KNOWLEDGE MANAGEMENT
FOR IMPROVING CORPORATE PERFORMANCE:
AN APPLICATON OF ARGUMENTATION LANGUAGE

Meral Binbasioglu and Edward J. Zychowicz
Hofstra University, acsmxb@hofstra.edu, finejz@hofstra.edu

ABSTRACT

The paper proposes an argumentation language approach to support the decision making process in today's knowledge driven organizations. The argumentation language can assist decision makers when evaluating alternative courses of action by better recognizing the cause-effect relationships and their impact on company performance. The proposed approach combines the Balanced Scorecard (BSC) methodology to strategic planning with action-resource based argumentation language. The approach puts forward the importance of qualitative measures in implementing strategy and aims to facilitate debating qualitative impacts of decisions which are instrumental to implementing a BSC-based corporate strategy.

Keywords: argumentation language, strategic planning, balanced scorecard, performance measurement.

INTRODUCTION

In this paper an argumentation language approach to support the decision making process in today's knowledge driven organizations is proposed. These organizations aim to apply strategy to all decisions including day-to-day operations using innovative performance measurements systems such as Balanced Scorecard (BSC) (13). BSC recognizes the importance of intangible assets, which when properly integrated in company strategy can increase shareholder value, and in turn can increase financial performance. BSC provides a framework to evaluate strategy using financial as well as non-financial perspectives such as customer satisfaction, internal business processes, and organizational learning and growth.

In this paper we explore how the impact of organizational initiatives on company performance can be augmented with the help of a structured argumentation language that supports the process of decision making that includes the generation and evaluation of alternative courses of action. The structured approach to debating issues can be beneficial to organizations when evaluating opportunities and their compatibility with corporate strategy. The need for such a communication tool is pointed out by Kaplan and Norton (13, p.3) as: "*Organizations today need a language for communicating strategy as well as processes and systems that help them to implement strategy and gain feedback about their strategy. Success comes from having strategy become everyone's everyday job.*" Thus, according to Kaplan and Norton (13) setting strategic goals are important but implementation success depends on every decision being consistent with the strategy, since every decision has the potential to positively or negatively affect the implementation success. The efficient communication of a firm's strategic focus to all members of the organization, and the effective monitoring of the implementation of the strategy is costly. Recognition of such costs have motivated proponents of a horizontal organization structure where decision making is more diffused, rather the vertical structures characterized by inefficient layers of management

who monitor and direct each activity (e.g. 9). However, Jensen (11) and Jensen and Meckling (12) discuss a fundamental challenge of the modern horizontally structured firm attempting to maintain strategic focus while simultaneously accommodating diffused and effective decision making that involves specific knowledge. They assert that the costs of inconsistent firm objectives or strategy are lowest the closer one gets to the CEO, and these costs rise the closer one gets to where decisions using specific knowledge are made. Similarly, the costs of poor information are highest the closer one is to the CEO's office particularly if specific knowledge is an attribute of the firm, as it is for many modern knowledge intensive companies. The cost of poor information declines as one gets closer to the point where specific knowledge is used to make operational decisions. Clearly, a value-maximizing firm needs to be concerned with minimizing total organization costs. This paper suggests that an argumentation language approach to support the decision making process in today's knowledge intensive organizations is one possible approach in attempting to minimize these costs.

RELATED LITERATURE

Organizational decision making can be significantly improved if organizational knowledge can be captured and organized for reuse. Balasubramanian *et al.* (1) defines knowledge management as "an *organizational capability* that allows people in organizations working as individuals (knowledge workers), or in teams, projects, or other such communities of interest, to create, capture, share, and leverage their collective knowledge to improve performance." It is our contention that organizational initiatives including strategy and process designs can benefit from knowledge management implicit in an argumentation language for decision support. For example, Simons and Davila (19) recommend the development of a checklist to identify business opportunities that would be inconsistent with the existing strategy. Managers can communicate their strategy by making explicit the knowledge related to the types of customers the organization *will not* accept, or the types of products or initiatives the organization *will not* fund, or the types of deals people *should not* do (19).

Similarly, diagnostic indicators (4) can be developed for analyzing and debating the overall "health" of an organization. This can be achieved by developing a conceptual model of the application domain to capture the inherent interactions among domain objects. Knowledge pertaining to organizational objectives and relationships among them need to be associated with business processes, so that the implications of new initiatives on company performance can be assessed. Aligning the strategy with the realities of the organizational environment is an on-going process, since performance measures and their relative importance may change as the organization goes through transformations such as growth or decline due to changes in the market place or competitive forces (13).

