

PARTICIPANT'S GUIDE

EXSIM



ExSim
Executive
Simulation

**Bringing the Board of
Directors to the classroom**



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Introduction

Welcome to the Simulation

This guide is designed to support you in understanding your role within the Mezquite Ltd. simulation, an experience aimed at enhancing your skills in strategic decision-making and business management. Whether you are acting as the CEO, CFO, or any other executive position, this guide will help you navigate the simulation platform, make informed decisions, and analyze the results.

Understanding Your Role

In this simulation, you will take on the role of a senior executive at Mezquite Ltd., a company competing in the innovative home appliances market. As a team, your responsibilities will span various business functions, including procurement, production, logistics, marketing, innovation, finance, and personnel management. Your primary goal is to lead Mezquite Ltd. to success by making strategic decisions that influence the company's overall performance.

Preparing for the Simulation

Before diving into the guide, it is crucial to carefully review the case "*Executive Simulation: Mezquite Ltd.*" Understanding the case will provide you with the necessary context to make informed decisions during the simulation. If you are assigned the role of CEO or General Manager, it is essential to review each section of this guide thoroughly to understand the different roles within your team. For other roles, focus on the sections relevant to your specific responsibilities, but also gain a general understanding of the simulation's dynamics.

This guide is organized as follows:

1. The simulation
2. The marketing role
3. The procurement role
4. The production role
5. The logistics role
6. The financial role
7. Labor relations
8. The ESG/Sustainability role
9. Main operational instructions for the simulator

1. The Simulation

Section 9.1 describes how to log into the **simulator** and access the game, as well as the location of menus for entering decisions. Follow the instructions in that section carefully, as they include important steps to carry out the simulation.

In this simulation, you will be part of the management team of a company that produces and sells an appliance called Electroclean. At the start of the simulation, all teams, including yours, will begin from the same starting point: all teams will take control of their companies at the end of the second year of operations, with identical financial results and market shares.

During this exercise, you will simulate your company's operations over several four-month periods, depending on the academic context, which typically covers the next eight four-month periods. Your team's goal is to make your company the most profitable in the country where you compete.

In each simulated period, your team will need to make decisions related to various aspects of your company. Some decisions will have an impact throughout the period, while others will affect sub-periods (biweekly segments if the periods are four months long). However, all decisions must be entered into the platform before the period is simulated, meaning you will essentially be planning your company's operations for a given period in advance.

The simulation consists of two main engines (see Figure 1). On one side, there is the "market allocation engine," which takes as input all the commercial decisions of all the teams within the same country/world to calculate demand for each competing company. Therefore, your marketing decisions will only have an impact within the country in which you are competing. For more details on marketing decisions, refer to Section 2 of this guide.

It is important to note that market allocation can only be performed by the course instructor if, and only if, all teams have entered their marketing decisions within the specified timeframe. Remember that your marketing decisions are the only type of decisions that impact other teams.

The second engine is the "operational simulation" (see Section 9.3). This engine takes as input the remainder of your decisions—purchasing, production, personnel, logistics, and financial—and uses them to simulate your company's ability to meet the previously allocated demand.

Depending on the instructor's preference, you may have a limited number of operational simulations (called "individual tests" on the platform) available to you,

based on your particular "estimated demand." These tests will allow you, especially during the early stages of the course, to refine your decision-making process.

Remember, these tests are only practice runs, and the actual simulation for each period can only be conducted by the course instructor within the stipulated timeframe.

Note: In some course profiles, the duration of the periods may vary.

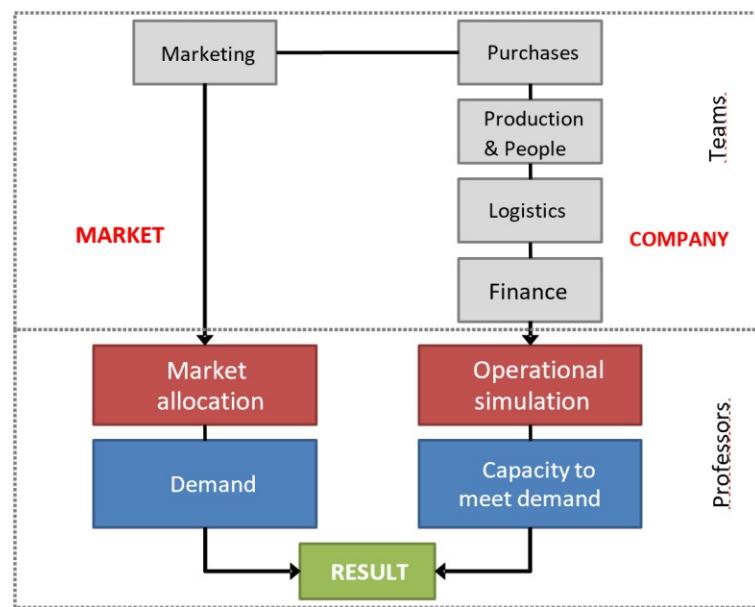


Figure 1. General Operations of the Simulator

Decisions made by team members are usually entered in parallel, meaning each person inputs data for their functional area at the same time as the other team members. This requires developing mechanisms for coordination and information sharing when making decisions and maintaining detailed control to ensure that all necessary decisions are entered into the simulator on time and are coherent.

To manage this, you can download an Excel file containing all the decisions saved up to that point (see Section 9.2). Periodic verification of this file will help ensure that decisions are stored correctly. Before running the simulation, you will also be able to check whether the correct values have been saved, giving you an opportunity to make corrections if needed.

After each simulation, it is highly useful to review the Simulation Messages Report, which summarizes the main issues that occurred during the simulation (see Exhibit 1). This report guides the analysis of results by highlighting warnings to address first.

2. The Marketing Role (Including Innovation)

As the marketing manager, your role is to define the company's marketing strategy. You will decide which segment to target (high-end or low-end), the level of investment in advertising to boost your brand, product differentiation, and competitive pricing. These decisions will help you create a business plan that includes analyzing the Four Ps: Product, Price, Promotion, and Place (distribution).

In some cases, you may have the opportunity to manage more than one product and multiple sales channels. Refer to the Case to verify this.

Your primary goal is to increase market share in the selected regions. It is crucial to understand how the market allocation algorithm works before making decisions.

2.1 Market Allocation

Demand generation in EXSIM is driven by an algorithm that reflects real-world behaviors and, therefore, includes a degree of uncertainty. Companies that invest significantly in advertising, salesforce, and product improvements while maintaining competitive prices will capture a larger market share, if their products are available when customers need them.

For the algorithm to work, all teams in the same market must enter their commercial decisions. The algorithm compares these decisions, determines their relative impact, and allocates demand accordingly.

Initially, each team has an identical market share. However, these changes in subsequent periods are based on the decisions made. The simulator generates demand for each company and sets the maximum sales for each period and segment. However, companies may lose sales due to operational failures. Actual demand (and market share) is calculated based on the units sold, not on the demand assigned during market allocation.

For example, if the total assigned demand is 5,000 units across five teams, but only 4,500 units are sold (after operational simulation for the companies), the market share is based on those 4,500 units. A team with strong commercial decisions but poor execution may experience a significant drop in its market share, as shown in Table 1.

Team	Market share initial	Demand	Sales	New market share
1	20%	1,100	1,100	24.4%
2	20%	1,200	800	17.8%
3	20%	800	800	17.8%
4	20%	1,000	900	20%
5	20%	900	900	20%
Total	100%	5,000	4,500	100%

Tabla 1. Example of assigned demand and market share

The market consists of at least two segments in the standard configuration: high-end and low-end. Customers in the high-end segment tend to value product differentiation, communication, and service, while customers in the low-end segment are more price sensitive. However, you should refer to the Case, as other segment configurations may be available on the platform depending on the case/simulation context.

Products are generally sold through distributors (i.e., the company's direct customers). In more complex configurations, other channels, such as online sales or company-owned stores, may be available. Once again, refer to the Case for these specifics.

In the basic simulator configuration, companies typically market only one product or brand. However, the instructor can enable companies to offer up to three different brands. For clarification, consult the instructor, the Case, or specific course instructions.

A few observations about marketing decisions: gaining market share can take time but losing it can happen quickly. Consistency in your marketing strategy is crucial. Even with the best product and loyal customers, excessively high prices can lead to significant market losses. It is recommended we implement a moderate pricing strategy.

Your Innovation strategy (product improvements) should consider that the nature of these improvements affects various dimensions that are important to customers: design/aesthetics, performance, and convenience. Different segments may prioritize certain dimensions over others, and these preferences can evolve over time.

Your communication strategy should balance effectiveness with moderation. Significant spending by competitors may increase overall category awareness but will also require you to put more effort into your communication efforts. On the other hand, excessive advertising may lead to diminishing returns, so it is essential to monitor other teams and avoid oversaturation.

Finally, the market allocation algorithm follows the general model of a product life cycle (introduction, growth, maturity, hyper-maturity). Your marketing decisions will have varying impacts depending on the maturity stage of each region, which you will need to determine as the simulation progresses.

The existing regions follow this model, although the duration of each stage may vary in each case. There is no report in the simulation that explicitly indicates the market maturity stage. This is something you will need to uncover as you develop greater awareness during each simulated period.

2.2 Marketing Decisions

Business decisions should be entered in the “Marketing” tab of the platform. Key decisions are described in the following sections (see Figure 3).

Innovation

Although Innovation (product improvements) has its own separate tab (Figure 2), it plays a key role in the demand generation process and is therefore included in the marketing decisions section.

Innovation involves investing in new product features to gain a competitive advantage over the competition, as well as to meet the specific needs of each segment. With various improvements available at different prices, you could estimate the impact of improvements on different aspects of product perception.

Product improvements are one-time investments that are generally paid for in the period in which they are applied, although in some versions of the simulator this could be different and amortized over different periods (see the Case or the supporting documentation). Since the improvement is applied just before shipment under a “postponement” scheme, in addition to the aforementioned payment (which represents an investment in R&D), there is an implementation cost per unit that varies depending on the type of improvement chosen (see the case for more details).

In a multi-product environment (where you can have several brands/product types), you can choose which improvements to apply to each brand to try to meet the needs of a specific segment. There is a triggerable feature (gradual increase) that allows students to specify the monetary value of the desired investment (for example, for Product Improvement 1, any value in the range [\$0, \$15,000]). The basic version of the simulator does not include this possibility.

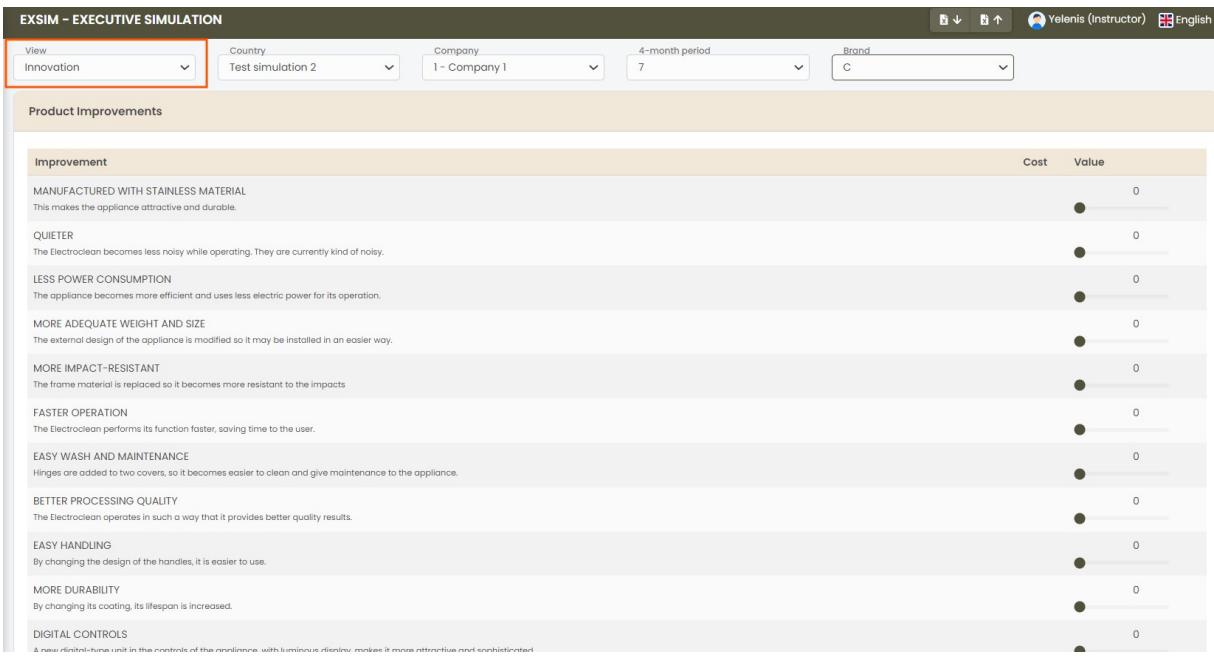


Figure 2. Innovation Interface

Advertising

Brand: Indicates the brand being advertised.

