

TOOLS FOR DESIGNING BUSINESS SITUATIONS IN THE CONTEXT OF MUTATIONS

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Abstract

Firms are involved in strategic movements that generate alliances, mergers & acquisitions and divestitures of activities. In this cycle of mutations, change is continuous. Two firms can build an alliance, expand it to other firms, merge or even dismantle all or any part of their activities. Between competition and cooperation, temporal networks of activities are created and reorganized, contributing to corporate renewal. In such situations, how could information systems provide relevant information for managing mutations and how could they support the global redesign of the strategy, organization and management of firms ?

In this paper we first give an overview of the mutation process. Then we outline the principles and concepts of an integrated approach to strategy, organization and management in the context of mutations. Third we present a meta-model based on these principles and concepts that allows the information system to provide tools for designing changing situations of configurations of activities. The meta-model can federate the thoughts of strategy, organization and management. Finally, we propose to look in more detail at the development phase of the mutation process. This bring to the fore the links between the design of economic events and the integrated approach we suggest.

1. AN OVERVIEW OF THE MUTATION PROCESS

The final objective of a mutation is to create an added value for the firms involved. The process leading to the implementation of a new entity is therefore paramount because it is during the mutation process that this value is created. The mutation process (Figure 1) can be split into a decision making process and an implementation process that are very closely linked. In the decision making process, Mintzberg 1976 distinguishes three phases. (1) The identification is composed of procedures of perception and diagnosis of the situation. (2) The development of solutions comprises first a set of research and elimination procedures of existing solutions that allows the scanning of ready-made solutions, and second procedures leading to the design of a new solution. (3) The selection is the valuation and choice of one solution as well as the appropriate authorisations Mintzberg 1976. It is essential to keep in mind that the decision process is not a linear one, that the order in which the procedures are undertaken is not necessarily defined and that the procedures can be executed in parallel. The process is affected by behavioral factors like feelings, biases, experience, self-worth Elbing 1978 and other political factors. It is also affected by dynamic factors like iterations, feed-back loops, understanding loops, delays, speed-up and failures Mintzberg 1976. During the mutation process, many actors such as strategists, financial specialists, organizers, consultants create their own views, often different of what the future should be made of. But the decisions that will be implemented have a significant impact on management and operational systems.

