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BALANCING PRODUCTIVITY WITH THE MORALE OF THE VIRTUAL EMPLOYEE: A CASE STUDY FOR OPTIMIZING AN INTEGRATED TECHNOLOGY PLAN

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Abstract:
Achieving the ideal balance between the optimal, most efficient productivity of a company and the best employee satisfaction ratings one can produce is the paragon of the technology-utilizing, smooth-running, sustainable business model that all chief executives dream of. This is only achievable through a pragmatic, scientific analysis on qualitative and quantitative levels. A thorough assessment of employee-technology relationships can be determined and necessary changes are made, all specifically targeted at survey and interview results recorded by an unbiased external source. A careful strategy to hone a systematic plan focused on furthering the balance of human contentment and technological function is the ultimate goal.

Keywords: IT, mobile devices, silo effect, communication, interface, productivity, employee morale. workflow

1. Introduction

Technological tools are an imperative asset in today's corporate environment. When designed and used properly, technology facilitates processes and communications, simplifies the work flow, and provides an external face for the company via the corporation's website. An integrated technology plan maximizes the benefits of the technology. However, even the best plans can have unintended consequences. Dependence on technology can lead to the isolation of employees and even entire departments. This is often called the "silo effect".

The silo effect most commonly refers to the lack of integration between departments resulting in loss of communication, decreased productivity, duplicate decision-making processes, and negative returns. Another aspect of the silo effect is the isolation of the employees within their "silos" due to the dependence on technology and the resulting lack of direct, face-to-face interaction with other humans. A final aspect of

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the silo effect is the belief that a full silo can be emptied by one small leak. In other words, even a successful company with a good record, perfect technology integration, consistent profits, and high morale can be devastated by a small, sometimes even unseen, problem.

A theoretical business such as Company X provides services to hundreds of international customers. The customers pay a high premium for expert service. Company X has over 4,000 crewmembers. (These mobile, de-centralized employees are called "crewmembers" in this application to differentiate from the "employees" who work in a regular business environment at the central office.) The crewmembers must have instant communication with the home office in order to provide the high-end services Company X's clients demand. Company X has unusual technology needs that require an intricate, well-designed, well-implemented technology plan. Company X enjoys strong brand-loyalty from its customers. As a leader in their field, Company X has also benefited from strong employee loyalty and high morale.

Company X experienced a massive growth in the late 1990s that resulted in a strain on all of their processes, including their technology. Company X's workforce tripled in less than 14 months. In order to meet this explosive increase in employees and clients, Company X developed an intricate and integrated technology system. Company X welcomed input from their employees and clients, ensured all departments were completely integrated, devised a technology plan that centralized all technology under the IT department, established a new Senior VP of IT who reported directly to the CEO, and fully trained all employees prior to the new technology roll-out. By all accounts, Company X executed a perfect technology plan.

Company X relies heavily on mobile devices such as smart phones and tablets in their daily work environment. Crewmembers communicate almost exclusively via their devices receiving assignments, information about their clients, and specific instructions relating to their work day, required tasks, and calendars. Company X has also implemented systems for pay, insurance, and expenses via Internet interfaces which can also be accessed from any connected device. Company X wisely limited the use of technology in their dealings with their clients. Clients still call an exclusive number and have a dedicated staff member serve their needs via a live voice call with a crewmember. However, crewmembers may spend an entire workday without talking to another employee in person or even via the phone.

Company X has gained the desired increase in productivity via their technology plan resulting in increased profits and across-the-board savings, but it has also suffered a decrease in employee morale and employee loyalty. Company X would like to balance out the use of technology and explore whether or not the silo effect is responsible for this decrease in morale. Has Company X's increases in productivity through the use in technology led to a decrease in morale? Is the technology socially isolating their employees? What is the correct balance in the use of technology between enhanced productivity and employee morale? Will the downside of the silo effect, the "emptying" of the silo due to a single flaw at the bottom (in this case, employee morale), negate the productivity and profit gains created by the bolstered reliance on technology? Does the

use of technology for the purpose of streamlining business processes and maximizing efficiency result in a slow down of productivity on the human side of the company's daily work flow?

2. Strategy

The strategy for studying Company X is three-fold: testing the efficiencies gained by the technology use, testing the integration of the technology throughout the company and the workforce, and surveying the employee's and the crewmember's feelings about the use of technology within the company. These three focal points should give Company X a better understanding of the effects of their technology implementation on their productivity and morale.