Medium: Indicates the type of advertising channel to be used, such as TV, radio, outdoor media, or digital. In some simulations, only some of these media will be available (usually radio and TV).

Area: Specifies the geographic area where the ads are targeted (note that some media may have a global reach, and decisions will affect all areas).

Quantity: Shows the allocation of advertising space to each channel and area.

Brand focus: Provides a percentage indicating the intensity of the brand focus in the respective areas (from 0 to 100%). Below 100%, the remainder will be product focus (for less mature markets).

Content quality: Refers to the budget allocated to define the quality of the advertising content; this metric is expressed in monetary terms (e.g. \$'000) and directly affects the effectiveness and appeal of the advertising content. In the basic version of the simulation, there will be a fixed cost per salesperson on the available advertising media and this concept will not be available.

Selling price

Brands: Shows the brands available in the simulation. There can be from one (default) to three brands (i.e. three types of products).

Zone: Specifies the zones where the brands are marketed.

Selling price: Details the price at which each brand/product is sold in the different zones.

Channels

Zone: The geographical area where the products are distributed.

Channel: Indicates the channel used (in the default configuration these are distributors, but other channels may be available in other configurations, for example, online sales, discount stores...).

Sellers: Assigns the number of sellers dedicated to the channels.

Payment terms: Indicates the payment terms for accounts receivable from direct customers; this concept is therefore essentially financial and has no impact on demand generation.

The screenshot shows a marketing software interface with four main panels:

- Selling price:** A table showing selling prices for different brands across various zones. The table includes columns for Brand, Zone, and Selling Price. Red boxes highlight the "Selling price" header and the column headers.
- Advertisement:** A table for a new advertisement decision. It lists brands, media types (TV, Radio), zones, amounts, and brand focus percentages. Red boxes highlight the "New advertisement decision" header and the column headers.
- Channel Management:** A table showing distribution details by zone. It includes columns for Zone, Payment Terms, and Salespeople. Red boxes highlight the "Distributors" header and the column headers.
- Demand Forecast:** A table showing projected sales by zone. It includes columns for Zone and Sales. Red boxes highlight the "Demand Forecast" header and the column headers.

Figure 3. Marketing role decisions.

Demand Forecast

- Area: Specific geographic areas.
- Sales: Projected sales figures for each area.

This section is used for teams to estimate the demand they will have in different areas, with its main objective being to run operational simulations on their part.

2.3 Reports

As a marketing manager, your work is supported by the analysis of key reports such as the Market Report and the Sales and Administration Expenses Report. The Finished Goods Inventory report is also useful.

2.3.1 Market Report

This report compares the marketing strategies of all companies within the same country (see Exhibit 2). It includes:

- Price: Shows the price set by each team in each region. A price of 0 indicates that the team did not want to sell in that region.
- Product Awareness: Reflects the impact of advertising strategies, where 100 indicates maximum consumer awareness. This is equivalent to a survey where 100% of respondents said they have heard of your product. If the resulting value is low, it is an indication that either too little was invested or that other teams have made a larger investment in advertising.
- Sales Force Promotional Impact Assessment: Measures the effectiveness of your sales force in promoting your product, with 100 being the best relative promotion. Measures on how satisfied your channel is with your support.
- Product Improvements: Lists innovation made by your company and other teams.
- Market Share by Region (%): Provides a breakdown of market share by brand and region.
- Market Share by Region by Segment (%): Describes market share by brand, region, and segment for each company across all geographies and segments.

2.3.2 Sales and Administration Expense Report

This report details net sales by region and sales and administration expenses, including:

Sales

- Region
- Brand
- Units
- Local Price
- Gross Sales
- Discount % (directly related to payment terms)
- Net Sales

Sales and Administration Expenses

- Sales Staff Hiring Expenses.
- Sales Staff Salaries.
- Radio and TV Advertising Expenses.
- Digital Advertising Expenses, if available.
- Outdoor Advertising Expenses, if available.
- Executive Salaries, if applicable.
- Administrative Expenses Related to Plant Modules.

Exhibit 3 shows an example of this report. The report also shows the number of salespeople who quit in the immediately preceding period. Remember that a salesperson will quit in each subperiod in which the company runs out of inventory.

3. The Purchasing Role

Purchasing management has the primary responsibility of ensuring an uninterrupted supply of raw materials to production facilities. This requires a detailed understanding of purchase orders, lot sizes, suppliers, and consumption dynamics.

Raw materials are purchased in batches, with some available only at specific times. Individual units cannot be purchased (except for raw materials with a lot size of 1). There are certain components that you can only purchase at the beginning of the period (e.g. Parts 1 - 6), and others (Parts A and B) that can only be purchased in the subperiods when you need them. So-called "Parts" can only be purchased from one supplier. For "Parts", there are three different suppliers offering different conditions based on lot sizes and payment terms.

The decision to choose a supplier (for Parts A and B) should be coordinated with your CFO, who will determine what is best for cash flow.

The purchasing manager must balance acquisition costs and materials management, as frequent ordering reduces inventory costs but increases ordering costs, and vice versa.

3.1 Decisions

Purchasing decisions must be loaded in the "Purchases" tab of the platform. To do so, simply specify each order you will make to the supplier by indicating the following information (see Figure 4):

- The fortnight in which the purchase will be made.
- The type of raw material.

- The number of lots.
- The chosen supplier.

In the case of the "Traditional Mesquite" profile, keep in mind that pieces 1 to 6 can only be purchased at the beginning of the period ("t zero"), which must be contemplated in your purchasing plan. If several entries share the same subperiod, type of raw material and supplier, the platform will consolidate them into a single order.

Remember that if you have several plants, each will require separate purchasing plans in each region. These decisions are entered once at the beginning of each period, so you must plan your entire purchasing program before the simulation is run.

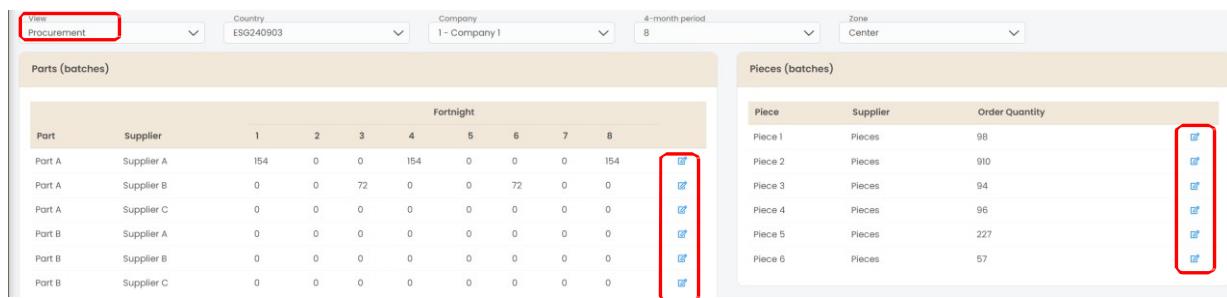


Figure 4. Purchasing decisions.

3.2 Reports

The purchasing manager's performance is largely reflected in the Raw Materials Inventory and Production Cost reports. For more details, see the next section.

4. The Production Role

As a production manager, your role is to schedule production to ensure that finished product warehouses meet demand.

This involves efficiently managing the capacity of your plants and coordinating with the financial manager to assess the impact of investments in machinery and operating expenses on the company's liquidity. Your main responsibility is to minimize the unit cost of production.

To better understand capacity management at Mezquite Ltd. and the factors that affect production costs, we will indicate key points to help you in the decision-making process.

The "Production" section facilitates effective management and monitoring of production capacities, workforce allocation, and machinery utilization. It provides data for decision-making, helping to ensure that production operations are optimized and can meet the production targets specified within the simulation environment.

4.1 Capacity Management

Each plant operates on a single production shift, five days a week. The installed capacity in each section depends on the number of machines assigned, but can be increased by using overtime, which adds 20% to production capacity per subperiod. In some instances, two production shifts (morning and afternoon) are allowed in the simulation. The impact of overtime in this case is the same as in a single shift.

Your actual production capacity depends on three factors: the available machines, the assigned workers, and the available raw materials or subassemblies. Shortages in any of these areas limit your capacity.

To increase production capacity, in addition to buying more machinery and hiring workers or working overtime, you can improve their well-being through the "People" tab of the simulation platform. There, you can set up benefits such as training programs, health insurance, or days off. While these benefits can improve morale, their impact on productivity is uncertain and they are not free, so they will affect your cash flow.

As a production manager, you must coordinate with the purchasing, logistics, and finance managers. Your role involves not only identifying process bottlenecks, but also ensuring adequate production levels while maintaining the financial health of the company.

4.2 Cost of Goods Sold

The total cost of goods sold (COGS) depends largely on how you manage production. COGS includes five key components:

- The cost of purchasing raw materials.
- The cost of ordering those raw materials.
- The cost of operating inventory for raw materials and assemblies.
- The cost of labor used in production.

- The cost of products scrapped in the finished goods warehouse due to lack of space.

The first four factors are under your control and must be carefully managed to minimize costs. The fifth factor is primarily influenced by your company's logistics. You can find details on calculating the cost of goods sold in the Production Report.

4.3 Decisions

In the “Production” tab, you will need to upload several key decisions for each plant you operate. You will need to upload decisions for each open plant (see Figure 5).

Select the type of machine, the period in which you want to purchase it, and how many units you want. Click the “Add Machines” button to save your changes.

To purchase machines, click the “Add Machines” button and a drop-down menu will appear (Figure 6):

The screenshot shows the 'Production' tab interface with the following sections:

- Plant Modules:** Displays current production levels (4), plant purchases (0), and plant sales (0). A red box highlights the 'Plant Purchase' button.
- Target Production (units per subperiod):** Shows target production for five sections over eight fortnights. A red box highlights the 'Overtime By Fortnight' section.
- Machines:** Shows a list of machines with their types, life left, contracts, installed count, and count to sell. A red box highlights the 'Add machines' button.
- Sections allocation:** Shows the allocation of machines to sections based on type and workers required. A red box highlights the 'Machines' column.
- Machines movement:** Shows a list of moves with type, region, and amount. A red box highlights the 'Type' column.

Figure 5. Example of production decisions.

New entry

Type	1
Contract	Purchase
Amount	1

Add machines

Figure 6. Machine and quantity

4.4 Reports

As a production manager, you will need to view two relevant reports to properly control your decisions: 1) the Raw Materials Inventory Report and 2) the Production Cost Report.

4.4.1 Raw Materials Inventory Report

This report tracks the flow of materials in each subperiod through each section in all regions where you have a production facility. It details the assemblies (or final products) produced, the raw materials or assemblies consumed, and the inventory remaining at the end of each subperiod for each part. If production is lower than expected, this report helps you identify the reasons. It also provides clues about your production costs.

Exhibit 4 shows an example of this report for sections 1 and 2.

4.4.2 Cost of Production Report

Your total cost of production includes labor, raw materials, handling, and ordering costs, all directly associated with producing a final unit.