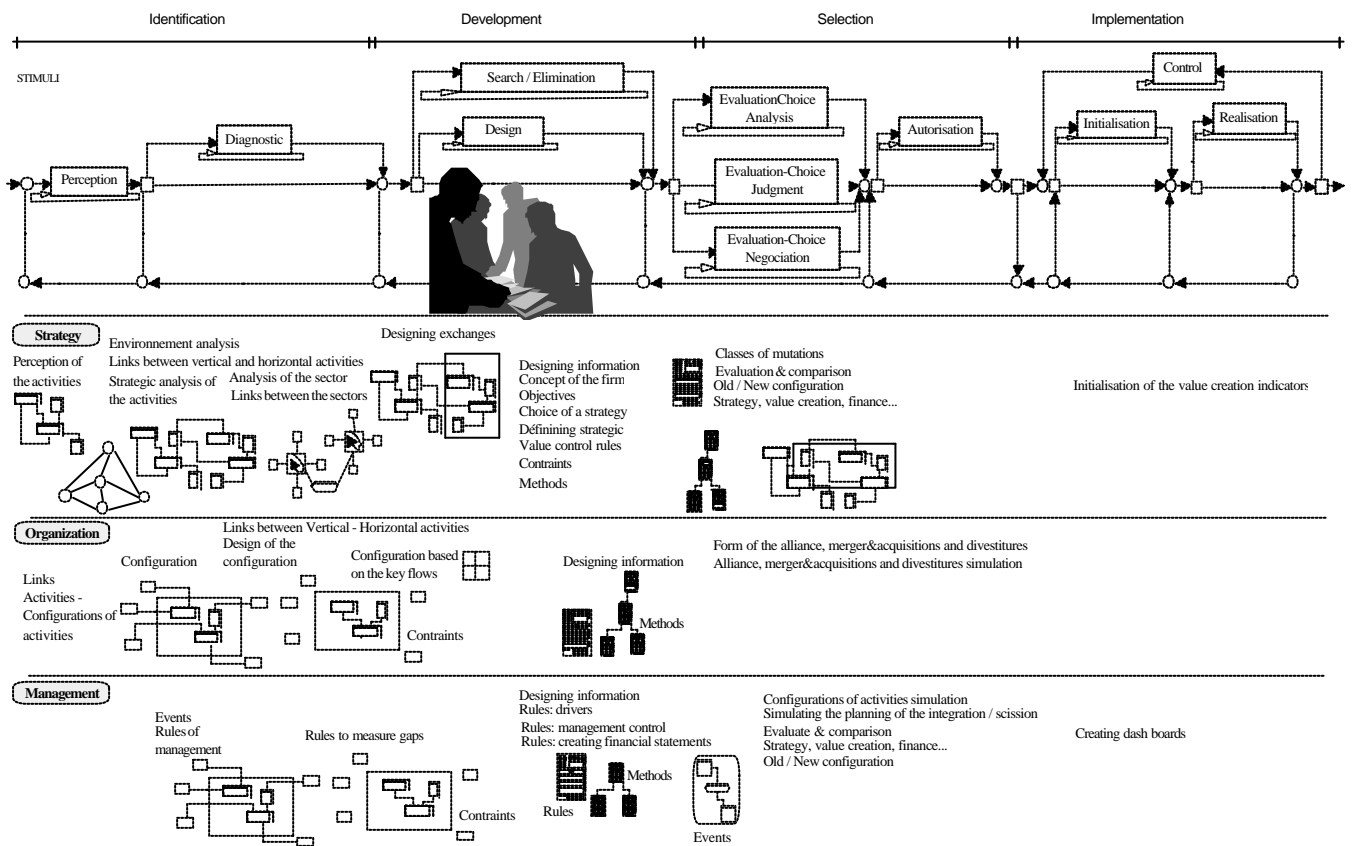


Figure 1 : The mutation process

As presented on the Figure 1, we propose to investigate in parallel (1) the strategy, (2) the organization and (3) the management domains all along the mutation process. As we can see on these figure, we provide, for each domain and for three phases of the process, a set of tools that can favor the creativity of the team. We present these tools more in detail in the following paragraphs. This approach allows to federate the strategic, the organisational and the management thoughts. It can ensure concomitant changes in these areas of the firms

involved in the process. Furthermore, we would like to take advantage of the lever for change that technology can be Lynder 1989. We propose to embed the design of the information system into the thoughts of strategy, organization and management during the decision making process in order to obtain an information system sufficiently defined to be used as a management tool as soon as the implementation process will begin. On one hand, the information system will promote the actors' creativity by providing tools for change, on the other hand the information system will be the object of the change. Finally, the approach of the mutation process should lead to federate the thoughts of strategy, organization and management, and support and stimulate actors' thoughts and creativity. The process should provide a shared framework for thought, allowing us however to maintain the particularities of each expertise domain. The proposed tools are based on a graphical representation of the economic situations using the power of design by association, analogy, induction and generalization. The tools allow us to create exploration maps of the conceptual spaces Boden 19 90.

In this paper, we focus especially on the development phase of the mutation process and on the associated tools. Before that, we will look at the principles and concepts used in the strategy, organization and management knowledge domains.

2. AN INTEGRATED APPROACH

We will now present the basic principles and the associated concepts of strategy, organization, management and dynamic which are the foundations of the approach and of the meta-model we propose. This latter provides a shared framework for a global thought but allows us also to obtain specialized views of each expertise domain.

2.1. THE STRATEGIC COMPONENT

The approach we propose to adopt is to regard the environment as a set of interrelated activities without being focused a priori on economic entities and limited by their borders. Based on M. Porter's work (86) work we can first retain that an activity is a set of acts, coordinated to produce an effect. By adopting a systemic approach Mèlèse 1984, we can consider this as a system providing a transformation. If we complete this concept with the 'activity unit' notion Bodart, Pigneur 1989 and the idea of combining technologies and know-how in activities in order to produce unique functionality and goods on the markets Hamel, Prahalad 1990, we can formulate the following proposition:

Proposition 1 An activity is a system, coherent in time and space, a set of interacting means (coordinated actions, rules of behavior needed for functioning) and of flows (competence, resources, information and technology) which ensure a transformation (effect) linked to the accomplishment of an objective (create value and be significant for the strategy of the firm).

