IT Supporting Strategy Formulation

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INTRODUCTION

This overview approaches information and communication technology (ICT) for competitive intelligence from the perspective of strategy formulation. It provides an ICT architecture for supporting the knowledge processes producing relevant knowledge for strategy formulation.

To determine what this architecture looks like, we first examine the process of strategy formulation and determine the knowledge required in the process of strategy formulation. To this purpose, we use Beer's viable system model (VSM). Second, we model the knowledge processes in which the intelligence relevant for the process of strategy formulation is produced and processed. Given these two elements, we describe an ICT architecture supporting the knowledge processes producing the knowledge needed for the strategic process.

BACKGROUND: STRATEGY FORMULATION, A VIABLE SYSTEM PERSPECTIVE

Strategy formulation aims at developing and selecting goals and plans securing the adaptation of the organization to its environment. These goals and plans may refer to specific product-market-technology combinations (PMCs) for which the organization hypothesizes that they ensure a stable relation with its environment. The process of strategy formulation needs to generate such goals and plans, needs to reflect upon their appropriateness, and needs to select certain goals and plans to guide the behavior of the organization. This is a continuous process. Goals and plans can be seen as hypotheses about what will work as a means to adapt and survive. Therefore, they should be monitored constantly and revised if necessary. In short, strategy formulation is a continuous contribution to maintaining organizational viability.

Although many authors deal with the process of strategy formulation, we choose the viable system model of Beer (1979, 1981, 1985) to define this process more closely. We select the VSM because Beer explicitly unfolds the functions required for the viable realization and adaptation of an organization's strategy.

To explain what these functions entail, it is useful to divide them into two groups: functions contributing to the *realization* of the organization's strategy and functions contributing to its *adaptation*.

The first group deals with the realization of the organization's strategy. It consists of three functions. Function 1 comprises the organization's primary activities constituting its "raison d'être" (Espejo, Schumann, Schwaninger, & Billello, 1996, p. 110). Function 2 (coordination) coordinates interdependencies between these primary activities. The third function is called the control function. It ensures the synergy of and cohesion between the primary activities by specifying their goals and controlling their performance.

To illustrate these functions, consider Energeco, a company servicing its environment with eco-energy. Function 1 of Energeco consists of three primary activities: supplying solar, tidal, and wind energy. To give an example of the coordination function, suppose that specialists in high-voltage energy are a shared resource between Energeco's business units. Also suppose that there is no coordination between these business units. In this case, the allocation of high-voltage specialists to a project in the business unit Solar Energy may require a revision of the allocation of these same specialists to a project in the business unit Wind Energy. Without a function supporting the coordination of these interdependencies, the business units Solar Energy and Wind Energy may become entangled in a process that oscillates between allocating and revising the allocation of these specialists to projects. It is the task of Function 2 to coordinate these interdependencies. The control function's task is to translate the identity and mission of the viable system (for Energeco, supplying eco-energy) into goals for the primary activities (in this example, supplying wind, solar, and tidal energy) and to control the realization of these goals.

The second group deals with the adaptation of the organization's strategy. It consists of control (Function 3), intelligence (Function 4), and policy (Function 5). Intelligence scans the organization's relevant environment and generates and proposes plans for adaptation. In the example of Energeco, developments in production technology may introduce the possibility of cost-effective, large-scale production of eco-energy from biomass. Intelligence should pick up these developments, assess them, and if relevant, translate them into proposals for

innovation. Because of its knowledge of the potentials for change of the primary activities, control (Function 3) reviews the feasibility of the plans proposed by intelligence. For instance, it may object to the plans proposed by intelligence because they require a change posing a risk to the performance of the primary activities.

Discussion about the relevance and feasibility of the proposals for adaptation between intelligence and control should produce finalized plans for adaptation. It is the task of the policy function to balance the discussion between intelligence and control and to consolidate the finalized proposal in the organization's strategy. For instance, in the discussion between intelligence and control about the feasibility of the adoption of large-scale production of eco-energy from biomass, the policy function should ensure that control and intelligence are equally represented in the discussion. By opting for the production of energy from biomass, the policy function consolidates producing eco-energy from biomass as a new goal for Energeco. Figure 1 depicts the process of strategy formulation in terms of the VSM functions and activities.

To contribute to the strategy-formulation process, control, intelligence, and policy require knowledge about particular domains. Table 1 provides an overview of the knowledge required by each function to contribute to the process of strategy formulation.

Given the overview of functions involved in the strategy-formulation process, their relations, and the knowledge required by these functions to contribute to the process of strategy formulation, it is now possible to look into the knowledge processes needed to produce this knowledge and the ICT architecture supporting these knowledge processes.

KNOWLEDGE PROCESSES CONTRIBUTING TO STRATEGY FORMULATION

The question for this section is by means of what processes knowledge in the knowledge domains should be produced and processed so that the process of strategy formulation can take place. To answer this question, we first need to specify what these knowledge processes are. Then we need to link these processes to the knowledge required by control, intelligence, and policy to contribute to the strategy-formulation process.

We distinguish four relevant processes for producing and processing knowledge: generating (G), sharing (S), retaining (R), and applying (A) knowledge (cf. Achterbergh & Vriens, 2002; Bukowitz & Williams, 1999; Davenport & Prusak, 1998).

These four knowledge processes can now be linked to the process of strategy formulation, as formulated according to the VSM. According to the VSM, the functions intelligence, control, and policy contribute to strategy formulation. This contribution involves the *application* of knowledge in the knowledge domains to arrive at the four core products of strategy formulation: proposals for innovation, their reviews, the finalized plans for innovation, and their consolidation. The knowledge applied by each function is *generated* either by that function or by one of the other functions of the VSM. In the latter case, knowledge must be *shared* between functions. Applying, generating, and sharing knowledge requires the *retention* or *storage* of knowledge.

Figure 1. The process of strategy formulation according to the VSM