Though there is a need to track financial figures to be able to evaluate company performance, the current and common practice is to rely on financial figures as the foundation for corporate measurement systems (13). However, recent thinking on this issue emphasize treating financial data as one among a broader set of measures, such as quality, market share, and customer service (6,13). Most importantly, the non-financial metrics can provide performance information that cannot be obtained by analyzing financial data alone (6,13,19). According to Eccles (6)*, "New technologies and more sophisticated databases have made the change to non-financial performance measurement systems possible and economically feasible."* The new focus in

measuring business performance results in changes to existing processes (7,8,21). Information technology is instrumental when overhauling existing processes or designing new ones as part of efforts to improve non-financial measures (10,15,16,17).

Malone *et al*. (14) embarked on a project to invent the "best practices" of tomorrow, which would enable organizations to better adapt to changes in its environment. For example, how can organizations take advantage of the significant improvements in information technology? In other words, how can organizations improve existing processes by redesigning, or inventing new organizational processes? Within the context of knowledge management and learning organizations, these challenges require identifying and representing procedures and establishing linkages among them. The research undertaken by Malone and his associates (14) aims to develop a systematic and empirical foundation for understanding organizational processes by developing techniques for representing processes, such as "specialization of processes" using inheritance hierarchy concept in object-oriented programming and "managing dependencies" by employing concepts from coordination theory (14). Other researchers studied the processes in knowledge management domain in order to build knowledge repositories (1,8,16).

The paper presents a structured argumentation language which aims to facilitate decision making for aligning business initiatives with corporate strategy. This is achieved by incorporating knowledge categories in the corporate domain, such as measures, performance focus, resources and actions as part of a debate when evaluating alternative course of actions. The argumentation language supports the decision process by explicating the impact of initiatives on measures, via the impact of relevant actions on resource levels, and hence on corporate performance. Thus, new initiatives are regarded as a decision problem, which are to be evaluated based on their promise to deliver desired outcomes by transforming input resources and the extent they support the achievement of corporate goals. The evaluation scheme can benefit from a knowledge-base, which can represent corporate knowledge pertaining to evaluation areas.

AN ARGUMENTATION LANGUAGE FOR IMPROVING CORPORATE PERFORMANCE

An Action-Resource Approach to Representing Decision Problems

When faced with a decision problem decision makers identify what *actions* to take, and what *resources* are affected by these actions, given the restrictions (constraints) of the problem at hand. Typical managerial actions include whom to hire, promote, fire; which equipment to purchase; what level of customer support to achieve; among others. A simple action-resource representation (2,5) can be used to adequately model the activities in managerial settings. Actions and resources participate in activities as follows: resources are generated or consumed as a result of actions taken, or conversely, actions require input resources and/or generate output resources. The action-resource combinations comprise the possible activities that are to be evaluated based on the goals and restrictions (constraints) that exist in the problem environment. For representation purposes, the activity is described as:

input resources | action | output resources
The action-resource representation is used to model decision variables in mathematical modeling (e.g. 3). In addition to quantitative modeling of decision situations, the activity representation can

qualitatively depict the problem environment elements during collaboration (2) or negotiation (5). The representation supports complex problem environments by linking activities to each other.

Corporate Performance Measurement: The Balanced Scorecard

According to Kaplan and Norton (13), the exclusive reliance on financial measures promotes short-term behavior that sacrifices long-term value creation. This is because financial measures emphasize the role of tangible assets in value creation and often overlook the opportunities or unforeseen consequences that may arise from management of intangible assets. The Balanced Scorecard (BSC) (13) approach details how value can be created from intangible assets by explicating the cause-effect relationships between intangible assets and tangible outcomes. For example, profits can be the result of a customer retention policy which can be achieved by offering quality products and quality service by retaining skilled, trained, motivated employees. BSC provides a framework to evaluate initiatives from different perspectives: financial, customer, internal business process and learning and growth.

BSC Example: Store 24

In this section we present an overview of the BSC approach with a case example. The case illustrates how financial and non-financial perspectives can be linked together. The case, Store 24, is adopted from Kaplan and Norton (13). Store 24 is a convenience-store operator with about100 stores located in the in urban centers of New England. The goal of Store 24 is to benefit from the above average growth rate in the young adult population.

The objective of store 24 is to differentiate itself from other convenience stores by focusing on customer intimacy as opposed to operational excellence, which is prevalent in this industry. This new focus on "customer intimacy" leads to the goal of achieving a shopping experience that will be viewed as "entertaining and unexpected fun" by the customers. Accordingly, the company motto "Store 24 Bans Boredom" is displayed in all stores. In order to make shopping interesting and enjoyable, Store 24 offers novel in-store promotions. For example, during the Halloween season, the store ambiance usually includes toy spiders hanging from the ceiling or employees wearing costumes. Given the importance of the store personnels' interaction with the customer for the effective execution of the strategy, Store 24 offers staff training programs. Additionally, Store 24 continuously revamps its in-store promotions and store layouts. Furthermore, Store 24 makes deliberate efforts to retain experienced store personnel in order to achieve learning and growth strategy, as well as recognizes the importance of employee satisfaction.

