

Futures World Championship (FWC) Official Rules

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Competition Description

You design and market computers in a highly competitive market, where major companies vie to attract customers through competitive pricing and effective marketing. Your challenge is to optimize your production, pricing, and marketing choices to increase your market share while ensuring sustainable profitability.

Every quarter, something happens to disrupt the environment in which you operate. These changes, although partly foreseeable, may represent threats or opportunities, depending on your ability to anticipate and adapt to them. It is therefore essential to constantly analyze the market in order to identify risks and exploit the strategic levers at your disposal. What will happen first? Look at the current economic and politic news to try and predict the risks associated.

With limited resources, you need to effectively manage your production costs, which are influenced by your choice of components and suppliers. Your strategic investments play a key role in your competitiveness, while technological evolution, market fluctuations, and variations in supply costs demand continuous adaptation of your strategy.

Victory Conditions

Participating teams will be ranked by estimated enterprise value in the final round.

This will be calculated as follows:

$$\text{Cash position} + (\text{inventory value at last market price}) * 0.75$$

If there is a tie, the company with the most sales from last period will win

Description of Possible Decisions

At the beginning of each quarter, each team will have to make 5 important decisions:

1. Computer production by specialized chip type.
2. The level of marketing by type of specialized chip.
3. The location of each plant and its head office (HQ).
4. Computer sales offer (quantity, type, price).
5. Desired insurance level by type of insurance.

Computer production

Each round, you'll have to decide how many computers to produce, based on the different chip types. The cost of manufacturing each computer depends on the location of your factories and breaks down into two categories:

- **Fixed costs:** These costs apply regardless of production volume and will be due whether you produce or not.
- **Variable costs:** These depend on the quantity produced and the type of computer manufactured.

It's important to note that you don't know your manufacturing costs with any certainty. You'll need to take this into account when estimating your production capacity.

Marketing investment

Marketing in this simulation has two main effects:

1. **Changing market preferences:** Marketing influences market preferences in terms of overall investment volume for each type of chip.
2. **Product differentiation:** An investment in marketing can differentiate you from your competitors and potentially increase the sales value of your products.

The effects of marketing are not entirely predictable. If several competitors are investing heavily in marketing, the impact of your own investment will be less. On the other hand, if you're the only one investing, the impact of your marketing will be maximized.

If you invest at least 50% of the average value of global marketing investments, you'll see an increase in your prices, limited to 25% of the market price.

These increases are applied after the market price has been found.

Location of plants and head office (HQ)

The location of your plants and headquarters is crucial. It influences several factors, such as:

- **Fixed costs**
- **Variable costs**
- **Warehousing costs**
- **Exposure to various risks**

Similarly, the location of your head office has an impact on:

- **Head office fixed costs**
- **The tax rate on your profits**
- **Exposure to various risks**

You can have a maximum of 4 factories at any one time, and only one HQ.

Computer sales offer

Each quarter, you'll need to set one or more minimum prices for your computers. The market will then take into account all the offers and find an equilibrium point based on demand to determine the market price.

For example, you might decide to sell:

- 30 AMD computers at market price
- 10 AMD computers at a minimum price of \$40
- 30 AMD computers at a minimum price of \$70
- 40 AMD computers at a minimum price of \$80

If the market price is \$79, you'll sell 70 computers at that price, adjusted by a marketing modifier. If the market price is \$70, you may be competing with other producers. In this case, the one who has

invested the most in marketing will have priority. In the event of a tie, priority will go to the company with factories in different locations. If a tie persists (which is very rare), a random selection will be made.

Why not sell everything at market price?

If the market price is favorable to you, it can be advantageous to sell at market price, thus increasing your profits. However, if all producers decide to increase their production, this could cause the market price to fall below your break-even point, forcing you to sell at a loss.

These prices are calculated before marketing is applied. You may choose to offer lower prices if you feel that marketing will sufficiently increase your margins.

Desired level of insurance

In this simulation, you can choose from three types of insurance:

- 1. Property and damage insurance**

This insurance protects against financial loss due to material damage to your property, such as buildings, equipment, stock, or vehicles. It covers losses such as fire, theft, natural disasters, or vandalism. It is crucial to maintaining your operations after a major incident.

- 2. General liability insurance**

This insurance covers legal costs and compensation in the event of legal action by third parties (customers, suppliers, visitors, etc.) for bodily injury or property damage caused by your activities, products, or employees. For example, if a customer is injured in a store, or if a defective product causes damage, this insurance will cover the associated costs.

