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Coordination in Supply Chain

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**Case Study #1**

The purpose of this paper is to show how collaborative information technology (IT) tools and a crowdsourcing model can be leveraged for the purpose of strategic planning. To achieve this objective, a formal method of open strategic planning (OSP) is proposed.

Based on a review of the literature a set of activities, stakeholders, and governing rules are identified in the form of an OSP method. The proposed planning method is implemented in a case study of strategic planning in an Australian university. Observations by the research team, and archival records were used to ascertain the relevance of the used method.

A method for OSP is presented and assessed. The method contains four phases: pre-planning, idea submission, idea refinement, and plan development. These phases cover the activities required from conceptualization to preparing and publishing the strategic plan. The findings clarify how the principles of OSP helped the organization to include more stakeholders and provided the opportunity to make the planning process transparent through use of a collaborative IT tool.

The study provides managers and planning consultants with detailed guidelines to implement the concept of open strategy.

This study is among the few to propose a method for OSP based on empirical research. The study also shows how collaborative IT tools can be used for high-level organizational tasks such as strategic planning

**Case Study #2**

In this case study, the supplier is a local branch of a renowned multinational corporation. This supplier imports most products and materials from worldwide production facilities and distributes finished and semi-finished consumer products to domestic retailers. Though the parent company has a good reputation around the world, the supplier is currently struggling to catch up to the market leader in South Korea. Because the number of stock keeping units (SKUs) in the Korean market is large (i.e., there are a number of competing brands and product specifications), the supply chain is volatile in terms of demand uncertainty. Relative to the general commodity market, the market of focus is comparatively small. However, competition is quite fierce; substitute products of similar quality are available from multiple competitors. Owing to low brand loyalty and high competition within the industry, it is essential for companies to increase the availability of their products to consumers so they can access them without delay. Attempting to increase their products’ availability can complicate management of the supply chain for some companies. It is quite difficult for a retailer to maintain large stocks, as the market is characterized by significant demand uncertainty and a large number of product SKUs.

To ease the burden on retailers due to the maintenance of large inventories, some suppliers enter into buyback contract schemes in which retailers can return unsold inventory to the supplier at any time, or exchange that inventory for other products. To avoid violations of the contract, suppliers constrain the conditions under which retailers can return or exchange their stock. For example, when retailers return or exchange their inventory, they must purchase 30% worth of new products relative to the products they returned. At the outset, the initial contract structure looks promising, as it allows the retailer to order a greater number of products from the supplier (at a lower risk), thereby maintaining high levels of inventory and making products immediately available to consumers. Suppliers can also benefit from the contract, as initial sales revenue will increase as a function of a greater number of orders from retailers. Moreover, the additional 30% that retailers are required to purchase when they exchange or return items can also increase sales revenue. Increased product availability can decrease the revenues lost due to missed sales. In spite of the benefits associated with this contract structure, this supply chain contract type can cause later problems related to moral hazard. Because retailers can return stock whenever necessary, they tend to worry less about forecasting demand and managing inventories. In addition, suppliers’ sales departments encourage retailers to engage in problematic buying behavior, which exacerbates the aforementioned problems. Because sales are the key performance indicator for sales departments, unnecessarily inflated orders are beneficial even if the buyer incurs increased risk of return of leftover stock (which can generate an additional 30% worth of revenue for them). In this way, suppliers can easily increase sales to retailers, even if sales to final customers do not increase.

Suppose a retailer carries an old product X, and that a new product Y is about to be introduced into the market. Under the buyback contract structure, the supplier’s inventory of X will increase due to continuous returns and exchanges, but Y will be distributed to the market upon its release. Fig 1 illustrates the supplier’s inventory over five years. The grey bars signify the supplier’s on-hand inventory at the end of each month, and the lines in the figure indicate obsolete inventories. Until the middle of 2012, the supplier’s end-of-month inventory was less than 300,000 units, but that level increased drastically each month between July 2012 and November 2012. Because the supplier introduced Y in March of 2012 and subsequently approved requests for returns and exchanges of X, the supplier’s on-hand inventory increased considerably until the end of 2012. In July of 2012, another new product Z was introduced aiming to occupy low price market. These new product launches induced the retailers to sell back leftover stock, thereby increasing the supplier’s inventory. To illustrate, consider that the ratio of obsolete inventory to all inventory was less than 25% in March of 2011, but after the introduction of Y and Z, this ratio had grown to higher than 50%. Although the supplier facilitated the availability of products for retailers to provide to end users, the retailers tended to order more than necessary, even when penalized with a mandatory purchase of 30% more goods from the supplier. Retailers believed that they could return obsolete leftover stock to the supplier, and therefore did not manage their obsolete stocks. The supplier will later be forced to salvage the outdated products at a lower price, negatively affecting the company’s bottom line. In this way, a focus on short-term sales revenue will eventually hurt the supplier’s profitability.