The Cost of Production Report aggregates these costs by section across plants as well as across plants in aggregate. For example, in Section 2, costs include the acquisition of Parts 1 and B, their ordering and storage costs, and labor, including overtime.

Costs are accumulated across sections, with Section 5 showing total production costs. Cost of goods sold (COGS) is calculated using a weighted average of the final cost per unit from the prior period and production costs from the current period.

Exhibit 5 provides an example of this report.

4.4.3 Machines and spaces

In Exhibit 5 you can also find the machines and spaces report. This report provides an overview of the machinery in each factory by section at the end of each period, organized by section and machine. It includes:

- The machines purchased during the existence of the factory.
- The cost of each machine.
- The purchase periods.
- The sales periods.
- The depreciation periods.
- The available machines.

This information allows you to see which machines are active in each section at a given time.

On the other hand, in "spaces" you will see, by period, the evolution of the surfaces of your factories by classifying each space according to the following status:

- Occupied
- Available
- Rented

5. The Logistics Role

As a logistics manager, your primary responsibility is to ensure that manufactured products are available for sale in finished goods warehouses in all regions where the company operates. This role requires close coordination with the marketing manager (for demand projections) and the production manager (as internal logistics provider). In addition, you must ensure that logistics decisions do not significantly affect the company's financial situation.

Your individual goal is to minimize logistics costs (storage and transportation) as a percentage of sales.

You will need to create a shipping plan between the different finished goods warehouses and determine their capacity, considering the points discussed below.

5.1 Modes of Transport

There are three modes of transport: air, truck, and rail, each with different costs and delivery times. Air is the fastest, but the most expensive; rail is the cheapest, but the slowest; and truck offers a balance, being relatively cheap but not as fast.

The case specifies the transport times between regions, along with the associated service probabilities. These probabilities refer only to the lead time. See the Case for details of such uncertainties. Cargo will always arrive but lead time may vary.

5.2 Finished Goods Warehouses

In this simulation, finished goods warehouses operate as cross-docking systems. EXSIM compares inventory levels at the beginning and end of each sub-period with the defined warehouse capacity. If inventory exceeds this capacity, the excess will be discarded. Changes within a sub-period do not affect capacity.

For example, if your warehouse capacity is 1,000 Electrocleans and you start with 800 units, receiving 5,000 units during the sub-period but only selling or shipping 4,500 units in the same region, you would ultimately lose 300 units due to lack of space.

The simulator prioritizes shipments over local demand. It first tries to ship products to other regions (according to your distribution plan) and then meets local demand with the remaining inventory.

If you schedule multiple shipments from the same origin in a subperiod, the simulator will follow the sequence of your shipping plan.

5.3 Decisions

As a logistics manager, you will need to make decisions in the “Logistics” tab of the simulation platform. There are two key tasks: 1) Create your shipping plan and 2) Rent warehouse modules (see Figure 7).

- Shipping plan: Specify the number of units to be shipped, the subperiod for the shipment, the mode of transport and the origin-destination route. After entering this information, click “Add shipment” to add a new shipment to your plan. You can edit or delete shipments at any time.
- Warehouse module rental: Unlike plant modules, warehouse modules are rented every period. Indicate the number of modules to rent.

Zone	Modules
Center	48
West	25
North	20
East	0
South	0

Fortnight	Source	Destination	Material	Transport	Quantity
No data available in table					

Figure 7. Decisions related to shipments and finished product warehouses.

5.4 Reports

Your most important report is the Finished Goods Inventory Report. This report details the flow of finished goods over the various sub-periods of the period for each region. As you can see in Exhibit 6, the report shows inventory levels, goods received, and shipments made for each fortnight. Goods still in transit at the end of the period appear in the “In Transit” column.

6. The Finance Role

The CFO's primary role is to ensure adequate funding for the company's operations. The finance role acts as the organization's "radar," coordinating with various functions to understand the financial impact of decisions on cash flows and financial statements.

As a CFO, your goal is to minimize total financial expenses as a percentage of sales.

While your primary focus is managing funding sources, it's crucial to thoroughly understand the rules that affect the company's cash flow.

6.1 Decisions

Figure 8 shows the different types of decisions to be made in the “Finance” tab. financial decisions are divided into three main categories:

Credit Line: Manages the available credit limit and changes in its use.

- Credit Limit: Shows the total available credit limit, based on a percentage of fixed assets at the beginning of the current period.
- Initial: Shows the initial amount of credit used at the beginning of the period.
- Change: Indicates the increase or decrease in credit used during each subperiod.
- Final: Shows the final amount of credit used at the end of each subperiod.

Deposits (sometimes called “Investments”)

Controls changes in deposits, including the impact of interest.

Mortgage

Manages mortgage options with details on the principal amount, interest rate, and structured payments.

Factoring

Provides an option to release cash from accounts receivable, indicating the maximum amount and the associated interest percentage.

Shareholder Loan

Details on possible shareholder loans, including amount, interest rate, and an option to convert the loan into equity. Only to be used with approval from the Board of Directors.

Share Issue

Manages the issue of shares, detailing the price and number of shares (no data available in the screenshot in Figure 8). Only to be used with approval from the Board of Directors.

Dividends

Allow the setting of dividends to be distributed among shareholders.

A third source of funding is emergency credit, which is outside your control. The simulator automatically activates it if, at the end of a sub-period or at the beginning of a period, it detects a need for liquidity (i.e. when Cash + Income < Expenses).

Emergency credit should be avoided at all costs because of its high financial cost and because, in the real world, it would be equivalent to bankruptcy under Chapter 11 (US law) and therefore shows very poor management of the entire team. If activated, interest is automatically charged at the beginning of the next period and the principal is paid in the first sub-period of the following period.

The screenshot displays a financial management interface with several sections:

- Credit line (INR):** Shows initial, change, and final values across 8 sub-periods. A red box highlights the "Initial" value of 170000. A red square with a checkmark is located in the bottom right corner of this section.
- Deposit (INR):** Shows initial, change, and final values across 8 sub-periods. A red box highlights the "Initial" value of 10000. A red square with a checkmark is located in the bottom right corner of this section.
- Mortgages:** Shows principal, interest, and amount for four entries. A red box highlights the "Principal" row. A red square with a checkmark is located in the bottom right corner of this section.
- Factoring:** Shows a note about factoring up to \$300,000.00 at a 3% cost. An input field for "Amount" is shown with a red box and a red square with a checkmark.
- Shareholder Loan:** Shows amount, interest rate, and consent to equity. An input field for "Amount" is shown with a red box and a red square with a checkmark.
- Dividends:** Shows dividends (\$ INR) with a value of 0. An input field is shown with a red box and a red square with a checkmark.
- Shares issuance:** Shows shares issued, price, and shareholder information. A note states "No data available in table".

Figure 8. Financial decisions

As the finance manager, you are indirectly involved in two key decisions: 1) the type of customer you want to sell to, and 2) the type of suppliers you want to work with. The type of customer is a decision typically entered into the system by the marketing manager¹³, which affects cash flow but not demand generation (very important). Similarly, the purchasing manager must decide what type of suppliers to work with (some will offer a good price but require immediate payment). This must be coordinated to ensure accurate cash flow calculations.

6.2 Reports

There are two key reports that will help you plan your cash flow: the Initial Cash Flow Report, which shows the payments due at the beginning of the period, along with cash inflows and outflows, and the Subperiod Cash Flow Report, which details all payments and receipts in each subperiod. They should be analyzed simultaneously to monitor your company's cash flow.

You will also need to monitor the Selling and Administrative Expenses Report and the Income Statement and Balance Sheet Report.

6.2.1 Initial Cash Flow Report

Your company needs to make some payments right at the beginning of the period. The economic impact of those payments is shown in the initial cash flow report. This report tells you what happens at the beginning of the period. It has three main components: 1) initial cash, 2) receipts, and 3) cash outflows. A brief description of each is provided below. Exhibit 7 shows an example of this report.

*But you must tell him which types of customer to choose.

Revenues

- New shares issued. This is the income from an injection of capital into the company.
- Sale of equipment. Revenue from the sale of machines or modules.
- Increase in mortgage. Authorized increases in the balance of your mortgage loan.
- Factoring. Allows the possibility of converting accounts receivable into cash at a certain cost.

Outflows

- Purchase of equipment and modules. Purchase of machines and modules.
- Leasing and transport of machines. Cost of moving machines between factories plus the cost of leasing machinery.
- Module leasing. Cost of emergency modules that the system incorporates in case of not having enough space in the factories.
- Payment of the principal of the mortgage. Payment of the mortgage installment.
- Payment of mortgage interest. Payment of accrued mortgage interest.
- Payment of interest on the emergency loan.
- Expenses for hiring and firing workers. Cost of training new employees plus dismissal costs.
- Payments to suppliers. Cost of parts (parts are paid in the corresponding subperiod).
- Warehouse rental expenses. Payment for the rental of commercial warehouses.
- Tax payments.
- Dividend payments.
- Payments for product improvements. R&D costs associated with the design of improvements.
- Employee benefits.

If the total cash outflows are greater than the initial cash on hand plus cash inflows, the system will provide an emergency loan to cover the difference and allow the team to continue participating in the simulation.

6.2.2 Subperiod Cash Flow Report

This report (see Exhibit 8) details all cash payments and receipts in each of the period's subperiods. The beginning cash balance in this report matches the ending balance in the beginning cash flow report, so both should be analyzed together. The cash inflows and outflows included are:

Income

- Increase in line of credit.
- Interest earned on short-term investments (deposit).

- Payments from customers.
- Decrease in short-term investments (deposit).

Outflows

- Increase in short-term investments (deposit).
- Selling and administrative expenses. The total amount is from the sales and administrative report.
- Indirect labor expenses. 50% of total production workers' wages, including overtime.
- Interest on line of credit.
- Interest on shareholder loan.
- Energy costs.
- Cost of holding inventory of parts and assemblies.
- Additional costs for improvements. Variable cost of actually implementing the improvement in the final product. Sometimes it can be zero.
- Payments to suppliers (parts).
- Overtime (production workers).
- Ordering cost.
- Repayment of the credit line.
- Transportation expenses.
- Salaries (production workers).
- Employee benefits.
- Emergency loan. Payment of the emergency loan from the previous period, to be paid in full in the first subperiod (without accrual between subperiods).

At the end of each subperiod, the report shows either the cash on hand or the emergency credit activated to cover any cash shortfall¹⁵.

6.2.3 Sales and administration expense report, See section 2.3.2.

6.2.4 Income Statement and Balance Sheet Report

The report is self-explanatory and provides the income statement and balance sheet for each individual company. An example is shown in Exhibit 9.

In addition, there is a summary income statement and balance sheet report with a summary version of the financial statements for all companies in the same market, allowing you to compare your company with the rest of your group (see Exhibit 10).

7. People

The work environment is crucial to your company. Dissatisfied workers can lead to union demands, labor disputes, low productivity, and increased absenteeism. At the beginning of the simulation, productivity will be below the rated capacity of your machines. By carefully managing labor improvements in the simulator, you can increase productivity and reduce absenteeism.

In addition, these improvements will help you in negotiations with unions as they will be part of the negotiations.

This section provides an overview of managing wages and benefits in the various geographic areas within the company.

7.1 Decisions

You have several categories of decisions that only affect plant workers (not salespeople). These categories include (see Figure 9):

- Personal leave days: The number of justified personal leave days provided to employees during the period.
- Training budget (% of total payroll): Indicates the percentage allocated to additional employee training.
- Health and safety budget (% of total payroll): Budget for improvements in workplace safety.
- Union representatives: Full-time union representatives who coordinate activities at the company's different work sites.
- Reduction in working hours (work day): Agreed reduction in hours worked per period, improving work-life balance.
- Profit sharing: Percentage of net profits from the previous period that are shared with employees in the current period.
- Company health insurance: Health insurance provided by the company.