Company X has records dating back to 1998 as part of the survey done when they began developing their current technology plan. These records examine the use of technology, efficiencies, and even employee satisfaction. Company X also has records from 2017, when the technology plan was fully implemented, and 2018 when the plan was in its early stage of operation. These surveys specifically looked at productivity and efficiency. The 2019 survey included five basic questions on employee satisfaction with current technology. These records were used as a baseline for our research.

Technology efficiency can be tested using objective, quantitative means. A large part of Company X's workforce is in the field. These field employees must receive specific direction from the central office. Quantitative testing can be performed at the central office. Efficiency testing will include the following questions:

1) How many contacts are necessary to complete the average crewmember service?
2) How many of these contacts are handled electronically (via technology exclusively)?
3) How many contacts must be followed-up with phone calls?
4) How many contacts does each central office representative handle per day? Per hour?
5) How do the current numbers compare with the research from 1998? 2018? 2019?

The quantitative research focused on the use of technology to facilitate the daily work flow.

The second focus of the research is on integration, addressing the following questions:

1) Has the technology plan resulted in inter-departmental integration?
2) How has technology affected the workflow?
3) How has technology affected the number of face-to-face or phone conversations between employees and remote crewmembers?
4) How many direct human contact interactions have been eliminated by the technology plan?

For instance, crewmembers were previously called the central office a minimum of five times a day for schedule updates. The new technology has now automated these

interactions, so the schedule updates are sent electronically to the crewmember through an automated system via their devices. This has markedly increased the efficiency of the workflow, but it has also significantly decreased the human interaction among the crewmembers and central office employees.

There is also a place for qualitative research when reviewing employee use of technology. "*Employee complaints are just as valuable as customer complaints*" according to Barlow Janelle (qtd. in Krotz, 2008). The key is to listen to the complaints for actionable technology-related issues. The employees use the technology on a daily basis and their complaints and opinions must be considered plausible. Qualitative research can be a great help in answering the third focus of the research – how employees feel about the new technology. As with all qualitative surveys, this survey must be carefully designed to elicit actionable responses.

The goal of the qualitative research is to answer the key question: Has the move toward using smart phones and comparable devices for all crewmember office interactions resulted in a feeling of disconnection among crewmembers, leading to overall lower employee morale and reduced company loyalty? David Sims (2000) of O'Reilly Wireless Development Center says: As personal and social factors enter into the decision to use or not use new technologies; research methodologies must penetrate the everyday use of technologies. We must use observation at the workplace all time.

Company X's third area of focus in this research must address the following questions:

1) How do crewmembers feel about their smart phones/devices?
2) How do crewmembers feel about their daily use of technology?
3) How do crewmembers rate their interactions with the central office via their devices? When calling in and talking to a person?
4) How do crewmembers feel about the company itself since the implementation of the new technology plan?
5) How do crewmembers feel about their jobs? Their job security?
6) Has the move toward an "all mobile" interaction system been viewed as a positive or negative development?
7) Is there a difference in reactions to Company X's technology by newer hire crewmembers vs. more senior crewmembers?
8) Is age a factor?
9) As the crewmembers experience the technology and become accustomed to the new system, do their feelings toward the technology change? 10. Will more training be effective?
10) Should the company return to more frequent voice interaction via phone calls for certain interactions?
11) Will this have a positive or negative impact on crewmember morale?

The research was conducted in two phases. The first phase included an internal review of the integration of technology and efficiency gains in the use of technology (focused areas 1 and 2). Both of these are conducted by an external survey company on a

contract basis. The reviews involve observing employees at work performing their daily tasks. This took, out of necessity, was done within the framework of the company itself during the course of the normal work day. Quantitative data collection includes keystrokes, time-for-task breakdowns, and mouse clicks; this information can be gathered using specially designed software. The employees were aware of the ongoing research and, as such, this information was only gathered in the aggregate. Employee identification was completely anonymous. The information was only tallied on the workforce as a whole or during a complete shift. This study was providing quantitative information on efficiency.

The previous research conducted by Company X was be thoroughly reviewed. The current research was for the same objectives in order to have a firm comparison of the results between the previous studies and the current research. Systems integration research was conducted by examining workflow, hierarchy, and the technology, itself. Employee comments throughout this phase of the research was factored in as well.

