff here, when I know it's on your checklist, but we really need to do [this other stuff]." And keep bringing people back to..."What's really the right thing for the client here?"⁶¹

Joan Archon felt it was hard for junior people to have the perspective they needed to break away from the "D&D Way," unless they had a lot of coaching:

I think one of the things that has prevented *D&D* from being as agile as it could be at this point in its evolution is that we tend to gain mastery around things like process. And when we hire a large population of junior people – without much life experience – their mastery is around things like [our methodology]. And when you get so process focused, you inherently prevent yourself from becoming agile. If you've got savvy people that can put the process in perspective, and say this is a toolkit and let me apply my experiences to it, that is a terrific partnership. If you focus solely on a process, then that is the answer that applies to all situation. It makes you less agile – it is a narrowness in thinking. I look at people [old-timers like *Craig*] who can take the process and say, "This is a great starting point. Now let me look at the different types of clients – or design mentality – and I won't have to start from scratch."⁶²

⁶⁰ Interview with *H. Craig Adams*, October 1998.

⁶¹ Interview with *Malcolm Sage*, August 1998.

⁶² Interview with *Joan Archon*, May 1999.

But it is not only the junior people who hold onto the process. Sometimes it is the senior person who finds reliance on the process makes their job easier. Barbara Garson describes how some managers keep control and still make decisions, even though they are no longer at the front lines:

I had interviewed senior executives in central offices who delighted in playing their own form of computerized war games based on economic models of the corporation. The statistics they juggled were sometimes accurate and sometimes as dubious as Vietnam body-counts. But they were always abstractions. Still, these top executives began to feel omniscient because they could peer right down to the bottom of the company through their inverted statistical periscopes. As a result, more and more decisions were made further and further away from the "battlefield" of production. Meanwhile, those with the experience and visceral knowledge were shunted aside and initiative on their part was discouraged.⁶³

Checklists abstract information from the actual engagement to provide a top level summary. For some senior managers this information becomes an easy way of staying on top of the situation. But they run the risk of missing key information because it does not fit into the checklist, the framework for the abstraction.

In the above discussion I have painted the opposing edges of the argument. Checklists can be valuable when they provide a framework to start from. Processes do distill best practices and make them available to other teams. On the other hand, when taken to extremes or allowed to replace thoughtful assessment, checklists can prevent some individuals from doing the right thing.

⁶³ Barbara Garson, The Electronic Sweatshop: How Computers are Transforming the Office of the Future into the Factory of the Past (New York: Simon and Schuster, 1988), pages 241-242.

The middle road, the place of balance is the obvious goal. It is just very difficult to find that balance while in the middle of some situated action. *Ben Frankel* called for this balance, he saw a need for more formalization and more processes – but done with care so that the level of creativity does not diminish:

Ben: We are different. You can't... you're always different. My view is our methodology needs to evolve and the company needs to evolve. I think we've grown an awful lot.

Pat: What does that mean?

Ben: What that means is we -- and here's the double-edged sword -- it's always got to be a balance. But we've formalized more things than ... before. And when you talk about formalization you talk about process and things like that. And some of those things can have a negative connotation because in many respects people can view that as being less creative, less nimble. I don't necessarily, I mean, at an extreme I do agree. But, I always go back to the analogy of music, which is that you can never say that music is not creative because it has patterns and notes... you know, processes that you follow. You need to do that as you grow in a company.⁶⁴

Malcolm Sage also saw this dilemma as a fact of evolution. For him, as a company grows it looks to put more processes in place.

Malcolm: I think [having tools is] a good thing. I have seen us over the last 2 ½ years mature in some of the tools and the way we look at that now. It's like anything else: you can get carried away and have it become a set of handcuffs to what you do. . . It's the same kind of evolution as we did with the comp[ensation] cycles... As we grow up, it's the same kind of thing with [our methodology]. [Our methodology] used to be that doing designs was black magic. You had to find someone who'd done one before and see if they could still remember how they did it. And now we have more standard stuff.

⁶⁴ Interview with *Ben Frankel*, August 1998.

Somebody coming in new has to resist the temptation to go make a cookie cutter out of it. But it's all part of growing up as a company and how we do things... We just have to. You know, if 10% of the people are not out there doing it, and you have ten people, that's just one person, who's out there not doing it. Ten percent of 1000 people, that's a hundred people who are not doing it.

Pat: So you look at these as ways to help that 10%.

Malcolm: Yes. Help us make it more consistent. And the challenge is to make it more consistent, yet not take away flexibility and make us do it by rote.⁶⁵

Karl Weick has studied this dilemma. The notion that an organization has persisting forms suggests that that very persistence that enables the organization to withstand changes in individuals also makes it difficult for the organization to be agile.

Organizations that acquire an exquisite fit with the current surroundings may be unable to adapt when those surroundings change. Organizations that hedge against an exquisite fit may also dissolve when placed in competition with those that do have a better momentary fit.⁶⁶

The more one delves into the subtleties of organizations, the more one begins to question what order means and the more convinced one becomes that prevailing preconceptions of order (that which is efficient, planned, predictable, and survives) are suspect as criteria for evolution.⁶⁷

Recognizing the difficulty of balancing flexibility and stability, Weick recommends maintaining the opposing viewpoints. He sees that those polarized viewpoints will, if

⁶⁵ Interview with *Malcolm Sage*, August 1998.

⁶⁶ Karl Weick, *The Social Psychology of Organizing* (New York: McGraw-Hill, Inc., 1979 (2nd edition)), pages 135-136.

⁶⁷ Karl Weick, *The Social Psychology of Organizing* (New York: McGraw-Hill, Inc., 1979 (2nd edition)), page 120.

maintained with their nuances, better enable the organization to be adaptive under some circumstances.⁶⁸

Summary

This chapter has explored two tales of unintended consequences where those who designed the technology were surprised by some of the results. In both cases, the momentum of the system made it difficult to change the then entrenched technology.

StaffMap, the technology that became the revenue recognition system for *D&D*, did not achieve many of its original objectives. This gap was due in part to a realization that many of the staffing issues should be handled through communication, not technology. But *StaffMap* was considered successful despite that gap. The eventual system reflected the needs of a larger constituency, not just the people involved in staffing. At least one of the embedded metrics reinforced behaviors that were discovered to be counter-productive for the organization. Changes were made to non-system processes to counter that effect; changes to the system would take place over a longer time horizon.

The *Well* housed the checklists that distilled the best practices of the early organization. But as people came to rely on those lists, some stopped assessing situations on a case by

⁶⁸ Karl Weick, *The Social Psychology of Organizing* (New York: McGraw-Hill, Inc., 1979 (2nd edition)),

case basis and began to blindly follow the checklist. The practice of using the checklist in this way had implicit support from other processes in the firm. People were forced to figure out an ambiguous message about what was the right thing to do.

In both cases the technologies embedded certain concepts, which then turned out to be inappropriate. The difficulty in changing course once the technology is set is the issue of technological momentum.

Another way of viewing the issue is the recognition that any firm needs to find a balance between what has worked in the past (continuity) and the novel actions in needs to take in the future (change).

This paradoxical challenge, the ability of an organization to have some stability -- but also to be adaptive under some circumstances -- is the second theme of this dissertation. In the past few chapters I have reviewed some of the attempts by the senior team to control the organization. They used a variety of tools; I have showcased the formal socialization processes, some of the aspects of informal socialization, the architected environment and two technologies. Their successes were sporadic. In the next chapter I will overlay the need to change on top of that framework of control.

Chapter Seven
Conclusion: The Manipulation of Paradox

Chapter Seven:

Conclusion: The Manipulation of Paradox

In this dissertation I have told a story of *D&D* that covered a span of over seven years. Within the context of the turbulent business environment of the 1990's, I have catalogued *D&D*'s attempt to control for flexibility through three areas: culture, environment and technology. Juxtaposing my ethnographic content with comments from the business, design and sociological literatures, I have demonstrated the difficulties of those controls achieving any set of expected outcomes. The on-the-ground experience of those controls -- while achieving some congruence with expectations -- was often fraught with conflict, ambiguity and paradox.

By their choices and their actions, the leadership team demonstrated their assumption that their role was to actively shape the organization, leaving as little to chance as possible. The leadership team was attempting to mold the organization with whatever tools they had; they chose the ones that they felt would have the largest impact. But like a geneticist, they needed to observe the results of their manipulation *in vivo* to determine if their modifications had met their expectations, both in the short-term and over time. In the short-term, because the company was successful -- despite some discrepancy between expectations and results -- they felt their experiment had been a success.

