1

Planning guidelines for next generation business simulation

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Abstract
Although the benefit of using business games is generally approved it is questionable if the present games serve the learning process as effectively as possible. The present state of computer environments and programming languages offers tools with which the games could be developed to serve as even more effective tools of teaching the rules of businesses. While the world around businesses is changing with growing speed the business game processing methods are still quite the same as 25 years ago. The purpose of this paper is to introduce some advanced business game techniques and operation models. By applying these new techniques, business games would serve the learning more effectively compared to the traditional techniques.

Keywords
Games, Simulation, Industry Training, Professional Development

1   INTRODUCTION

The competitive environment around most businesses and companies is changing with accelerating speed, i.e. competition is becoming worldwide, new products are developed faster, new producing technologies are emerging and new delivery channels are available. Organizations are in the midst of whole new challenges and are seeking for better competitive position and productivity. *Attaining such improvements in productivity would be a significant challenge under normal circumstances, but the process is made significantly more complex by the volatile environment that is becoming more evident and is expected to continue to increase*

into the 1990s. In this highly unpredictable environment, novel approaches to attaining high levels of productivity must be pursued (Madnick, 1991).

There is also a demand for training methods that describe the characteristic of the recent and future competitive environment. Regardless of the level of productivity improvement desired, people as decision-makers and as responsible for task execution need to understand thoroughly what they are part of in order to be able to cope with every day tasks.

Compared to spoken information business games are good in that they are visual by nature. In business games players learn and become better problem solvers, allowing them to master successively more complicated tasks and to transfer expertise (Porter, 1995). Saffo (1997) has noted: *In the next decade, the most important new sense-making tools will be those that help people visualize and simulate. Visualization techniques reduce vast and obscure pools of data into easily comprehended images. And simulation systems will become intellectual training wheels for executives, allowing them to experiment with strategies in the forgiving world of cyberspace, in much the same way that pilots in the Gulf War ran practise missions before flying the real thing.*

In the future the use of management games will be at least as common as today (Elgood, 1996): *Technological development will certainly not slow down, and one will be able to simulate more situations with greater realism and greater ease. Work will be seen as an activity that should be rewarding in itself, and enjoyable, and therefore something to which game-playing can reasonable be linked*.

2.   MODERN BUSINESS DECISION-MAKING ENVIRONMENT

Business games offer the participants knowledge on how the decisions carried out affect the business environment and thus prepare the participant to learn more about decision-making by experience. The game used should hereby describe the actual decision-making environment of the organization.

2.1   Changes in the significance of time

Traditionally strategic decisions have been long range decisions, and operative decisions have been every-day-like, executed often by a sudden change or need in the business environment. Today, the world is changing more rapidly than ever, mainly because of technological development. The speed of change reflects, of course, on the way operational decisions are carried out, but it also reflects on the way strategic decisions are made.

Some years ago the strategic planning process was seen as a planning tool with which (Näsi, 1991) *the environment is forced to bend if the company only knows its planning procedures properly We are dealing with an ideal world: Information is available, the company has money and resources to create and shape things; the CEO and the secondary management have time to discuss the matter; they are also*

capable of understanding all the preconditions of good decision making and the connections.

Nowadays, the future is very difficult to predict, but it is also realized, that mastering the future does not necessarily demand predicting. The faster and more effectively we can react to changes, the less we need to predict them.

Näsi (1991) states that the development of the traditional strategic thinking has moved from the strategic planning and portfolio management stages to a new stage which he describes as strategic gameplaying stage (Näsi, 1991, p. 35) *the central task of a strategist is to make good moves on the play ground. The key to the third stage is to view strategic thinking as gameplaying... The limits of the ground or board are more undetermined, the rules are only partially known and can change and the player must create and develop the alternatives - by him/herself.*

In this turbulent competitive environment the customers expect shorter times of delivery, accurate deliveries and fault free products. The speed of reacting market changes has become an essential competitive factor. Very likely this development will even become more rapid in the near future, because the technical evolution is enabling shorter production development periods, new product innovations and new ways to organize customer communication and transactions.