Future Study Research - The second phase of the research is qualitative information gathered through surveys and interviews of employees and crewmembers. The crewmembers are spread throughout the world so a properly-designed email or mail survey should be sent to every crewmember. In addition, crewmembers return to the central office for training twice a year. Informal and formal interviews, "chat sessions", and other face-to-face means will be used to gather information on the crewmember's opinion of the technology, how they use it, what positives they get from it, and what changes/modifications they would like to see implemented. Surveys can be used to gather quantitative information while interviews can be used to gather qualitative information.

Phase one of the research will take place over three to four months. The second phase, due to the remote locations of the crewmembers, will need to take place over a six- to eight-month period in order to allow the majority of the crewmembers the opportunity to participate in qualitative interviews and sessions. Once all of the data has been collected, the analysis and review can be completed.

3. Analysis

Company X will depend on the accuracy of the research to review, and, if necessary, redesign their technology system. This process involves a considerable investment of time and money. It is imperative the research be designed, conducted, and analyzed properly and with meticulous attention to detail.

In order to ensure the validity of the research, the research must be carefully designed. Many corporations go into a research phase with pre-conceived ideas of what they will find and what they desire to find. Expectations like this often lead to invalid results. By hiring an independent research firm, Company X can avoid this particular pitfall. "*Any research can be affected by different kinds of factors which, while extraneous to the concern of the research, can invalidate the findings*" (Shen, Hao,2016).

Subject variability and the size of the subject population are two research factors which can be particularly challenging in an internal survey. The number of potential subjects is limited by the number of employees. In the case of Company X, the number of employees is large (9,234 internal employees at the central office). It is not logistically possible to sample every employee. A statistical sample was undertaken using standard methods to ensure the variability and viability of the sample. If Company X is willing to invest a significant amount of money into the quantitative ("keystroke") survey, it is possible to survey every employee. If not, standard statistical methods will be used to establish a scientifically viable sample.

Company X plans on surveying every crewmember for the research in phase two. It is important to ensure complete anonymity in order to achieve valid results. An independent research firm is the best alternative as crewmembers may be somewhat distrustful of an internal survey. The independent research firm should also perform the informal and formal interviews of the crewmembers.

Once all of the research has been completed and validated, the results will be analyzed and the necessary decisions can be made. The hierarchy of the analytic process will include assessing Company X's efficiency gains and the morale of the employees and crewmembers. Each of these areas must be analyzed; research results must be factored in order for decisions to be made.

Company X is a nimble company that quickly responds to any problems which arise. By breaking down the decisions into sub-problems which can be individually analyzed, the process can be simplified. Every element can be systematically reviewed using both research and quantitative/qualitative data. "*Recent research in software engineering has highlighted the need to ensure alignment between business objectives, customer requirements and product development*" (Aurum, 2006). Decisions for each element must be weighed by the needs of the employees, crewmembers, and management.

Once the analytical process is finished, Company X should have a complete assessment of their needs, abilities, and expectations. The final step is to develop a strategic plan to design and implement any redesign of business technology systems. If the research, analysis, and planning have been conducted properly, Company X should have a clear path to maximizing efficiency and striking a balance between the use of technology with employee satisfaction.

4. Conclusion

The hypothetical business known as Company X was the subject of this research for the purpose of keeping an impartial perspective; a clear equilibrium of the worker and the machine was possible for this and all businesses, but it is not guesswork. Investment of time and money will save namely, Company X's bottom line in the mid-term, and the willingness to recognize the value of undergoing this scrutiny of one's business is the key to long-term success. Fayol (1949), as cited in Wren (2001), identified five key functions in managerial works as planning, organising, command, coordination and control.

As long as repeating this process down the road is an idea which board members and top executives remain open to, the perpetuation of the business from a technological management standpoint is all but assured.

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Dr. Barbara A. Manko's interest in the fields of Human Resources Management, Business Management, and Information Systems and Technology led her to pursue a Doctorate of Science in Information Systems and Communications in 2010 from Robert Morris University after completing her MBA in International Business. For the last 17 years, she has taught university courses in marketing, human resources, business management, accounting, and computer science, for both undergraduate and MBA programs. Her recent research, published in 2019 and 2020, focuses on technology management, online learning for students, and how online university programs prepare students to work remotely. Her upcoming research with Professor Jerzy Rosinski at Jagiellonian University looks at how managers support employees remotely during the COVID-19 pandemic, titled: "A Cross-Sector International Study of Remote Work and its Management in the Pandemic"

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