In this chapter I will review the earlier chapters of this dissertation, setting the stage for a sea change. Then I will describe the context in which *D&D* found itself at the end of 1998, a context where the turbulent environment coalesced into a moment of challenge, a tsunami of opportunity based on the Internet economy. The last part of this chapter reviews the actions taken by the *D&D* leaders to ride this tsunami. Given their perception that their earlier attempts to set controls had been successful, it is not surprising that they chose to use the same techniques of active manipulation to face this new challenge. What is illuminating, is that their analysis of which techniques helped and which hindered the change process underscores the central paradox of this thesis, the challenge of trying to control an organization in order to make it flexible.

Summary of Earlier Chapters

In Chapter Three, this dissertation looked at the formal socialization process at *D&D*. The leadership team crafted a list of values and then chartered *Vivian Dewey* to create an initiation week that would disseminate those values to new hires. They felt bootcamp achieved its stated objective, even though it created feelings of anxiety and confusion for some people. For some people there was a disconnect between what they had been told in the session and what they experienced once they started their "real" job. For others, there was an experience during bootcamp that undermined their faith in the

organization. This could occur during the "Failure" exercise or during the presentation of the results from the project day. The values that were the core of the curriculum were viewed as self-contradictory by some; this ambiguity decreased their ability to embrace what was taught. In addition, those who ran these sessions and those who participated sometimes found that their experience of *D&D* was at odds with the values that were being communicated to the new hires. However, because these experiences of conflict and ambiguity were felt by only a minority of people and because bootcamp significantly increased the ability of new hires to acculturate to the firm, the leadership team believed bootcamp had successfully met its objectives.

Some informal socialization processes were examined in Chapter Four of this dissertation. People's experience of the dress code varied. Some saw it as the mark of professionalism that *Matt* and *Roger* had planned. Others saw it as a mark of rigidity and stagnancy. Some followed the lead of the wardrobe of the senior staff; others found ways to circumvent aspects that they found onerous. But from the perspective of corporate image, the *D&D* leadership team had created a "white shirt" company; they had achieved their goals.

Communication style was another aspect of informal socialization at *D&D*. Hired because they passed the "whiteboard skills" part of the interview, new employees were taught how to use the whiteboard to gain consensus. In practice, this mechanism

obscured conflicting points of view and prevented some people from taking part in the debate. But despite those issues, the goal of closure was not publicly questioned; many people in the firm used the convergent style that was recommended during the training sessions and utilized by the leadership team on a daily basis.

The final aspect of informal socialization that was covered in Chapter Four was the preferred decision-making style, or way of knowing. At *D&D* the preferred process was rational and impersonal. People, hired because they fit this pattern, were comfortable in the environment. Others learned to mask their true style and adopt styles that mimicked what they experienced. For the most part, this control was successful in shaping the style of the organization.

Chapter Five of this dissertation looked at how the leadership team used the physical environment to reinforce certain behaviors. To demonstrate the lack of hierarchy, they had one style of furniture for all employees. To physically embody the open communication that they valued, they put arches between walled spaces, not doors. To model the flexibility they wanted, they chose chairs and file cabinets with wheels and had multi-purpose, multi-use spaces throughout the workplace. To improve communication among team members, they insisted that teams sit near each other, within a contiguous area, often without walls.

The individuals who peopled the *D&D* environment did not respond uniformly to their surroundings. Some relished the improved communications of the open spaces, others resented the lack of privacy. Some found the pod layout suited their working style because it allowed them to focus; others preferred larger open areas because the pods isolated teams from other teams. Some were energized by the physical mobility of frequently changing location; others disliked not having the security of a homebase. Despite the variety of responses, the architecture was kept quite consistent; the leadership team believed they had created an environment that enabled the *D&D* teams to be most productive, they believed the enhanced communication inside a team outweighed all other factors.

In Chapter Six I examined how technologies were used to set limits at *D&D*.

StaffMap/Athena, originally built for one set of purposes that never was completely realized, reinforced a nascent preoccupation with metrics and measures, including one statistic, revenue per employee. *The Well* was a repository for "sacred texts," such as the checklists. While such summaries of best practices were effective teaching tools, on-the-ground they also interfered with new learning by implicitly suggesting that people do only what had been done before. These examples were stories of unintended consequences. Even with the best of intentions, the people who put those structures and technologies into place were surprised by some of the results. Thus this was the

one set of controls that did not influence behaviors in ways that the leadership team had envisioned.

This dissertation has examined a variety of controls that were put in place using culture, physical environment and technology. The underlying goal of the *D&D* leadership team for all of this manipulation was to create a company that would thrive in a marketplace where dramatic change was the norm. The early assessments were positive. The culture and physical environment had shaped a company. The company was successful.¹ There was no reason to question the use of culture and physical environment as controls or the particular choices that had been put in place. The use of technologies had also been effective because they had shaped behaviors but the results were not as salubrious. In those cases where the resultant behaviors were perceived as detrimental to the organization, the leadership team acted to eliminate those behaviors.

The net lesson for the leadership team was that they could successfully craft a company. They could manipulate certain aspects of the firm and cause changes in behavior. They

¹ By the end of 1998, *D&D* had an enviable track record. It had grown to over 1,100 people with over \$160 million in revenues for that year. It had seven offices in the United States and one in London. Much of its business came from repeat customers, attesting to the quality of its work and the strong relationships it had built with its clients. That year revenues and staff had increased by 77% from the prior year; employee turnover remained among the lowest in the industry. In comparison, at the end of 1992 (the year I joined the firm) annual revenues were just under \$1 million and there were sixteen employees. That year when we speculated -- quite optimistically, we thought -- how big *D&D* would become, we expected our 1999 revenues to top \$40 million. The reality was more than four times as large as our expectations. By 1998, for the people who had been with the firm since the early days -- as well as those who had joined more recently -- the company had become much more successful than had been imagined -- whether measured by revenue, client relationships or employee satisfaction.

experienced some examples where the results were not what they expected. But overall they were satisfied with their results. After all, they had a successful company.

At a macro level, there was at least one area of control that *D&D* did not leverage. Many of the same writers who have discussed what it takes to create a successful corporation, have recommended creating mechanisms that support change, mechanisms that act as petri dishes to nourish new ideas. Many point to the evolutionary "mutation machine" at 3M or other structures used by Hewlett Packard or Texas Instruments.² Although *D&D* implemented a variety of controls, this was not one that they utilized.

The notion of creating such supportive mechanisms was not unknown to the *D&D* leadership team. They had read the books that praise those mechanisms,³ they had discussed the advantages of putting such mechanisms in place, they had explored which mechanisms might be appropriate for *D&D*. Other than one brief foray, they had not implemented a formal mechanism, they had not used this control to shape the firm.

² These ideas were presented in more detail in Chapter Two.

³ For example: Rosabeth Moss Kanter, *The Change Masters: Innovation for Productivity in the American Corporation* (New York: Simon and Schuster, 1983); Peter M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday, 1990); James C. Collins and Jerry I. Porras, *Built to Last: Successful Habits of Visionary Companies* (New York: HarperCollins Publishers, 1994).

I believe the choice to omit this particular control was another demonstration of the leadership team's underlying assumption: great companies result from conscious manipulation. The team was not willing to leave greatness to chance or opportunistic evolution. They chose to actively alter the "DNA" of the firm. They were not willing to be passive spectators of natural selection. On a daily basis, they acted within the context of the biological metaphor of genetic manipulation.

The distinction I see between the metaphors of evolution and genetic manipulation has a few facets. The first facet is about speed. Evolution and natural selection take time. In the corporate setting, the evolutionary "mutation machine" requires the time and space for many nascent ideas to incubate, hatch and test their wings in safe, nurturing environments. Once tested, the fledglings are ready for the harsher, external environment. The ones that are chosen for the outside air have been assessed as being the most likely to succeed; the true measure of success is the response of the external market. Those that thrive receive additional support, those that fail through this process of natural selection are mourned briefly and laid to rest. Thus, the metaphor of biological evolution assumes a relevant period of time for the many messy experiments to develop into testable entities.

In contrast, the metaphor of genetic manipulation carries an image of instantaneous transformation. At one point of time an entity has a particular set of DNA. The geneticist splices in a different strand, and the original entity is changed immediately.

A second contrast between the two metaphors is numerical. As outlined above, the evolutionary metaphor assumes that there are many concurrent experiments, only a few of which will survive. The metaphor of genetic manipulation, on the other hand, assumes each decisive splice will be successful. While there is the possibility that if that transformation does not achieve its goal, another can certainly be attempted and there is the probability that more than one genetic component will be altered, the thrust of the metaphor is singular transformation, not a multiplicity of experiments.

A third facet that helps explain the contrast between these two metaphors is the level of control. Put simplistically, genetic manipulation is purposeful and evolution is opportunistic.