This proposition is the basic element of our models. The aim of the study of the value chain is to understand and to have an effect on the behavior of activities and flows by grasping existing or potential original sources of increasing value. The strategic analysis and the study of the value systems must permit us not only to understand how the activities of the firm are integrated in a set of exchanges linking all the members of the observed system, but also to imagine sets of activities and movements of integrating or dismantling activities in order to influence the existing order in the value system.

To do that, we must define original links between activities or between set of activities having an interest in the exchanges. These links are made of flows and rules. The flows can be of various nature as suggested in the Proposition 2.

Proposition 2 A flow is the movement of physical or abstract elements between activities or between activities and configurations of activities.

The rules can express among other things a formula, a process, a method, a principle, a convention, a law, a behavior, a way of producing information. This could be formulated as in Proposition 3.

Proposition 3 A rule is a dynamic concept that represents the description of what must be done in a specified case to produce a given result made from provided elements. It could be chained while it asked for other rules. Triggered off, it represents the execution of what has been described and can adopt many states. A rule allows information to be created.

By using rules and flows it is possible to define original links between activities and to use these links to create dynamic configurations of activities (Proposition 4) that can maximise the value for the groups having an interest in the exchanges made of flows between activities and controlled by rules.

Proposition 4 A configuration of activities is an organized set of activities. It makes up a system using interacting activities and flows that assure a transformation linked to the accomplishment of an objective.

In the environment, the activities are influenced by fields of forces, such as the globalization of markets, the still persisting heterogeneity of many markets, the evolution of technology, the time factor, and the concentration and centralization of capital. In this space the borders of firms become fuzzy. We do not dictate a priori borders. So there are no internal or external, control or identity notions. The thought can be global. We consider only the activities, the flows between these activities and the associated rules. The strategic creativity is expressed by the design or the re-design of original combinations of these elements. This leads to thinking about activities involved in the co-production of a global result instead of thinking firstly in terms of competitors, partners, clients and suppliers. We believe that this is very important in order to design new interfaces between partners. 'In times of structural transition, product research alone is not enough. Companies need to engage in concept research, which focuses on optimization and reoptimization of the entire range of variables across commercial relationships' Van der Heijden 1993. The strategic models created allow us to explain exchanges, to create relationships and to discover the potentials of utility useful for the groups having an interest in the exchanges.

The situations modeled through this global strategic thought must also be matched to the initial configurations of activities in order to detect how they affect the envisioned situations and to determine classes of mutations: alliances, mergers & acquisitions and divestitures of activities. The configurations of activities create a temporary network which is based on large scale network of activities, flows and rules. The relationships between the activities as well as the ones between the activities and the configurations of activities are specified by using flows and rules. The approach described above is a step on the way towards models allying cooperation with competition.

2.2. THE ORGANIZATIONAL COMPONENT

The design of the organization must be in accordance with the strategic thought. As per our approach, the organization must be structured on the key flows identified in the exchanges between strategic activities. From an organizational point of view, an activity can be seen as an area used to redefine tasks, roles, responsibilities and positions Bodart, Pigneur 1989. The typology of the flows remains unchanged. Information, resources, competencies and technologies are going from one activity to the other to realize tasks or to resolve particular problems. The flows are assigned to activities for a specific or a non determined period of time. Then they are released and thus free to be assigned to other activities. Each time the flows penetrate into an activity, they can be transformed. These possible transformations can modify their state and generate new flows. The flows form a circulatory system where they are synchronized by rules defined in constraints form. The rules play a major role in the design of positions, superstructures, lateral links and decision making systems of the organization. The set 'Flow - Activities - Rules' can be considered as a key process (Proposition 5) in the meaning of an horizontal organization. It should be made with a minimum of activities.

Proposition 5 A key process is a configuration of activities, an organized set of flows, activities and rules.

By using key flows as the consolidation base of activities, the final structure of the organization will reflect the natural interdependences existing between the flows. This way we create a configuration of activities like key processes. Until now, our approach to the design of the organization has been exactly to ignore the borders of the firms in order to favor key flows. From the same set of basic activities, flows and rules, connected in a large network, it is possible to specify the organizational units which can be seen as superimpositions over the basic activities. A set of rules can specify levels between the various instances of these configurations of activities in order to create organizational structures. In the same way as we said before about the strategy, the relationships between activities as well as between activities and configurations of activities are specified by using flows and rules. Each configuration of activities applies rules of which at least one is a common objective assigned to the unit.

