Instituting Organizational Change: The Case of PapiNet

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Abstract

This case study examines critical success factors behind the adoption of an inter-organizational system (IOS). We apply theories from life cycle, evolutionary, teleological, and dialectical perspectives, which shed light on the adoption of an IOS in a US company in the fine paper industry. Preliminary analysis suggests that the implementation of the IOS required a frame-breaking change, although top management viewed it as a convergent change. Also, only the dialectical perspective explained the frame-breaking change. We provide some preliminary analytical insights and takeaways for practitioners that are faced with similar pressures to change.

Keywords

Inter-organizational systems, organizational change, system implementation.

Introduction

Organizations today are part of business ecosystems that conduct activities with business partners in a cooperative fashion (Goel et al., 2017). The role of IS in inter-organizational cooperation is significant (Lambert et al., 2005). A large body of literature exists that emphasizes the significance of IS in co-operations, addressing issues such as appropriation (Al-Natour and Benbasat 2009), adaptation (Majchrzak 2000), or adaptive structuration (DeSanctis and Poole 1994). While the goal of the IS is to enable these coordinative effects to occur seamlessly, implementations don't often yield positive outcomes (Saraf et al. 2007).

It is possible that these effects vary by project, as well as the industry within which the company operates. However, the issue of IS implementation remains problematic across all contexts (Piercy, 2018). The smallest change in the adoption and use of technologies may instigate drastic strategic changes in organizations, frequently leading to project abandonment, or implementations languishing for extended periods of time. With the small success rate of systems implementation, it is hardly surprising that organizations are reluctant to change. Given this background, our research question is "*What are the critical success factors that serve as a catalyst for change?*"

Not all changes are the same (Weick and Quinn, 1999). Organizational change has been broadly classified as incremental or converging, or drastic or "frame-breaking" (Tushman et al., 1986; Tsoukas and Chia, 2002). Theories on conceptual motors that drive change in organizations have been classified as life cycle, teleological, dialectical, and evolutionary perspectives (Van de Ven and Poole, 1995). Life cycle theories emphasize organic growth or change in a linear, irreversible sequence of prescribed stages. Theories of organizational learning, for example, fall into this category. Evolutionary theories, such as punctuated equilibrium, emphasize competitive survival of organizations due to forces of population scarcity or competition. Teleological theories focus on purposefulness and an "end-goal" to the change process, such as compliance or cooperation between organizations. Dialectical theories cite conflict and contradictory forces at play that drive change as a synthesis between contradictory values or events. As part of our research-in-progress, we offer preliminary insights from the implementation of an IOS as analyzed through the lenses of four change theories.

The Case of a Paper Company

We follow the case of the implementation of an inter-organizational system (IOS), PapiNet, at "Paper Company"[1]. PapiNet, an electronic documents standard, was created in 1999 by an European consortium of paper companies as a e-business transactions protocol for the industry. The standard is based on extensible markup language (XML). The intent of PapiNet is to replace the proprietary EDI protocol with the free, open source Internet-based protocols and serve as an industry standard for increased supply chain collaboration. The implementation of PapiNet by the fine paper industry of North America began in 2007. The process was lengthy, and the outcome, mixed. Factors cited as reasons for the lack of success include lack of critical mass, trust, and lack of IT experience. More recently, Paper Company has re-initiated the implementation of PapiNet and allocated significant resources for an aggressive move to adopt the new standard. The implementation of PapiNet in "fits and starts" at Paper Company presents an interesting case for studying the necessary conditions for a company to change (Benbasat et al., 1987). Theory informs us that change can occur because of a) natural evolution b) life cycle c) a specific goal, or d) conflicts. We find evidence of all forces of change in our case. However, it is the temporal interplay of all the forces that served as the catalyst for the implementation of PapiNet at Paper Company.

Research Method

We take an interpretive stance and conducted episodic interviews as part of a narrative inquiry (Denzin and Lincoln 2008). During the interviews, we tried not only to get an impression about the course of the organizational change, but also identify incidents that were momentous to how decisions regarding the change evolved in the context. The number of interviews required was guided by when the researcher has found theoretical saturation (Yin, 1984); i.e. when no new information could be obtained. Additionally, secondary data in the form of documents related to the implementation of PapiNet, the paper industry, activities that involve electronic data transfer, as well as screenshots of the system was collected. Analysis was done in a qualitative fashion (Walsham, 1993; Myers, 1997), interpreting evidence through our theoretical lens. Our interpretations are based on a theoretical understanding of the participants' interpretations of the events of the study, but our interpretations may also enter in the ways the participants see their practice. We present quotes (in italics) as evidence of themes from our theoretical lens.