These decisions impact the work environment and the costs associated with workers. When entering them into the platform, consider how the simulator handles them:

❖ Decisions a), d) and e) affect the number of workers available in the workforce:

- When you enter them for the first time, the simulator will automatically implement the resulting contracts, generating training and wage costs.
- In subsequent periods, it may happen that:

- The previous conditions remain the same. You must re-enter the same decisions; the simulator will not make any new hires.
- You want to vary the conditions of the previous period, either upwards or downwards: when the new values are entered, the simulator will automatically hire or fire workers, and generate training and wage costs in the first case, or severance costs in the second.
- ❖ Profit sharing [f]): Distributes the desired percentage of the profits from the previous period. The corresponding amounts are paid at the beginning of the current period, as shown in the initial cash flow report.
- ❖ Decisions b), c) and g): These involve expenses based on a percentage of total wages (direct labor excluding 50% of indirect costs). They affect the same period in which they are entered and are distributed proportionally over its subperiods.

In Figure 9 you will also find detailed information for entering wages:

1. Zone: Lists the different geographic zones where the company operates.
2. Minimum: Shows the minimum wage set for each zone, ensuring compliance with regional wage standards
3. Amount: Shows the actual wage amount currently paid in each zone, providing insight into the company's wage distribution relative to the minimum wage. You can change it in the indicated button.

Social Benefits

This section details the various social benefits offered to employees, along with the amounts allocated for each benefit. You can modify these amounts in the “pencil” marked in the figure.

The screenshot displays a software interface for managing salaries and social benefits. At the top, there are four dropdown menus: 'View' (set to 'People'), 'Country' (set to 'ESG240903'), 'Company' (set to '1 - Company 1'), and '4-month period' (set to '8').

Salaries: This section contains a table with columns: Zone, Min., and Amount. The 'Amount' column includes a red-bordered edit icon. The data is as follows:

Zone	Min.	Amount
Center	\$26.00	\$28.20
West	\$26.00	\$28.20
North	\$26.00	\$0.00
East	\$26.00	\$0.00
South	\$26.00	\$0.00

Social Benefits: This section contains a table with columns: Benefits and Amount. The 'Amount' column includes a red-bordered edit icon. The data is as follows:

Benefits	Amount
Personal days (per person and period)	1
Budget for additional training (% of payroll)	3
Health and safety budget (% of payroll)	3
Union representatives (total of people by company)	2
Reduction of working hours (hours per period)	2
Profit sharing (% of profit from previous period)	2
Health insurance (% of payroll)	3

Figure 9. Salaries and social benefits

7.2 Cash Flow Implications

The following items appear on the Initial Cash Flow Report:

- Hiring costs resulting from Labor Relations/People decisions
- Termination costs resulting from Labor Relations/People decisions
- Profit sharing

Also on the Subperiod Cash Flow Report:

- Budgets for additional training, occupational health and safety, and company health insurance
- Salaries of workers hired based on Labor Relations/People decisions (excluding 50% indirect costs). Figure 10 shows this scheme.

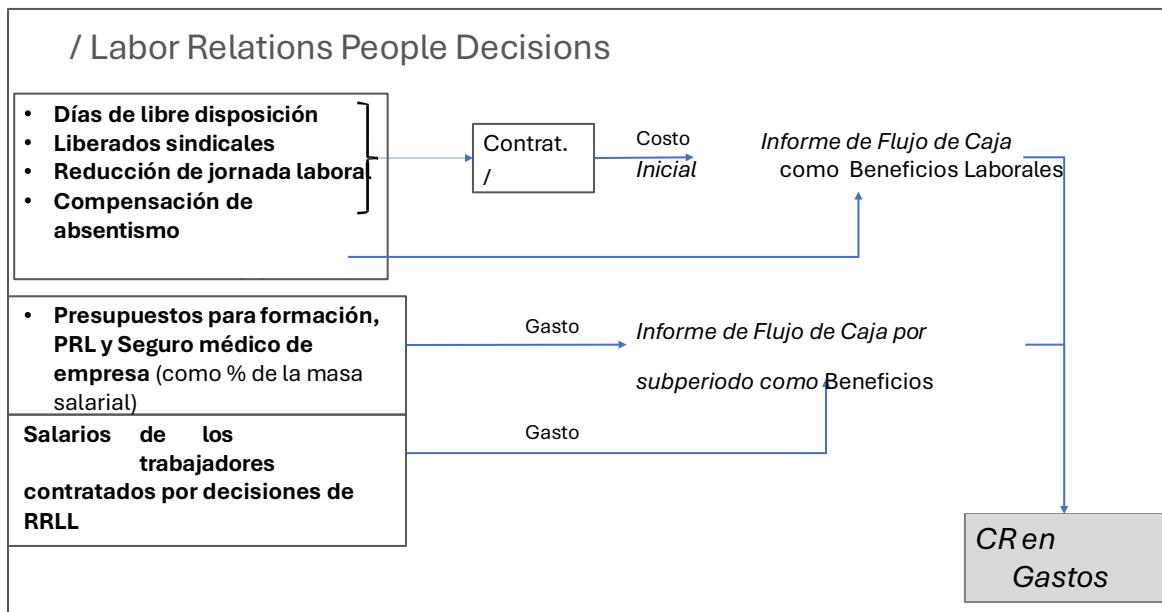


Figure 10. Impact of Labor Relations/People decisions

7.3 Labor Relations Reports

The Labor Balance Report shows the impact of labor decisions, including new hires and terminations. As can be seen in Figure 11, this report includes two types of information:

- The labor environment, indicated by satisfaction icons (smiling or sad).
- The cumulative balance of workers hired to date by each category of decisions, not just the hires in the current period.

	Center	West	North	East	South	Total
Workers assigned	233.00	71.00	0.00	0.00	0.00	304.00
FTE offset of reduction of working hours	0.73	0.22	0.00	0.00	0.00	0.95
FTE offset of off-days available for workers	2.91	0.89	0.00	0.00	0.00	3.80
FTE union representatives						2.00
Absenteeism	0.00	0.00	0.00	0.00	0.00	0.00
Total	236.64	72.11	0.00	0.00	0.00	310.75

Figure 11. Worker balance report

8. The role of ESG/Sustainability

In the operational reality of a manufacturing process, various activities impact the environment, particularly through the generation of CO2 emissions.

The role of ESG/Sustainability in EXSIM involves understanding these impacts and making strategic decisions to reduce or offset emissions.

This responsibility includes analyzing how CO2 emissions are generated and exploring the measures available to reduce them and their impact. By focusing on sustainability, your company can actively manage its environmental footprint, ensuring that operations contribute to a more sustainable future. Figure 12 shows a diagram of the CO2 sources considered in EXSIM, which are as follows:

Raw materials

- Differentiating between their production at source and transportation.
- Different suppliers have different levels of emissions.

Production

- Based on the installed electrical power and the types and capacities of the machines.

Product improvements

- Some will increase manufacturing emissions, while others will reduce them.

Transport of:

- Finished products, distinguishing between air, rail and truck.
- Machines, parts and assemblies between factories, exclusively by air.

Construction of factories (factory modules)

- Includes both those built at the start of operations (period 1) and any new expansion decided by the team.

Disposal of product thrown away due to lack of warehouse space

- Here a distinction is made between transport to landfill and subsequent treatment to recover materials.

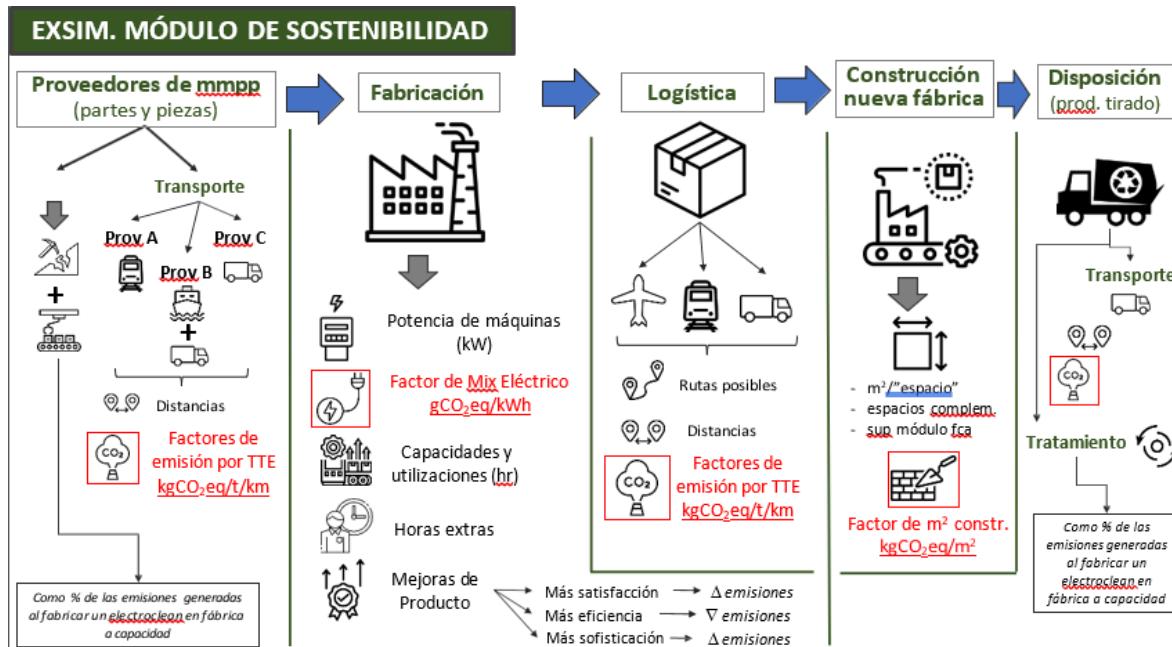


Figure 12. CO₂ emissions generation scheme

8.1 Decisions

You have four main options to reduce or offset CO₂ emissions:

1. Install Solar Panels

- Generate electricity: Each panel produces 266.4 kWh per period.
- Cost: \$420 per panel, with an annual maintenance cost of 5% of the investment.
- Lifespan: 25 years.

o Plant Trees

- ○ Offset CO2 emissions: It takes 80 trees to offset 1 ton of CO2 per year.
- ○ Cost: \$6.25 per tree, with a maintenance cost of \$50/year for 80 trees for 40 years.

2. Buy Energy from a Green Supplier

○ Companies can buy a percentage of their electricity from a green supplier, incurring a 20% increase in cost, but with zero emissions for that portion.

3. Purchase of CO2 Credits

○ Allows companies to purchase credits that offset 1 tonne of CO2 each, with prices that vary depending on the duration (1, 2 or 3 periods).

8.2 Reporting

In EXSIM, all production machinery consumes electricity, with fixed energy costs of \$30 per installed kW per year (or \$10 per installed kW per period) and a variable consumption cost of \$0.06 per kWh. These costs are reflected in the company's financial statements unless alternative energy decisions are made, such as installing solar panels or purchasing from a green energy supplier.

The four possible decisions to reduce or offset emissions have different impacts on the

Income Statement (IS) and cash flows as follows:

Individual IS and Company Balance Sheet Report:

- Specific energy costs line.
- CO2 abatement cost line, consisting of:
 - a) Solar panel maintenance cost (not amortization)
 - b) Tree maintenance cost
 - c) Purchased carbon credit cost
- Balance sheet:
 - a) There are two amortization lines: machinery and solar investment.
 - b) The values of machinery and solar assets will be separated into two lines.

Comparative CR report:

- a) All amortizations appear on a single CR line (solar installation and machinery).
- b) Book values will be included in a single asset line on the balance sheet (solar installation and machinery).

Cash flow reports:

- a) The cost of the solar investment will be paid at the same time as the machinery, i.e. at time zero (initial cash flow report).
- b) Maintenance costs (for both solar installations and trees) as well as CO2 credit costs will be distributed in the cash flow statement by sub-period.

These decisions impact finances by altering CO2 reduction costs, which are shown on a specific line in the income statement. Amortization and asset values are combined or separated, depending on the type of financial statement consulted, while cash flow statements show the timing of solar investment payments and the distribution of maintenance costs over sub-periods.

You will also have access to information related to CO2 emissions and the so-called “ESG-KPI”. This information can be found in the ESG Report, which shows the concepts explained in the following figures.