A Structured Argumentation Language to Measure and Evaluate Business Value

In this section we illustrate how action-resource based language can be employed to generate alternative solutions that are consistent with a firm's strategic objective(s). Any decision problem can be viewed as composed of actions and resources that are either needed as input for actions or are generated as output of actions. Thus, when discussing a problem, decision makers may suggest alternative objects (resources or actions) or refine or differentiate their object definitions resulting in new alternative solutions. The ability to explicate the problem components and the capability to establish the linkages among problem elements suggest that action-resource based

argumentation language can support representing cause-effect relationships as in BSC based strategy discussions. The structure imposed on discourse of views by the argumentation language is likely to promote focused discussions that can link the strategy to every business decision including day-to-day activities.

Action-Resource Based Representation: Store 24 Example

The innovative strategy employed by Store 24 relied on achieving customer intimacy, which could be structured as presented in Exhibit 1:

Exhibit 1: Initial Strategy for Store 24

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Activity:            improve [customer relationship]
Input resource(s):   experienced store personnel | enjoyable-interesting shopping experience
Justification:       support (Goal-Strategy: [customer intimacy])


Activity:            retain [experienced store personnel]
Input resource(s):   competitive salary and benefits, training programs
Justification:       support (Goal: improve [customer relationship])


Activity:            train [store personnel]
Output resource:     trained-experienced store personnel
Input resource(s):   money, personnel
Justification:       support (Goal: improve [customer relationship])


Activity:            provide [enjoyable-interesting shopping experience]
Output resource(s):  happy-satisfied customers
Input resource(s):   new-interesting store promotions
Justification:       support (Goal: improve [customer relationship])


Activity:            implement [new-interesting store promotions]
Output resource(s):  interesting store environment
Input resource(s):   money
Justification:       support (Goal: provide [enjoyable-interesting shopping experience])


Activity:            advertise
Output resource(s):  educated customers
Input resource(s):   money
Justification:       support (Goal: increase [customer awareness])
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According to Kaplan and Norton (13) Store 24 reevaluated its customer intimacy strategy after two years. Financial performance was in-line with the industry average, the growth in same-store sales being 4 to 6 percent. However, the customer intimacy strategy was not up to expectations. CEO, Bob Gordon, reflected this sentiment as "Customers' recognition of the 'enjoyable experience' that we sought to create was particularly low. Customers told us that they valued fast service and good selection the most." After testing the strategy, it was clear to CEO Gordon that the strategy would have worked if the company were to invest more for training and advertising that would have a significant effect on improving the customers' experience at the point of contact and customers' awareness, respectively. Instead, the company modified the strategy to focus on three key components: fast and efficient service, good selection and good quality. To reflect the new emphasis, the strategic focus was conveyed by the displayed slogan "Cause You Just Can't Wait". The modified strategy and the related activities can be structured as presented in Exhibit 2:

Exhibit 2: Modified Strategy for Store 24

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Activity:           provide [fast-efficient service]
Input resource(s):  hire employees
Justification:      support(Strategy-Goal: improve [operational excellence])


Activity:           provide [good selection products]
Input resource(s):  customer surveys, experienced managers, customer feedback
Justification:      support(Strategy-Goal: improve [operational excellence])


Activity:           provide [good quality products]
Input resource(s):  supplier profiles, customer feedback
Justification:      support (Strategy-Goal: improve [operational excellence])
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The execution of a strategy may result in development of alternative actions, which are to be debated by the respective decision makers. For example, if the company aims to increase the customer base, which is a resource, alternative actions may include "advertise", which then suggests the amount of input resource "money" being debated as well as the output resource "customer" to be further differentiated as "busy time-constrained adults" or "young adult population" among others. Similarly, "advertisement" can also be further differentiated to reflect a variety of venues including, for example, the Internet, television, newspapers, and magazines. Thus, the representation can support the cause-effect relationships in achieving goals, by linking the required and resultant resources to various activities. Hence, the language can facilitate problem structuring and allows various views to be integrated qualitatively in achieving a mutual understanding of the problem domain especially in multi decision maker settings. The ability to explicate the relationship between goals and activities, and be able to redefine and differentiate problem components (goals, resource constraints, etc.) allows the language to support evolutionary approach to conflict resolution (2,18).

CONCLUDING REMARKS

The paper proposed a strategy driven argumentation language that can help organizations align decisions with corporate strategy when evaluating organizational initiatives. The argumentation language not only can improve communication of corporate strategy to all participants but also can facilitate the process of evaluating strategy, for example the employment of BSC framework that takes into consideration financial as well as non-financial perspectives. The current literature recognizes the importance of initiating change in business processes, or designing general-purpose argumentation languages (20). In this paper we augmented the argumentation language (5) and evolutionary approach (18) to problem structuring representation (2) with strategy focused reasoning, which is expected to guide the process of rethinking business initiatives. Moreover, the paper suggests a readily applicable approach that may reduce organizational costs for knowledge intensive firms as they strive to align firm-level strategic objectives with diffused operational decisions made by organizational members.

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