A final distinguishing facet is specific to this ethnography, it has to do with the type of "biology" practiced. Many of the examples of companies that have been successful in embodying the evolutionary metaphor focus on the proliferation of new products.⁴

Those companies are cited as exemplars because they have a swarm of fledging

⁴ Here I use "products" in the broadest sense, to include products and services.

products that can be tested in the external market to determine which, through a process of natural selection, are best suited for the new environment. The emphasis is on success through a proliferation of new products. The metaphor of evolution is focused on the things offered to the corporate customers; it is an evolutionary metaphor of "product biology."

In contrast, in this dissertation, I have mentioned that *D&D* changed its product offering but I have not focused on it. Instead I have emphasized the controls exercised by the leadership team that influenced the culture, physical environment and technology of the firm. In this case, the supporting data that I provided painted a metaphor of genetic manipulation that pertains most strongly to "organizational biology."

It is my contention that the leadership team created a set of controls through the active manipulation of the "DNA" of *D&D*. They did not nurture many messy experiments, they did not wait for natural selection to acknowledge the success of one and the failure of the others. They acted as geneticists as they shaped the organization purposefully and immediately with singular transformations.

Late in 1998, the turbulent environment created a "strategic inflection point"⁵ for *D&D*. Similar to the market transformation faced by Andy Grove at Intel, the *D&D* leaders realized that they needed to transform their firm to embrace the Internet economy. In the section that follows I will describe the context, the challenge and the steps the *D&D* leadership team followed to transform the firm to meet this challenge. Significantly, they chose to use the same tools they had used before. They chose to reach into the heart of the company and splice in new DNA. They remained geneticists.

The D&D Context at the End of 1998

As mentioned earlier, by the end of 1998 *D&D* was considered very successful with an enviable track record. It had grown to over 1,100 people and had begun to acquire other companies. It had exceeded even its own optimistic expectations of revenue, client satisfaction and employee morale. However, at that point in time, this successful company faced an environment that was in a tremendous state of flux:

1. The core business of the firm was shifting; the market was about to demand a different set of services.
2. The environment for employment was changing.

⁵ "[A] strategic inflection point is a time in the life of a business when its fundamentals are about to change. That change can mean an opportunity to rise to new heights. But it may just as likely signal the beginning of the end... If you're wrong, you will die. But most companies don't die because they are wrong; most die because they don't commit themselves. They fritter away their momentum and their valuable resources while attempting to make a decision. The greatest danger is in standing still." Andrew

In Chapter One I described the turbulent environment that organizations faced within the new economic context. Whether labeled "The Second Industrial Divide" or an era of "flexible accumulation," this environment demanded that organizations be flexible and able to accommodate ceaseless change. Part of the turbulent environment in the 1990's was the rise of the Internet and related technologies.

In the early days of *D&D*, client-server technologies were sufficient to support the business solutions it offered. Clients were exploring the possibilities of giving many people (employees, customers and vendors) access to information, so that decisions could be made closer to the customer. Using technology in such a way was one example of the positive aspects of what Shoshana Zuboff has termed "informating," where information about the process adds as much, if not more, value as the original data itself.⁶

In 1994, *D&D* started providing its clients with solutions based in Internet technologies. For a while this was just one of a variety of technologies that could be deployed; it was chosen based on the customer's need. By the end of 1998 the market was changing.

Grove, *Only the Paranoid Survive: How to Exploit the Crisis Points that Challenge every Company and Career* (New York: Currency Doubleday, 1996), pages 3, 152.

⁶ Shoshana Zuboff, *In the Age of the Smart Machine: The Future of Work and Power* (New York: Basic Books, 1984).

Interest in what the Internet meant for business strategy exploded. Suddenly there was only one technology. *Roger Brooks* explained this phenomenon from his point of view:

The last quarter of 1998 there was a rising consciousness of the Internet in CEOs' minds and all that that implied. We saw that. The drivers were the valuations of Amazon and Yahoo! going through the roof. And also the volume of Christmas shopping on the Web turned out to be triple expectations. And there was a lot of press and media attention on it. Like the Gary Hamel cover article on *Fortune* -- "Internet or Bust." There was just a lot of awareness building. We saw that. We were also hearing from clients about how it was way up on their agenda. We decided this is going to be the #1 thing on peoples' agendas going forward.⁷

Matt Barr felt that the Internet focus was a result of a new awareness at the CEO level.

He felt that they really began to ask about the Web when the new Internet-based companies went public and created such a splash in the market.

It was that the wave of the Internet was a tsunami. It wasn't a wave. The realization of the difference between wave and tsunami. I heard this when I was interacting with CEOs in late summer and fall [of 1998]. "Why ... is Yahoo! worth more than my company?" It's not the text book stuff. This is about market cap envy, personal wealth envy. It's mostly market cap envy. What CEOs worry about is market cap, not revenues, not the number of people they manage. When Yahoo! and Amazon took off like mad -- it brought it front and center that there was a tsunami out there and they ought to find out what it is.

And the other factor is that CEOs are starting to use Email and the web themselves -- so it was getting personal. [They were becoming aware] on two dimensions. Using it and seeing those two year old companies worth ten times what they were worth.⁸

⁷ Interview with *Roger Brooks*, October 1999.

⁸ Interview with *Matt Barr*, October 1999.

This was the context; *D&D* had a choice to ride the tsunami or not. Or as *Roger* said: "We can dilly dally with it or -- or we can focus completely on it. Reposition ourselves and we will have a chance of really capitalizing on it."⁹ As you will see on the following pages, *D&D* opted to focus completely on the Internet. The external environment was the catalyst for some strategic re-positioning, where *D&D* took its four years of Internet experience and moved it front and center. *Richard Libby* commented:

There were external factors. It -- the market -- moved so fast and so strong. This is what all our clients were asking for... Today, all clients want to talk about is what the Internet is going to do to my industry. You have no choice. That is all your customers are going to talk to you about now. That is a great thing -- it is wonderful when the world will help you out with a change. It is Darwinism at it best.¹⁰

The second component of the *D&D* context in late 1998 was the environment for employment. As mentioned in Chapter One, the 1990's were a time of stress for employees at many organizations, as downsizing, re-organizing, and outsourcing created an environment where job security was an oddity, not the norm. At the same time, employment opportunities for computer professionals skyrocketed.¹¹ Employees, looking for challenges, had plenty of options outside of their existing firms; changing

⁹ Interview with *Roger Brooks*, October 1999.

¹⁰ Interview with *Richard Libby*, October 1999.

¹¹ The U.S. Bureau of Labor projects the growth in the computer professions to easily outstrip all other fields for the period 1996 - 2006. While most of the growth in employment will be in the service industries, the top three categories, each with growth over 100% are: Database Administrators and Computer Scientists, 117.8%; Computer Engineers, 109.1%; and Systems Analysts 102.8%. Handbook of U.S. Labor Statistics: Employment, Earnings, Prices, Productivity and Other Labor Data, edited by Eva Jacobs (3rd edition: Lanham, Maryland: Bernam Press, 1999), page 221, Table 4.3: Employment by Occupation, 1996 and Projected 2006.

firms was commonplace. With that kind of movement, people formed their allegiances to people they had worked well with, not necessarily with particular firms.

For many years, employees at *D&D* had decided to stay or leave *D&D* based on the value they perceived as compared to their effort. As *Michael Welsh* said:

The issue is, what everybody's gonna make their own little calculation about: what they're getting from a personal standpoint, looking out for number one, and what they're putting in. They have to make their own decision about that.¹²

Those who stayed claimed that what they loved most about the company was the people that they worked with and the opportunities they had to grow and be challenged.¹³ Those reasons have remained consistent throughout the history of the firm. Those who left voluntarily did so for a wide variety of reasons.¹⁴ Nevertheless, with one of the lowest turnover rates in the industry, the leadership team at *D&D* felt that the result of all of those personal calculations demonstrated that the employees had a strong level of commitment to the organization. But that commitment was based on real-time calculations, any changes to the factors in that equation had the potential to radically change the results.

¹² Interview with *Michael Welsh*, October 1995.

¹³ July 1998 *D&D* internal survey.

¹⁴ Some of the reasons include: going to another firm to focus on one product or to be more of a solo contributor, changing fields entirely, going back to school, starting a new company, going to seminary, opting to stay home with children.

As *D&D* moved quickly to capitalize on the Internet opportunities, it leveraged its known strengths, including the ability to make rational, impersonal decisions quickly. The Chapter Four discussion of the Myers-Briggs Type Indicators, described this style of decision-making (when painted simplistically in black and white) as one which differs from one that weighs the impact on others and the consistency with personal values. It therefore was not too surprising that many existing employees were caught in a backlash where they felt ignored during the change process.

