

Rule Book

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The Future Depends on What You Do Today – Mahatma Ghandi

1 | CONTEXT

20 years ago, I designed an online simulation called “The Chips War Game.” The simulation was based on the forecast I was making that microprocessors would be used everywhere in our daily lives (cars, etc.) and any disruption in the global value chain would have lots of economic consequences. The goal of the simulation was to make students aware of the importance of this technology, the beginning of the platform economy and why all kinds of risks may disrupt economies: natural catastrophes, geopolitical risks, wars, etc.

The simulation has evolved thanks to new coding languages, and access to more powerful servers. I have played the simulations several times with my students.

This year, it is the first time we organize an e-sport competition based on this simulation. It is an e-sport competition based on a serious game.

The simulation is played online in a browser. Players, in teams, from different countries will have the opportunity to manage a multinational corporation, whose aim is to produce computers based on either AMD or Intel-based microprocessors. Players will face all kinds of disruptive events: natural catastrophes, pandemics, Suez Canal blocking, invasions, etc.

The competition will be played at HEC Montréal on March 17, 2023 from 9 AM to 3 PM. Local players will play in the Investissement Québec room and the Banque Nationale amphitheater. Foreign teams will play online. The competition will be live on Twitch.

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2 | EXECUTIVE SUMMARY

Few years ago, nobody predicted a pandemic would shake the fragile balance of the global system. Interruptions in global trade flows, chip shortages, political instability are some examples of the ripple effects of the pandemic... And all of these challenges had one thing in common – No one was ready.

With the increasing risks caused by the uncertainties of the world - how much FORESIGHT, CONTROL or MITIGATION power do we have over the future?

2.1 | Scope

That is why FUTURES WORLD CHAMPIONSHIP (FWC) was created – To educate and prepare aspiring professionals for the unknowns of the future by simulating different scenarios including:

- Intense Rivalry
- Rapid shifts in demographics
- Technological revolutions
- Unstable trade flows
- Unpredictable changes in the environment
- Rise of security threats and populism
- And more...

2.2 | How

Participants around the world will form teams of their choice for the competition. Each team will manage a micro chip company of their own through different challenges. The competition will take place online and in-person for a full day where all teams will compete at two levels:

- 1- Teams will compete against each other to gain market share
- 2- Teams will compete against the unknown challenges of the world

Through a secure game platform, teams around the world will make decisions to control and mitigate the effects of their challenges. Each decision made will affect the dynamics of the market and the survival of each company, just like in real-life.

2.3 | Goals

- EDUCATE aspiring professionals on how to manage challenges using real-life simulations
- PREPARE future leaders to mitigate the risks of the world challenges with confidence
- CREATE well-rounded managers with strong analytical abilities beyond the obvious
- CONNECT competitors from different parts of the world with current professionals

2.4 | What I should know 1n 1 minute

It is about a competitive high-tech market: you are recently appointed to the new executive team composed of a Chief Production Officer, Chief Financial Officer, and Chief Marketing Officer. As a new executive trio, your mission is to grow your business. You evolve in a competitive high-tech market.

Your company manufactures and sells AMD and Intel based-computers. For each year, you must choose the number of AMD or Intel chips you want to purchase. Each chip makes it possible to manufacture and thus sell a computer. You can also decide if you want to advertise your AMD and/or Intel based-computers. Keep in mind that Intel has a partnership program where they cover 50% of the advertising costs. Intel demands to have a jingle "Intel Inside" for multimedia-based ads, as well as having a brochure in every new computer box bought by a customer.

Since your company and your competitors are not listed on the stock exchange, it is impossible to know the strategy of other companies. Be careful not to have a negative cash flow at the end of the year, this leads to bankruptcy and layoffs by the board.

As a new C-suite level team in a digital era, you must demonstrate your analytical skills. You will face challenges that can earn you points and lead you to the top of the scoreboard!

Will you opt for a risky strategy in order to obtain the maximum market share at the risk of losing everything or will you be careful to keep your business going?

