

The @Corp Case: Enhancing co-operation among managers of different business units

Vaidotas Sruogis

Department of Information
Science, University of
Bergen (Norway)
vaidotas.sruogis@ifi.uib.no

Pål I. Davidsen

Department of Information
Science, University of
Bergen (Norway)
davidsen@ifi.uib.no

Enzo Bivona

Department of Information
Science, University of
Bergen (Norway)
enzob@futuralink.it

Abstract

The @Corp case study concerns a high-technology manufacturing company. It is based on qualitative and quantitative data collected through interviews and written reports. In this paper, we discuss some of misperceptions shared by the strategic business unit (SBU) management. The SBU managers claimed to know various components of the structure interrelating the information, money, raw materials, workforce, and machinery of their SBUs to the extent that they felt confident in their policy design and could identify the structural causes of unfavorable systems behavior. Yet, the whole company did not perform to expectations. Several important business insights were captured in the system dynamics model and emphasized in the @Corp ILE. The interaction with @Corp ILE is intended to increase the managers' understanding of how individual SBU policies impact the overall performance of the whole business system. In this paper we discuss several advanced learning principles used in the ILE and propose a learning strategy to facilitate management learning.

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Background

The @Corp case study was conducted in a large high-technology company that produces and supplies sophisticated telecommunication equipment. Not so long ago, only national and global telecommunication companies were the primary customers that the company addressed. All over Europe the wave of restructuring national telecommunication monopolies and dramatic technological advances were significantly altering the conventional business setting. The company management needed help in understanding how changes in the business environment impact the company and how to adapt to them without incurring major sacrifices. At that time, the company was already facing the decline of one of its major products. The R&D department was vigorously working on a new product, that was believed to be much more technologically advanced and, therefore,

much more competitive in the marketplace. The future of the enterprise depended on this new product. We entered the company as a group of consultants from academia during this time of significant industry change.

Our primary goal was to *develop* a system dynamics model that explicitly portrayed production, marketing, sales and financial efforts allocated for the aging company's product; to *validate* the model using the data collected in the company; and, to *adapt* the validated system dynamics model to the new product that was about to be launched.

We managed to develop a functional system dynamics model of the marketing (tendering-bidding), production line, inventories, sales and financial sectors. The model was validated using data and information related to the aging product. The data for validation was acquired from a very broad range of sources including financial reports, internal statistics, interviews with managers at the various levels within the company, guided tours of the production lines and inspections of inventories. Despite our efforts, the last goal – adapting the validated SD model to the new product – was not achieved. The previously mentioned financial difficulties forced the company to undergo a complete restructuring of its core businesses. After the restructuring, the new company board became largely preoccupied with solving immediate financial problems and the continuation of our modeling and consulting efforts lost its relevance to them.

Despite the fact that our project was prematurely terminated, we were inspired to continue our work for the purpose of transferring the experience and insight to management education. Thus the academic @Corp ILE project was developed.

Managerial Misperceptions

In his book *Corporate Planning and Policy Design*, Lyneis (1980) describes several scenarios of corporate underperformance, which result from a breakdown in the translation of corporate objectives into a set of policies and resource allocations designed to achieve those objectives. Furthermore, he distinguishes and emphasizes underperformance resulting from policy design taking place locally and being isolated by functional area, underperformance resulting from policy design being isolated from the goals setting process, and underperformance resulting from policy design being isolated from analysis of the business environment.

There are plenty of similar real-life cases described in the management literature. Lyneis (1980) references Hobbs and Heany (1977), Roberts et al. (1968), Peters (1971) and Richmond (1976) to illustrate very similar examples of underperformance. Most of the time underperformance stems from prevailing managerial misperceptions.

While working with the company, we had an exposure to the practices and procedures that the company used in its day-to-day business operations. We observed some similar

patterns of managerial misperceptions that we believed could be attributed to the difficulties into which the company was already on its way.

The management of the strategic business units (SBUs) claimed to know various components of the structure interrelating the flows of information, money, raw materials, workforce, and machinery in the company to the extent that they felt confident in their policy design and felt that they could identify the structural causes of unfavorable system behavior. Yet, the company did not perform to expectations. While in the company, we had the opportunity to observe traces of misperceptions shared by the SBU managers, regarding:

- how the performance of a company is dependent on the performance and tight cooperation between managers of different SBU's;
- how SBU managers who want to gain a better financial performance, by achieving higher liquidity for their business unit, in reality might seriously extend the company's delivery delays and therefore the credibility and market position of the company;
- how shortsighted local goal-seeking behavior might lead the company to failure.

Lyneis (1980) suggests that the underperformance of the companies he described was not exclusively caused by bad management. In most cases management was probably attempting to solve problems using well established managerial practices. Nevertheless, their solutions were either causing or contributing to the problem. Lyneis further hypothesizes that such a breakdown of standard practice results from the nature of corporate systems.

- 1. Corporate behavior is affected by many interactions between parts of the company and the company and the environment.*
- 2. Interactions tend to be more important than the components - policy design by functional area is not always effective.*
- 3. Long-term result may differ from short-term results - actions taken to correct an immediate problem may make matters worse in the future.*

Often prevailing managerial mental models do not adequately reflect these insights causing poor management. Given the cases described in the literature and our personal experience, we clearly see the importance of helping managers to understand these important ideas. This was our main inspiration and motivation in the development of the @Corp ILE.