**Case Study #3**

In a small but growing research firm, there was no system for sharing information between the business office and the project teams on the projected labor hours and costs included in the contract nor the actual hours and expenditures once a project was underway. Project directors and managers were kept in the dark on all aspects of labor hour usage and direct costs, preferring to focus solely on methodology and execution of the research. They were also not privy of the accounts receivable – that is, whether invoices were being sent out and paid correctly by clients, whether subcontractors and consultants were billing appropriately, etc. As a result, projects went over budget, incorrect invoices were sent out, and miscommunication occurred frequently with clients and partners.

There was a longstanding disconnection between the project leadership and the business office regarding responsibility for monitoring project expenditures and labor hours. For the company’s 10-year history, there was no expectation that project leads should receive and monitor budget and projected labor hours, or that comparing actual versus projected expenditures would be useful for project management purposes. There wasn’t a clear understanding among the project side about why the contract and budget considerations were important, and these parameters were not factored in to how projects were staffed and managed.

I worked with the business office, company leadership, and a group of project managers to build a system for regular and more detailed oversight of project budgets at both the company and project level. We developed a new system of monthly reports sent from the business office to each project director that compared budgeted hours and dollars with actual expenditures for their projects. We ensured that the report provided enough information to allow project leads to make management decisions and identify potential problems before they arose, but not so detailed that the reports were intimidating or irrelevant – two problems which often lead to critical reports being ignored.

I also developed and implemented a company-wide training on the basics of budgeting and contract terminology, and training for all project managers and directors on how to use the new monthly reports to manage their projects.

With a better understanding of the contract and budget process, and with access to expenditure information about their projects, project directors and managers were better able to track project status. It allowed for project leads to see if project staff were billing appropriate numbers of hours and if subcontractors were charging appropriately, which in turn helped inform decisions on when and how to change staffing to keep the budget on track.

This greater attention to detail helped the business office focus more on macro-level budgeting issues rather than checking the minutia of each project. As a result, the company saw a dramatic decrease in cost overruns. Equally important, the company improved its relationships with clients and partners, while at the same time implementing a better invoicing system that led to more efficient payments.

**Case Study #4**

This study was carried out to identify the social impact of losing transport links within a community, and the practices of coordination and communication during and after an extreme adverse event. In November 2009, Workington, Cumbria had most of its bridges either damaged or destroyed during a major flood. The effects of the disaster were immediate, while the subsequent planning and recovery process took time. Over 3 years, Cumbria County Council (CCC) went through a coordinated process of installing temporary infrastructure, building and repairing Workington's bridges. A desk-based investigation of the disaster and the recovery process using websites and the local press demonstrates a coordinated approach to replace Workington's infrastructure and the importance of communication in the town's recovery. CCC, through a series of practical measures, reduced disruption within the community in stages. The reconstruction of the town's bridges involved communication and public consultation about the new infrastructure. The CCC explained the design, financial and engineering elements of the bridges to the public with some success. The research found that the loss of each bridge had significant social impacts, and the coordinated actions and communication of CCC helped the community understand and, importantly, accept that reconstruction would not be immediate.

The process of gathering and analysing the data shows that the recovery process in Workington had complex interdependencies, which include economic, social, environmental, technical, political and financial influences. The Workington case study, which involved three bridges and two temporary bridges, is an extreme example of loss of infrastructure and lessons can be learned from this ex-post research using social account methodology to gather data from various sources.

An analysis of the available materials demonstrates that the national media concentrated on the big stories such as the failure of the bridges, the opening of the temporary railway station and the opening of the new bridge. The local newspapers reported on the more immediate everyday life stories after the loss of the bridges and the gradual rebuilding of Workington's infrastructure. The methodology of gathering appropriate news stories, reports and technical documents gives a robust narrative of events, decisions and opinions. The technical sources provide contemporary quotes from the engineers involved in rebuilding the infrastructure (Lynch, 2010; Stimpson, 2009; Wynne, 2009). Similarly, the local press report on the rebuilding process, and include quotes from members of CCC (Barwise, 2010c) and comments from the public (Barwise, 2010a; News and Star, 2012). The justification for making decisions and the comments from the public were made at the time and have not been changed or influenced subsequently.