2.3. THE MANAGEMENT COMPONENT

Managing the firms during the mutation process can be regarded as the management of the integration of activities in a configuration of activities or as the divestiture of activities from a configuration of activities. It is certainly not easy to undertake a mutation project successfully. Some answers could perhaps be found in the area of the activity based management. This makes the management principles fit the concepts of activity and of the configuration of activities we propose. From a management point of view, we can distinguish the management of the mutation project from that of the configurations of activities involved which could be a whole firm or any part of it. But from a conceptual point of view, both are configurations of activities.

The network of activities extends over the borders of the firms and is placed in a value system where every activity can be at the same time client and supplier of goods or services. An activity that consumes goods or services produced by other activities pays them to the activities supplying. The value of goods or services can be measured with regard to the clients' expectations by using value drivers. The costs of goods or services as well as the total cost of an activity are measured by cost drivers.

Proposition 6 The activity is at once the center of costs and value consolidation and the center of the allocation of information, resources (financial or not), competencies and technologies needed to execute the tasks. Value drivers and cost drivers allow us to determine the contribution of an activity to the value creation of the goods or provisions of services.

By using rules, proper methods like discounted cash flows must be defined to determine by simulation the value of an activity and of one or many configurations of activities. The integration or divestiture costs can also be determined by simulation.

As the foundation of management tools, accounting plays a particular role. The accounting should support strategic decision making, ensure the follow up of the implementation of the strategies, and provide an aid to this implementation. In order to assume this role, we propose to adopt an event approach of accounting. 'The actual financial or management accounting domain is not the figures, the counting, it is the economic design of transactions' said Bouquin 1993. In our words that means designing the exchanges and the economic events making up these exchanges between activities or between configurations of activities or any combination of them. This point of view is also partly the one presented by Dunn, McCarthy 1992 and by Geerts 1993. Before having a look at the dynamic component, we can consider an event as an elementary unit of information related to an economic fact.

In order to face the strategic, organizational and economic needs, the accounting has to be opened to the outside of the firm. Based on events, activities, flows and rules, accounting can disregard any economic entities and be attached later to configurations of activities. These latter can be for exemple a firm, a group, a division or any temporary network of activities creating a configuration of activities.

2.4. THE DYNAMIC COMPONENT

In light of the work of many authors - more particularly Sorter 1969, Liebermann, Whinston 1975, McCarthy 1979, 1982, Revaz 1990 - we propose to reconsider the dynamic representation of the traditional accounting model. This dynamic can be expressed as follows (Figure 2): an economic event triggers off a process of recording the economic events. This process is going to modify the objects defined according to the general activity domain of the company. Some sets of rules will then permit us to note these modifications. The rules work on non-aggregated data, recorded without pre-defined accounting taxonomy and characterising the economic events that affect the firm. These rules using raw recorded data permit the creation 'a posteriori' of all information. For example, the financial indicators, the drivers and the value determination methods are rules acting on data to produce the information the managers need. The approach authorises the combination of qualitative, quantitative, time-related and other data, with the frequently used monetary units that are furnished by the traditional accounting model.

