Management Simulation Game & Simulator

Research Meeting by the Institute of Business Research @ CHUO university



Table of Contents

Introduction

Boardroom Simulation Course: How the simulation class is currently taught

Potential collaboration forms

Summary

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Apprentice pilots can't fly real planes.

They are taught to handle crisis scenarios in a simulator before they are allowed to fly real planes.

Why would we let apprentice captains of industry manage real businesses?

Shouldn't we train crisis scenarios with them in a simulated environment, before we entrust them with real businesses?

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Table of Contents

Introduction Presentation Objectives History & Growth path

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Introduction Presentation Objectives History & Growth path

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Presentation Objectives

Introduction

- ► Introducing the Boardroom Simulator,
 - ► Show how it is used for taking CxO-level decisions
 - Show the strengths of the Boardroom Simulator
- Explore
 - potential collaborations,
 - potential users
 - use cases, and
 - funding opportunities

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Introduction Presentation Objectives History & Growth path

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History & Growth path

Re-engineering & Development of Boardroom Simulator Software

- Initial Objective: Re-engineering of a 40-year old Business Simulator (i.e. ORSIAM¹) developed by prof. dr. Georges Schepens
- Current Objective: Development of a Boardroom Simulator platform software for the development of tailor-made boardroom simulation scenarios².
- Simulation Capabilities of the current & future versions:
 - Boardroom Simulator 1.0 : Competition in a single market
 - ► Boardroom Simulator 2.0 : Collaborative Value Network
 - Boardroom Simulator 3.0 : Integrate Internal Value Chains
 - Boardroom Simulator 4.0 : Incorporate Enterprise Architecture

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¹which was re-engineered by Ghent University as the Operations Research Systems approach and Informatics Applied to Management problems H. Muller(-Malek), P. Vanderschaeghe, and H. Vanmaele. "NEW ORISAM INT'L: A progressive management dynamics game focused on operations research and decision sciences in industrial management". In: *Simulation Games and Learning in Production Management*. Ed. by Jens O. Riis. Boston, MA: Springer US, 1995, pp. 105–116. ISBN: 978-1-5041-2870-4. DOI: 10.1007/978-1-5041-2870-4_10. URL: https://doi.org/10.1007/978-1-5041-2870-4_10

²Each consortium member has specific requirements related to the unique way each member plays the game. As these member-specific requirements are related to each consortium member's intellectual property on its own institution-specific scenario and gameplay, these will not be disclosed in this presentation.

Boardroom Simulation Course: How the simulation class is currently taught Course outline Game Play Decision Variables for Students Report generated by the simulator Evaluation of management performance

Table of Contents

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Boardroom Simulation Course: How the simulation class is currently taught Course outline

Game Play Decision Variables for Students Report generated by the simulator Evaluation of management performance

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Course outline

How the simulation class is currently taught

- 1. Introductory Lecture: Students receive the documentation & scenario³
- 2. Independent study: Students have to study the material and prepare their first management decisions.
- 3. Online Group Work: Students receive the simulated outcome and prepare a new management decision. (see slide 5 for more information)
- 4. Flipped Classroom: At the end of each fiscal year, the board of the company (i.e. the students) has to defend their annual accounts⁴ and strategy of the past year and for the future at the annual general meeting of their shareholders⁵.
- 5. Lessons learned: The course ends with a wrap-up session⁶

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Table of Contents

Boardroom Simulation Course: How the simulation class is currently taught

Course outline Game Play

Decision Variables for Students Report generated by the simulator Evaluation of management performance

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³The students inherit a company in crisis (e.g. the production infrastructure got badly damaged by a fire) from a relative. ⁴which are generated by the software

⁵e.g., the professor, industry experts, and fellow students of non-competing companies

⁶i.e. what can we learn form each other's experience (& mistakes)?

Game Play

How the simulation class is currently taught

- Newspaper: The students receive news about their world of business in a dedicated newspaper called "Potins" that contains relevant and irrelevant⁷ information
- ▶ Market surveys: The students can improve their knowledge of the market environment by ordering market surveys that are generated by the software.
- ► Scenario: During the game, different events⁸ occur, of which some are announced in "Potins" and others not. These events are determined by the lecturer and encoded in a scenario file.
- Consulting: During the game, additional individual or collective "consulting" sessions can be scheduled with the professor or other experts.
 - Consulting fee: In order to avoid overconsumption of the "consulting", the teams have to pay⁹their consultants in the currency of the game

⁸e.g. a strike, a financial crisis, a shortage of raw materials, new restrictive laws, sudden rise or fall in demand, change of customer preferences € 900

