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Manual for management game “Stock Control”

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Contents

Overview

The management game Stock Control is the first of a number of similar games in the course of education. It has the following educational tasks:

* Give students knowledge about the method of conducting management games;

* Introduce the problems of economic management in the educational process and to be used as example in the following classes;

* Stabilize and illustrate the learned theoretical concepts from General systems theory and management;

* Introduce the idea of using computers and simulation models in management decision-making

Objectives

Your task is management of a store system, which is serving as intermediator between a distant supplier of units and production zone, representing a consumer of these units. The structure of the management system (its elements and links between them) is shown in Figure 1. where:

1. order for delivery of units for the next week (influencing the object of management);

2. delivery of units (connected with transport expenditures);

3. consumption of units, which has planned (determined) and accidental component;

4. passing on the reminder of the units in the end of the week in the store for conservation (connected with storage expenditures);

5. using the reminder of units from the previous week;

6. using the emergency rations (connected with fines);

7. restitution of the emergency rations (obligatory in the beginning of the week);

8. action of accidental disturbing effects from the environment on the work of the consumer

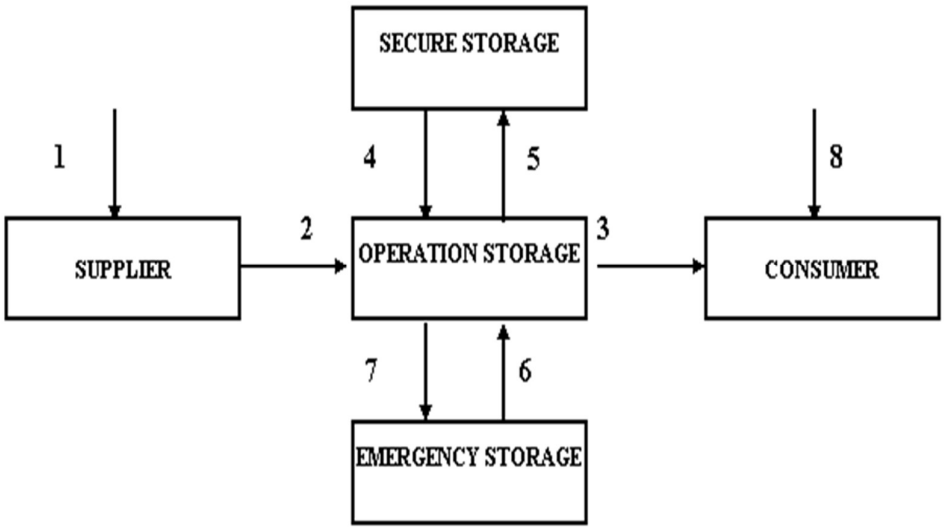

Figure1. Elements and links in the management system (the object of management)

Every week you have to take decision about the size of the order to the supplier (possible decision is not making an order), as you conform with the following conditions:

Planned consumption in the first week is 208 units. As the time is passing it increases uniformly and by the tenth week it reaches 280 units.

Factual consumption deviates from the planned because of the operation of different accidental disturbing effects of the environment. From the former statistic observations is determined that the deviation is in between Â±15% from the planned consumption during the corresponding week.

The supplier is always proper (by contrast with the real suppliers!), i.e. every week he supplies as many units, as he had been told the previous week.

Transport expenditures are 900 euro per course, independently of the size of the order.

- If in the end of the week in the operative storage remain unused units, they pass on to the store for preservation.

- Expenditures for preservation for one article are 2 euro per week. During the following week these units can be used by the consumer.

- If the consumption in the given week overcomes the initial units in the store, the shortage is covered by a loan from the emergency stocks. With every use of emergency stocks, you have to pay fines of 300 euro for the first loan and 1500 euro for every following one. In the beginning of next week emergency stocks should be restored by its original size.

Your aim is to use such strategy for making the orders, that can achieve minimal total expenditures (transport + storage + fines) for the whole period of the game (10 weeks).

Group Size

Prior to the beginning of the game students separate in teams of 3 to 5 people. Every such team represents the leadership of a separate store system. In the beginning of the game every team is registered by filling in the registration blank.

The participants of every team distribute between themselves the following posts (roles), indicated in the registration blank:

- Director leads the activity of the team, distributes the work between the participants and represents the team during the discussion in the end of the game;

- Accountant responsible for the exact and timely leading of the working table of the team;

- Purchaser contacts with the central supplier and ensures the timely giving of the orders;

- Analyst analyses the behavior of the object of management and prepares forecasts for the expected consumption during the next weeks and the size of the possible deviations;

- Inspector checks the faithfulness of the calculations of the other teams after finishing the game (during the game decisions of every team are secret).

Time requirements

One play of the game is taken for two hours.

Procedure

The game is proceeding in competition conditions between the teams. Criteria for success of the strategy taken by every team are the total final expenditures from the whole period of the game.