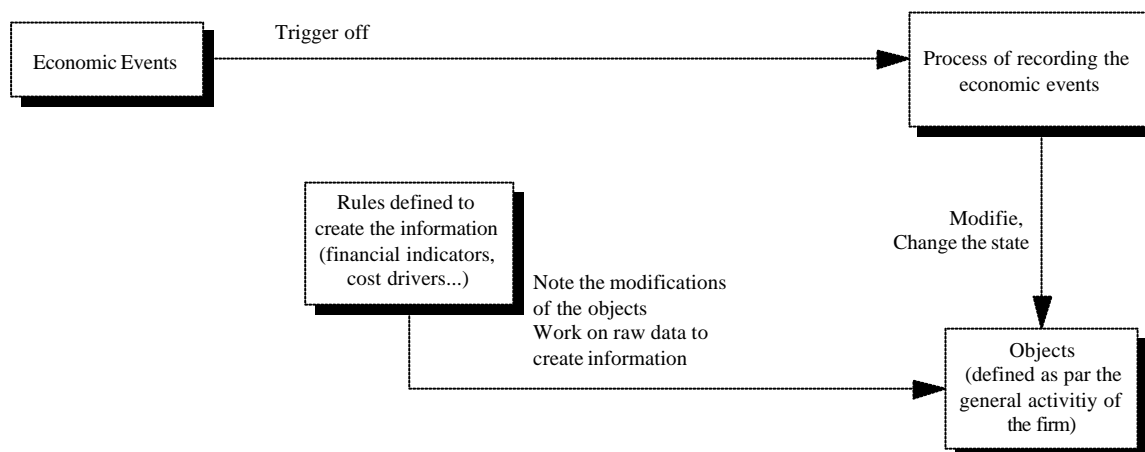


Figure 2 : The dynamic of the accounting approach

The event approach we propose to adopt allows us to formulate Proposition 7. By using the Proposition 3 and Proposition 7 the dynamic of the processes can be seen as 'a causal model in which an event is a stimulus towards which the system reacts more often by triggering off rules that could trigger off other events' Bodart, Pigneur 1989.

Proposition 7 An (economic) event represents a change of state that occurs in the environment at a given time and which fits with a stimulus requiring a reaction, principally by triggering off some rules. The event brings significant management information

We will now present the meta-model that assumes at once the role of unifier of the strategic, organizational and management thoughts, the role of the provider of tools for change, and the role of being the object of change.

3. THE META-MODEL

To be able to take into account globally the strategic analysis principles, the organization principles, the management principles, and the principles of dynamics of the event approach we retain, we have designed a meta-model (Figure 3) with a high level of abstraction. This gives a description and representation form of the concepts on which these principles are based. It allows us to manage the interrelations between the various

Now we propose an overview of the development phase of the mutation process and of the tools placed at the actors' disposal. The strategists, organization specialist, managers and financial specialists will imagine a value creation concept that is the key element to the success of the mutation.

4. DESIGNING BUSINESS SITUATIONS

During the mutation process, the identification phase leads us to recognize decisional situations of alliances, mergers & acquisitions and divestitures of activities. We found that this phase comprises three routines: the pre-diagnosis, in which the actors try to understand the initial environment and situation, the decision recognition in which opportunities are recognized, and the diagnosis in which the actors seeks to comprehend and rationalize the perceived elements.

There is no pre-defined entrance point in the processes of the development phase. The actors could begin their thought with either strategy, organization or management. The procedures can be only partly carried out. The information system places design tools at the various actors' disposal. These tools provide graphic interface, allow us to search in dictionaries founded on the concepts of the meta-model, permit us to use and re-use as a kind of 'Lego' parts or all defined situations and configurations of activities that have to be adapted to the actual or envisioned situations. As we can see in Figure 4, the observers can send information concerning one or many parts of interesting situations. They can themselves design activities, flows, rules, events, configurations of activities or any combinations of these elements. They can also send raw information that will be designed by specialists. Remember always that the mutation process is not a linear one. All along the mutation process, there are many iterations, feed-back loops, and links with the procedures of the identification, selection and implementation phases.