Earl Vickers: In terms of things that hindered [the change process] -- to the extent -- we almost alienated a lot of the middle management... during the change process. They felt alienated. All of our energies were taken up with thinking about the future ... As that happened a lot of that group of people got neglected. And that hindered the change process. In many small ways people fought the different changes that affected them. [You could] call it passive resistance. It was not anything that people were actively aware of. These were unconscious things they did to resist some of the changes. ("Why were we not included in this decision?" "Because I wasn't included in the decision, I won't support this.") Those things hurt. Looking back -- if there had been a way to get that group more connected -- that was one lesson that I learned...

People are feeling unsteady themselves -- "Where do I fit in?" This is an aspect that we haven't managed well today. Reaching out to key stakeholders who've been here for a while, and helping them understand why we are doing what we are doing and what it will mean for them. We haven't managed that well to date.¹⁵

Roger Brooks: There was a feeling -- this was part of the struggle -- on the technical delivery side. [They had been] the center of the earth -- but -- boom -- "Now I am not the center of the earth. The other disciplines are more important. Maybe I am not qualified to run the whole thing. Am I still a fit? Am I still valuable?"...

[We needed to] be more sensitive to the people issues around: "Am I still important? Am I still valuable?" We were too focused on the world changing

¹⁵ Interview with *Earl Vickers*, October 1999.

too fast. We all had to run to the fences. So we didn't help people a lot. That caused a lot of pain and we lost some good people as a result.¹⁶

In an employment environment where affiliation with a particular company is expected to be transitory, the catalyst that causes someone to leave a firm can be quite small. From some perspectives, the employee who leaves a firm because no one took the time to explain how a corporate-wide change initiative might impact his or her individual role, is an employee who has lost sight of the big picture and has been sidetracked by a few details. But in the economic environment of the 1990's, that employee does not need to suffer the discomfort of even a few details.

Riding the Internet Tsunami

At high level, that was the context for *D&D* at the end of 1998: a successful company, which had grown to over 1,000 people, in a turbulent market where the relationships between employees and employers were in flux. The tsunami of the Internet was the catalyst for a significant repositioning of the company. *Matt* described the transition this way:

Matt: We announced [in January 1999] that things that were not connected to the Internet would be halted. We saw that the competence to solve these problems related to the Internet would be awesome in size --and an opportunity to position ourselves at the CEO level where we belonged. The Internet represented a red carpet to the CEO and board levels. For us, it was the biggest threat and the biggest opportunity.

¹⁶ Interview with *Roger Brooks*, October 1999.

In January we said that we have been driving this car in a certain direction really really fast -- and now we will nail the accelerator to the floor and get rid of the brakes. We were already travelling in that direction -- but we were going to go faster and double down our bets. And then we would see what would happen...

Pat: What did you do?

Matt: We attacked the strategic definition of the company, the values of the company, the behaviors of the company, the identity systems and the visible representation of the company, the marketing message, two acquisitions, three relatively substantial organization changes, and fired some people. Hired lots of other people. Re-worked the hiring processes. The staffing processes. The roles and responsibilities at all levels. Changed all that. That's some of the things that we did. And we did a lot more ...

Pat: Was there something that made this easy?

Matt: What made it easy was the unequivocal certainty that it was THE thing to do. It made it easy -- for me there was no alternative... What made it easy was only one thing -- but it did make it easy.¹⁷

D&D, a little more than seven years after its founding, undertook a massive repositioning that demanded flexibility and adaptability from every employee and every system within the firm. The leadership team followed the process that had proved successful in the past. They reached into the firm and made changes at many different levels. This was not an evolutionary process; this was genetic manipulation. The leaders even described it in those terms. At *D&D*, during this time of change, *Roger* gave what he called his "DNA talk." In it he described some of the genetic components of the old *D&D*:

¹⁷ Interview with *Matt Barr*, October 1999.

We were formed by the environment we were born in. There were a couple things. Of IT projects over 70% fail. We were going to be the predictable company. We would deliver what we say we will at the time we said we will for the price we had said. Speed and predictability was the key... [We were good at] scoping and convergent mentality -- "Let's crank through this conversation and bolt down the requirements." There would be some iteration but not a massive amount... That was one DNA thing there.

Another -- we tended to be very project based. We were in the fixed time/fixed price project business. We went around looking for technology projects.

Another thing is we were born as part of the client-server revolution -- that was our niche. We were looking for client-server open systems projects that we could do fixed time/fixed price. That was what we were looking for. If it wasn't a big clear project, we didn't want it or couldn't deal with it. That led to a discomfort with helping with the early strategic [initiatives] when people don't know where they are going. They are not looking for a project, they are looking to revamp their business or start a new business. We had DNA around projects vs. building businesses.¹⁸

In order to compete successfully in the Internet economy, *D&D* needed to be able to continually re-invent itself. To the extent that the firm had habits that contributed to success in the past but were outdated, they needed to be excised. Waiting for those habits to evolve away through random mutation was not sufficient. The genetic biological metaphor recommended actively splicing in some new DNA. *Richard Libby* felt that this kind of manipulation was possible because *D&D* had already studied itself and knew where to make the alterations:

D&D is a reflective organization. We write down our values and map them to what we do. The fact that we are reflective made it easier. Made it easier to plug in a new strand of DNA. We didn't have to discover the current thinking. We had a level of self-awareness, so plugging in a new concept was easier.¹⁹

¹⁸ Interview with *Roger Brooks*, October 1999.

¹⁹ Interview with *Richard Libby*, October 1999.

Thus, at this time of transition, as *D&D* attempted to ride the tsunami of the Internet, the leadership team saw their role explicitly as one of producing genetic changes to the company.

Assessment of the Transition

During 1999 I interviewed ten senior managers in the organization. I asked each one of them to reflect on the recent and still ongoing transition and describe to me the factors that had made it hard, as well as the ones that had made it easy. In what follows I present their responses in the form of six paradoxes.

I recognize that by forming a tidy sextet of paradox, I have devised a framework that loses much of the lushness (some might say chaos) of the on-the-ground experience. I have, indeed, created an example of the conundrum Bourdieu painted:

As is seen in the case of ritual practices, the cumulation and juxtaposition of relations of opposition and equivalence which are not and cannot be mastered by any one informant, never in any case at the same time, and which can only be produced by reference to different situations, that is, in different universes of discourse and with different functions, is what provides the analyst with the privilege of totalization, that is, the capacity to possess and put forward the synoptic view of the totality and the unity of the relationships that is the precondition of adequate decoding.²⁰

²⁰ Pierre Bourdieu, *The Logic of Practice*, translated by Richard Nice (Stanford, California: Stanford University Press, 1990), pages 82-83.

In the section that follows I am juxtaposing relations of opposition to emphasize the variety of opinions, at times contradictory, among the leadership team. It could very well be that if I had put them in one room with me and asked them to come up with a consensual answer (which is the technique *D&D* often used, as described in Chapter Four), they would have done so. By interviewing them separately and asking each which aspects of the firm helped or hindered the transformation process, I heard a variety of responses. In choosing to present their responses within the structure of six paradoxes, I coalesce their opinions into a comprehensible set, while attempting to maintain the diversity of opinion that I heard. The structure that follows belongs to the analyst, me, and not to the leadership team at *D&D*.²¹

The *D&D* leadership team's assessment of the firm's transition will be presented as a set of paradoxes, where each shares a similar structure to the others. Roughly framed, the structure is as follows:

1. The leadership team put a control in place.
2. That control became embedded in the practices of the organization, despite some amount of resistance or ambiguity.
3. During the 1999 transition, that control was perceived by some as having eased the process of change, while others experienced the same control as a hindrance to change.

²¹ The comments by the leadership team represent their perceptions of what aspects of *D&D* made it

Each section that follows contains an example that follows the structure outlined above. Each is a paradox in its own right; but their common structure suggests one meta-paradox with a series of variations. The finer details of resistance and ambiguity as well as some of the unintended consequences were covered in the earlier chapters.

The Paradox of Strong Values

In Chapter Three I discussed the care with which the leadership team crafted the *D&D* values and then disseminated them to the organization. During the time of transition in 1999, some people perceived the strength with which those values were held as one of the characteristics of the organization that made it more flexible, that enabled people to change. There was a perception that with the values as a strong anchor, people were free to change anything and everything else.