A company mastering time has several new characteristics compared to a conventional company (Kanerva, 1991): it develops integrated functions and operates without function boundaries in accordance with process workflow. Experts and users work together both in planning and implementation. Flow of information is emphasized and information passes fast through the organization.

Because of the fast decision-making the present batch-processed business game methods do not describe the environment of the decision-making well enough.

2.2   Holistic business environment and stakeholder thinking

The demand to understand the overall business structure is becoming more and more current. By the growing speed of environmental changes also the employees must be able to change their way of thinking and working. The general knowledge on how a company works helps the worker to adopt new behaviour.

Besides of understanding the internal business function activities the employees must have understanding on what kind of interest groups the company has. Any business operates in the middle of different stakeholders. In order to be able to carry out stakeholder thinking the company decision-makers must have understanding on what stakeholder groups a company has and what are the demands and expectations of the stakeholders.

3.   ADVANCED BUSINESS GAME TECHNIQUES

The purpose of using business games is to promote learning. The better the participants learn by playing the business game the better the game is. This paper

puts forward four propositions on business game techniques. By applying these propositions the business game learning may be further enhanced.

3.1   Proposition 1: the ability to configure the game environment

For the learning itself it is important that the business model adequately resembles the real world environment of the participants. Learning is deeper if the business model is realistic compared to the real environment. This means that the game model must be dynamic and can be tailored according to the purpose and the target of the learning project. Thus, the game environment should be configured for the players to describe their own business environment.

   The real business environment can be divided in two parts: the internal business environment and the external business environment. The internal business environment includes the structure of the business unit under decisions during the game. For example, configuring the internal business environment includes the structure of the manufacturing process inside the business unit.

   The external business environment includes the capital market, the market of production factors, the customer market and the competitors. E.g. the sales market must include great flexibility in order to be able to imitate the structures of real world markets.

3.2   Proposition 2: real-time processing

Present business games are not realistic in the way they are executed. Present business games work in a batch-processed manner which quite poorly adapts to the real world business environment. Batch-processed simulation works in a way where all the decisions from all the competing companies are first made for the whole season to be simulated. Then the simulation phase takes place and all the decisions are processed as a batch, all decisions being equal in the processing.

   The problem with the batch-processing method is that world very rarely works in such a sequential order. There are hardly no business areas where the decision makers first enter all their decisions for the next term, then rest during all the actual term, and enter again the business in the end of the term to analyze the term results and to prepare the next budget.

   To take one example, there are very few business branches in which a company sets the price of its product for the whole next term before the term even has begun and then keeps to that selling price during all the term. The batch-processing model does not give the decision-maker the possibility to change the decisions according to the competitor's actions.

   The disadvantages of batch processing are obvious (Lawrence, 1997): *The result of this is simulations that severely limit the management experience. Participants cannot afford to test strategies and plan contingencies since they are tied to their decisions for the entire period. This can often be unrealistic. ...In general, such*

business simulations tend to lock their participants into a particular approach towards decision making which reduces their potential value. The acute lack of flexibility discourages creativity which is often a trait which should be emphasised in management training.
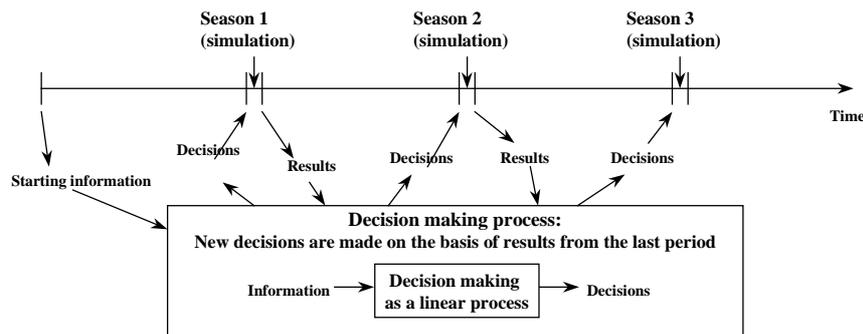
Figure 1 The batch-processing business game environment.