@Corp ILE

The resulting interactive learning environment, @Corp ILE, merges a conventional management case study with a simulation model and an associated interactive management game (Graham, A. K. et al., 1992). The @Corp case was partially based on

our own field experience and partially on the ideas and cases described in the management literature. The model capturing the “kernel” of the high-tech telecommunication equipment provider was simplified and generalized abandoning irrelevant specificities. Here we were focussing our attention on the described managerial misperceptions.

The @Corp ILE was primarily developed to be used in graduate management education, but we believe that it might also be well suited for use in executive education.

When working on the @Corp ILE, we had two primary goals. We wanted to:

- Help learners develop a sound, holistic understanding of how the structure of the corporate system (interrelating flows of information, money, raw materials, workforce and machinery) drives the corporate behavior (affects overall company performance);
- Foster a constructive debate among learners (who are called SBU managers in the ILE) and teach them the importance of collaborative policy design and the need to explicitly incorporate corporate goals into the corporate strategies, avoiding short-sighted local goal-seeking strategies, which are often doomed to cause company failure.

To pursue these educational goals, the @Corp ILE was designed not as a single educational software, but rather as a complete and integrated educational environment. It consists of the written case study article, a single-user interactive management game that can be accessed and played on the Web, a local area network multi-user game and two supplementary computer applications (@Corp Word Bank and @Corp System Explorer).

A case study is presented in the form of an imaginary *Fortune*-style article. It introduces the main aspects of the case to the learner, and it is intended to motivate and prepare learners to interact with @Corp ILE programs.

@Corp Word Bank is a web-based glossary of the specific industry and business terminology that the learner might come across when interacting with @Corp management game. Terms are organized with respect to those specific areas of the real company where they are most commonly used. The mind-mapping approach (Buzan, 1996) was used to graphically display the relationships between the terms and functional areas of the company.

@Corp System Explorer is another web-based application that contains a graphical representation of the causal structure of the industrial company operating in the telecommunication equipment market. Each structural sector of the company is explained.

@Corp Simulator (Web) is an interactive educational management game. It is a single-user version of the @Corp Simulator and it can be also accessed on the Web. The learner

manages a business unit of the @Corp corporation. In this version of the game the company consists of a single strategic business unit. This version of the game, in conjunction with the case study article, as well as the @Corp Word Bank and @Corp System Explorer applications, addresses the first educational goal stated above. We believe that it can be successfully used for distance education.

@Corp Simulator (LAN - local area network), similar to the Web version, is also an interactive educational management game. The major difference is that the LAN version is a multi-user version of the @Corp Simulator. It can be used only in a classroom equipped with several computers interconnected by a local area network. Each user is supposed to manage a business unit of the @Corp corporation assigned to them. In this version of the ILE, the company consists of several strategic business units. This version of the ILE addresses both educational goals stated above.

Educational Strategy

Even though the program components included into the @Corp package can be used separately, we strongly believe that it is most beneficial to use them together, but in a particular order.

First, learners must become familiar with the @Corp case study. A case study paper serves this purpose. We believe the paper important for motivating learners. Therefore, we adopted an engaging style, which makes the case description similar to an interview in the pages of *Fortune* magazine, a prominent management periodical. We suggest that the @Corp case paper should be read and discussed among students in the classroom. After learners have read the story, they then learn more about the corporate system using the @Corp System Explorer. @Corp System Explorer is an easy to use Web application. It can be accessed at any time. Therefore, an interaction with the @Corp System Explorer can be assigned as homework. As a supplement to the System Explorer, students should be instructed to use @Corp Word Bank, which is also a Web application. This will help learners become familiar with the terminology.

After the interaction with the @Corp System Explorer and @Corp Word Bank, learners are encouraged to discuss the structure of the system in the classroom. Further more, the facilitator should start a group discussion about policy development in a corporate environment. The facilitator should help learners understand the policy development and implementation process. The importance of explicitly stating policy goals and delays associated with reaching these goals should be stressed. Then, students are ready to use the Web version of the @Corp Simulator. Since the Web version of the @Corp Simulator is a single-user environment, it can be flexibly used both in the classroom environment as well as for distance education. It can be conveniently used together with the supplementary @Corp Word Bank and @Corp System Explorer applications. We suggest that learners play the Web version of the ILE several times and try out different policies in managing the virtual company. Attention should be paid to the delays and possible

unintended side effects that they encounter. We believe that the best learning outcomes can be achieved if, prior to making any policy decisions, learners record their intentions and expectations in the @Corp logbook. These records should contain explicitly stated policy goals, descriptions of how the policy will be implemented, estimated policy timeframe, and sketches of the anticipated behavior over time of the main variables. Subsequent to each computer experiment, learners should note unintended side effects that they observe, as well as hypotheses about the causes of the unintended effects. The logbooks document users' learning, but more importantly, when properly facilitated, encourage scientific experimentation rather than playing a game. Records made in the @Corp logbooks should later be used as the basis for replay and group discussions.