8.2.1 CO2 emissions and CO2 emissions reduction report

Figure 13 shows the first information included in the ESG report: the CO2 emissions caused by the different concepts explained in this chapter. Figures 13 and 14 show the CO2 emissions in % by emission concept, both in absolute value and as a percentage.

EXSIM - EXECUTIVE SIMULATION												
View		Reports			Country			Company			Profile	
Reports	ESG	ESG	Tests	Company	Profile	English						
4-month period	7	4-month period vs	7	Individual 5								
Summary Emissions (kg CO₂)												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Suppliers' purchases Parts A and B	101,760	76,676	121,736	122,685	158,785	83,892	57,575	0	0	0	0	0
Electricity emissions	100,039	100,039	137,059	158,583	135,502	152,556	69,647	0	0	0	0	0
Product Improvements	0	0	0	0	0	0	158	0	0	0	0	0
Shipping Electrocleans Across Regions	11,180	8,680	14,700	5,236	6,063	7,415	4,400	0	0	0	0	0
New Plant Modules	0	303,750	303,750	303,750	303,750	303,750	303,750	0	0	0	0	0
Thrown Electrocleans	0	0	0	0	0	0	15,243	0	0	0	0	0
Total	212,979	489,145	577,246	590,253	604,100	547,613	450,773	0	0	0	0	0
Intensity (kg CO ₂ /Unit Produced)	37.40	64.43	44.08	44.58	46.04	39.14	-	-	-	-	-	-
Solar PV panels	0	0	0	0	0	0	-15,960	0	0	0	0	0
Tree plantation (groups of 80)	0	0	0	0	0	0	-53,333	0	0	0	0	0
Green electricity (%)	0	0	0	0	0	0	-5,925	0	0	0	0	0
CO ₂ credits purchase (1 period)	0	0	0	0	0	0	-3,333	0	0	0	0	0
CO ₂ credits purchase (2 periods)	0	0	0	0	0	0	0	0	0	0	0	0
CO ₂ credits purchase (3 periods)	0	0	0	0	0	0	0	0	0	0	0	0
Total	212,979	489,145	577,246	590,253	604,100	547,613	372,222	0	0	0	0	0
ENV KPI (%)	79	60	75	74	73	78	0	0	0	0	0	0

Figure 13. ESG report. Emissions summary (kg CO₂).

Summary Emissions (kg CO ₂) %												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Suppliers' purchases Parts A and B	47.8%	15.7%	21.1%	20.8%	26.3%	15.3%	12.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Other materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electricity emissions	47.0%	20.5%	23.7%	26.9%	22.4%	27.9%	15.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Product Improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Shipping Electrocleans Across Regions	5.2%	1.8%	2.5%	0.9%	1.0%	1.4%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Plant Modules	0.0%	62.1%	52.6%	51.5%	50.3%	55.5%	67.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Thrown Electrocleans	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Figure 14. ESG Report. CO₂ emissions in % by emission concept

8.2.2 Product intensity and ESG - KPIs

The ESG report also includes the "ESG-KPI"20, which aims to evaluate each company from an ESG perspective and compare it with others in the same environment. A key parameter for calculating this KPI is the product intensity, which measures the kilograms of CO₂ emitted per final product manufactured in that period (see Figure 15 - the data is not realistic).

Emissions intensity per team					
Period	Company 1	Company 2	Company 3	Company 4	Company 5
6	39.14	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00

Figure 15. Example of CO2 emissions per final product (Product Intensity).

The KPI-ESG combines two different indicators:

- Environmental. It reflects the statistical distribution of Product Intensity (PI) across all teams (from 0 to 100).
- Social. Based on work decisions, this parameter generates the "emoticons" in the Labor Relations report (from 0 to 100).

The ESG Report will display the KPI-ESG, which is a weighted average of both indicators described above. This combined score provides an overall assessment of each company's ESG performance, as shown in Figure 16. It also ranges from 0 (poor) to 100 (best).

ENV-KPI per team					
Period	Company 1	Company 2	Company 3	Company 4	Company 5
6	78	100	100	100	100
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0

ESG-KPI per team					
Period	Company 1	Company 2	Company 3	Company 4	Company 5
6	76.5	87.5	87.5	87.5	87.5
7	12.5	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0

Figure 16. ESG-KPI. Summary in the ESG Report.

8.3 Emissions generation

The essential details for understanding the emissions calculation in each case are briefly discussed below.

IMPORTANT: The information in this section is provided to help you understand the assumptions made in developing the emissions calculation method. The ESG report provides detailed information on the results.

8.3.1 Emission factors

As mentioned in Figure 12, specific CO₂ emission factors are used:

- For transport in g CO₂/t/km. Each type of transport has its own factor.
- For electricity consumption in g CO₂/kWh. It will depend on the electricity production mix of the reference country (percentage of renewable and conventional sources).
- For the construction of a factory module in g CO₂/m².

8.3.2 Raw material suppliers

Emissions generated by the supply of raw materials (mainly parts, as parts generate negligible emissions) come from two main sources:

- The production of the parts ("origination"). For each supplier, this is calculated as a percentage of the production of a saturated (or "normal") plant.
- Their transportation. Suppliers are assumed to be in different places around the world and therefore use different means of transportation.

8.3.3 Manufacturing

The following working assumptions have been made to calculate the emissions from the manufacturing of the final product:

- All machines are powered by electricity; therefore, each one has its own electrical power assigned.
- Emissions are calculated considering the capacity of the machine, the hours worked (80 per subperiod) and the electricity mix factor considered (Figure 16).

Power per machine type	Machine 1	Machine 2	Machine 3		M. 4 - S3	M. 4 - S4	M. 4 - S5
			ALPHA	BETA			
	10	9	15	16	6	6	6

Figure 16. Installed electrical power by type of machine.

8.3.4 Product improvements

Product improvements can be classified into three groups, each of which increases or decreases emissions in the manufacture of the final product: a) Greater user satisfaction, b) Greater efficiency, and c) Greater sophistication.

Their implementation involves additional manufacturing emissions, except in those cases that generate greater efficiency, which decrease manufacturing emissions²¹. An important aspect to highlight about the emissions generated by product improvements is that they occur through a "postponement" action to the specific moment of sale. Only at that moment are the improvements incorporated, therefore, only the units sold generate CO₂ emissions from product improvements.

8.3.5 Transport

a) Transport of finished products.

The emissions generated by transporting finished products depend on the means used and the distance between any two existing zones. The corresponding emission factor is then applied.

b) Transport of parts, assemblies and machines.

Parts, assemblies and machines can be transported between factories in different zones. In this case, only air transport is considered. As with finished products, consistent weights are considered for each of them.

8.3.6 Construction of factory modules

The surface area of a plant module is estimated and then the emission factor per m² built is applied.

These emissions will be distributed over 8 periods, which is the estimated time in which the plant building will not need major renovations. This also applies to the emissions resulting from the construction of the six plant modules (4 in the Central zone and 2 in the West zone) that was carried out at the start of the business (period 1). Therefore, there is already an allocation of emissions for this concept in period 7.

8.3.7 Discarded units

As shown in Figure 12, emissions in this case occur both from transport to the recycling center and from the material recovery process ("treatment").

For this last phase, emissions are calculated as a percentage of the production of an electroclean in a saturated (or "normal") plant.

9. Main operating instructions of the Simulator

9.1 Accessing the simulator and starting the game

To get started, follow your instructor's directions or visit the game website at

<https://www.eurekasimulations.com/exsim/>

which will take you to the login screen (see Figures 17a and 17b).

Enter your username and password to log in. Participants in a simulation session will be able to access the platform using the same link; however, this should be the last option, as participants will be provided with automatic login links.

Note: EXSIM is accessible from any device and browser, allowing you to participate from anywhere. For the best experience, it is recommended to use the Chrome browser.

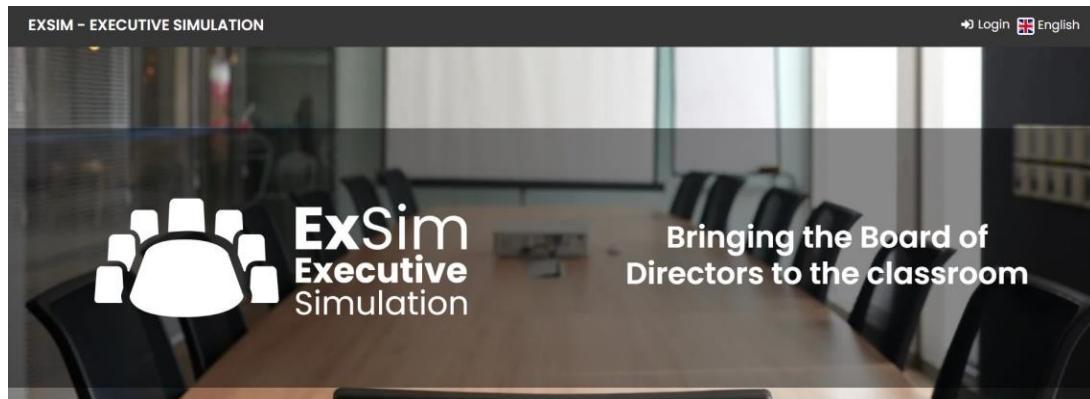


Figure 17a Simulator Screen

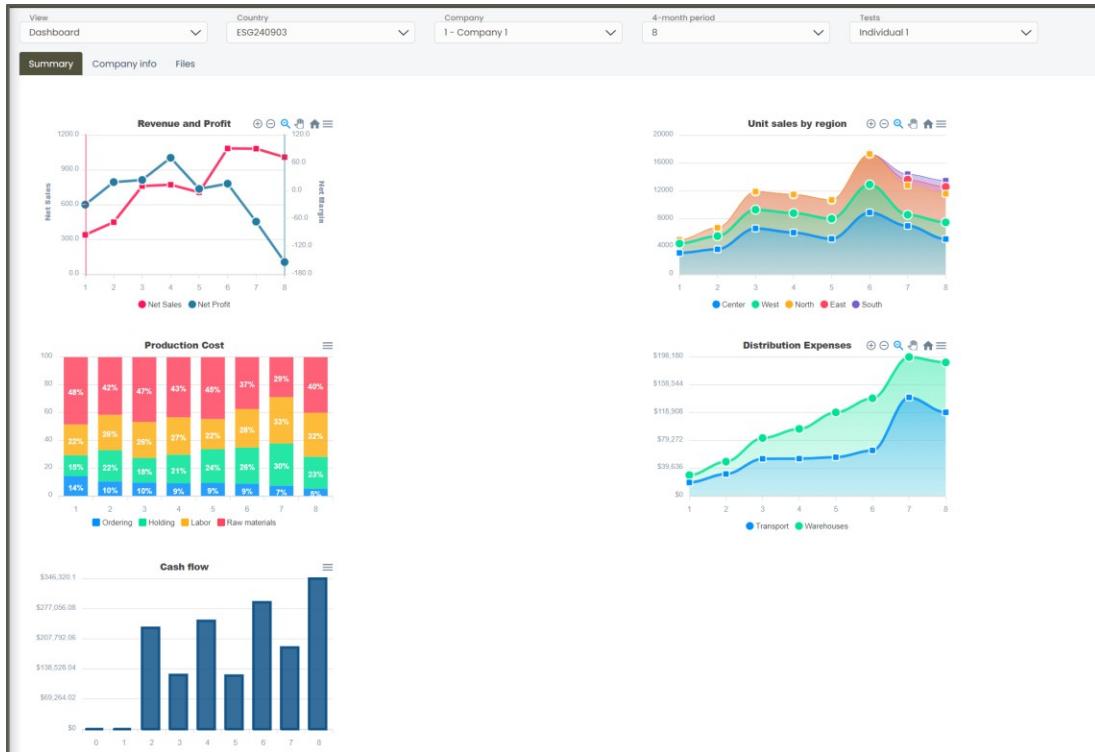
At the top right, you will find the “Login” button. Clicking on this button will enable the authentication form where you can enter your username and password to start a course as shown in figure 17b.