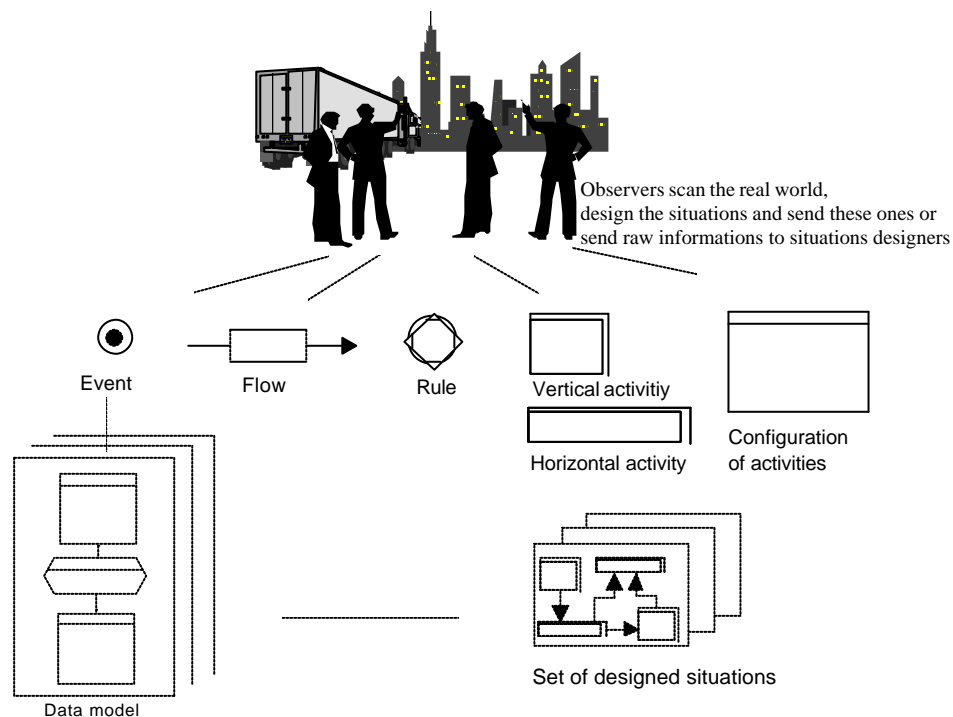


Figure 4 : Getting information

Let's begin now with the *strategic* thought leading the actors to imagine and design the strategic model of the target situation. The Figure 5 provides a view of the tools the strategist can use to design a target strategic

A *strategy* can be *formulated* for the first time, re-formulated, or be suggested by an emergent designed situation. As we said before, strategy, organization and management thought are federated through the common concepts of the meta-model. So it is possible to match a set of particularly relevant observed economic events with one or many given strategic situations. New strategies may emerge from this graphic representation of situations and from the discovery of attributes of the represented elements. The models are completed by iterations. The *strategic design of activities* permits the actors to specify the expected synergy and the allocation of resources, technologies, competencies and information. The actors *define the scope and the role* of each activity as well as the *commercial relationships* among the configurations of activities. By using rules, they specify the relevant *strategic drivers*. They rule also on the composition of the *management team*. It is important to keep in mind that the design and therefore the blueprint of the information system is fully embedded in the thoughts we describe. Finally, the strategists can draw up a first global *planning* of the *implementation* process.

As we presented before, the *design of the organization* is based on the key flows and strategic activities in order to favor the interdependencies between the flows. The thought is also turned to the rules, the methods and the constraints defining the synchronisations between the flows. This will lead to establishing the *organizational model* of the target situation and to *determining the form* of the alliance, the merger, the acquisition or the divestiture of activities the situation requires. They plan the steps of the mutation and the corresponding configurations of activities. It is always the same model of the situation that is enriched. But the actors of each domain can have their own view. Figure 6 provides a view of the tools the organization specialist can use for example to define a key process - Trading operation - with specific rules.

