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THE PROCESS VIEW: PRINCIPLES VERSUS SKILLS

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ABSTRACT

Process management has become increasingly important for businesses. In an effort to become leaner, quicker, and more responsive, organizations are redesigning their products and their delivery processes. Often residing in a team or group environment, examples of the implementation of process management include Continuous Process Improvement or other Deming approaches to process control and variation reduction.

In the early days of process management, most of the attention was focused on applying process controls in the manufacturing areas. As businesses continue to search for new and innovative ways to increase their competitiveness, the view of process management has expanded. In their 1994 discussion of business processes, the Innovative Business Initiative describes business processes as "strands of activities that link the operations of an organization to the requirements of its customers".

More recently, businesses have begun applying the techniques of manufacturing control and feedback to their entire business operations. However the continued growth of process management faces several challenges First process management requires structural changes that facilitate the organization of business around processes instead of functional areas. To effectively deliver products and services, process management often requires the use of technology to integrate activities that cross traditional functional areas. The rapid changes associated with moving to a process management environment often challenge individuals' traditional perspective of the business and its environment. Finally process management requires knowledgeable individuals who have the skills to manage in the increasingly complex process-oriented environment.

Clearly, the better business processes are understood, the more they can be improved. However process management skills are not endemic to workers and managers. This paper looks at the critical organizational resources and specific individual skills necessary for the effective transition to the "Process View".

THE EFFECT OF TQM ON PRODUCTION OPERATIONS: AN EMPIRICAL STUDY OF PUBLIC MANUFACTURING FIRMS

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ABSTRACT

This research investigates whether TQM is associated with improvement in financial performance. Previous empirical TQM research lacks strong evidence of this association. This study is unique in its construction of a TQM variable that more fully defines TQM and the level of TQM implementation. It is also unique in that it links a richly measured TQM variable with improvement in financial performance using ROA, a widely accepted accounting measure of firm performance. Data for this study was provided from a survey of top executives of manufacturing firms. Confirmatory factor analysis was used in the construction of TQM dimensions. Dependent variable financial information was obtained from Compustat. Multiple regression analysis was used to identify the association between use of TQM and improvement in financial performance. Results show a significant positive relationship between TQM and net financial improvement, and support the claims of TQM champions.

VALUE CHAIN ANALYSIS AND APPLICATION OF TOC TO SERVICE ORGANIZATIONS

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ABSTRACT

The Theory of Constraints (TOC) has been applied to many organizations in the last two decades. While the application of TOC in manufacturing companies is well known, many issues continue to arise concerning application of TOC to different types of service organizations. This paper provides insight to how service organizations differ from and similar to manufacturing organizations in respect to use of TOC. It provides a model for understanding and classifying the complex system of activities in service organizations and suggests how this classification according to this model provides an approach that enables management to apply TOC in different types of service organizations. This paper examines the current state of TOC as applied to service providers, suggests how such companies might implement TOC, and provides a step-by-step implementation strategy.

INTRODUCTION

According to Eliyahu Goldratt (1992), who developed TOC (Theory of Constraints), the goal of a company is to make money, and everything else help achieve the goal. Practitioners of TOC consider each organization as a complete system and only global improvements that increase the throughput of the entire system actually help achieve the goal. Localized improvements that affect only one component of the system do not improve the overall performance of the system unless that component was the bottleneck (constraint) in the system. These non-constraint improvements only increase investments.

Goldratt (1992) developed a five-step process for applying the TOC:
Step 1: Identify the system's constraint(s).
Step 2: Decide how to exploit the system's constraint(s).
Step 3: Subordinate everything else to the above decision.
Step 4: Evaluate the system's constraint(s).
Step 5: If in the previous steps a constraint has been broken, go back to Step 1.

TOC differs from other lean manufacturing and quality improvement initiatives in the attitude toward holding work-in-process inventory. The steps above do not include an attempt to balance the system to eliminate constraints, nor elimination of work-in-process inventory. On the contrary, practitioners of TOC point out that in a balanced system where all components have the same capacity, any disruption on any element of the process results in a disruption of the entire system. This causes a balanced system to behave not like a system with no constraint, but rather like one in which all elements are constraints. Practitioners of TOC advocate identification of the system constraint, and as part of the process of subordinating everything else to the constraint, allowing for limited work-in-process inventory buffers before the constraint. These buffer inventories would allow the constraint to continue to operate when there were disruptions on other higher-capacity elements. By definition, these other elements could "catch up" given their higher capacity. By never allowing the constraint to remain idle, the throughput of the entire system is maximized.

