A compiler for business simulations: Toward business model development by yourselves

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Abstract

This paper is a proposal for business simulation compiler. This compiler can utilize and modify a business simulation on the WWW easily for any person who is inexperienced in program development. This compiler was created as part of our business simulation course. The course we are developing consists of: (i) a simple gaming experiment among multiple students using Alexander Islands, a tiny business simulation on the WWW; (ii) lectures to let students understand the core concepts of systems management through the simulation; and (iii) the development of a homemade simulation model by the students themselves using business model description language (BMDL) and a business model development system (BMDS). Our course is unique in the sense that, through the business simulation, we aim to develop students' skills: (1) to implement their own specific models of business firms, (2) to develop information systems for the firms, and (3) to understand business processes among companies. This paper describes the background and motivation, basic principles, the architecture and implementation of BMDL/BMDS, and the results of the experiments. © 2002 Published by Elsevier Science Inc.

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1. Introduction

This paper is a proposal for business simulation compiler. This compiler was created as part of a novel approach to a business simulation course at the graduate school of systems management (GSSM) of Tsukuba University. The goals of the course are to develop students' skills: (1) to implement their own specific models of business firms, (2) to develop information systems for the firms, and (3) to understand business processes among companies.

In order to achieve the goals, the most unique point of the course is to let the students develop their own business simulations. The developed simulations are run and evaluated by other members of the class, as well as lecturers on the WWW environment. Through the experience, the students will eventually understand the concepts and skills of business management. In order to develop a business simulation, advanced knowledge about computers or program development is required. However, few people have such experience in program development or computers. So, it is necessary to create a compiler that anyone could easily develop a business simulation with. This compiler consists of business model description language (BMDL) and business model development system (BMDS).

This paper describes the background and motivation, basic principles, the architecture and implementation of BMDL/BMDS, some results of our school's three years of course experience, and future issues.

2. Background and motivation

A business simulation is a common vehicle to study business and management principles under controlled virtual situations. The conventional approach to business simulation courses is, at least in Japan, to educate students on the concepts of management, accounting, business processes, and/or the basic techniques for business analysis [5,10]. Then such education is applied on the numerous conventional gaming simulations available in the literature in order to attain these goals [2,11,13].

However, at GSSM, such approaches are not enough. The students we have are all business people from various industries. They have their own jobs during the daytime, different expertise, and different backgrounds in their experience. Therefore, although the academic levels of the students are so divergent, only playing simulations will not satisfy them. They want to know how to make good management decisions by the use and development of business models, decision support tools, and business information systems [8].

To meet the requirements and based on our previous experience [3,4,14–16], we set the following goals in designing our business simulation course:
1. The game we will use is simple enough for business people of varying backgrounds, especially for those who have little accounting knowledge, that they can understand the basic process of business simulations.