During the Cumbrian flooding and as bridges were destroyed, CCC produced frequent daily updates. Once the emergency subsided and the recovery process was started, the communication from CCC became less frequent and more planned. Unsurprisingly, during the emergency, the public were not consulted about the temporary station, Barker Crossing or the temporary road bridge. These were coordinated responses to the failure of infrastructure. The plans for new bridges needed both funding and contractors, while the timing allowed communication with the public. Within infrastructure planning, the involvement of the public can be beneficial (Andrew, 2012), and Workington shows that this consultation did occur after the temporary road bridge was in place.

One thing to learn from the Workington case study is to communicate problems even if these are not always acceptable to the public. In December 2009, CCC announced that a temporary road bridge would be built by summer and the permanent road bridge would take 2 years to be built, which produced 39 comments in the local press (Whittle, 2009). By making this announcement, CCC received some negative comments, but set the agenda for the next 3 years. The region's inhabitants and businesses knew that a permanent replacement was not going to be immediate. This could be understood as managing expectations and being honest about processes involved in building a bridge.

In the comments section of the local newspaper, residents had found examples of bridges in the UK and abroad being constructed in short time periods. A further issue raised by this case study is the complexity of the funding, designing a bridge, the geology of the location, procuring contractors and go through planning procedures. This complexity needs to be adequately communicated to residents and businesses as each location and bridge will be in some way site specific.

Finally, there is public awareness that bridge design is highly specific for a particular location and purpose, with immediate replacement solutions not always being possible. Workington's bridges enable co-use by not only carrying passengers, pedestrians, cyclists and vehicles, but also water and gas mains and telephone cables. Overall CCC and their partners did succeed in communicating and coordinating to their stakeholders the complex interdependencies of the legal, financial and technical aspects of (re)building Workington's infrastructure over 3 years.

**Case Study #5**

Collaborative planning, forecasting and replenishment involve the joint determination of forecasting through pooled knowledge and information. CPFR enables trading partners to improve operational efficiency through a systematic process of sharing and utilizing information across firm level boundaries. Usually, the forecasting results are highly variable as we move from the customer to the producer in the supply chain and replenishment is not also tuned with customer demand. As a result demand forecasting and replenishment has become a vital issue for manufacturers, professionals and researchers. This study aims to provide the reader a complete picture of CPFR through a systematic literature review. It presents a state of art on CPFR by systematically arranging main activities in collaborative planning. In addition, a step-by-step approach for understanding CPFR is proposed which consequently explores the domain of CPFR.

Companies today face a highly competitive global market; the focus is to deliver the customer the desired product within a fitting time-frame, at the right price and at the right place. To seek these objectives companies employ various business performance improvement approaches. These approaches often focus on any one operational area of organization, but the approach (CPFR) which we have discussed covers all functional areas of the organization. The objective of CPFR is to better align supply and demand through trading partner’s data interchange which bind firms through interdependent transactions and collaborative processes to meet customer demand. Although, the CPFR concept may seem simple, turning it into practice is not an easy task. It requires a change in business processes and change from an inward focus to a broad multi-enterprise view. Researchers and practitioners have developed a sustainable body of knowledge by deploying various qualitative and quantitative tools and techniques. It is observed that organization have unique product/market characteristics and the supply network’s physical structure. Therefore, there is not a one fits all solution to all organizations. Depending upon corporate strategy, organizations have to develop a suitable CPFR management strategy. It would be a formidable task for managers if they do not understand why companies implement different types of CPFR collaborations which are valuable from both a managerial and theoretical perspective.

In this study, we have suggested that managers must investigate the reasons why to manage, what to manage and how to select the most appropriate action to be taken to implement CPFR. We interrogated the theory and research practice to find what the various CPFR activities are. This study also throws light on the potential of CPFR. The theoretical development presented here also helps organization to understand the concept of CPFR by all means. Sooner or later all organizations would adopt CPFR; therefore, we recommend that managers should examine the domain of CPFR to achieve business excellence.

A recent trend in system technologies and processes presents an opportunity for development of CPFR. It is felt that in future all organization will have to initiate inter enterprise relationship through collaboration based management of planning processes and information sharing. Therefore, establishment of win-win relationship between business partners to share information for effective CPFR practice and development of suitable model for the same would be the greatest challenge for researchers and practitioners.