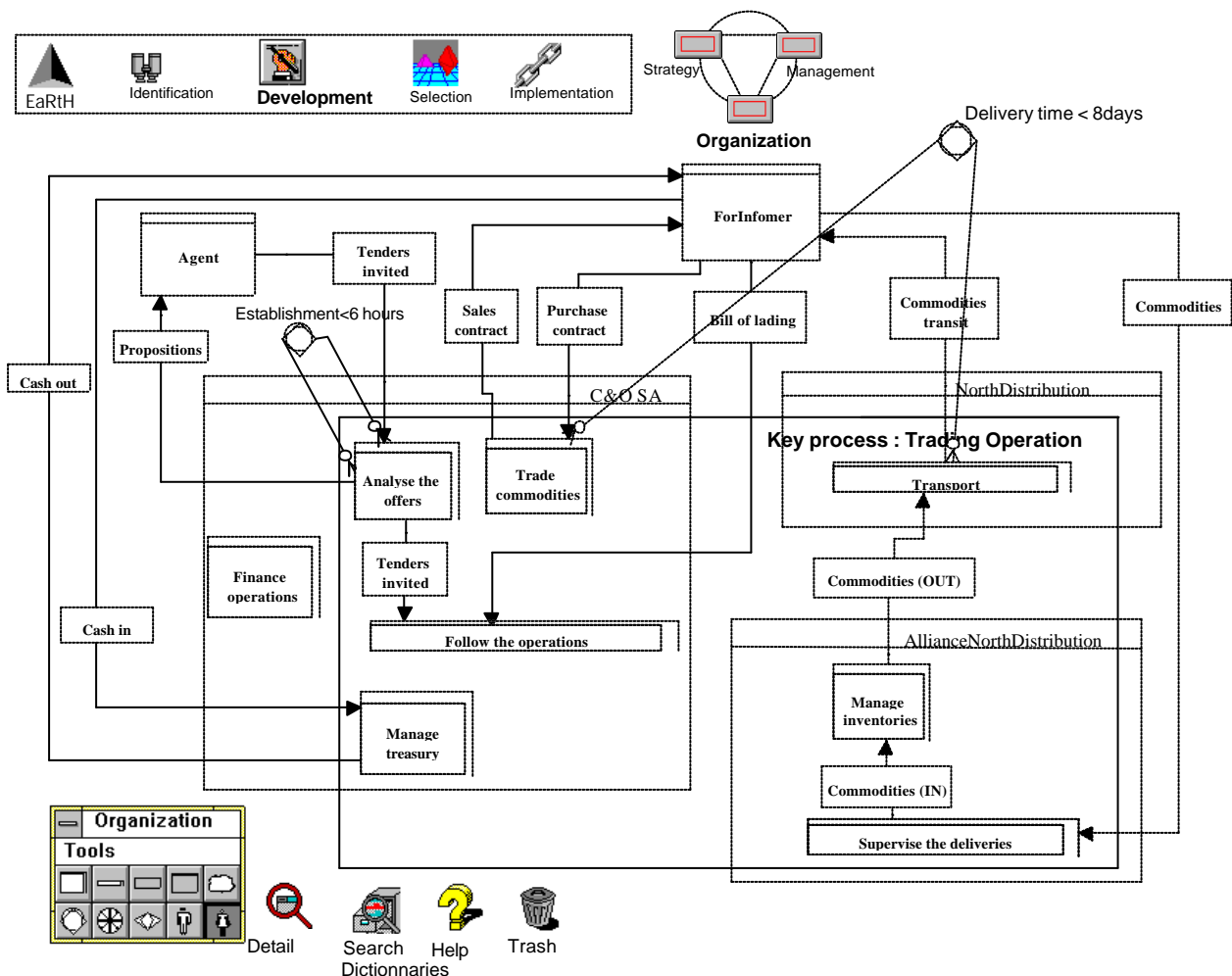


Figure 6 : Tools for the development phase: the organizational component

The organization specialists particularly pay attention to the flows of competencies, that means the *transfer of competencies* between activities or configurations of activities. They will also think about the *human resources management* concept as well as about the *culture* of the firms included in the process.

From a *management* point of view, the people involved in the design of the situations add the economic and more financial component to the target model. As we said before there is no pre-defined entrance point in the process, so some of the actors can begin their thought with a managerial point of view. They imagine and design the target economic configurations of activities. By using the 'Event' approach, they conceptualize the economic events and link them to the activities. An observed set of events can suggest new strategies, organizational or management methods or practices. Figure 7 provides a view of the tools the management and financial specialists can use for example to design an exchange between two firms - C&O SA and Alliance NorthDistribution - for taking a participation or to design a FIFO inventories management rule.