- 3. Cyber and marine insurance**

- **Cyber insurance:** Protects against financial loss due to cyber-attacks, data breaches, or business interruptions caused by IT incidents. It can also cover the costs of ransomware or customer notification in the event of a data leak.
- **Marine insurance:** Covers risks associated with the maritime transport of goods, including loss, damage, or delay due to unforeseen events (storms, accidents, piracy, etc.).

There is no deductible for these plans, and you can choose from coverage levels of 25%, 50%, 75%, 100%, or no coverage at all.

⚠ Caution: Many events will not be covered by insurance. You'll need to anticipate these risks and plan for the costs generated by such incidents.

Description of costs

Production costs

Fixed plant costs

Fixed costs are expenses you have to bear, regardless of whether you decide to produce or not.

All production teams have the same production capacity, no matter how many factories you have.

So, if you have several plants, they will be smaller, and the fixed cost per plant will be lower.

- **Example 1:** You own a single plant and pay all its fixed costs.
- **Example 2:** You own three factories, and you pay one third of the fixed costs of each factory, which is equivalent to paying the average fixed costs of your factories.

Variable plant costs

Your production will be distributed equally between all your plants, which means that variable costs will also follow this distribution.

Total variable costs are calculated as follows:

Number of units produced with AMD chips × Average variable costs of your AMD plants

+ Number of units produced with INTEL chips × Average variable costs of your INTEL plants

Administration costs

Head office (HQ) fixed costs

Head office fixed costs vary according to location and cover many aspects essential to running the business. In addition to supply chain management and marketing expenses, they include human resources management, finance (accounting, tax, and auditing), as well as IT infrastructure maintenance and systems security. Administrative costs, such as licensing, insurance, and legal management, also fall into this category. Depending on the location of the head office, these costs can fluctuate, influencing the company's profitability and competitiveness.

Warehousing costs

Each period, anything you couldn't (or didn't want to) sell during the quarter goes into storage. You'll incur storage costs for each remaining unit.

Since you're at the cutting edge of technology, your computers also lose some of their value.

The sum of these two costs is included in storage costs.

Set-up costs

In the simulation, you can change the locations of your factories and HQs as you wish. However, this will entail certain costs. The cost of setting up a factory depends on its size.

For example: if you move a plant that produces 1/3 of your output, you will have to pay the cost of setting up a complete plant / 3.

There's also no limit to the number of plants you can move.

Insurance costs

The cost of insurance is calculated by applying a percentage of coverage to the total insured value.

Cost of insurance = Percentage of coverage × Amount of total insurance

If you choose 25% coverage, you will only be able to claim 25% of the loss in the event of an insured event.

⚠ **Please note:** There is no deductible applicable to your insurance.

Marketing costs

Marketing costs depend on the strategies put in place to promote your products and improve your market position. These expenses are essential to stimulate demand and build brand awareness.

Taxes

Taxation is calculated solely on the profit made based on your HQ location:

- **If your profit is positive:** You will have to pay a percentage of your profits in the form of taxes.
- **If your profit is negative:** No tax reduction will be applied, and you will not be able to carry forward these losses to subsequent tax periods.

⚠ **Exception:** Taxation is calculated on a quarterly rather than an annual basis.

Interests

As mentioned above, you're not automatically bankrupt if your cash flow becomes negative.

However, you will have to pay interest on the amount you have borrowed. The borrowing rate is 1.5% per quarter.

Investment Limits and Bankruptcy

Investment limit:

In your decision round, you have the right to borrow to invest more, up to a maximum of \$2,000. The debt limit is based on the estimated costs of your actions. Estimates are based on the values of the variables in the previous round. **Please note that your costs are estimates based on past data. It is therefore likely that the market will change, and it is your duty to analyze your own costs correctly.**

Bankruptcy:

At the end of a round, if the estimated value of your inventory in liquidation (70% of its value) fails to cover your debts, you are bankrupt.

Mathematically:

If $(\text{inventory value} * 0.70 > \text{cash}) \rightarrow \text{Bankruptcy}$.

You'll be out of the game.

Variables considered in the simulation:

Invisible variables:

- **Demand:** Depending on marketing and macroeconomic events, the demand function varies.
- **Price sensitivity:** The extent to which marketing increases the selling price.
- **Marketing sensitivity:** The extent to which marketing increases demand.
- **Convexity of marketing sensitivity:** The marginal effect of a dollar of advertising can also change over time.

Visible variables:

- **Storage cost:** The price, per unit, of storing an unsold computer.
- **Set-up costs:** The total cost of setting up in a location.
- **Fixed costs:** Unavoidable costs incurred by the fact that your business is alive.
- **Variable costs:** Unit cost of producing a computer.
- **Taxes:** Tax rates based on HQ location.
- **Insurance cost:** Cost for getting insurance