A composite image showing two views of the ExSim Executive Simulation interface. On the left is a blurred screenshot of the main simulator screen, showing the conference room setup and the 'ExSim Executive Simulation' logo. On the right is a clearer view of the login form. The login form features the 'EUREKA SIMULATIONS' logo at the top. Below it is a red 'EXSIM EXECUTIVE SIMULATION' heading. The login fields include 'Username' (with placeholder 'Example@kutzipartners.com') and 'Password' (with placeholder '*****'). There is also a 'Remember me' checkbox, an 'I forgot my password?' link, and a red 'LOG IN' button. A red arrow points to the 'LOG IN' button. Below the login form are 'Sign in with' buttons for Google and Facebook, and a 'Go back to home page' link.

9.1.1 Your Dashboard

Once you log in, you will see the main dashboard, which provides an overview of your company's results, executives, and uploaded files.

On the summary tab, you will find charts that illustrate your company's key results: revenue and profit, unit sales by region, total market share, market share by segment,



production cost split, distribution expenses, and cash flows by subperiod (Figure 18).

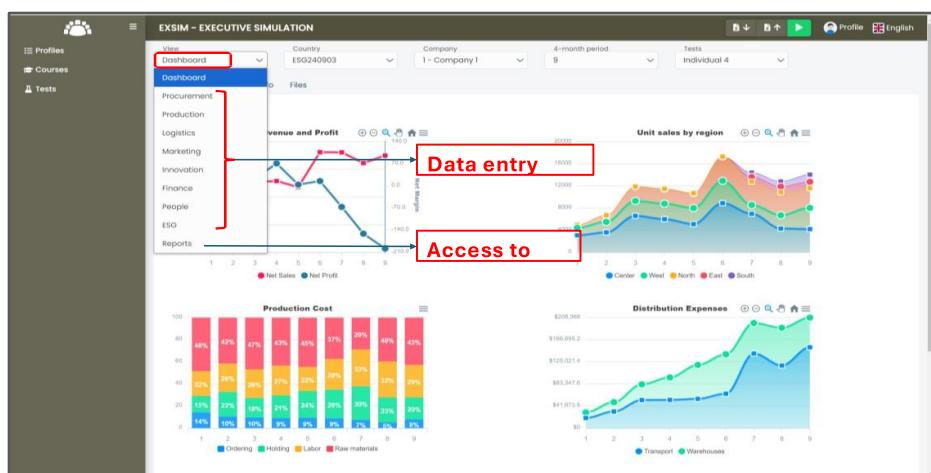
Figure 18. Dashboard view with different information

9.2 Accessing data entry and reports

The drop-down menu at the top left of the screen provides easy access to areas of the simulator

allow
of
decisions
viewing of
through
different

that
input
and
results



reports (see Figure 19).

Figure 19. Ways to access decision input and reports

Once in the reports area (see Figure 20), there are two relevant drop-down menus:

- The one that allows you to choose the different reports (A in Figure 20).
- The one that allows access to the results of the different simulations performed (operational tests, complete simulations or the FINAL (REAL) simulation) (B in Figure 20).

Figures 20 and 21 show the details of these two options.

The screenshot shows the EXSIM - EXECUTIVE SIMULATION software interface. The top navigation bar includes a user icon, 'EXSIM - EXECUTIVE SIMULATION', and various dropdown menus for 'View', 'Reports', '4-month period', 'Country' (ESG240903), 'Company' (1 - Company 1), and language ('English').
The 'Reports' dropdown (labeled A) is open, showing options like 'Initial Cash Flow' and 'nets'. The 'nets' dropdown (labeled B) is also open, showing 'Individual' and 'Individual 4'.
The main content area displays the 'Initial Cash Flow' report. It has two main sections:
Income
- New Shares Issued: \$0.00
- Sale of PPE: \$0.00
- Mortgage Increases: \$18,200.00
- Factoring: \$0.00
- Shareholder loan income: \$0.00
- Extraordinary income: \$0.00
- **Total Income**: \$18,200.00
Outcome
- Equipment and Modules Purchases: \$90,000.00
- Machines Leasing: \$10,998.00
- Modules leasing: \$0.00
- Mortgage Principal Payments: \$0.00
- Interest Paid on Mortgages: \$46,908.00
- Interest Paid on Emergency Loan: \$123,015.21
- Worker Hiring and Dismissal Expenses: \$220.00
- Labor Benefits: \$0.00

Figure 20. Drop-down menus for choosing report type and tests/simulations.

Figure 21. Selecting reports mode

9.3 Upload decisions to the platform via Excel for the current period

Step 1: Download the Excel file

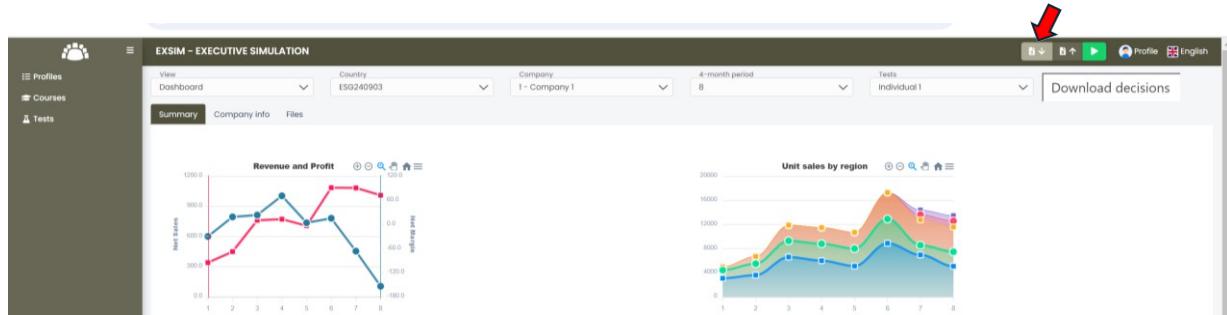
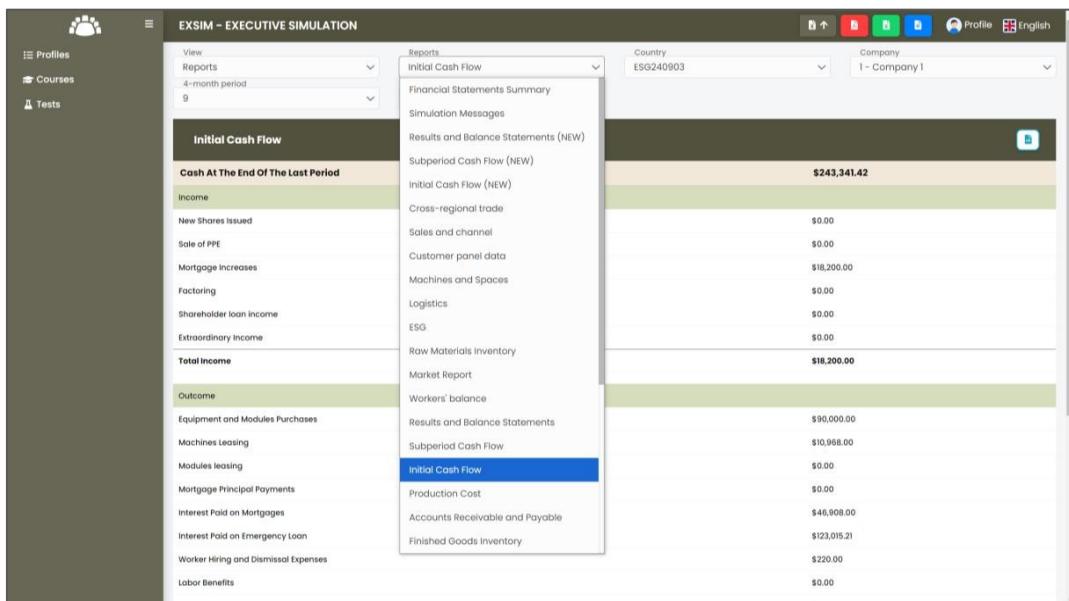


Figure 22. To download Excel files



As shown in Figure 22, you can download from the platform the Excel file that, once completed or modified, will allow you to upload all your decisions in one go. The file will show the decisions that the system has saved up to that point (i.e. it will be full of zeros if no decision has been saved). It is therefore useful not only to upload your decisions, but also to periodically check the correctness of what you have entered.

It is important to mention at this point that you can download/upload Excel files affecting all functional decisions (as shown in the figure) or do the same by function in the corresponding data entry screens (finance, manufacturing, marketing, logistics, etc.). This allows each function manager to apply this method only to their decisions.

Step 2. Modify Decisions in the Downloaded File

Open the downloaded Excel file and make any necessary adjustments to the decisions based on your strategic goals or new insights you have gained (see Figure 23). This may include changing purchasing quantities, adjusting marketing spend, reallocating finance budget, etc.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Zone	Plant modules	Zone	Section	Production							Extra Time Per Fortnight							Zone	Section	Machine / Crew				
2	Center	4	Center	Section 1	n	2	3	4	5	6	7	0	0	0	0	0	0	0	0	Center	Section 1	1	7	7	
3	West	2	Center	Section 1	1393	20	20	20	20	20	20	0	0	0	0	0	0	0	0	Center	Section 1	1	0	0	
4	North	0	Center	Section 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 2	2	22	22	
5	East	0	Center	Section 2	1338	0	0	20	20	20	20	20	20	20	20	20	20	20	20	Center	Section 2	2	0	0	
6	South	0	Center	Section 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 3	3-alpha	3	90	
7			Center	Section 3	1330	20	20	20	20	20	0	0	0	0	0	0	0	0	Center	Section 3	3-alpha	0	0		
8			Center	Section 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 3	3-beta	0	0		
9			Center	Section 4	1494	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 3	3-beta	0	0		
10			Center	Section 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 3	4	3	4		
11			Center	Section 5	1250	20	20	20	20	20	20	20	20	20	20	20	20	20	Center	Section 3	4	0	0		
12			Center	Section 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 4	4	10	10		
13			West	Section 1	496	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 4	4	0	0		
14			West	Section 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 5	Crew	0	75		
15			West	Section 2	401	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 5	Crew	0	0		
16			West	Section 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 5	4	12	11		
17			West	Section 3	342	0	0	0	0	0	0	0	0	0	0	0	0	0	Center	Section 5	4	0	0		
18			West	Section 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	West	Section 1	1	3	3		
19			West	Section 4	392	0	0	0	0	0	0	0	0	0	0	0	0	0	West	Section 1	1	0	0		
20			West	Section 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	West	Section 2	2	9	9		
21			West	Section 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	West	Section 2	2	9	9		

Figure 23. Different Excel sheets for entering functional decisions

Step 3: Upload modified decisions

Once you have completed your edits to the Excel file, save the changes. Then, use the "Upload decisions" button to upload the modified decisions (see Figure 24). This option will be available in the current period.

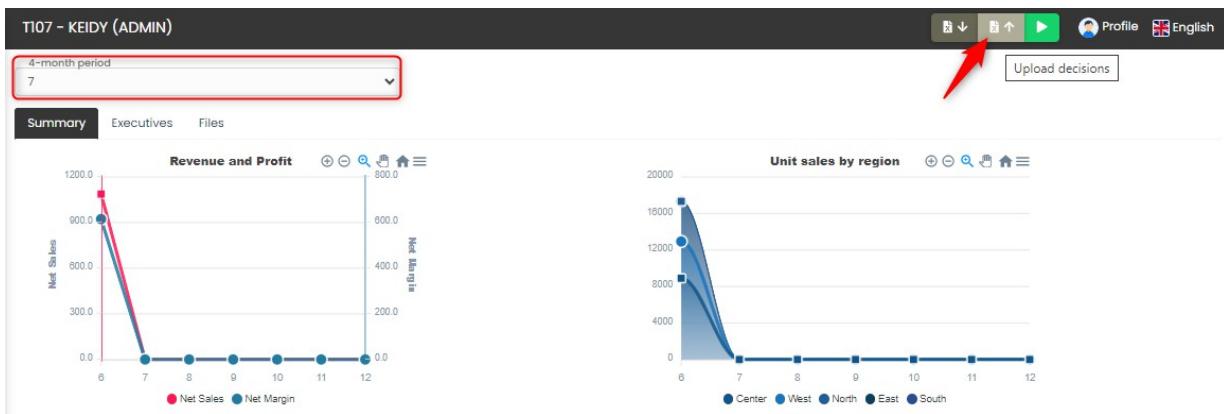


Figure 24. Uploading decisions via Excel files

With the decisions already loaded, either manually or through Excel files, you can run the so-called “Operational Tests” that allow you to test your decisions against a demand that you are going to estimate, as explained in the following section.

