**Aalto University
School of Science**

Interim Report

MS-E2177
Seminar on Case Studies in Operations Research
Implications of Futures Markets to Pulp Industry: Business Game

Team:

Severi Saastamoinen (Project Manager)
Hanna Lagemann
Marianne Jyrälä

Client: **UPM**

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1. Changes in objectives and scope

We still aim to achieve our initial objective, which was to develop a business game that models the pulp market and the different transactions of the players.

Before, we stated that we want to develop a game that is playable in a remote and digital environment due to the Covid pandemic. After the context analysis and the process-game mapping, we now decided on Microsoft Teams as a suitable platform for our business game, since it provides the possibility to save all relevant information in one place and at the same time be able to communicate, chat and call in the same application.

Initially, we wanted to also include conflicts of interest, uncertainties, and asymmetric information into the game in order to model the real market as well as possible. However, we realized that more simplification may be needed to make the game easy and fast understandable for the players and to not confuse them with too many rules. This implies that some game elements, such as uncertainties and asymmetric information, may be not taken into account as much as originally intended.

In general, we did not further change our objectives and scope of the project, but since we are still in the development phase it is possible that some adjustments still have to be made in a later phase.

2. Project status

So far in the project we have established the idea of the Business game we intend to develop and have decided to use Microsoft Teams as the basis for the game using a Person to direct the gameflow and work as a referee if needed, henceforth referred to as the Gamemaster. The project is created using a Teams group, which uses embedded excel files for bookkeeping and calculating values such as remaining free warehouse capacity and random values needed to provide unpredictability in the Business game. Currently, the implementation of the Business game has its basic components of its parts, including channels for the Futures Market, Spot Market, the Gamemaster.

Currently we are executing the initial Teams implementation. After we have achieved a minimal viable product, we will proceed with finetuning and testing and further validation regarding the game. Currently the remaining tasks before we achieve a testable product involve:

1.When generating random numbers, the Excel file changes every single generated number when updating the sheets. However it is not possible to turn automatic updates off for the entire sheet. We need once generated values to remain the same for bookkeeping purposes.

2.Inventing an easy way to calculate and update the Market Price.

3.Figuring out the specific way step-by-step transactions work within the game.

After these problems have been solved we can concentrate on the fine-tuning and testing of the game.

3. Changes to project plan and schedule

In table 1, an updated schedule is presented. A few changes have been done. However, the original schedule, which was announced in the project plan, is still valid and the project is running on schedule.

9.04.2021- 30.04.2021	- Complete a game prototype. - Write a game manual. - Collect feedback from the client. - Do initial tests for the pace and "balancing" while ensuring that the project maintains value from the perspective of the client. Find bugs and improve the game. - Start writing the final report.
1.05.2021- 12.05.2021	- Finalize testing and fine-tuning. - Teach the client personnel to play the Business Game properly. - Clarify and assist the client with the next steps they will take after the project has ended - Finish the final report and prepare a presentation for the seminar.

Table 1. Updated project schedule.

4. Updated risk management plan

Table 2 shows the updated risk management plan. A few changes have been done. The probabilities have been changed and one new risk: "No useful results or ideas for the client" is added to the plan.

Risk	Probability	Effect	Impact	How to avoid
Too easy Game	Low	Game is not useful	High	Testing before launching

Non-active team member or communication issues due to remote working	Medium	Workload is too much for the other team members	High	Roles and workload dividing with the team members equally
Communication with the client fails	Low	Game is not realistic or is not what client expected	Medium	Meetings and communication with email and via Slack
Scope of the project is too wide	Medium	Workload too high, complexity and stress	Medium	Clear plan and testing in an early stage
No useful results or ideas for the client	Medium	Game is not useful as a simulation	Medium	Communication with the client
Non-realistic game or too complex game	Medium	Too high workload and timing	High	Game testing before launching

Table 2. Updated risks of the project.