Preliminary Analysis and Results

Life Cycle Perspective

According to the life-cycle perspective, change is imminent and follows an underlying process of stages. Each stage is seen as a necessary precursor to the next. Besides logical progression, change due to regulations or imposed industry standards also explain life-cycle changes.

The paper industry saw a 20% cut in 2009 due to factors such as the recession in 2008, the uncertainty due to a new US president, and high fluctuations of pulp/ paper due to the Beijing Olympics (From interview). These factors culminated in a domestic recession in the paper industry and necessitated diversification into new segments, such as towels, tissues, Kurig k-cups. Paper Company grew primarily through acquisition. However, attempts to rebrand or change the company image did not gain traction. Changes occurred in an incremental, or convergent fashion, for example by diversifying to related product lines. However, the lack of regulation in the industry allowed Paper Company to put off the allocation of resources towards change for a long time. Also, the lack of awareness of what was needed to go to the next step was a hindrance.

"It was like the blind leading the almost blind."

Another factor that enabled deterrence of drastic change was the absence of a specific internal trigger. Despite the sharp decline in the industry, the family-owned company continued to do reasonably well, and organizational structures and systems continued to support compatible changes. Senior leadership that had led the company for decades self-reinforced patterns of behaviors, norms and values, and a sense of "how we work here" and "what we hold important here" prevailed (Tushman et al., 1986).

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[1] name changed for anonymity

Evolutionary Perspective

The evolutionary perspective focuses on change as due to recurrent processes of variation (trial and error), selection, and retention. An example of variation at Paper Company was a 5 year-long failed attempt to move from a homegrown ERP to a 3rd party system. The lack of success left a feeling of caution and skepticism for other such changes.

"If they would have started it, would have stopped it 5 times. It would have been like the ERP attempt."

The paper industry in North America can best be classified as a "reactor" to technologies not central to the value chain. Although the awareness to move away from the traditional image of a 50-year-old company grew over time, the predominant mindset was "Why fix it if not broken?" Another reason for maintaining status-quo was an organizational culture characterized by a low employee turnover (less than 1%), which fostered resistance to change. Most employees had been with the company for over 15 years, and had not updated their skillset to keep up with industry standards. The role of the IT department was traditionally viewed as that of a service center, rather than a strategic part of organizational decision-making.

"The Director of IT was never invited to meetings."

Visibility and documentation of work processes was low, and there was no communication between the IT department and the senior management. The force of keeping up with technological evolution, while present, was not enough to serve as a catalyst for frame-breaking change.

Teleological Perspective

The teleological school considers the goal or purpose is the final cause for guiding movement of an entity. Change from a teleological perspective requires certain groups of individuals or units in an organization to act as a single collective entity to engage in processes of goal formulation, implementation, evaluation, and goal modification for change to occur. In the case of Paper Company, there was a lack of a common strategic vision between the IT unit, that would be required to spearhead the change, and the top management, that did not fully grasp the implications of the change. While it was known that other firms were moving to PapiNet, the lack of analytics in the organization did not make apparent the significant inefficiencies of the current EDI-based system. The proprietary EDI system was costing Paper Company $50,000 per year, by one estimate, and still required multiple manual processes (such as sending faxes), duplication of documentation, and 13 million sheets of printed documentation that could have been eliminated with computerization. However, the lack of proper data collection and analysis prevented the top management from seeing the strategic imperative to change.

"Analytics was a four letter dirty word last year. There was a mismatch between Priorty and interest. They knew they needed to do it eventually. But didn't realize the importance."

There was no business case made by the IT department to the senior management.

"They didn't know what it is costing not to do it. There was no business case for the total cost of ownership. The lack of information was probably due to the lack of skillset in identifying it."

More alarmingly, there was a severe lack of communication between the two units.

"I thought we were doing it all along- PapiNet! That's surprising. I thought some of our order entry invoicing delivery…. I thought all that had already been on PapiNet standards!"

Hence, even in the presence of an implicit goal of PapiNet adoption, the teleological forces were not enough to serve as a catalyst for frame-breaking change.

Dialectical Perspective

The dialectical perspective is based on the assumption that organizational entities exist in an environment of colliding events, forces, and contradictory values. Change is explained by an imbalance in power between opposing forces. From the prior three lenses, we identified forces that explained reasons for, and against, change from a teleological, evolutionary, and life cycle perspective at Paper Company. We find that change finally occurred due to imbalance in the forces with each of the three perspectives. The tipping point occurred when conflicts within each perspective occurred.