Earl Vickers: [T]he surprise was how willing and able people were to change. I think that has to do with the culture. There are separate pieces of culture. There are the values that people subscribe to, a common set of values. There are other things. One of them -- what is strong in our culture traditionally (which I am concerned may get diluted) -- is that the company comes first. The company comes before I do. This has always been strong. The flexibility to do whatever. Going above and beyond. Those things have been ingrained in the culture to the point we take them for granted. Those things are the things that helped us.²²

Albert Marchand: If you really look at what we were asked to do starting in January. Imagine a plane in flight -- and then we all agreed that we had to

easier or harder to effect the changes during 1999. I have no information to corroborate their opinions.
²² Interview with *Earl Vickers*, October 1999.

change the plane because it didn't meet our requirements. And while it was in flight we got out on the wing and changed the fuselage and all the parts while it was in flight. And why we survived at all -- there was a foundation [of strong values] that was built for years -- and that foundation was really strong. It was as if you had built your house on a foundation -- and a terrible hurricane came by -- and it tore off the roof. But because of the strong foundation we were able to weather the storm. You need a strong foundation around values -- because without it when the first storm comes by, you have nothing left.²³

One perception was that this strong foundation of values, coupled with a culture that put the company first, enabled the firm to be flexible. Others, assessing the same point of transition, found these same strong values to be barriers to change.

Richard Libby: To scale an organization well in a meaningful way and from a business pragmatic way, you have to build a strong organization. Strong values, systems, processes. For much of *D&D's* initial growth we did that. And that is why we were able to do the amazing things we did. But there is a downside. Because you have to build things tough, your values become dogmas. When you are faced with significant change you are at a weakness...

Metaphorically -- I'm captain of a ship. And I'm trying to get you on my boat. And I'm trying to tell you about the new world. But because you can see the coastline -- you have only a little anxiety. But with a DNA type change, the shoreline goes away. In that case, letting go is a totally different change from a people perspective. That's where an organization with strong culture and values has a tough time remapping all their DNA.²⁴

When the leadership team assessed the impact of *D&D's* strong culture and values, they found a contradiction. The strength with which the values were held was perceived as a significant factor in enabling the firm to change, and yet -- paradoxically -- it was those same strong values that others perceived as hindering the transformation effort.

²³ Interview with *Albert Marchand*, October 1999.

²⁴ Interview with *Richard Libby*, October 1999.

The Paradox of Success

The willingness to embrace risk, to be pioneering, was discussed in Chapter Three. Espoused by the leadership team as a core value, it -- even in the best of times -- was part of an ambiguous message when it was paired with other messages, such as the intolerance of failure. But this ability to take risks was one of the characteristics that was perceived as key to the success and the flexibility of the organization.

Joan Archon: Overall -- not for the entire company -- but for the founding people and some of the people in leadership roles -- those people don't have a fear of change. People get excited by doing the new things. Or testing out new ideas. And that partnered with the fact that this is a collaborative group and that they are also very very smart. That generates a lot of excitement. And that excitement in turn leads to "Let's go try it." That allows us to be agile. I don't see a lot of "I own this and I'm afraid to change." I laugh if I look at people and see all the different roles people have done since I have been here ... I think that people in leadership roles here need to be agile in and of themselves. Or it is tough to survive. We've all had to plug and play ... Our ability to attract people that don't have a fear of doing growth for themselves -- and ultimately growth for the company -- has really allowed us to do some different things.²⁵

David Bullett: In an entrepreneurial environment we have already self-selected for people who embrace risk. Who see the positive aspects of risk... When there are a set of people who are there for different reasons, when they work for a company because it is a secure place to work -- then it is hard for a company to change...

We have the opportunity -- because people come to *D&D* for an entrepreneurial environment -- to have that mental readiness...²⁶

²⁵ Interview with *Joan Archon*, May 1999.

²⁶ Interview with *David Bullett*, February 1999.

As other leaders assessed the aspects of the firm that hindered the changes of 1999, they did not describe a risk-taking environment, they described an atmosphere of rigidity and fear.

Matt Barr: We found no lack of rigidity. My expectations were lived up to, if not exceeded. What surprised me about the rigidity -- I thought the rigidity was out of arrogance, but at times I found that it was out of fear. For the first time ever I heard and saw people defending positions because they were worried about their own personal role (like we see with clients who are afraid of losing their job or being marginalized). I was surprised to see that coming from here.²⁷

David Bullett: The surprise was the rigidity. I've been in big companies where you said, "Oh yeah, I know why the company is inflexible -- they been doing it for 50 years." The whole thing [at D&D] about there's only one way to do it -- run a [workshop], dress, have a meeting. There is such specific rigidity around certain kinds of behaviors. It really surprises me.²⁸

This rigidity should not be surprising. Many companies have experienced a similar paradox where the company's success -- especially the employee's perception that the company was successful -- becomes an obstacle to future change. Ian Mitroff, in looking at what enables companies to be more flexible, uses the automobile industry in the United States as an example of the dilemma of success -- where nothing kills success as effectively as success:

The moral is that the US auto industry didn't fail because it was a failure from day one but because it was a success for so long, and it took its success for granted. The industry thought it had found the magic formula for success for all time when all

²⁷ Interview with *Matt Barr*, October 1999.

²⁸ Interview with *David Bullett*, October 1998.

it had found was a particular set of conditions, as embodied in its key assumptions, that were good for a limited period of time.²⁹

In a similar vein, *Matt Barr* pegged the company's earlier success as a key stumbling block for future flexibility:

This group of people believed that they were successful and had been so. That made it a hard group to change. People's success in the past made them confident that they didn't need to change in the present. The cliché of "Success becoming Failure." And so we had a very disparate group of people with a very common sense of pride and rigidity in the way that things must be done. And the values that we must share. So it made a hard group to change.³⁰

The Paradox of Success acknowledges the difficulty of continuing the pattern of early successes that were achieved through risk taking. At some point, the best route to continued success appears to be the repetition of past activities, which often does produce successful results. But the ability to reproduce the past can smother the ability and willingness to take risks, which had actually been the significant factor that built the company in the beginning.

The Paradox of Consensus

²⁹ Ian I Mitroff, *Break-away Thinking: How to Challenge Your Business Assumptions (and Why You Should)* (NY: John Wiley & Sons, 1988), page 65, italics in original. Also see Rosabeth Moss Kanter, Barry A Stein and Todd D. Jick, *The Challenge of Organizational Change: How Companies Experience It and Leaders Guide It* (New York: The Free Press, 1992), pages 39ff.

³⁰ Interview with *Matt Barr*, October 1999.

In Chapter Four I discussed the use of the whiteboard to build consensus. One of the perceived strengths of *D&D* was its ability to reach consensus for its clients and internally. The resultant convergent style was seen as a way to move quickly to a solution. In the *D&D* context, an adequate solution implemented in a timely fashion was preferred to a better solution implemented too late.

Ben Frankel: And then the whole aspect of closure, which is, I have attended a whole bunch of meetings in my life which been intended to solve a particular issue, and you go in and you talk about an hour about the issue... And there is no closure... and then, you know, people wonder why two months later you have the same meeting over again. So the whole closure aspect as I walked in the door was something else that was just real interesting and rewarding, to kind of see, "OK we're not leaving here until everyone walks out with what we are going to do about this thing."³¹

Closure was rewarding to the employee who embraced that style and rewarded by the firm as the "right way to do things," until it became a hindrance to meeting the clients' needs. As *D&D* embarked on more strategic consulting assignments and entered more creative genres, as *D&D* attempted to transform itself, the convergent mentality was also perceived as a hindrance.

Roger Brooks: We had a religious way of doing things -- that had made us successful to date... Scope down and scope down -- and don't tolerate meandering thoughts. We had a convergent orientation and a "get it done" orientation. These were behaviors and processes that were not helpful for the new process...

We valued people who could close issues, not raise issues. Strategists like to raise issues and open issues -- explore and open the box. That was just a pain in

³¹ Interview with *Ben Frankel*, August 1998.

the ass for people who were trained to close issues and nail the box shut. There was a fair amount of conflict there.³²

³² Interview with *Roger Brooks*, October 1999.

The Paradox of Consensus underscores one of the key issues facing those who attempt to drive enterprise wide change. On one hand, change can be easier when you are working with a group of people who value coming to consensus quickly, who would rather act on a hastily sketched adequate plan than lose the opportunity of the moment with interminable periods of perfecting a plan. On the other hand, change is more difficult when the group of people involved do not value exploring alternatives and looking outside their known expertise. That insular group runs the risk of picking the wrong goal through ignorance. Both sides of the paradox were perceived by different leaders as significant factors at *D&D* during 1999.