To summarize, participants will form teams of 1 to 3 and each team will manage a computer company of their own through different challenges. All participating teams will compete at two levels:

- 1- Against each other to increase their cash flow
- 2- Against the unknown challenges of the world

Teams will make decisions throughout several rounds to mitigate the effects of the challenges they are faced with. Most importantly, each decision made will affect the dynamics of the market and the survival of each company, just like in real-life. Few examples of competitiveness decisions include the location of team HQ & subsidiaries, how much to spend on buying Intel VS. AMD chip-based platforms, how much to spend on marketing Intel VS. AMD chips, spending on political lobbying, campaigns... etc. Few examples of the global world challenges that teams will be faced with to keep their company afloat include pandemics, security threats, supply chain interruptions, rise of security threats and populism, etc. Hence, teams will have to look at the resulting data generated after every round to find insights and make decisions based on their findings. All in all, teams will experience the same decision-making challenges faced by companies in real life.

3 | TL;DR RULES OF THE GAME

Introduction and Context

When teaching International Business, Strategy, Management, Microeconomics or Industrial Organization, teachers may feel a little lonely in the classroom when addressing the concepts around the market structure (pure and perfect competition, monopoly, oligopoly) (de Marcellis-Warin et Warin 2020). Teachers often use the mathematical formalization to show the differences between these concepts. Using the mathematical toolbox may be helpful for some students, and may confuse some other students even further. The same issue is even more prominent when teaching MBA students or business management students overall, as these concepts seem pretty loosely defined when mathematics are not part of the pedagogical toolbox as it is the case for most management courses. In the literature, it is more and more recognized that experiential learning would provide students (in management and economics majors) a better understanding of the important concepts and analytical frameworks (Lokhande, Cadotte, et Agrawal 2019). A serious game, also known as a simulation, aims to illustrate those concepts in the real-world context.

The computer industry has multiple interesting characteristics:

- It is very competitive in nature.
- It is global. Each company has deep global value chains. It would thus be interesting to introduce some of the International Trade vocabulary and global risks.
- It is also built on strong technological constraints, for instance having access to only two kinds of computer platforms: Intel or AMD.
- It is an industry that relies heavily on design (or perceived design), thus marketing.

The game usually consists of teams of 3 players: a chief financial officer, a chief production officer and a chief marketing officer.

These teams would lead the strategical decisions of a computer company. From Dell to Hewlett-Packard, these teams will have to make decisions in terms of production levels, innovation, non-market decisions, and marketing levels. Production and marketing come with costs, and the chief financial officer has a say in the decisions in order to keep the company afloat and even generate profits.

The Chips War Game is a multiplayer simulation. Each team makes decisions on their individual sessions, which only the other team members and the game master (usually your professor) have access to.

The game is a turn-based strategy game. Teams will decide the parameters they want to play, and once a turn is complete, all the information is gathered on a central server for the different computations to happen.

Each round represents a year of activity of their company on the computer market. Teams will have a look at historical data during the first round. They have access to ten years of historical data, and in particular they can see how many computers were sold per year with an Intel platform and with an AMD platform. They can have access also to the amount of aggregated spending on marketing that happened each year in the past ten years for the whole industry. They do not have firm-level data, as it would be costly – or even impossible for private companies – in the real world. Teams could decide to share this information with other teams on a voluntary basis, allowing professors to introduce the concept of collusion for instance and the international regulations on business information availability.

During each round, teams decide 4 important parameters in two categories: production and marketing, and then they decide other actions to correct potential impacts on the environment, geopolitical risks, supply chain risks, innovation, etc.

In terms of production, teams decide:

- The level of production of computers based on Intel
- The level of production of computers based on AMD
- The level of marketing spending for Intel-based computers they produce
- The level of marketing spending for AMD-based computers they produce.

In this simulation, teams cannot lock-in chip producers and hence benefit from a fixed price for the year to come. Chip prices depends on the chip market. Hence, it depends on what the other teams have decided to produce based on Intel and AMD. The chip prices are market prices decided by the demand of chips from the overall number of teams.

The prices at which each team will sell its computers will also depend on the other teams' decisions. The mode computers are produced, the lower the selling price, and the lower the revenues.

Teams do not decide in the dark anyway as they have historical data. They can get a sense of how the other teams play. They can try to infer the important information from their respective decision-making process. They never know what other individual firms have done, but they have the information for the aggregated market.