Conflict between what they had and what was needed: life cycle perspective. It took a while for the top management to come to the realization that new talent, resources, and a new infrastructure was needed to tackle the pressures being faced due to external forces. While the business decision to diversify was necessary, it was impossible to support it with IT with the extant information and skillset. The company realized the need for an external perspective and hired consultants for marketing (rebranding) and IT. After initial skepticism, the value of the external perspective became apparent.

"First time in our history, we went outside for an experienced consultant. We've been waiting to do a lot of things. [The consultant] has organized it to where we can."

This dialectic as a catalyst for frame-breaking change is supported by prior literature. Studies show that externally recruited executives are more than thrice as likely to initiate radical change than existing executives (Tushman et al., 1986).

Conflict between the old and the new: evolutionary perspective. With the assimilation of new talent into the company - younger family members and a new CIO - the organizational culture faced a crisis. One particular crisis was the role of the IT department within the organization. While traditionally the IT department was viewed as a service center, the newly hired employees realized that it put the organization at a severe strategic and operational disadvantage.

"Today it is different. There is so much more information available that we need to look at... through Social media / networking/ analytics/ cost analysis / communication with employees, Customers. IT needs to be a Strategic function. So we hired a CIO."

The new CIO took on the task of identifying "low hanging fruit", before addressing strategic level changes. Strategic changes in the role of the IT department entailed a business transformation of organizational roles, structure, and rebuilding of the infrastructure.

"There were no written policies or procedures. There were 500 people talking to the devs directly. There was no resource management. We have implemented tools like 6 sigma, KPIs and analytics."

The type of projects handled by the IT department changed from operational to more strategic ones, such as data mining. New ideas for the role of IT emerged. The altered power and status due to reorganization changed the interaction patterns within the company. This constituted a frame-breaking change.

Conflict between perception and reality: teleological perspective. The company relied on heuristics and personal experience in decision-making. The value of data-driven decisions was not realized.

"Why should I invest all this money in gathering this data?"

It was only through the implementation of new initiatives that new knowledge emerged, some of which challenged common perceptions in the organization.

"Last year we implemented the data warehouse. The cost of system paid back in 2 months."

"We implemented new software in our manufacturing plant. Just 6 months of new learnings are kicking fanny. Earlier we focused on only market dynamics side. We now know more of the "Why""

Discussion and Conclusion

Understanding the success or failure of a project in retrospect is seldom simple. There are often several factors interacting and influencing each other in complex ways that contribute to the outcome of an initiative such as the implementation of PapiNet. This study aimed to arrive at answers that explain the reasons behind why the process was not straightforward and successful. Our preliminary analysis helped identify conflicts that influenced the change. We found evidence of, and extended, factors suggested by prior literature related to organizational change. We provide actionable take-aways for practitioners that are faced with similar pressures to change.

Theoretical Insights

While the theories of organizational change we used to interpret our study are not new, we derived some analytic insights based on the unique context presented by our case site. In particular, our context describes the implementation of an IOS in a family-based company that enjoyed a relative regional monopoly in the

paper industry. We found evidence of life-cycle, evolutionary, as well as teleological forces that resulted in incremental changes. However, it was the presence of conflicts, i.e. dialogical forces, that triggered the frame-breaking change. Prior literature identifies financial crisis as an example of a trigger for frame-breaking change. However, we suggest that triggers can occur due to conflicts that cannot be resolved without the change. In particular, we identified 3 conflicts: A conflict between existing and wanted resources (including human resources); a conflict between old and new culture; and a conflict between what was perceived and what was factual.

Insights for Practice

To support frame-breaking changes, we suggest practitioners: i) Invite external opinions frequently. It is particularly easy to rely to internal experience and knowledge in a company that is family-owned, and enjoys a comfortable position in the competitive landscape. Periodic external validation, particularly in periods marked with significant events relevant to the industry, is crucial for change; ii) Review status quo intermittently**.** There is inertia in processes and structure that comes with the concretization of organizational culture over time; iii) Implement processes for analytics**.** Data-driven decisions that validate heuristics and experience are essential at every level; and iv) Track direct and indirect outcomes of changes**.** Frame-breaking changes involve high risk and uncertainty. While direct outcomes are easy to observe, indirect outcomes can be hidden, but often far reaching.

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