The Paradox of Fit

In Chapter Four, the description of different aspects of informal socialization demonstrated that these were mechanisms to shape behavior once an employee joined *D&D*. Those aspects also acted as a winnowing mechanism, screening out the potential employees who were not a "fit." Did the candidate wear a white shirt or otherwise show they understood the norm of professional dress? Did the candidate demonstrate good whiteboard skills? In the section of the interview process where the candidate did a role play, did he or she outline a rational process for reaching a conclusion? By screening certain people out during the hiring process and then reinforcing a limited set of behaviors, *D&D* created a homogeneous pool of employees. The net result was a

corporation that was flexible because the majority of people shared the same outlook.

As *Paul Kleeman* said, "A homogenous organization can change faster."³³

But the flip side of homogeneity is a lack of diversity. During 1999, some of the *D&D* leaders found that the lack of diversity became a hindrance to change because there were not a variety of opinions and perspectives. They believed that if *D&D* had already embraced different ideas, when the time came to act in a new environment, the groundwork would have been laid that improved flexibility.

Joan Archon: A healthy respect for diversity (cannot think of a better word) -- different thinking styles and different perspectives ... If I have a diversity of thought -- I can create a really powerful solution. When we rely on things we hold to be true, we get into the "*D&D WAY*" way of thinking, which is why it is so brutally difficult for people to make changes right now. They are not listening to a diversity of thought.³⁴

During 1999, the leadership of *D&D* relied on the people of the organization to transform the corporation. They relied on the people who were a "fit," those who shared the same values, who were able to synchronize their oars and row together. However, other leaders noticed that the well-defined pool of people who "fit" the organization did not contain the variety of perspectives that would have made it easier for the organization to be flexible. The Paradox of Consensus emphasizes the

³³ Interview with *Paul Kleeman*, October 1999.

³⁴ Interview with *Joan Archon*, May 1999.

importance of being able to explore different ideas; the Paradox of Fit emphasizes the importance of having people who have those different ideas.

The Paradox of Environment

Some of the environmental features of *D&D* that I discussed in Chapter Five were identified as reinforcing patterns of flexibility that created a mindset where people were ready for change. There were two aspects to these environmental supports for flexibility. There was an architected environment with its arches, mobile furniture, and networked connectivity that made movement and change easy. This mirrored the second aspect, the pervasive expectations of mobility. The ability of the environment to reinforce flexibility was cited by some leaders as key to the organization's successful transformation.

Jeff Everest: [Physical layout] influences the overall tone of the organization in terms of adaptability. The expectation is that everything is reconfigurable. Everything is constantly reconfigured and everyone moves. No one stays in the same place for more than a year. The expectation is set when you join that you are going to move. It sets a certain tone for reconfigurability. A tone ... we are not just going to reconfigure space, we will reconfigure the company. People are more aligned with the organization when the visual and physical cues of the environment are in tune with the organizational cues.³⁵

David Bullett: The physical things are valuable for readiness [for change]. We move people frequently. That is probably a positive thing. Personally – I love sitting with [my old roommates] – but I'm really excited about my new

³⁵ Interview with *Jeff Everest*, October 1999.

roommates... I have a personality that likes change. The physical mobility is a manifestation of something that gets me into the routine of change.³⁶

Earl Vickers: One aspect of our culture that has helped us in this change process is our legacy of uncertainty at any point. People who have been here have been used to -- at the last minute -- being told you need to do this tomorrow or you need to start with a different client now or you need to be in a different city tomorrow. We have a legacy of people who do new things very quickly, change direction very quickly -- we do have a culture that is very open to change in many ways. Whether we built that by design or not I don't know. But having that built into our culture -- which still creates discomfort for some -- helped a lot. It made people more willing, more able to go with the flow.³⁷

D&D had developed a way of configuring physical space that it then reproduced in all of its offices. *Ralph Fisher* commented on that consistency:

Sterile, neat, clean, ordered, systematic -- the things we look for -- the *D&D* build -- we stamp it out. We can construct at this point with our eyes closed... We have a process and we jam it into the space and the space will become what we want it to be. To achieve at cost and time frame that are unheard of...

Our space has always been a demonstration of who we are. We are designed for delivery. Our design centers are designed specifically to solve your problem. Our team areas are designed specifically to collaborate to solve your problems. No walls -- project managers, architects, [programmers] -- all work together. We are designed to focus on your problem and your problem alone. And exceed your expectations.³⁸

And yet, not everyone found this crafted environment to reinforce flexibility.

Reviewing the hindrances to change, some people identified issues with the existing environment:

³⁶ Interview with *David Bullett*, February 1999.

³⁷ Interview with *Earl Vickers*, October 1999.

³⁸ Interview with *Ralph Fisher*, February 1999.

Albert Marchand: I don't know if [the physical environment] makes people think about change -- or makes them feel it is inconvenient. Some people may want to feel grounded. They will accept change a lot better if they feel grounded.³⁹

Paul Kleeman: [But there is a downside. There is] a lack of privacy to think and create. I happen to believe that open seating is not conducive to quiet time for thought. Even if it is flexible it is monolithic -- because that is the way we do it.⁴⁰

As long as *D&D* hired a homogenous group with similar expectations, the low cost, systematic environment was just part of the package, and complaints were handled on a one-by-one basis. Unilateral changes to the *D&D* look were rare.

Once *D&D* acquired firms with different expectations about physical layout and hired people with different styles, the level of resistance to the standard space rose significantly. It became clear that the flexible, but monolithic, environment did not offer some key elements. The focus on the Internet only intensified this disconnect between the environment *D&D* had created and the company it was becoming. *Ralph Fisher* continues:

But if you really want to change the environment, it's not cheap.⁴¹ There is a huge impact to corporate earnings. To outfit everyone with \$800 chairs would be two million dollars -- that's a lot of money. But it's probably the right thing to do.

It's the right thing to do. We are all going to fight for the same small sliver of talent. And that talent is going to want to work in a different environment. And we will have to meet that...

³⁹ Interview with *Albert Marchand*, October 1999.

⁴⁰ Interview with *Paul Kleeman*, October 1999.

⁴¹ *Ralph's* point underscores the importance of cost consciousness at *D&D*. Francis Duffy positions this concern as part of a dialogue between two fundamental imperatives that govern office design: efficiency and effectiveness. Francis Duffy, *The New Office* (London: Conran Octopus Limited, 1997), pages 46-48.

[This is] the wave of the future – creating something that not only attracts employees, but is another way to showcase who we are to are clients. Our space has always been a demonstration of who we are...

As we re-focus to e-business, we will want to change our space to indicate that. We have the best people – we have the best environment. To be in e-business, you need this [different] space – for people to think out of the box, to be the most creative, to be the most that they can be...⁴²

Thus, in this paradox, some people felt the *D&D* environment that had been used in many different buildings was a physical expression of the flexibility of the company and its employees. As such it aided the transformation process. Others felt that particular environment was no longer valid. The shape of the company and the expectations of its employees were changing. In its original configuration the environment was seen by some as a hindrance to change.

The Paradox of Technology

The impact of technology during an attempt to transform the corporation was also perceived as self-contradictory. Technologies and systems of measures and metrics were acknowledged by many of the leaders to be invaluable in supporting the growth of the firm. The technologies provided visibility to how the firm was doing and enabled a large number of people to share their insights and experience quickly and consistently.

However, others noticed that there were processes and systems that seemed to embed static ways of doing things. The technological momentum that reinforced concerns of earlier contexts effectively hindered the ability of the firm to change quickly.

Richard Libby: There are two types of change: incremental type... and... a different bucket of change: DNA change. Getting Christians to believe in Judaism. This is just much more difficult to do. Because all of your systems still reinforce the old world. You have to get through every single thing (little things like email group names) everything reinforces the old thing.⁴³

Paul Kleeman: Some metrics are better than no metrics -- because they imply logic and fairness- but the wrong metrics can drive the worse behaviors. In the early days we were only worried about [revenue per employee] erosion -- as opposed to setting up a series of metrics to understand how a project was going. We were looking at only one key measure --- in a simplistic way. A key indicator is just that. It does not allow for complexity. There might be other reasons outside your measurement why things are trending up or down.⁴⁴

With the Paradox of Technology I emphasize the double bind on a growing and changing organization. In order to have visibility into the business and effectively share lessons learned, the *D&D* leaders built systems and processes, they leveraged technologies. On the other hand, the very features of the technologies that made them attractive also gave them a certain massiveness. The inertia of that mass made those technologies hindrances to the changes the *D&D* leaders wanted to enact.

⁴² Interview with *Ralph Fisher*, February 1999.

⁴³ Interview with *Richard Libby*, October 1999.

The six paradoxes I have just outlined capture the contradictory reflections of the *D&D* leadership team. During the transition period in 1999, *D&D* found mixed results when it looked for its employees to be flexible. The same controls that had been put in place through culture, environment and technology were ascribed dual roles. Some leaders found them to help the change effort, others found them to be hindrances.