Although TOC has been applied to service organizations, the question remains of how to apply it or even whether TOC is applicable to certain types of services (Motwani, Klein, and Harowitz 1996)). Despite a number of models suggested for categorization of services that are useful in considering the differences between service providers, there are some service organizations that do not seem to fit nicely into any of them or for which classification into one of these models does not prove to be sufficient to allow application of TOC (Siha 1999; Silvestro, Fitzgerald, and Johnston, 1992).

SERVICE ORGANIZATIONS

A frequently issue in literature is the intangibility of services making them different from manufactured products in that there is no inventory in service organizations that can be stocked to provide a balance between demand and capacity. This makes TOC application in service organizations even more complicated because of the inability to provide the buffer inventories that should be maintained before constrained resources. However, service processes are very similar to manufacturing processes and application of TOC to service organizations should focus on service processes.

In a manufacturing process, for example, the stage of the process can be analyzed by the flow of materials. How the flow of materials is scheduled will have an impact on how much work-in-process inventory exists. If the flow of materials is appropriately controlled there will be no excess work-in-process inventory. This is also true for service organizations, but the difference is that service organizations have different types of flows, different types of inventories, and much less control over the flow. Analyzing the flow of a service organization may not be sufficient to identify all the activities that create the service. Without identifying all processes TOC cannot be smoothly implemented. To be sure that all processes are identified a different approach to identifying the service processes is helpful.

SUGGESTED CLASSIFICATION OF SERVICE PROCESSES

Both manufacturing and service organizations have processes with input, flow, and output, and both of them have dependent events – a set of dependent activities and stages within the process that add value and must be done sequentially in order to produce the product or the service. Further, in both manufacturing and service organizations there are also statistical fluctuations – disruptions or variations in the flow that are unavoidable and unrelated to capacity. Based on these similarities TOC implementation should be successful in service organizations provided there is appropriate identification of service processes.

Based on the service provided the process can have three different distinct flows:

Flow of materials
Flow of people
Flow of information

Each service provider has one or more of these types of flows, and may have multiples of each. This schema recognizes that although some service organizations are purely intangible service providers, many others provide a combination of pure services and tangible materials or supplies with insignificant separate value but essential contribution to the process.

In a process with flow of materials, materials are moving from one stage of the process to the next stage similar to a manufacturing process. For example, a post service has a flow of letters that move from one stage to another through the process until they reach their final destination. The cycle time here is the time between receiving the letter from the customer, and the time the letter

reaches the final destination. A fast-food restaurant is another example of flow of materials. The flow of materials begins with the suppliers, to the restaurant, and the flow further continues in the kitchen by going through different stages of the process of preparing the food until the serving is done. In this case, unlike the post office example, the flow is not equal to the cycle time. Having investment in equipment, machines, and most other items identified by TOC as inventory is common to both service and manufacturing concerns. The only difference is in materials and goods inventories. Because of this difference this paper will focus on those inventories. The inventory in the postal service for example are letters that need to be delivered waiting to enter the process, which is analogous to materials inventory in manufacturing. The letters and packages that have already been started into the process but are still waiting to be delivered to their final destination are analogous to work-in-process inventory. Finished goods inventory does not really exist because the moment the process is finished coincides with delivery of the letter.

Processes that include a flow of people can be found in service organizations like hospitals, banks, and airlines. The flow consists of people (customers) moving from one stage of the process to the next stage until the service is completed. The cycle time is the time between placing an order by a customer or the time when a customer arrives at the location, and the time when the service is completed. Inventory in this type of process are people waiting to enter the first stage of the process, and people who have already been involved in some stage(s) in the process but still waiting for the next step (analogous to materials inventory and work-in-process inventory in manufacturing). For example, a patient that has had tests may wait at home or in the hospital for some time for the results because of some necessary analysis. This type of process with flow of people can be viewed similarly to a manufacturing process. For example, the doctor cannot see a patient who has had an x-ray until the x-ray results are finished. The doctor might be available, but cannot start working until the previous stage in the process (x-ray) is finished. If the time needed for the x-ray results is longer than the time required for the doctor to be available, this is similar to two machines in manufacturing process having different capacities. The longer process will be the bottleneck. The hospital two choices. One choice is to use the Drum-Buffer-Rope method to smooth flow by subordinating everything else to the constraint's capacity and avoid having excess inventory. The other choice is to increase the capacity by either increasing the efficiency and shorting the time of the bottleneck, (x-ray machine) or investing in new equipment. Often the bottleneck can be rendered more efficient by maximizing or in the nomenclature of TOC sublimating the process. This might include things like reducing the duties of x-ray technicians to those activities that both directly contribute to speeding the process and require performance by a technician while shifting other, more general, responsibilities to support personnel. Effectively using the TOC approach in this example, just like in manufacturing, is helpful only where a constraint can be identified. Any improvements in other stages of the process would not improve the overall efficiency of the system.

