

## The Simulation Game ECOMAN as a Powerful Learning Tool

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### Abstract

The business game ECOMAN has been organized since 1996 by the Faculty of Economics and Business of KU Leuven Campus Brussels. The game is an example of an interactive and skills-focused approach. To lead a company, many decisions have to be taken according to the mission statement and strategic objectives. The intention is that the management team runs the company for a number of financial years (game rounds). For this, they need to make decisions taking into account disruptive economic and business factors. Every decision has an impact on the overall business situation. Within this context, simulation games are extremely powerful learning tools, allowing the decision maker (player) to formulate and test the results of the different decisions taken as a manager.

The game ECOMAN creates an added value for the participants. They clearly have a lot more insight into business economics, as the game teaches them to estimate the effects of various unpredictable factors. The reaction of the individual and the group is thoroughly tested. Moreover they learn to work independently on a project and practice their foreign language and presentation skills.

**Keywords:** entrepreneurship, teamwork, manager, responsibilities, skills, objectives

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### Education Structure in Flanders Linked to ECOMAN

Our campus is situated in Brussels, the capital of Flanders, Belgium and Europe. Flanders lies in the northern part of Belgium and is centrally located to major industrial areas in Western Europe. Flanders has a population of almost six and a half million inhabitants. The official language is Dutch, but French, German and English are widely spoken. This has its influence on the business game concerning language choices and simulation environment.

Belgium is a federal state, composed of language-based communities and territorial regions. The redistribution of power occurred along two lines. The first line relates to language and, in a broader sense, to everything related to culture. The result was several communities. The concept of 'community' refers to persons that make up a community and the bond that unifies them, namely their language and culture. Belgium sits across the fault line that separates German and Latin cultures. This explains why the country has three official languages: Dutch, French and German. As a result, Belgium today has three communities: the Flemish, the French and the German-speaking Community. The second line of state reform was historically inspired by economic interests. The regions, which aspired to greater economic autonomy, conveyed these interests. The establishment of the three regions was the result: the Flemish Region, the Brussels Capital Region and the Walloon Region. The power to make decisions is no longer the exclusive preserve of the federal government and the federal parliament. The leadership of the country is now in the hands of various partners, who independently exercise their authority within their domains.

The powers over education in Belgium lie with the communities. The Flemish, French and German speaking Community have their own very similar educational system. Within the Flemish Government, the Minister of Education is responsible for almost all aspects of education policy, from

nursery to higher and university education. Nursery education is available for children from two and a half to six years. Primary education aims at children from six to twelve and comprises six consecutive years of study. Secondary education is aimed at young people aged twelve to eighteen. Higher professional education exclusively consists of professionally oriented bachelor courses, which are only organised at university colleges of higher education. Academic education comprises bachelor and master courses, which are provided by universities. The business game ECOMAN can be organized in different levels for in the final year of secondary schools, at university colleges and at university.

### **Business Game ECOMAN**

A business game (also called a management game) is a simulation exercise. This means that the participants 'act as if' they run a company. Not surprisingly, the main purpose of a business game is to test the theoretical knowledge of the participants through practical exercises.

#### *Design of the game*

Groups with a maximum of thirty students are divided into three or four teams competing within one market. The more students there are, the greater the number of markets. This means that the three or four companies will compete against each other within one market. Markets do not interfere with each other. Each team will run a company for several financial years. It is not intended that each team will create a new firm. Each group starts from the same starting point: the ECOMAN company. This fictitious company was established ten years ago.

After the three or four teams have been formed, the participants have to choose a new name for their company and each participant has to assume responsibility for a department in that company. As it happens, in each company at least one person is responsible for marketing, human resources, logistics, finances and production. Furthermore, each company has to select a managing director. Only after the responsibilities have been laid down can the game start.

A first assignment for the management consists in formulating a mission statement. The mission needs to be pursued and should be translated into long term objectives. What does the company try to emphasize (e.g. customer satisfaction, growth, employment) and what does the company want to have achieved in three or four years' time (e.g. market leadership, financial independence) In order to do so, a SWOT analysis has to be made. Which are the company's strong points; what are weaknesses? The consequence of taking over a company is the need to review all the good, but also all the bad decisions of the previous management.

At the beginning of each financial year every company receives information concerning business economics: profit-and-loss account, balance sheet, market information, technical information ... Also expectations about the economic situation too are clarified in a report on the state of the market: what is the company up against in the field of economic growth, inflation, interest rates, taxes, social (un)rest ... Also information about the policy and decisions taken by the company's board of supervisors have to be taken into account. And to complete the SWOT analysis, participants have to think about the opportunities and threats.