Conclusion

From its inception, the leaders of *D&D* chose to shape their company in specific ways. They wanted to create a flexible firm, one that could thrive in a turbulent environment. Rather than rely on a multiplicity of heterogeneous experiments, they placed their bets on specific controls in three areas: culture, physical environment and technology. The early results, the formation of a successful company, suggested that those controls and the decision to actively mold the firm using such controls were the right choices.

In 1999 the leaders chose to ride the tsunami of the Internet. Based on their earlier success, they continued to actively shape the firm to embrace this opportunity. Their language about a "DNA change" and "plugging in a new strand of DNA" implied that they understood this process as one of active manipulation of the core of the firm. Their review of which aspects of the firm helped the transformation and which hindered it

⁴⁴ Interview with *Paul Kleeman*, October 1999.

can be presented as a set of paradoxes. The same features that were perceived by some as making the transition easier, were perceived by others as impeding that same change.

Thus, this dissertation has a set of reinforcing layers. My descriptions of conflict, ambiguity and paradox that illuminated the content of the earlier chapters and the earlier history of *D&D* were echoed by the *D&D* leadership team as they discussed their perceptions of the more recent past. The difficulty of constraining different aspects of the firm in order to reach the goal of creating something that was flexible is the theme that weaves throughout this paper.

This paradoxical theme appears again at a macro level. In many ways, *D&D* can be understood as a firm that sold flexibility to its customers. It used an iterative, dynamic process. It delivered not just a product, but a complex solution built from many dimensions. It delivered not just a solution, but the experience of working with its people, people who were expected to be flexible. It deployed solutions that pertained to the environment, first riding the client-server wave, then riding the Internet tsunami. Despite this affinity for flexibility, *D&D* was often faced with its own rigidity. The

leaders looked to excise those rigid aspects by splicing new strands of DNA into the core of the firm.⁴⁵

In essence, their active manipulation of the firm redefined the notion of flexibility. No longer could flexibility be a one dimensional attribute where variety was a sufficient proxy. Instead, they embodied a purposeful manipulative notion of flexibility, one that they would continue to embrace as a mechanism to build a successful company.

To the extent that the Internet economy, the technology flagship of the Second Industrial Divide, requires companies to change at Internet speed, *D&D's* ability to manipulate its own DNA may well continue to be a key to its success. As discussed in Chapter One, this economic environment maintains a symbiotic relationship between production and consumption, but that relationship is based on flexibility and speed. Not only do companies need to provide new products and services with ever increasing rapidity but their customers expect those innovations to appear with ever increasing swiftness.

Until the Internet economy crystallized the true measure of how swift rapidity needed to be, the biological metaphor of opportunistic evolution provided a conceptual

⁴⁵ At any one point in time certain aspects may be identified as those which should be excised. Other concurrent aspects may appear flexible at that moment but at some future date also demonstrate rigidity.

framework that explained how Darwinian selection would discover the innovation best suited for a new opportunity in the environment. Unlike the firms that have followed the Darwinian model, *D&D* has consistently eschewed the luxury of evolution and exercised a speedier and more purposeful set of genetic controls. The morphing transformation that results from splicing DNA is the mental model that has enabled *D&D* to compete successfully in both its previous environment and the Internet economy.

**Appendix A:
A Brief Workshop Example**

Appendix A

A Brief Workshop Example

One mode of interaction with a *D&D* client was a workshop. Workshops varied in composition over time and were used for many different purposes. The following composite example portrays one version of a five-day workshop from the early days of the firm, around 1994. This scenario is set early in an engagement, where *D&D* was looking to discover more information about the client and its needs in order to recommend the most appropriate solution.

Pretend that you are a regional sales manager for a manufacturing firm, *Widget Inc.* You and your colleagues are concerned that the level of customer service you give is less than it should be and far less than it could be. In an environment that grows more competitive every day, your strategy is not only to improve your customer service but so radically change it as to re-write the standard. You believe that in order to succeed in this strategy there must be a major change in the way you interact with the customer, in the way your customers interact with *Widget*, and in the business processes that support those two-way interactions. You've come to one of the *D&D* offices to create a vision of what that interaction should be.

You are joined by thirteen other people from *Widget*: the vice president of national marketing, the national sales manager, one other of the four regional sales managers, three of the top ten sales people, the director of customer service, a customer service call-taker with fifteen years' experience, another customer service representative who deals exclusively with five of your top clients, one staff director from R&D, the director of new product marketing, a production supervisor from one of the factories and the director of information systems.

As much as you know that there needs to be change, you are, to say the least, a bit skeptical about the process in which you are about to take part. Two years ago, when you had been just promoted to this position, there was a great flurry of excitement as a hoard of consultants came through the firm to redesign the customer system. Three of those consultants had camped down the hall from you, interviewing everyone they could and taking copious notes. At the end of the year-long process, there had been a recommendation. However, the original sponsor had left; nothing had come from that process. You did not expect anything to come from this one. Nevertheless, the national sales manager (your boss) is really excited about this group from *D&D*, so you are trying to keep an open mind.

Having flown in on Sunday, you and your colleagues gather in a workshop area in the *D&D* offices early Monday morning. As you help yourself to eggs, juice and coffee, you notice that your group has been assigned to an area with four rooms. There is one large room with no windows where all of the walls are covered with whiteboards. The three other rooms can only be reached by going through the larger room. Each of those smaller rooms also has walls covered with whiteboards but there are also windows with a view of the surrounding cityscape.

At 8 o'clock the meeting begins with introductions. You notice that while all your colleagues have dressed, as instructed by your boss, in "business casual" (khaki pants, golf shirts), the seven male *D&D* employees are all wearing dark suits, ties and white shirts. One of those, *Daniel*, explains that he will be running this workshop and that part of the *D&D* group will be responsible for leading discussions, the other part for taking notes. During his introductory remarks, *Daniel* also outlines the week's schedule, which culminates in a formal presentation to some of *Widget's* senior management, including the CEO, the executive vice president of sales and marketing, the other

regional sales managers, the executive vice president of R&D and the Chief Information Officer.

After that kickoff, the team goes through some exercises to discuss the purpose and vision for this new level of customer service. You are surprised to find that only the vice president of national marketing shares your vision. Indeed, there seems to be about five different views as to where "customer service" should be heading. By lunchtime you are concerned that there is still no consensus, but you are invigorated by the intensity of the discussion. Lunch is provided on site, so you continue some informal discussion with your colleagues while you eat.

That afternoon the national sales manager, the director of customer service and a few of the *D&D* employees collaborate to present the kinds of interactions provided by the market leaders in your industry as well as a variety of possibilities that stem from recent changes in technology and customer awareness. After that presentation, you join a small group where your task is to storyboard the view of the customer from the point of view of the customer service representative (CSR). One piece of that interaction is the customer's master record, as it would be viewed on a computer screen by the CSR. Focusing on that record, people in your group come up with all kinds of ideas about what information could improve responsiveness to the customer -- from knowing the average shipping time from each plant to each of the customer's warehouses to keeping an up-to-date manifest of that customer's outstanding orders.

At the end of the day, each small group presents its work to the larger group for feedback and discussion. You are surprised at some of the notions that were discussed, such as doing away with geographical territories, and wonder what that one might mean for how your own job is defined. The next morning you find that all the groups

and assignments have been changed. This time you are working with a different mix of people, on a different subset of the larger problem.

The workshop days continue with smaller groups meeting during much of the day, and then the larger group convening at the end of the day to review the work that had been done. The end of day meetings get pretty loud, with people taking issue with the work done in the small groups and making strong recommendations for alternative ideas.

By Thursday morning, a cohesive vision has emerged from the work done in the smaller groups. The team spends the day finalizing the vision and the various supporting pieces of information that will be part of the Friday presentation. Even though most everyone on the team has done presentations, very few have had more than a handful of meetings with the CEO. The fact that she is coming out for this presentation raises everyone's adrenaline. Since the presentation is being done by only five of your colleagues, there is plenty of opportunity for everyone else to critique what is being done.

Friday morning there is a final run-through, before the senior executives arrive. The arrival of the CEO ratchets the excitement in the room up another five notches. The presentation delivers not only the vision for future interactions with *Widget's* customers but also the workshop team's enthusiasm for this solution.

You take part in the closing discussion of the week's events and output as everyone gets ready to catch a plane out. You are amazed at the amount of work accomplished. The CEO has given a preliminary approval to the solution; you and the others go back to implement a set of next steps to move this process forward.

**Appendix B:
Outline for Sample Bootcamp, 1995**

Appendix B Bootcamp Schedule

Each day of bootcamp focused on one of the D&D values. What follows is the outline for a bootcamp that occurred in April of 1995.