The subject of the management is the team as a whole. Every week, after a discussion in the group, there should be agreed decision about the size of the order. (Figure 2)

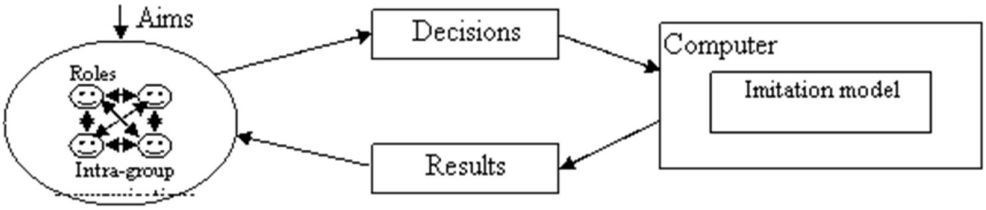

Figure 2. Scheme of the business game

The game continues in 10 playing weeks, each of which corresponds to 5 minutes school time (i.e., decision should be taken under conditions of shortage of time) If you do not succeed in taking decision in this time, it is considered that you do not want a delivery of units for the next week.

Set Up

The decision is regarded to be in order when it is given to the tutor (playing the role of the Central Supplier) before the expiration of the regalement time and formed in appearance of correctly filled order:

Order for delivery of units

Week №		Team №		Size of the order			

The filling in the list for the decision is made as every digit is written in separate cell. Zeros should be crossed out with inclined line.

The current results of the game (i.e., behavior of the object of management) for every team are written in form of working table:

Week	Movement of the units (In number)			Expenditures (EU)			
	Order Delivery	Consumption	Surplus/ Shortage	Transport	Store	Fines	Total
1							
2							
9							
10							
TOTAL Expenditures:							
In percentage:							

DIRECTOR: CHIEF ACCOUNTANT INSPECTOR:

Directions

You should not forget that:

1. If you make few orders but with huge size, you have low transport expenditures, but at the expense of this you will keep unconsumed stocks, which leads to increase of the storage expenditures and vice versa.

2. The presence of accidental deviations of the factual from the planned consumption gives a certain risk for fines. The increase of the stocks in store decreases this risk but extends the expenditures for storage and vice versa.

The described storage system represents your object for management (management system). You manage its behavior, i.e., take role of subject of management (managing system). Therefore:

1) the aim of the management is reaching minimal total expenditures;

2) the behavior of the object is characterized by variables like factual consumption of units, surplus/shortage of units in the end of the week, fines, transport, storage and general expenditures for the week;

3) the environmental influences on the behavior of the object of management with different accidental disturbing effects (for instance, irregular supply of electric power, crashes in the equipment, diseases of the staff, etc.);

4) the subject of management (you!) has to analyze the former behavior, having in mind the activity of accidental disturbing effects (i.e., analysis and forecast are required for the expected consumption of units or for increased storage expenditures in case of surplus of units);

5) on this base decision for managing influence should be taken every week (determine the size of the order) in the conditions of injustice (presence of accidental disturbing effects) and taking a certain risk (for fine in case of shortage of units or for increased storage expenditures in case of surplus of units);

6) the decisions taken during the given period change the condition of the object during the next period;

7) the resulting management cycle repeats periodically (every week) until the end of the game;

8) the object of and the subject of management together with the links between them form a closed system for management (system with feedback), shown in Figure 3.

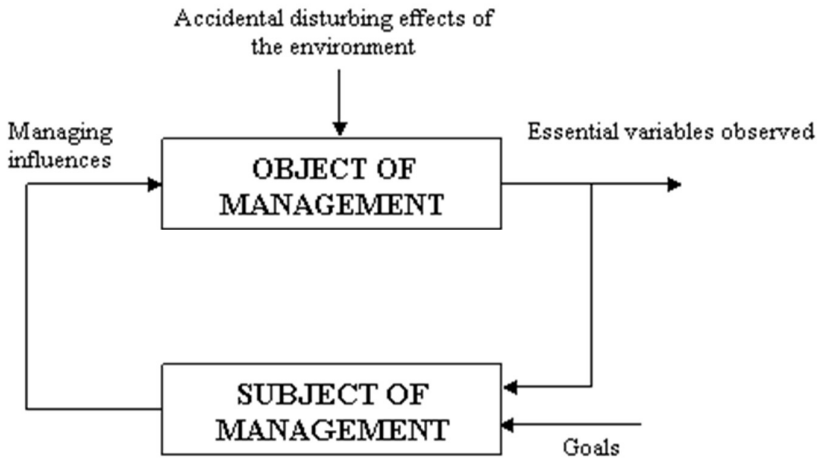

Figure 3. General scheme for system of management

Debrief

Conducting discussion. After finishing the game, discussion between teams is carried out, in which different strategies, mistakes, and process of decision making are analyzed.