All this information is provided by the ECOMAN-coach. Based on these data and considering the mission statement and long term objectives, each company takes several decisions:

- Managing director

The managing director sees to the co-operation within the team. The decisions have to be taken as a team. Sometimes this is very straightforward, sometimes it is accompanied by problems. The managing director makes sure that compromises can be reached (without harming the value of the decision). In the important decisions (e.g. massive dismissals, acquisition of real estate, increase in capital) he plays an crucial role. What is the effect of an increase in capital? Why is the profitability of the company too low? As in reality, it is the managing director who assumes the final responsibility for the achievements of the company. Of course, the managing director has to ensure that decisions are in line with the overall, long-term objectives of the company.

- Production manager

The demand for the products of the company needs to be met in order to comply. The production manager has to cooperate closely with the marketing manager. The production

planning and the stock policy are key elements in the policy of the company. If the company fails to meet the demand, this implies that a higher production volume should have been budgeted or that the company failed to produce the amount budgeted. This could be caused by a shortage in materials, which is one of the production manager's responsibilities. The production manager also takes care of the creative part of the company. He is responsible for the R&D-budget and the development of a renewed product and thus for the quality of this product. To what extent has the quality of the product grown by a rise in the R&D-budget? How does the quality of the materials affect the quality of the product? Again the information flow between production and marketing has to be up to speed. If not, there will be a serious problem in product placement.

- Human resources manager

The HR manager bears responsibility for the recruitment and the dismissal of staff members, personnel training and motivation and wage policy. For this purpose the HR manager has to evaluate a number of macroeconomic factors (e.g. inflation, unemployment) and factors in business economics (e.g. productivity, labour costs, number of union members). The HR management motivates the staff members as much as possible. The HR manager should be able to clearly explain the decisions taken. How have the dismissed members of staff been supported? How were new members of staff selected? Sometimes the information flow between HR, marketing and logistics is problematic. If this is the case there can be insufficient numbers of salesmen from blue collar backgrounds, affecting the company in a rather negative way.

- Logistics manager

First of all, the logistics manager and the production manager estimate the production volume. This cannot be conducted effectively without a good information channel to the marketing department. Investment analysis and decisions are other important tasks of the manager of logistics. How many machines are needed to ensure that the budgeted production volume can be realised? This manager can decide to replace first generation machines with newer, more productive ones. What is the price of extension or replacement investments? How much return does the company expect from such investments? How many production shops are needed to set up the machines? The company might invest in installations which reduce the use of energy and the waste production. Have these investments really been the key to a saving in costs? An intensive communication with the company's financial manager is needed.

- Marketing manager

The responsibility of the marketing manager concerns sales, demand and market share. An important and complex task for the marketing director consists in forecasting the demand for the product of the company in the next year. This estimate is very important for the production manager, who will base his production plan on it. The typical 4 P's (Product, Price, Promotion and Place) are the basis of the marketing policy. The marketing manager works out each P very carefully, and sees to it that they are tuned to one another. He has to explain the details of the marketing budget. Which media are used to attract (new) customers? What does the commercial consist of? How can market research be conducted?

- Financial manager

The financial manager has a large number of responsibilities concerning the dividend policy, investment policy, financing decisions. Naturally, all these decisions have to be explained. It is the financial manager's task to follow up a number of important ratios: What's the news on the solvency of the company? Is profitability high enough? Why has the value of the shares increased or decreased?

The goal of the game is to approximate the objectives. To reach these goals, participants are challenged to actively analyse data and simulate scenarios dealing with a constantly changing economic environment. The one can't decide without consulting and negotiating with the other. This constant discussion leads to an intense interactivity between all participants. Moreover they have to respect deadlines for submitting their decisions.

The decisions of the three or four companies are passed on to the ECOMAN-coach and posted into a software program. With the help of the computer program, analyses and calculations are made, after which, the profits, the market shares, the cash flows, the turnover, the stocks of the companies are known.

The newly gained information is passed on to the companies. Each company receives extensive information about their own performance and limited information about the competition. After an analysis of these results and a comparison of the different companies, another year can start. Obviously, it is important that the companies calculate and analyse all types of ratios (liquidity, profitability, solvency) and compare the results shown with the objectives, as the company makes decisions in order to reach the goals set at the start of the game.

#### *Competences involved*

The competition between teams is an advantage, but winning the business game may not be an aim in itself. The objectives set out at the start of the game are far surpassed by the objectives of the game itself. These objectives are situated at different levels. First, the game provides the opportunity to apply their theoretical knowledge in a fairly realistic, but protected environment. Second, the participants can test their assumptions and the decisions linked to them. Moreover the effects are clearly visible in the new balance sheet, profit and loss account and the comparison with the competitors. A financial year within the business game takes up only a few hours and not a full year, therefore connections can be easily found in a relatively small amount of time. In a real environment, the management may be afraid of making mistakes and often has to wait for a long time to see the result of certain actions.