Monday: "D&D Live" interactive tour
"Morning with a CEO"
Mentor Lunch
Survival Skills

D&D VALUES DAY & CLIENT FOCUS as the core value

Tuesday 8 - 8:30 Kick off & Introductions; Why Bootcamp? What does your PM want you to get out of this?
8:30 - 9:30 D&D Values Presentation: *Matt Barr*
9:30 - 9:45 break
9:45 - 11:45 Bootcampers' Objectives, Purpose, Vision MINI Workshop
Structure of a Workshop
11:45 - 12 Team Work Activity
12 - 1 Lunch
1 - 1:30 Team Work Activity (based on D&D values)
1:30 - 3:30 Scope Management: *Harry Vaughan*
3:30 - 3:45 break
3:45 - 5:00 Client Interaction Role Play
5 - 5:30 Class Tool: the group facilitates itself
5:30 - 6 Closing

CLIENT FOCUS/ TEAM WORK / OWNERSHIP DAY

Wednesday 8 - 8:30 Opening
8:30 - 9:00 Team Task
9:00 - 9:30 Discussion: Managing Expectations & Planning Ahead
9:30 - 10:00 D&D Lessons Learned
10 - 11:00 Client Etiquette & Perception: *Jason Hanrahan*
11 - 11:10 break
11:10 - 12 Team Work Interaction & 4 player role model
12 - 1 Lunch
1 - 1:45 Team Work Interaction & Try out a different role
1:45 - 2:45 Ownership & Control your own destiny
2:45 - 3 break
3 - 4:00 Team Interaction Role Plays

4 - 5:00 What is Leadership: *Bobby Ortega*
5:00 - 5:30 Class Tool; the group facilitates itself
5:30 - 6 Closing

BOOTCAMP PROJECT DAY

Thursday 8 - 8:30 Opening
8:30 - 9:30 Sales Comp Pres: *Conrad Mason*
Problem: How will D&D roll out the Sales Comp Project?
Team Work / Project Time
11:30 - 12 Team Work discussion
1:30 - 2 Questions for *Conrad* about Sales Comp
Team Work / Project Time
3 - 3:30 Team Work activity / discussion
Team Work / Project Time
5:30 - 6 Closing; remember your class tool!

CLOSING & DELIVERY DAY

Friday 8 - 8:30 Opening
8:30 - 10:30 Sales Workshop: *Matt Barr*
10:30 - 12 Sales Comp Roll - out Plan Exec Pres & Presentation
Feedback
Pat Bentley; Matt Barr; Conrad Mason
12- 1 Lunch
1 - 2:15 Industry Info: *Craig Adams*
2:15 - 2:30 Break
2:30 - 3:00 Design Individual Vision / Goals / Development Plan
3 - 4 Final Bootcamp Feedback
4 - 6 Staff Meeting

**Appendix C:
Work Environment Questionnaire**

Appendix C Work Environment Questionnaire

Please take the time to complete these questions. We are trying to understand how the choices made in building out the 25th floor have affected your ability to do your work.

Name of your team:

Years of work experience:

Role:

Overall, what do you think of your current work environment?

I really dislike it		It's OK		I'm very happy with it
1	2	3	4	5

When you think about working at D&D and working somewhere else, does the work environment matter to you?

Not a factor	Neutral influence	Moderate Influence	Strong influence
--------------	-------------------	--------------------	------------------

How much dedicated work space do you have?

Too little		Just right		More than I need
1	2	3	4	5

How valuable is having natural light to you?

I don't need any natural light	It doesn't matter to me	Without natural light I can't work		
1	2	3	4	5

How valuable is having a view to you?

I don't like having a view	It doesn't matter to me	I like having a view		
1	2	3	4	5

Is your work space acceptably quiet?

Yes	No
-----	----

Is your work space acceptably private?

Yes	No
-----	----

How often do people interrupt you needlessly?

Never		Often		Constantly
1	2	3	4	5

What is the worst aspect of your work area/environment?

What is the best aspect of your work area/environment?

What do you do currently in order to work optimally?

What would you do to improve your work area/environment?

How would you balance your own preferences for a private work space with the needs to collaborate with your team members from time to time?

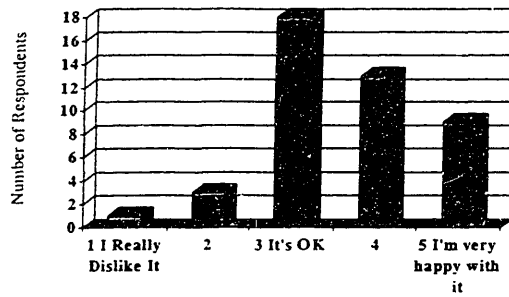
**Appendix D:
Excerpts from the Work Environment Survey Analysis**

Appendix D

Excerpts from the Work Environment Survey Analysis

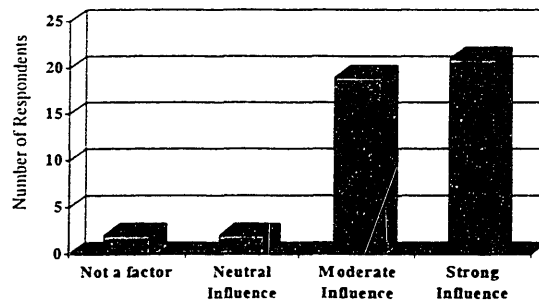
A survey was sent out via electronic mail in February 1999 by *Albert Marchand* to all *D&D* New York employees. Forty-two responses were received. The following graphs present the results of the quantitative section of the questionnaire, where respondents were asked to rate their impressions of various aspects of the environment in which they worked.

What do you think of your current work environment?



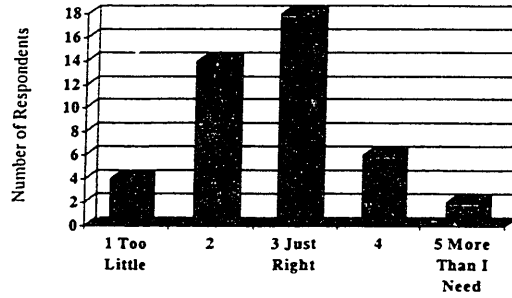
Graph 1

Does work environment matter to you?



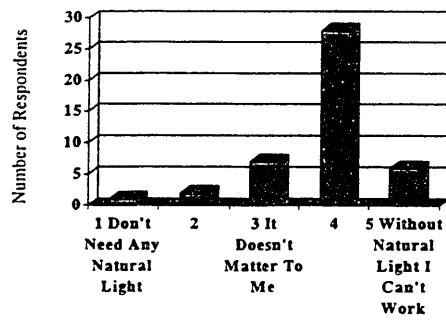
Graph 2

How much dedicated work space do you have?



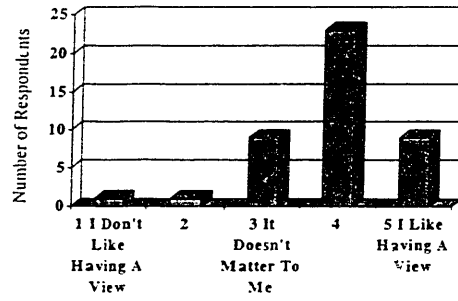
Graph 3

How valuable is having natural light to you?



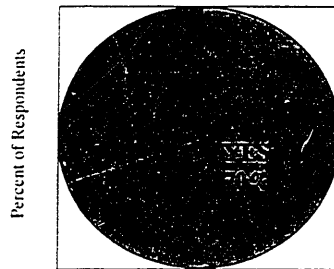
Graph 4

How valuable is having a view to you?



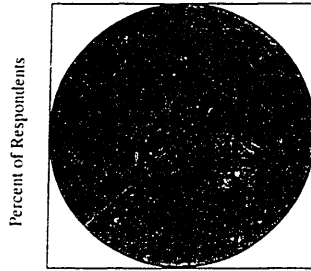
Graph 5

Is your work space acceptably quiet?



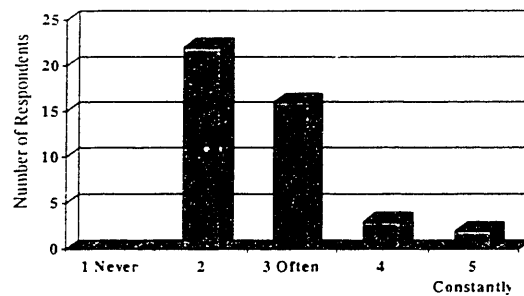
Graph 6

Is your work space acceptably private?



Graph 7

How often do people interrupt you needlessly?



Graph 8

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