The same holds for the marketing spending. To be close to a realistic game, Intel will fund a part of the marketing expenditure (50%), not AMD. Intel will just require a team to put a sticker on its computer, preferably on its keyboard and also require teams to use a little jingle "Intel inside" in all their video and audio based marketing campaigns.

At the end of each round, based on the computations on the central server, the game master will be able to provide the state of the market for the year:

- Actual prices of Intel and AMD chips will be disclosed
- Actual prices of Intel-based computers and AMD-based computers will be disclosed
- The total amount of marketing spending on Intel-based computers will be disclosed
- The total amount of marketing spending on AMD-based computers will be disclosed

Based on this information, teams will be able to observe a couple of important indicators:

- First, they will be able to observe their profits or losses for the year,
- Second, they will be able to assess how well they understood market movements, by computing a time-series analysis.
- Third, they will be able to know their own market share, although they will not be able to know what the other firms' market shares are.
- Teams will also be able to calculate the price elasticities on the input market (Intel and AMD prices), as well on the output market.

All this information will be useful to make decisions for the next round. They could decide to average price elasticities for instance and form their own indicators.

Teams will also be able to communicate with other teams. Some insider's knowledge can thus permeate in the game, during some rounds. This new and scattered information will impact the market. Some teams will likely be upset about it if they are left outside of the circle. This will be an interesting moment to keep in mind for the game master as she will be able to introduce the concept of cartels as well as spend time on the regulations about cartels.

3.1 | Roles

3.1.1 | Chief Production and Innovation Officer

As head of production, you are responsible for the production of the computers. You know by heart the different costs of your two production lines AMD and Intel. Financial

3.1.2 | Chief Financial and Risk Officer

As CFO, you are responsible for the financial health of your company. You're the one who knows when it's the right time to invest. Marketing

3.1.3 | Chief Marketing Officer

As CMO, you are responsible for your company's marketing campaigns. You master all the marketing tricks, you know the recipe for a successful advertising campaign. Intel has a partnership program where they cover 50% of the advertising costs.

3.2 | Making the right decisions when adverse events happen

Adverse events will happen in the game. The Suez canal can be accidentally blocked. A country may decide to invade another one. A pandemic may happen.

For the teams, the question is to decide whether they want to mitigate or not the risks. Mitigating the risks will cost something, depending on the action taken. Every time, in your decision room menu, you have 5 levels. Each level will help you mitigate 20% of the potential cost. So, if you decided to invest 100%, you will cover yourself entirely from the adverse consequences if a shock happens. If it does not happen, then it is like your favorite insurance company: you paid for nothing.

To give you a sense of the categories of events and some examples, here is a non-exhaustive list.

	Category	Scenario and impacts in terms of revenue and costs	location
Example 1	political	Governments announce a series of protectionist measures. Your income has been halved for the previous year.	All

	Category	Scenario and impacts in terms of revenue and costs	location
Example 2	political	A civil war broke out in North Africa, making trade with the African continent more difficult. All teams with headquarters or subsidiaries in Africa saw their revenues decline by 10% the previous year.	Africa
Example 3	political	Political tensions have emerged in Europe. Nationalist governments want to leave the European Union. All teams with subsidiaries or headquarters in Europe have seen their income decrease by 20%.	Europe
Example 4	environmental	A series of earthquakes hit the American continent. All teams with headquarters or subsidiaries in America have seen their market share reduced by 20% and their costs increased by 150%.	America
Example 5	environmental	A drought has plagued the world. The impacts of the agri-food sector have affected markets. All the teams saw their revenue drop by 15% last year.	All
Example 6	cyber	A ransomware attack took place in America. All teams with subsidiaries or headquarters America saw their revenues decrease by 30%.	America
Example 7	cyber	Malicious invaders have been discovered in many European companies. All teams with subsidiaries or headquarters America saw their revenues decrease by 30%.	Europe
Example 8	operational	An IT system failure has occurred for multiples companies. Random teams had their costs increased by 1.75x from the previous year.	Random
Example 9	operational	Episodes of internal fraud have occurred in multiples companies located in Asia. All teams with subsidiaries or headquarters in Asia saw their costs increase by 2x from the previous year.	Asia
Example 10	operational	Employees have started to work from home. They were less productive in the past year. All the teams saw their revenues decrease by 50%	All
Example 11	operational	A cargo ship ran aground in a shipping lane. Random teams had their costs increased by 2.25x from the previous year.	Random
Example 12	operational	An epidemic has hit the entire Asian continent. All teams with their headquarters or subsidiaries in Asia have seen their revenues reduced by 60% and their costs increased by 25%.	Asia
Example 13	operational	Hackers have attacked the software of large companies. They had to spend money to strengthen their security. All teams with subsidiaries or headquarters in Europe and America saw their costs increase by 30%.	Europe/America