9.4 Operational Testing

The “Operational Test” is critical to improving decision-making confidence, as it allows you to visualize the potential impacts of your choices in a controlled environment. This feature promotes a more fine-tuned approach to business strategy in simulation, encouraging data-driven decisions and learning from hypothetical outcomes.

Once you have logged into the platform, navigate to the most recent completed period. This ensures that you are working with the latest data and decisions that have been made in the simulation.

When you have entered all your decisions, either by downloading/uploading Excel files or manually entering your choices (or, most likely, using both methods), click the “Test” button to run the simulation. This allows you to see the effects of your modified decisions without affecting the actual game, providing a risk-free environment to experiment with different strategies (see Figures 25a and 25b).

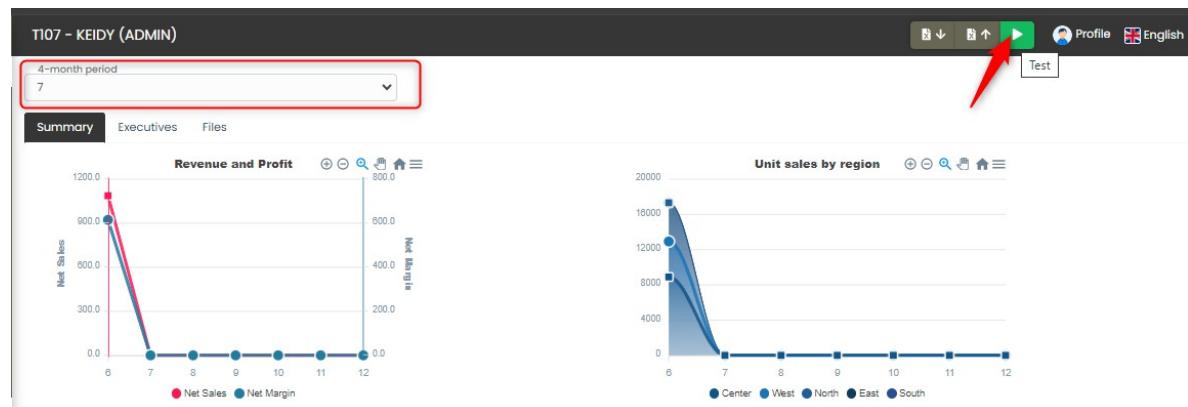


Figure 25a. Operational Testing Button

A pop-up window will appear to confirm the expected demand for the next round. Modify the values if necessary and click the "Confirm" button to continue:

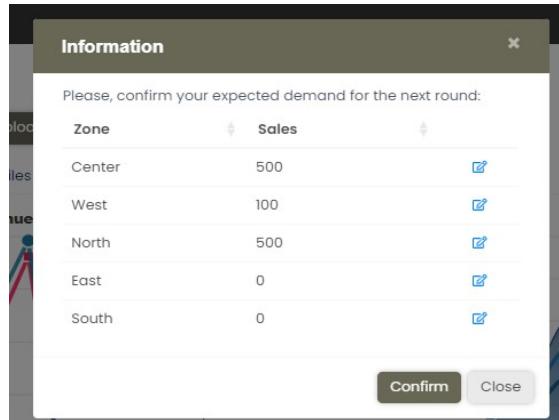


Figure 25b. Pop-up window for entering expected demand

Analyze results such as changes in revenue, profit, or unit sales by region as shown in the dashboard charts. Additionally, in the reporting section, you can see the results of the executions made throughout the course. This will help you evaluate the effectiveness of your decisions and make further adjustments if necessary.

9.5 The Case

If you want to access the details of the Case, you can enter the platform module called

“Case Study”:

TI07 – KEIDY (ADMIN)

Executive Simulation: Mezquite LTD

Decision-making Process

Financial Situation

Chapter I. Sales & Marketing

- Section 1. Market Demand
- Potential Markets or Zones
- Competition
- Customers
- Discounts and Customer Types
- Sales
- Section 2. The Selling Price
- Section 3. Promotion and Advertising
- Sales force
- Advertising
- Section 4. Product Improvements
- Section 5. Distribution
- Warehousing

4-month period: 7 Periods left: 6

Welcome to Mezquite. You have been hired, among other executives, to be part of the top management team of the company. The company competes directly with other similar firms in the same market; in fact, something highly unlikely has occurred: all the companies are in the same situation; they were founded simultaneously and sell the same product. Mezquite is exactly two years old. It was founded by Mr. Sadarte with the aim of manufacturing and marketing a product invented by him: the ELECTROCLEAN, an innovative electrical household appliance, the first of its kind in the market.

Decision-making Process

Your decisions during the simulation will be grouped into four-months periods (or, from here on, “periods”). Since each four-month period has eight [SUBPERIODS] and one year has three four-month periods, each year will invariably have 24 business [SUBPERIODS].

10. Exhibits

10.1 Exhibit 1. Example of the Simulation Messages report

COMPANY 1 - PQN2 - YELENIS (ADMIN)																																																																					
Reports		4-month period																																																																			
COMPANY 1 - PQN2 - YELENIS (ADMIN)																																																																					
Price																																																																					
<table border="1"> <thead> <tr> <th>Zone</th><th>Company 1 A</th><th>Company 1 B</th><th>Company 1 C</th><th>Company 2 A</th><th>Company 2 B</th><th>Company 2 C</th><th>Company 3 A</th><th>Company 3 B</th><th>Company 3 C</th></tr> </thead> <tbody> <tr> <td>Center</td><td>62.00</td><td>0.00</td><td>0.00</td><td>62.00</td><td>0.00</td><td>0.00</td><td>62.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>West</td><td>62.00</td><td>0.00</td><td>0.00</td><td>62.00</td><td>0.00</td><td>0.00</td><td>62.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>North</td><td>85.00</td><td>0.00</td><td>0.00</td><td>85.00</td><td>0.00</td><td>0.00</td><td>85.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>East</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>South</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> </tbody> </table>										Zone	Company 1 A	Company 1 B	Company 1 C	Company 2 A	Company 2 B	Company 2 C	Company 3 A	Company 3 B	Company 3 C	Center	62.00	0.00	0.00	62.00	0.00	0.00	62.00	0.00	0.00	West	62.00	0.00	0.00	62.00	0.00	0.00	62.00	0.00	0.00	North	85.00	0.00	0.00	85.00	0.00	0.00	85.00	0.00	0.00	East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	South	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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South	0.00	0.00	0.00																																																																		
Product Awareness Percentage Per Segment																																																																					
<table border="1"> <thead> <tr> <th>Zone</th><th>Segment</th><th>Company 1 A</th><th>Company 1 B</th><th>Company 1 C</th><th>Company 2 A</th><th>Company 2 B</th><th>Company 2 C</th><th>Company 3 A</th><th>Company 3 B</th><th>Company 3 C</th></tr> </thead> <tbody> <tr> <td rowspan="2">Center</td><td>High</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>Low</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> <tr> <td>West</td><td>High</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> </tbody> </table>										Zone	Segment	Company 1 A	Company 1 B	Company 1 C	Company 2 A	Company 2 B	Company 2 C	Company 3 A	Company 3 B	Company 3 C	Center	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	West	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																	
Zone	Segment	Company 1 A	Company 1 B	Company 1 C	Company 2 A	Company 2 B	Company 2 C	Company 3 A	Company 3 B	Company 3 C																																																											
Center	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																																																											
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																																																											
West	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																																																											

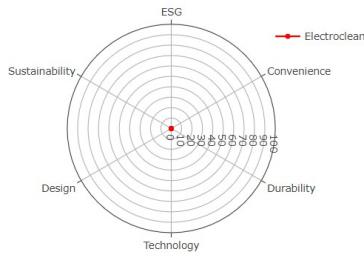
10.2 Exhibit 2. Market Report

	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
North	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
East	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Product Improvements										
Improvements	Company 1 - A	Company 1 - B	Company 1 - C	Company 2 - A	Company 2 - B	Company 2 - C	Company 3 - A	Company 3 - B	Company 3 - C	
MANUFACTURED WITH STAINLESS MATERIAL										
QUIETER										
LESS POWER CONSUMPTION										
MORE ADEQUATE WEIGHT AND SIZE										
MORE IMPACT-RESISTANT										
FASTER OPERATION										
EASY WASH AND MAINTENANCE										
BETTER PROCESSING QUALITY										
EASY HANDLING										
MORE DURABILITY										
DIGITAL CONTROLS										
AUTOMATIC AND PROGRAMMABLE										
MULTIPURPOSE ACCESSORIES										
SEVERAL SPEEDS										

Market Share Per Region (%)									
Zone	Company 1 - A	Company 1 - B	Company 1 - C	Company 2 - A	Company 2 - B	Company 2 - C	Company 3 - A	Company 3 - B	Company 3 - C
Center	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00
West	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00
North	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00
East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Market Share Per Region Per Segment (%)												
Zone	Segment	Company 1 - A	Company 1 - B	Company 1 - C	Company 2 - A	Company 2 - B	Company 2 - C	Company 3 - A	Company 3 - B	Company 3 - C		
Center	High	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
	Low	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
West	High	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
	Low	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
North	High	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
	Low	33.33	0.00	0.00	33.33	0.00	0.00	33.33	0.00	0.00		
East	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
South	High	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Low	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		



10.3 Exhibit 3. Sales and Administration Expenses Report

Sales						
Region	Brand	Units	Local Price	Gross Sales	Discount %	Net Sales
Center	A	8,900	\$62.00	\$551,800.00	7.50	\$510,415.00
West	A	4,028	\$62.00	\$249,736.00	7.50	\$231,005.80
North	A	4,400	\$85.00	\$374,000.00	7.50	\$345,950.00
Total		17,328		\$1,175,536.00		\$1,087,370.80

Sales & Administration Expenses		
	Amount	Expense
Salespeople Salaries	17 Salespeople	\$33,000.00
Salespeople Hiring Expenses	0 Salespeople	\$0.00
TV Advertisement Expenses	3500 spots	\$105,000.00
Radio Advertisement Expenses	11820 spots	\$118,200.00
Out-of-home Advertisement Expenses	0 placements	\$0.00
Digital Advertisement Expenses	0 clicks	\$0.00
Plant Modules Leasing Expenses	0 Modules	\$0.00
Plant Module Administrative Expenses	6 Modules	\$60,000.00
Executive Salaries		\$0.00
Total		\$316,200.00

10.4 Exhibit 4. Raw Materials Inventory Report

Center - Section 1									
Fortnight	1	2	3	4	5	6	7	8	Total
Assembly A Produced	1,671	1,671	1,671	1,671	1,671	1,393	1,393	1,393	12,534
Part A									
Initial inventory	4,210	2,539	868	4,237	2,566	895	1,782	389	
Received	0	0	5,040	0	0	2,280	0	4,500	11,820
Consumed	-1,671	-1,671	-1,671	-1,671	-1,671	-1,393	-1,393	-1,393	-12,534
Final inventory	2,539	868	4,237	2,566	895	1,782	389	3,496	