Proposition 2 means that the next generation business game model should work the same way as the normal business environment works, i.e. decisions making and having results from decisions made should happen in real-time mode when so also in the real-world environment. Real-time mode means that decisions are made continuously, especially when there are situations, which need instant reaction.

   For example, a better way to describe the problem setting of pricing is a real-time model in which the customer market and the competitor actions are changing continuously. In a real-time model decisions are made as soon they are needed or at least as soon as the decision-maker notices that the market situation needs actions from him. And pricing is just one example - in fact most decision-making areas work similarly and are time bound.

   Batch processing can never describe the time-dependent environment realistically because:

1   the faster decision-makers do not benefit anything from being faster because the batches of decisions of all the companies are processed simultaneously

2   if the batch-processing frequency is accelerated, the slow decision-makers drop totally out of the decision-making process. In real world slow decision-makers are able to do decisions, although the amount of decisions may be less than with the faster ones.

3   it would technically be possible to implement a time measuring mechanism to batch processing. But a solution like this would be very difficult to implement because the model should measure the decision-making time of every single decision. Furthermore, this kind of measuring of the decision-making time would be unrealistic, because the decisions made will still not trigger any immediate responses.
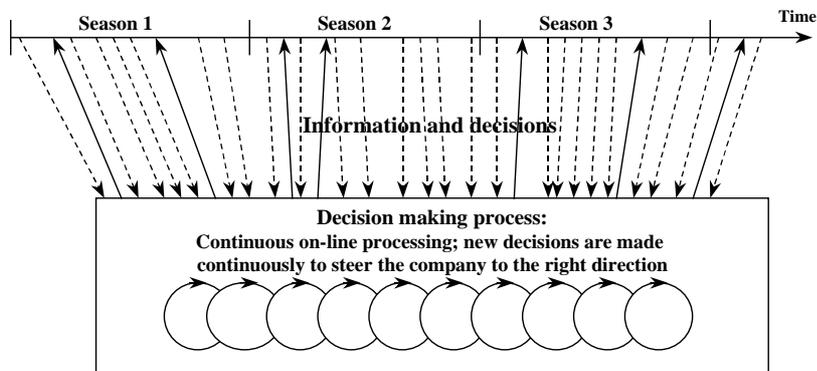
Figure 2 The real-time processed business game environment.

To sufficiently realistically represent the turbulent business decision environment the significance of time must be included. This is accomplished by building a business game, which includes internal time - a game which works as normal business environment so that different business events and decisions are processed, decided and executed in virtual real-time. In real-time simulation all the processes take place continuously. The participants who steer the company see all the market events and internal processes on-line. What ever happens – reactions can be carried out instantly.

3.3   Proposition 3: the overall business environment

There is a demand on business games covering the total business activities area. In the present business world workers with different background must have the ability to understand the purpose, the goal and the business idea of the company or organization they are working in. This demand is even more current when the companies follow cross-functional team working and process thinking. Thus there must be tools to teach the workers how a company works as a whole and what the purpose of each business function within the whole structure is.

3.4   Proposition 4: selectable decision-making levels

From the learning stand of point the business game model must not be too complicated. The game model must be realistic enough compared to the real world but still it must be simple enough for the participants to learn it in a few hours.

Research from empirical studies on simulations used for improving manufacturing operations (Räsänen, 1996) point also out that: *We also recognised that building an overly detailed simulation model results in a very time-consuming model-building and lengthy simulation exercise periods. An overly detailed*

simulation model also has a tendency to block people from perceiving fundamental cause-effects included in an actual manufacturing environment.

From this can be derived proposition 4: the decision making level in the game in each particular business function can be selected according to the group taking part to the game and by the objectives of the game. Every business decision function includes from 2 to 3 different decision making levels. The first level is a general level in which can be done decisions in a very general manner. Gradually on the second and third level the decisions to be made become more demanding.

With these different functional decision making levels the game can be used to teach very different kind of groups of participants. Or then the game objectives can be emphasized on certain functions and leave the rest of the functions with less attention. On the other hand the decision levels in each business function may be changed during the game. So it could be possible to introduce new decision making aspects during the game when ever the game operator sees that the participants have learned the basics of a business function and are ready to be presented new decision making problems.

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