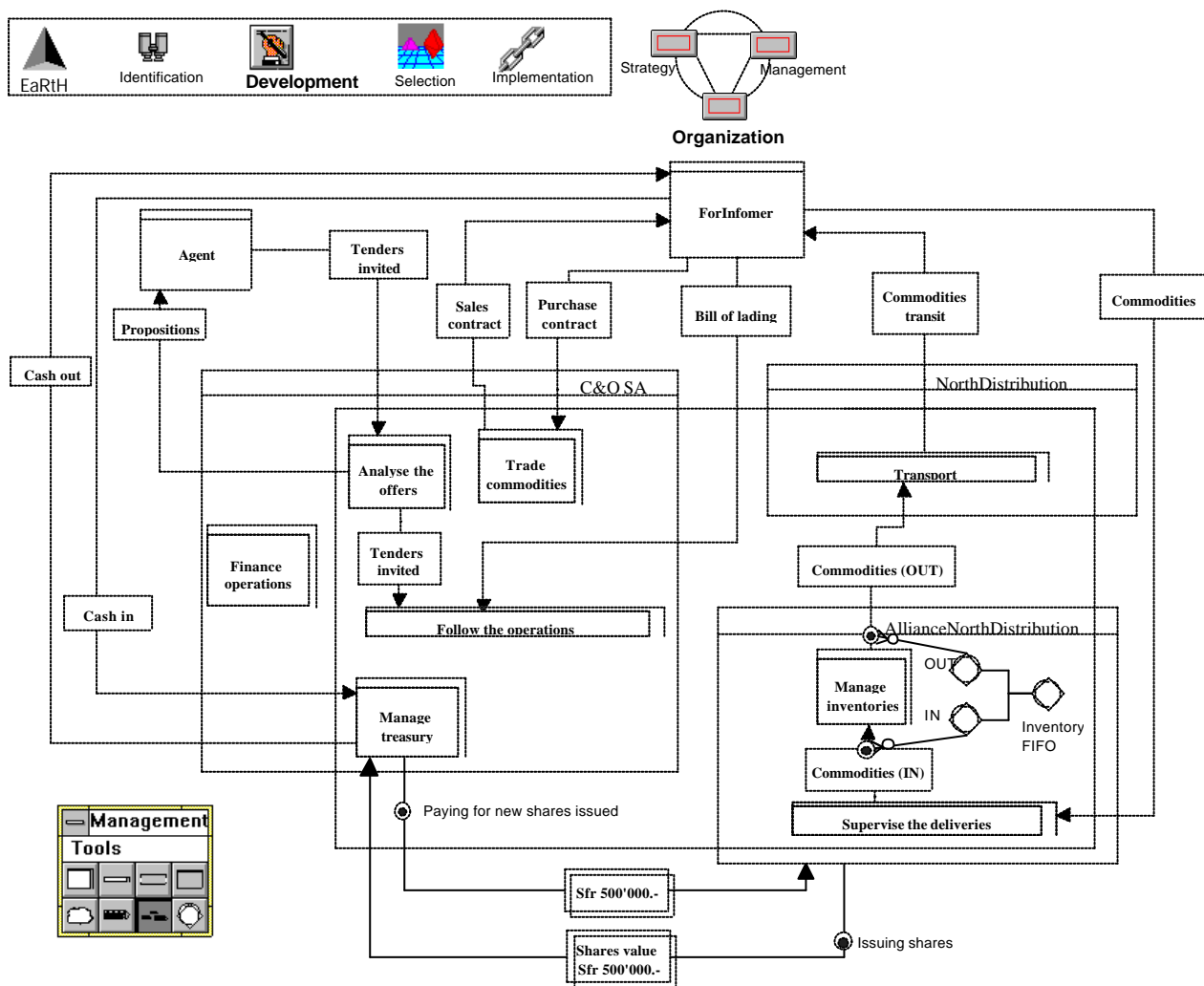


Figure 7 : Tools for the development phase: the management component

The alliances, mergers, acquisitions or divestitures require us to connect, integrate, and dismantle parts of the conceptual schemas which have been sent by the observers or have already been designed and recorded in the dictionaries. The designers adapt the activities, the flows, the rules, the economic events and the data schemas. The tools at the disposal of the users for realizing the integration or the scission of the schemas must permit the simultaneous visualization of these various schemas as well as the resulting ones. If graphical representation of the conceptual model is supported, the shape of the diagram, the total length of connections, the

number of crossings and bends, and so forth may be used as parameters to define graphic understandability' Batini, Lenzerini, Navathe 1986.

The designers also define the rules allowing one to create and extract the management and financial information. These rules can represent the drivers linked to the strategy and the financial or management indicators. This work is performed by using a graphic interface (Figure 7) and is embedded in the strategic, organizational and management thoughts we presented before.

The financial specialists create the financial concept linked to the expected strategic movements That means they think about the situations and design the underlying exchanges. They define the flows of financial resources between activities and between configurations of activities. They create the economic events generating the flows and the rules affecting these exchanges (Figure 7). From the resulting financial concept they can get a planning by scheduling the envisioned economic events and the operations linked to the implementation of the mutations.

After the development of a solution, or concurrently, and closely linked to it by iterations and feed-back loops, the selection phase leads to the choice of the target situation as well as to the choice of the alliances, mergers & acquisitions and divestitures of activities needed. This phase is made of analysis procedures using simulations and scenarios, judgment procedures and authorizations procedures which can begin very early and be carried out in parallel with all the mutation process.

5. CONCLUSION

In this paper we have briefly presented the mutation process and an integrated approach to strategy, organization and management in the context of mutations. The approach we propose has been applied to a complete example of an international trading company Revaz 1994 which has created an alliance with a distribution company, merged with another trading firm and dismantled some financial activities in favor of a bank. In the present paper, we have also proposed a meta-model that allows the information system to provide tools to favor creativity for designing changing situations of configurations of activities. The meta-model federates the thoughts of strategy, organization and management all along the mutation process. Finally, the development phase we have developed in more detail brings to the fore the links between the design of economic events and the integrated approach we suggest.

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