This implies that all participants, whether with or without prior knowledge on entrepreneurship can take part. Starting from the learning by doing principle all participants acquire knowledge of the conceptual framework of economics and management. Deductive skills are learned, because the numerous data needs to be processed in a short period of time.

This is automatically linked to a third competence within the game and in the “real world” teamwork. In each financial year, the participants have to co-operate and work together. If they don't, the company will never reach its goals. Without excellent teamwork, no company can achieve good results.

Teamwork matters in a business game; it is demonstrated to what extent the departments are dependent on one another. The participant gains a clear understanding of the relations between different factors in business economics: How does the dividend policy affect the solvency of a company? What's the consequence of a degree of capacity utilisation which is too low?

Business economics is not the only issue of importance. The fact is that the teams work in a specific economic, political and social environment. Participants experience how they can be constrained by a number of economic factors: To what extent does inflation affect the costs? How should the company react to an economic crisis? What risks is it willing to face in the financial market?

In taking the decisions and interpreting the results, the possibility exists that management will be placed under pressure. This means that the management has to react and think fairly quickly. Furthermore, each participant has to learn to cope with uncertainty and to experience how difficult it is to outwit the competitor if the company doesn't know what the competitor is doing or is intending to do. The analysis of all data requires a high degree of teamwork, and efficient meeting skills are necessary to meet the proposed deadlines.

#### *Organisation*

The business game is organized for different target groups: students in the final year of secondary education, students of the Academic Bachelor Program and students of the Professional Bachelor Program. The level of difficulty and the language (Dutch, English or French) can be modified according to the target group.

In Flanders, the game is organized annually for approximately 2,500 students of secondary schools and 1,000 students of university colleges and universities.

- ECOMAN in the upper-sixth

Playing this business game with upper-sixth or A-level class pupils requires a lot of preparation. No specific initial knowledge of economics or business management is required. Pupils visit an interactive website <http://www.ecoman.be> during a number of weeks (two or three hours a week), during which

time they become familiar with the economic and management terminology needed in order to run a company. They also receive more detailed information about the company that they will take over. Each visit to the website is linked to specific tasks, so by the end of this period, they have chosen a company name, designed a logo, written a mission statement, decided on targets, and taken decisions for the first financial year.

This online sessions are followed by an intensive training and coaching day under the supervision of a ECOMAN-coach. The day starts with a competitor analysis which provides students with more information about the economic position of their own company and of their rivals' company. During this day of playing, two more years are covered, with extra attention to sustainable management. Afterwards, the teacher in the school can opt to draw up a report and/or for organizing a presentation on the conducted policy, possibly in a foreign language.

The Flemish government has set interdisciplinary didactic goals for each pupil. These are minimum objectives which do not belong to one specific subject, but which have to be attained in an interdisciplinary fashion or through projects. In this way, some relevant social content can and must be integrated in the curriculum, even though it is not typical of one field or subject. Many schools realize these interdisciplinary goals through integrated projects, such as the "integrated test". The business game ECOMAN can function as an integrated test of whether upper-sixth pupils have attained the required didactic goals at the end of the curriculum. The pupils must be able to show their mental dexterity when applying knowledge, skills and attitudes in a professional situation. This brings pupils closer to corporate life as well as to the world of higher education.

- ECOMAN in university colleges and universities

In Flanders, higher education is provided by university colleges and universities and a number of other accredited institutions. The universities tend to organize more academic programs while the university colleges are more professionally oriented.

Playing the business game with students of university colleges and universities requires different preparation from in secondary schools. The students receive a brochure that contains general information, data and instructions for each department (course material for the general director, HR director, marketing director, production director, logistics director, personnel director) and calculations of the balance sheet and income statement. Based on this brochure and the prior knowledge of economics the students can start the game.

The business game itself lasts two to three days. The students start by allocating responsibilities (organizational structure), formulating a mission statement and defining long-term objectives. Once they have decided the company's direction, other decisions can be made. They need to establish connections between various corporate decisions in a simulated business environment, taking the general economic context and business context into account.

For university colleges and universities, the difficulty of the game is higher, the company needs to produce and sell two types of products in one or two markets. One product is for professional use and the other product is meant for private use, which is more price sensitive.

While making decisions the students use a budgeting-software. This management tool helps the students to get a view of the expected results, if necessary they still can adjust some decisions in order to reach their objectives.

The game ends with an important assignment. The students have to present the policy pursued, the obtained results and the perspectives to the shareholders. Depending on the goals, the university (colleges) wishes to achieve, the presentation can result in a shareholders meeting, during which the language can be Dutch, English or French. On the other hand a financial report with an extensive analysis of data or a website can be drawn up.

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