Center - Section 2									
Fortnight	1	2	3	4	5	6	7	8	Total
Assembly B Produced	1,338	1,338	1,605	1,605	1,605	1,605	1,605	1,605	12,306
Piece 1									
Initial inventory	152	188	174	157	140	123	106	89	
Received	50	0	0	0	0	0	0	0	50
Consumed	-14	-14	-17	-17	-17	-17	-17	-17	-130
Final inventory	188	174	157	140	123	106	89	72	
Part B									
Initial inventory	916	648	380	863	542	221	1,400	1,079	
Received	0	0	804	0	0	1,500	0	0	2,304
Consumed	-268	-268	-321	-321	-321	-321	-321	-321	-2,462
Final inventory	648	380	863	542	221	1,400	1,079	758	

10.5 Exhibit 5. Production Cost and Machinery Control Reports

Production Cost

Reports	Production Cost	4-month period	6
All	Center West North East South		
Section 1	Section 2 Section 3 Section 4 Section 5		
Section 1		Section 1	
Description	Costs	Part A	\$
Cost of Part A Consumed	\$61,961.51	Initial inventory	\$17,401.33
Part A Holding and Ordering Cost	\$21,107.40	Inputs	\$59,040.00
Energy costs	\$0.00	Consumption	\$61,961.51
Direct and Indirect Costs	\$3,906.00	Final inventory	\$14,479.82
Value of Assembly A Produced	\$86,974.91	Assembly A	
		Initial inventory	\$1,342.08
		Production	\$86,974.91
		Consumption	\$60,669.92
		Final inventory	\$77,647.08

Machines and spaces

Reports		Machines and Spaces		4-month period		6						
Center	West	North	East	South								
Machine Control												
Máquinas Disponibles												
Tipo De Máquina	Costo Adquisición	Período De Compra	Período De Venta	Período De Depreciación	Amortización Del Período / Leasing	Cantidad Pendiente De Amortizar	Máquinas Disponibles					
TOTAL 1	0				0	0	0					
TOTAL 2	0				0	0	0					
TOTAL 3-alpha	0				0	0	0					
TOTAL 3-beta	0				0	0	0					
TOTAL 4	0				0	0	0					
Machines Summary												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1												
2												
3-alpha												
3-beta												
4												
Spaces												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Ocupados	0	0	0	0	0	0	0	0	0	0	0	0
Disponibles	0	72	72	72	72	72	0	0	0	0	0	0
Aquilados	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	72	72	72	72	72	0	0	0	0	0	0

10.6 Exhibit 6. Finished product inventory report.

Reports	Finished Goods Inventory	4-month period	6																																																																																								
Center	West	North	East																																																																																								
South																																																																																											
Finished Goods Inventory																																																																																											
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10.7 Exhibit 7. Initial cash flow report

Initial Cash Flow	
Cash At The End Of The Last Period	\$233,382.48
Machines Leasing	\$0.00
Modules leasing	\$0.00
Interest Paid on Mortgages	\$-39,324.00
Interest Paid on Emergency Loan	\$-60,141.03
Worker Hiring and Dismissal Expenses	\$-2,880.00
Labor Benefits	\$0.00
Payments to Suppliers	\$-38,206.00
Warehouse Rental Expenses	\$-71,200.00
Tax Payments	\$0.00
Installation Expenses	\$0.00
Product Improvement Payments	\$-30,000.00
ESO payments	\$-286,000.00
Extraordinary Income and Expenses	\$0.00
Flujo de Caja de las Operaciones	\$-527,751.03
Equipment and Modules Purchases	\$0.00
Sale of PPE	\$0.00
Flujo de Caja de las Inversiones	\$0.00
Factoring	\$0.00
Mortgage Increases	\$126,400.00
Mortgage Principal Payments	\$0.00
New Shares Issued	\$0.00
Dividend Payments	\$0.00
Shareholder loan	\$0.00
Emergency Loans	\$167,968.55
Flujo de Caja de la financiacion	\$294,368.55
Variación en la caja	\$-233,382.48
Caja Inicial (al final del último periodo)	\$233,382.48
Caja final (inicio del primer periodo)	\$0.00

10.8 Exhibit 8. Cash flow report by subperiod

10.9 Exhibit 9. Income Statement and Balance Sheet Report

Individual (and detailed)

Estado de Resultados		B	Activos		B	Pasivo y Patrimonio Neto		B
Ventas Netas	\$1,012,004.50		Activos Corrientes	\$1,046,218.04		Pasivos	\$1,530,277.31	
Coste de Mercancías Vendidas	\$427,701.96		Efectivo	\$346,320.08		Cuentas por Pagar	\$12,880.00	
Ingresos Brutos	\$584,302.54		Inversión a Corto Plazo	\$10,000.00		Línea de Crédito	\$220,714.00	
Gastos de Alquiler de Almacén	\$71,200.00		Cuentas por Cobrar	\$382,237.08		Intereses por Pagar	\$199,343.06	
Gastos de Flete	\$19,278.24		Inventory	\$307,666.88		Préstamo de Accionista	\$0.00	
Contratación y Despido de Trabajadores	\$2,880.00		Materias Primas	\$78,052.47		Préstamo de Emergencia	\$527,532.78	
Leasing	\$0.00		Producción en Proceso	\$173,161.18		Préstamos Hipotecarios	\$781,800.00	
Gastos Sociales	\$7,408.57		Productos Terminados	\$56,447.23		Impuestos a Pagar	(\$219,992.53)	
Gastos de Ventas y Administración	\$378,100.00		Activos Fijos	\$1,268,759.67		Patrimonio de los Accionistas	\$784,799.61	
Costes de Energía	\$23,897.33		Planta y Equipo	\$1,009,000.00		Utilidades Retenidas	\$38,484.86	
Coste de Abatimiento de CO ₂	\$7,047.20		ESG Assets	\$572,000.00		Pérdida/Ganancia del Periodo	(\$153,685.25)	
Assets disposal	\$0.00		Intangible Assets	\$75,000.00		Capital Emitido	\$900,000.00	
EBITDA	(\$25,508.80)		Depreciación Acumulada	\$387,240.33		Patrimonio y Patrimonio de los Accionistas	\$2,319,076.92	
Depreciación de Planta y Equipo	\$51,792.50		Activos	\$2,314,877.70				
Mejoras del Producto	\$6,000.00							
ESG Depreciation	\$3,013.67							
Ingresa Operativo	(\$80,314.97)							
Intereses de la Línea de Crédito	\$22,212.47							
Intereses de Préstamo de Accionista	\$0.00							
Factoring	\$0.00							
Intereses de Hipoteca	\$46,908.00							
Intereses de Préstamos de Emergencia	\$152,435.06							
Intereses de Inversiones	\$400.00							
Gastos Financieros	\$221,155.52							
Beneficio Neto Antes de Impuestos	(\$307,470.40)							
Impuestos por Pagar	(\$153,685.25)							
Ingresos y Gastos Extraordinarios	\$0.00							
Beneficio Neto	(\$153,685.25)							
Dividendos	\$0.00							

Comparative (and summarized)

View	Reports	Country	Company	4-month period	
	Reports	Financial Statements	ESG240903	1 - Company 1	
				7	
Results statements					
	Company 1	AleCompany	Company 3	IPADE	Company 5
Net Sales	\$1,085,470.10	\$964,186.68	\$882,725.31	\$922,768.59	\$1,241,021.63
Cost of Goods Sold	\$426,137.52	\$423,330.18	\$449,168.11	\$365,290.23	\$520,806.99
Gross Income	\$659,332.58	\$50,856.49	\$433,557.20	\$57,478.35	\$720,214.63
Sales & Administration Expenses	\$378,950.00	\$384,500.00	\$230,250.00	\$299,500.00	\$378,250.00
Distribution Expenses	\$198,180.00	\$143,685.20	\$156,216.00	\$144,004.00	\$170,297.00
Depreciation Of Plant and Equipment	\$62,299.17	\$70,247.50	\$66,312.50	\$78,312.50	\$75,312.50
Machines Leasing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Hiring and Dismissal Expenses	\$480.00	\$3,740.00	\$15,120.00	\$2,880.00	\$4,800.00
Social Expenses	\$6,918.40	\$1,703.52	\$416.00	\$624.00	\$1,248.00
Energy costs	\$23,764.84	\$26,787.22	\$39,447.39	\$24,208.86	\$17,745.01
CO ₂ Abatement Cost	\$6,627.20	\$2,910.00	\$0.00	\$0.00	\$0.00
Operating Income	(-\$17,887.03)	(-\$92,716.94)	(-\$74,204.69)	\$7,948.99	\$72,562.12
Financial Expenses	\$114,727.53	\$77,318.31	\$53,432.23	\$59,920.73	\$44,788.87
Net Profit Before Taxes	(-\$132,614.57)	(-\$170,035.25)	(-\$127,637.92)	(-\$51,971.74)	\$27,773.25
Taxes to Pay	(-\$66,307.28)	(-\$85,017.62)	(-\$63,818.96)	(-\$25,985.87)	\$13,886.63
Extraordinary Income and Expenses	\$0.00	\$30,000.00	\$0.00	\$0.00	\$0.00
Net Profit	(-\$66,307.28)	(-\$55,017.62)	(-\$63,818.96)	(-\$25,985.87)	\$13,886.63
Balance sheet					
	Company 1	AleCompany	Company 3	IPADE	Company 5
Cash	\$233,482.48	\$161,281.27	\$184,785.12	\$35,449.44	\$216,515.36
Short-term Investment	\$10,000.00	\$95,750.00	\$0.00	\$200,000.00	\$204,377.00
Accounts Receivable	\$370,101.80	\$440,482.10	\$256,844.60	\$461,384.29	\$329,937.33
Inventory	\$380,129.77	\$397,659.67	\$560,070.00	\$365,915.58	\$181,932.57
Fixed Assets	\$1,013,565.83	\$796,447.50	\$661,312.50	\$709,312.50	\$697,312.50
Total Assets	\$2,007,279.89	\$1,891,620.54	\$1,663,012.22	\$1,772,061.81	\$1,630,074.75
Accounts Payable	\$0.00	\$61,820.00	\$90,280.00	\$14,800.00	\$0.00
Short-term Loans	\$176,000.00	\$123,000.00	\$113,000.00	\$-4,784.00	\$200.00
Emergency Loan	\$204,236.79	\$116,687.80	\$40,444.11	\$167,697.69	\$51,776.11
Interest and Tax Payables	\$33,157.75	\$-63.08	\$-21,685.73	\$25,540.94	\$59,419.46
Mortgage Loans	\$655,400.00	\$655,400.00	\$500,000.00	\$590,000.00	\$500,000.00
Liabilities	\$1,068,794.54	\$956,844.73	\$722,038.38	\$793,254.63	\$611,395.57
Issued Equity	\$900,000.00	\$900,000.00	\$900,000.00	\$900,000.00	\$900,000.00
Retained Earnings	\$104,792.14	\$104,792.14	\$104,792.14	\$104,792.14	\$104,792.14
Earnings of the Accounting Period	\$-66,307.28	\$-70,017.62	\$-63,818.96	\$-25,985.87	\$13,886.63
Shareholders Equity	\$938,484.86	\$934,774.51	\$940,973.18	\$978,806.27	\$1,018,678.77
Liabilities & Shareholders Equity	\$2,007,279.40	\$1,891,619.24	\$1,663,011.56	\$1,772,060.90	\$1,630,074.34

Financial ratios					
	Company 1	Al Company	Company 3	IPADE	Company 5
Gross Margin [%]	60.74%	56.09%	49.12%	60.41%	58.03%
EBITDA [\$]	\$44,412.13	(\$22,469.44)	(\$7,892.19)	\$86,261.49	\$147,874.62
EBITDA [%]	4.09%	-2.33%	-0.89%	9.35%	11.92%
EBITDA/Interest	\$-0.39	\$0.29	\$0.15	\$-1.44	\$-3.30
Return on Sales [%]	-12.22%	-17.64%	-14.46%	-5.63%	2.24%
Return on Assets [%]	-6.61%	-8.99%	-7.68%	-2.93%	1.70%
Return on Equity [%]	-14.13%	-18.19%	-13.56%	-5.31%	2.73%
Sales / Total Assets	0.54	0.51	0.53	0.52	0.76
Total Assets / Equity	2.14	2.02	1.77	1.81	1.60