The third classification consists of processes with flow of information. Information flow includes results of analysis, research results, data, and communication. People and/or technology process information through the various stages. Professionals such as consultants, engineers, doctors, accountants, lawyers, and architects for whom their knowledge is their service are examples of this type of process. Another example is people who use standardized procedures to process information, like customer service representatives and phone operators. Information can also be processed by the use of technology, such as computers and networks. Typical examples of this group are Internet providers, telecommunication companies, radio/TV stations, and online banks. Using an architect as an example, the cycle time starts with the defining the requirements of the client, the architect uses experience and information to create the service, and process the information into a final service offering. Knowledge of the architect is the inventory because this knowledge is sold to the client. Also information flow can have a work-in-process inventory component. For example, the architect may be in need for some specific information about building codes or the building site that prevents movement to the next stage in the process. In this example

of a constraint, the architect might need to examine how to improve these secondary information flow processes in order to improve the process as a whole and improve the cycle time.

ANALYSIS OF COMPANIES USING THE PROPOSED MODEL

This classification applies to any company. For example, the processes in hospitals have flow of people (patients), flow of information (making appointment with the doctor, using results of medical examinations, medical equipment analysis), and flow of materials (food for the patients, materials needed for the medical tests). The advantage of using the proposed schema over those proposed by others is apparent when one considers the parallel activities necessary to provide the service. A major weakness of formerly proposed models is the classification of each company into a single category of service provider.

By using the classification described above, each activity of the organization can be identified into one of the three types of flows. A good example of a business process that has all of the three types of flows is a fast-food restaurant. The flow of materials is all activities involved with the movement and processing of materials from the suppliers to the final customer. The flow of people is the movement of customers from the waiting line before placing the order until the receiving of the order. The flow of information is the communication process that links the orders placed and payments with the kitchen and delivery. To analyze this business, list activities in the three groups of processes with the average time for each stage in the process. By using a diagram to depict what activities can be performed simultaneously and which must be performed sequentially, activities that constrain the entire system become apparent. Using the diagram of processes helps identify the critical path in the process. Concentrating on the critical path instead of analyzing the whole process focuses improvement on the critical path where it will result in the overall improvement of the system. The application of improvement to that critical path follows the practice of TOC just like concentrating on the constraint in a manufacturing process. By reducing the time necessary to perform elements of the process that makes up the critical path a new critical flow emerges.

Continuing the fast food example would yield three diagrams. First, would be the flow of people from ordering to paying to receiving order. Second would be the flow of material activities from receiving to preparing the order to delivering the order. Third would be the information flow from ordering to calculating the bill, to paying the check. If initial analysis showed that the material flow was the critical path that took the longest, then improvements to the other two would not improve the process. If however, the material flow process were improved to the point that the information flow became the new longer process, the new critical process would be the information flow of ordering, tallying the order and paying. This illustration represents a situation that is analogous to a manufacturing plant where three parallel process lines work on producing three different parts, and at the end all three parts need to be assembled, in order to provide the final product.

CONCLUSION

Use of the suggested approach would allow management to get a clear understanding and representation of the processes within a service organization. By using the suggested approach, managers could represent service organizations in a way similar to manufacturing organization and reap the benefits TOC has provided manufacturers. In the current competitive market, the additional information TOC makes possible can allow the service provider to develop and maintain a competitive advantage that could be the difference between success and failure.

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HUMANITARIAN SUPPLY CHAIN MANAGEMENT

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ABSTRACT

More than 500 million people a year are affected by numerous disasters such as famines, floods, tsunamis, conflicts, and civil wars. Humanitarian organizations such as Red Cross and Red Crescent provide resources, supplies, and services to affected people and communities in need. These humanitarian efforts require tremendous speed, coordination, and management. Unfortunately, humanitarian supply chain management received little attention from the academic community. This paper discusses (1) The nature of several disasters (2) Commercial supply chain management vs. humanitarian supply chain management (3) Humanitarian supply chain management software (4) Research agenda in humanitarian supply chain management

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