

Agile Environments... For the Rest of Us

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ABSTRACT

This poster tells the story of the introduction of furniture on wheels into a very traditional corporate culture. We've all heard of innovative office environments used by design firms, startups, and skunk works, but what about the rest of us? At a 90-year-old \$80-Billion financial institution we attempted to implement and measure the effects of an office environment that would be a logical extension of our existing culture, and would also better support collaborative work and the use of Agile Software Development methodologies.

A cross-functional project team received new office furniture on wheels which allowed more team interaction and fast layout reconfiguration. The economics and corporate culture effects of this move were recorded. The team was surveyed on ergonomics and ability to collaborate six months before and six months after the change, and the results compared with a team that did not receive the change over the same period. While the sample size was too small to imply universal results, it did anecdotally indicate the benefits of continuing and expanding the implementation.

Categories and Subject Descriptors

H.5.3 [INFORMATION INTERFACES AND PRESENTATION (e.g., HCI)]: Group and Organization Interfaces – *Collaborative computing*.

General Terms

Measurement, Human Factors

Keywords

Agile, Software Development, Workplace, Ergonomics.

1. INTRODUCTION

Institutional investment companies are generally risk-averse since their goal is to deliver stable long-term returns to customers. Such is the case at a 90-year-old \$80-Billion financial institution, and yet its Member Services Information Technology staff of about 50 people (software developers, testers, project managers, content managers, technical services) has attempted to implement progressive designs, methodologies, and environments.

2. IMPLEMENTING AN AGILE ENVIRONMENT

Historically, functional groups (e.g. development, testing) sat together in isolation from other functions and internal users. At the same time that object-oriented practices were adopted, we began grouping people on cross functional project teams located on the same building floor as our main internal customers. Customers were included in project processes and at times domain experts relocated part-time to sit with project teams. Project teams were assigned at the beginning of each year and assigned to existing office cubicles.

2.1 Context

Changing cubicle layouts was a problem because of the cost and the irregular shape of the building. Moving pillars is not an option and one department's projects are not a reason to switch buildings. Projects rarely followed their initial trajectories and invariably there were midyear cube swaps which, although less costly than redesign, still incurred costs for packing time, movers (when a large number of people shifted), and system setups in new locations. The introduction of flat screen monitors to replace large CRTs, resulted in approximately 4 square feet of wasted space in the corner of each cubicle, which adds up quickly when multiplied by the number of staff and compared with real estate costs per square foot.

The idea of a furniture reconfiguration involving mobile furniture was hatched in late 2003 as preparations were being made for a large, enterprise-wide impacting project that we knew would last for at least two years.

"Innovation--the heart of the knowledge economy--is fundamentally social. Ideas arise as much out of casual conversations as they do out of formal meetings. More precisely, as one study after another has demonstrated, the best ideas in any workplace arise out of casual contacts among different groups within the same company."

Malcolm Gladwell, *Designs for Working*, **The New Yorker** pp. 60-70, December 11 2000

2.2 Counter-culture

While initially quite resistant to the idea, facilities management was brought onboard over the course of 2004. Their primary concerns were the diversion from standardized corporate decisions on furniture, and the health and safety issues that might result from rolling furniture blocking fire exit paths. First, we declared the project "experimental," and funded it (under \$100K) out of an R&D budget. Second, the normal corporate design consultant was secured and demonstrated support. There was no

reason we couldn't start with new furniture in roughly the existing layout. Third, several different suppliers were researched, with project team members attending site visits, but we settled on the usual corporate supplier who had a new line of mobile furniture. Finally, we created an ergonomics survey that could be used to measure the impact of the experiment.

Although the furniture would be on wheels, some planning had to be done to accommodate wiring requirements. We did not have wireless networks yet, cordless phones would require some phone infrastructure upgrades or VOIP, and we weren't ready for wireless power. In the end we decided to create various wiring hubs, mostly around the perimeter of the room to keep aisles clear.

The project team made the decision of which furniture to acquire. There was some discussion about "what furniture would you get for your home?" but everyone decorates differently and is in a different frame of mind at home. There was universal agreement about getting pseudo-wood finish and lengthy discussion about which wood tone to get (light or dark) and which partition color to get, which appeared generally divided along gender lines. The resolution was to just order both. The one person who didn't side with their gender ended up switching colors on installation day.

3. RESULTS

There was a decrease in surface area and no fixed partitions so project members didn't know where to put their knickknacks and stacks of binders. People adjusted to having less space by being more selective about personal articles, by moving books and binders onto communal bookshelves, and by creatively decorating their new spaces (such as using a clear desk cover to display photos and still be usable workspace).

Over time, walls drifted and desks shifted in response to different factors. There were now options when people were faced with inconveniences for which they previously had no recourse, such as if their work patterns changed or if their neighbor was overly talkative. Whiteboards on wheels facilitated ad-hoc design sessions, and a communal area with couches was maintained and rearranged even though it was not on wheels. The group was better able to facilitate adding or removing team members although there were comments that greater space was more flexible and comfortable. Group awareness grew as conversations were overheard and ad-hoc meetings sprung up in communal areas, facilitated by moveable whiteboards. People liked the change. Physical things changed frequently which reinforced agility as a valuable aspect of our culture.

3.1 Survey Results

A survey was run on the entire IT team in July 2004, the furniture was installed in December 2004, and then the same survey was run in May 2005. We surveyed their thoughts on ergonomic issues (light levels, monitor position); use of space (storage, empty, and workspace), ability to collaborate, and actual time spent working alone versus collaborating. Results of the May 2005 survey were analyzed in mobile and non-mobile subgroups. Results of the survey may be influenced by the small number of responses, the nature of the project that the mobile team worked on, or the mix of personalities on the mobile team.

- 90% of the team responded to the July 2004 survey (45 replies), 44% responded to the May 2005 survey (22 replies)
- Mobile team members felt **increased** overall satisfaction compared to other team members.
- Mobile members spent **more** time at meetings and in informal standup meetings and **less** time alone at their desks.
- Mobile members have a **smaller** percentage of their desk area bare, but the same percentages of their desk areas devoted to work in progress or storage.
- Mobile members felt a **decreased** amount of personal privacy but an **increase** in their ability to collaborate and the degree to which they are "in touch" with their colleagues.
- The cost of a typical rolling office configuration is approximately 30% less than a traditional configuration.
- The cost of moving people from one cube to another is reduced to just moving phones, but more moves happen in a year so it may be a wash.

3.2 Conclusions and Future Studies

In summary the experiment was declared a success and will serve as a model for future project team workspaces, although the corporate culture changes are still in their infancy. These results are anecdotal but may serve as a foundation for future scientific studies. This study does not address the questions of how to best measure programmer productivity, the merit of agile methodologies or pair programming, which may also be incorporated into future studies.