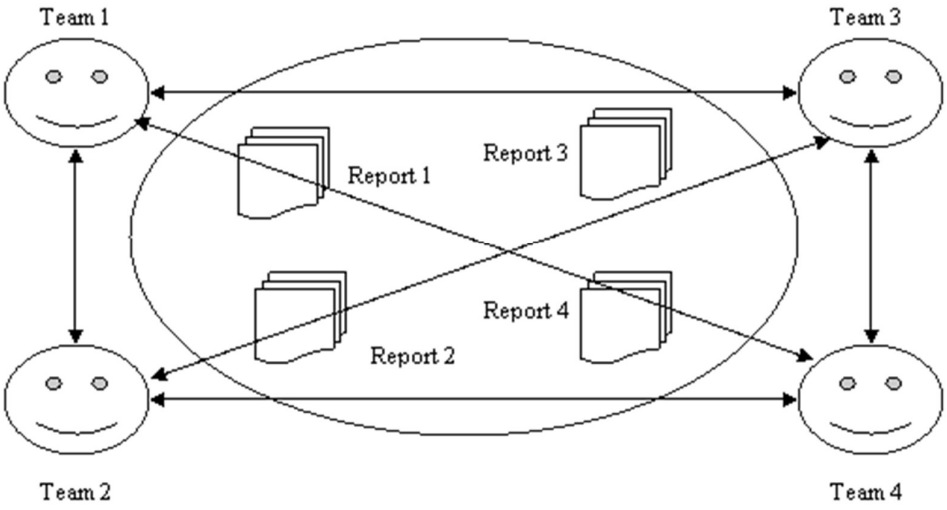

Figure 4. Scheme for intra-team discussion.

The discussion is conducted on the basis of report, which is prepared by every team, in the following sequence:

1. Every team presents its report to the others for introduction of it.

2. All teams have the same time for introducing its report to other teams.

3. Every team defines announcer (usually the Director), who introduces the report during the discussion.

4. Every team gives speeches consequently in three tours:

4.1. General pronouncement - announcer shortly presents the report and the basic conclusions of the team (WE about US).

4.2. Query - announcer of the team takes attitude toward others' reports with notes, criticism, praises, etc. (WE about OTHERS).

4.3. Final word - announcer of the team replays to the queries.

Preparation of the report. When analyzing the results of the game, your team should make a compact report with precise language which includes:

1. Theoretical layout.

2. Aim of the game and reasoning of the strategy chosen.

3. Results and analysis of the mistakes (the report, including the working table).

4. Conclusions about:

4.1. Behavior of the system.

4.2. Possibilities and methods for optimal management.

4.3. Decision-making in the conditions of indefiniteness and shortage of time.

4.4. Peculiarities of determined and probable systems for management.

4.5. Peculiarities with manual and with machine treatment of data and the place of the computer technique in the economic management.

5. Your opinion and recommendations for the game (on separate sheet).

During the preparation of the report, it is significant to show that the basic concepts from General system theory and management (for example: system, element, link, condition of the system, aim, decision-making, managing and disturbing effects, etc.) are mastered and freely (and properly!) used.

Assessment. All reports (teams respectively) are assessed by the following criteria:

1. Theoretical layout (0 - 2 points).

2. Systematic analysis when taking management decisions. (0 - 2 points).

3. Structure, logic, and appearance of the written report (0 - 2 points).

4. Use of information technologies when preparing the report (0 - 2 points).

5. Participation in the discussion (0 - 2 points).

6. Results from the game of the team reached minimal total expenditures (plus 3 points).

7. Inspector, who find mistakes in others working table (plus 1 point - individually).

Remarks on delivery of the report:

1) There is no strictly required form of the report – so it may be in text format, presentation, website, video, etc. If you think that there is a chance that the format you are using is not widely available, please make sure to save it in different versions so that any evaluator could open it easily. IF YOUR REPORT COULD NOT BE OPENED FOR EVALUATION, YOU GET 0 POINTS.

2) Make sure that you add a list of the authors AND their fac. numbers in THE TITLE PAGE. Whoever is NOT in the list (i.e. is "fired") does NOT earn any point for the assignment.

3) Archive ALL your files to RAR or ZIP and name the archive as your team code e.g., "X05.rar", even if you have prezis, or videos). Your file should be less than 100 MB but have in mind that larger files would take longer to upload.

4) You should deliver your solution no later than the set deadline on the given URL.

5) In case you are asked such questions, you should fill-in both fields for "First name", "Last name" as the code of your team

6) In case of any issues, send us a message immediately, so that we figure out a solution.

Variations

The game takes place successively in the following variants:

1) Without use of computer (i.e., in the prior to the Computer Age with not automated system for management). In this case all calculations are manually made by the

students. The factual consumption of the units is given by the tutor, who takes the role of the Supplier, as well as to the Consumer.

2) With use of computer model of the object of management and automated system of management (in the Computer Age). The behavior of the object (the influence of accidental disturbing factors included) is imitated by a model, which is realized in the form of computer program. The obligations of the accountant are taken by the computer and his participation becomes unnecessary. The calculations are always precise, and the role of the inspector becomes unnecessary, as well. The purchaser becomes responsible for the machine data processing. The work of the team focuses on the actual management functions: analysis of the behavior of the object, forecasting and decision-making.

3) Using a computer and an opportunity to vary the parameters of the model. The team works alone. It investigates the influence of changes in the parameters of the model on the behavior of the model and management strategy. In the game it is used a simplified model of the storage system, internal structure, relations, and mathematical descriptions of which are considered later in the course Modeling and forecasting in management.