So far, the main focus has been on the first educational goal of helping learners, in a single SBU environment, to acquire sound policy development skills based on an understanding of how the structure of the corporate system drives corporate behavior (affects overall company performance). After their interaction with the single-player version of the game, learners are ready to step up to the next level of difficulty. In addition to the first educational goal, we add the second one, to help them learn the importance of collaborative policy design and the need to explicitly incorporate holistic corporate goals into their individual business unit strategies.

Now that the learners are ready to use the multi-user version of the educational game, we suggest they run two ILE sessions. In the first gaming session, learners are not allowed to talk among themselves. They are encouraged to use their best management practices developed during their previous interaction with the single-player version of the @Corp game. Again, we encourage using the same logbook strategy described above. After playing the game, learners should discuss the performance of the whole corporation as well as the performance of their individual business units. They are encouraged to share the policies they used to manage their business units.

In the second gaming session, learners are encouraged to talk and develop strategies together. Prior to playing the game, the facilitator should explain the second educational goal pursued in the learning process. After the second session, the results should be discussed and compared to the results of the first gaming session.

Even though most of the material can be found in the @Corp environment, the facilitator should take an active role in the learning process. The main responsibility of the facilitator is to make sure that the proposed learning strategy is implemented and followed at an appropriate pace. We want to emphasize the importance of the collaborative group work. We see the facilitator as a person who encourages scientific experimentation instead of game-playing, and who moderates group discussions and presentations.

Educational Principles

The interaction with the @Corp case study is intended to increase the manager's understanding of how individual SBU policies impact the overall performance of the whole business system. While developing the @Corp environment, we tried to follow several educational principles that we believe are essential for effectively encouraging reflection about our mental models. Here we mention a few of these principles, specifically the idea of graduated complexity, the use of embedded behavior graphs in the representations of system structure, and the use of a strategic policy development mode (Davidsen, 1995) in interactive educational environment.

Our learning strategy gradually introduces complexity to the learners. First, learners read the case paper; then, they are introduced to the new terminology. Next, they use the terminology to learn about system structure. Later, this new knowledge is applied in a simulated corporate environment, where learners are managing a single business unit in the company. While interacting with the single-SBU environment, the learner's attention is focussed on developing an understanding of how the corporate system operates, how its structure drives its behavior, and how the learner's policy decisions affect company performance. After the structure of the system is understood and local policy development skills are mastered, complexity is further increased. Now the learner is prepared to use her newly developed skills in the multi-user environment. Here the focus shifts from individual to collaborative policy development.

In the graphical user interface of the multi-user game, we use behavior graphs embedded within the structural representation of the system. Davidsen (1994, 1995) advocates this approach as a way to improve the learner's understanding of the relationship between the structure and behavior in systems. Such embedded behavior graphs allow the learner to see at a glance the relationships between the behavior of multiple variables in the system, providing a simultaneous bird's-eye view of both structure and behavior. The structure-behavior relationships in complex dynamic systems can be much better understood when such means are provided.

While playing the multi-user game, learners are encouraged to operate in two distinct policy-making modes: a strategic planning mode (Davidsen, 1995) in which long-term policies are being developed and tested, and a real mode in which learners implement the strategies they identified in the planning mode. In the strategic planning mode, learners make assumptions about their own and the other SBU's strategies. Typically, they will try out several scenarios before finalizing and committing to the strategy that their SBU will adopt. The strategic planning mode enables learners to anticipate the long-term effects of their proposed strategies, given assumptions about the behavior of other SBUs. However, providing sufficient time for effective use of the strategic planning mode will significantly influence not only how learners use the environment, but also how facilitators guide such use.

In addition to these learning principles, we would like to emphasize the interactivity and the importance of the group discussions and collaborative learning. We believe that the learning process can be significantly improved by combining individual and collaborative learning (Salomon, 1992).

Conclusions and Discussion

Prevailing managerial mental models often do not adequately reflect how the performance of a company depends on a tight cooperation between managers of different SBU's, and how shortsighted local goal-seeking strategies might lead the company to failure. Corporate underperformance often results from a breakdown in the translation of corporate objectives into a set of individual policies and a resource allocation designed to achieve those objectives. The lack of insight into these causes of underperformance leads to poor management.

Given the cases described in the literature and our personal experience, we clearly see the importance of helping managers capture these important ideas. Here we suggest that managers, through the use of the system dynamics based interactive learning environment, can be assisted in understanding the complex relationships existing between local SBU operations and overall company performance.

We propose an integrated learning strategy, which addresses the problem. Interaction with the @Corp case study is intended to increase the manager's awareness of how individual SBU policies impact the overall performance of the whole business system. However, we have not had the opportunity to properly test the interactive learning environment neither in the company on which it was originally based nor in the classroom environment. Therefore, as future work we see a need to conduct a series of tests on the proposed interactive learning environment and the associated learning strategy. Such tests could be conducted either in a specific corporation or in a university education environment. Such tests would require us to design experiments to measure and evaluate the learning outcome. Experimental results should be used to improve the proposed learning environment.

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