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⁹i.e. a cost for the company

Table of Contents

Boardroom Simulation Course: How the simulation class is currently taught

Decision Variables for Students

⁷Some lecturers even include faulty information

Decision Variables for Students

How the simulation class is currently taught

- ► Sales price, Marketing (i.e. publicity) and R&D (i.e. development) budget
- In-house production during normal office hours & in overtime,
- production outsourced to supplier
- Order quantities and frequency for raw materials
- ▶ Number of shifts , workers, & foremen, and their respective wages & bonuses
- Investments in machines (i.e. capacity increases)
- ► Liquidity management: Investments in Stocks & Bonds, Short term placements,
- Corporate bonds issued by the company, Credit line of the company at the bank

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- Market survey cost
- Percentage of sales (i.e. to customers) on credit (budget limit)
- Dividends paid to be paid to shareholders

Table of Contents

Boardroom Simulation Course: How the simulation class is currently taught

Course outline Game Play Decision Variables for Students

Report generated by the simulator

Evaluation of management performance

Report generated by the simulator

How the simulation class is currently taught

Annual accounts:

- Quarterly: Every team receives an analytical balance sheet (i.e. assets & liabilities) and an analytical profit & loss account
- Yearly: Every team publishes a balance sheet and profit & loss account visible for all other teams, as required by Belgian law.
- ► Market survey: Every team that pays for a market survey (see slide 19) receives one
- Internal reporting: Every team receives a number of detailed reports covering the financial and operational performance of each department (e.g. direct and indirect costs, depreciations, inventory levels, etc.)
- Lecturer reports:
 - Internal reporting: The lecturer receives the equivalent of the internal reporting for teams comparing the performance of all teams in a "world"
 - Longitudinal evaluation: The lecturer receives a dedicated report showing of the evaluation of the performance of all teams in a "world" over time for a set of KPIs¹⁰.

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7 / 103

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¹⁰which could also be integrated in the internal reporting for students if required.

Table of Contents

Boardroom Simulation Course: How the simulation class is currently taught

Course outline Game Play Decision Variables for Students Report generated by the simulator Evaluation of management performance

Evaluation of management performance

How the simulation class is currently taught

- ► Key Performance Indicators: The simulator generates a list of KPIs (see slide 53) that can be used to evaluate the performance
 - Ponderation scheme: A grade can be calculated given a ponderation scheme, which can be based on the class' objectives, or
 - Company profile: Performance can be benchmarked against a company profile¹¹ chosen by the teams
- Annual General Meeting: The grade can be based (entirely or partly) on the team presentations during the annual general meeting
 - ▶ Business Professionals: Teams can be evaluated by experienced professionals¹²
 - Evaluation by peers: Teams can be evaluated by fellow students¹³
- Peer evaluation: To evaluate intra-team performance, team members can also be asked to fill in a peer-evaluation for each other (see slide 12)

¹³e.g. in the role of shareholders of their company

Key Performance Indicators

How the simulation class is currently taught

The simulator generates KPIs for:

- the social impact of managent decisions (by the teams)
- the financial independence of the company
- the economic performance of the company
- political and social aspects of management
- the effectiveness of the marketing strategy
- ► the short-term operational effectiveness & efficiency

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 ¹¹e.g. loss leader, high-end retailer, socially responsible organisation, cooperative, not-for-profit organisation
¹²e.g. CEO of emblematic companies, subject matter experts

Potential collaboration forms

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Potential collaboration forms

- Consortium membership: Consortium membership is only accessible in case of a substantial contribution to the eco-system
 - Université Saint-Louis Bruxelles (BE): Simulator software
 - Université de Namur (BE): Web-interface
 - Université de Laval (CA): International competition & game play
 - CHUO university (JP): International competition
- Alternative collaboration forms:
 - Spin-off company or Joint-venture (e.g. through a licensing agreement)
 - Subscription fee-base use of the simulator (& simulation scenarios developed by others)

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Summary

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Summary

Boardroom Simulator

- ► The simulator's objective is to train future managers in a risk-free environment.
- ► The simulator has a long history and extensive growth path.
- ▶ The simulator is used as a course tool by 3 different universities, and soon 4.
 - It is used to create an immersive experience for students, with a combination of lectures, independent study, (online) group work and flipped classrooms.
 - Teams take management decisions, which feed the simulator together with a scenario defined by the lecturer, based on elaborate reports generated by the simulator.
- ► The initial development of the simulator has been funded by a consortium.
- The consortium is currently looking for additional partnerships to fund future developments of the simulator and game play.

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