- Read more about sovereignty [\[here\]](#)
- Learn more about the economic impacts of an earthquake [\[here\]](#)
- Learn more about protectionism [\[here\]](#)
- Learn more about the economic impacts of droughts [\[here\]](#)
- Learn more about malicious invaders [\[here\]](#)
- Read more about operational risks [\[here\]](#)
- Find out more about ship accidents [\[here\]](#)
- Learn more about the economic impacts of a health crisis [\[here\]](#)
- Learn more about hacking risks [\[here\]](#)

3.3 | Technical specifications

You need a good computer and a stable and good Internet connection. The game is played in a browser. It works well on Windows, Linux and MacOS. It has been tested on Firefox. You can use Safari. We have observed some issues sometimes on Chrome.

So, we recommend Firefox.

4 | FAQ

4.1 | What is the game about?

You manage a multinational company. At the beginning of the game, you decide where is your headquarters and your subsidiaries. You assemble computers. You have the choice between two electronic platforms: an Intel or an AMD-based platform.

Every five turns, you can change the location of your subsidiaries. You can also do it anytime, but then it will cost you money as they have not yet been amortized.

4.2 | How do I prepare?

You don't really need to prepare as training is included during the day. You will train during three short rounds, and then you will play the final game. The latter is the one that will count to award the prizes. You need to have trained anyway to be selected.

4.3 | Is it better to play as a team?

Although, you can play alone, it is better to play as a team as a lot of things happen on the market. The maximum number of people by team is 3. For instance, if you play alone, the grand prize is CAN\$200 per person for the winning team. So if you play alone, you earn a gift card of CAN\$200, but if you played in a team of 3, you still win each a CAN\$200 gift card.

If you play at three, you have a better chance of understanding the market and thus a better chance of winning the prize.

4.4 | Who wins the prizes?

Teams who will have the highest cashflow at the end of the game will win. You need to have played the three training rounds as well. The prizes are in the form of gift cards.

4.5 | Where do we play?

You play either at HEC Montréal in the Investment Québec room where tables are reserved for teams who will be in person. If you are far away, you play online from wherever you are. We will all be connected through Zoom and our own videoconference platform. When you play, you accept to be video taped and used for the online communications during the day and also afterwards to recruit other teams for the next occurrences of the competition.

4.6 | How do we connect?

First, you register at www.futuresesport.games.

Then, a couple of days before the competition, you will receive a digital key from our team.

On the day of the competition, you go to the www.futuresesport.games and you log in using your key. Every player of the same team has the same key. So, every player goes to their favorite browser and log in. They will see the same company dashboard. Be aware: only one player has to enter the strategic decisions the team has decided. The last player to do so within a team is what the market will take as the team decision.

4.7 | Where should I register?

Go to www.futuresesport.games as soon as possible, as there is a limited number of seats.

The fee is CAN\$10 per player. If you **play from** a country in the World Bank list of low and middle income countries, then it is free. See the list of countries at the bottom of the page [here](#)

4.8 | Can teams of professionals play?

Absolutely! Teams of professionals can play. However, awards only go to students. But that's ok, right?

4.9 | What else should I know?

During the day, it is possible that your strategy will be broadcasted on Twitch and that you will be asked to comment on what you are doing. We want excited, motivated and positive people!

The game will be live on Twitch as well. We will have commentators, and videos. The broadcasting will be done in multiple languages: French, English, Farsi, Arabic, Mandarin, etc. Languages will alternate. There is no simultaneous translation. The game interface can be set in English or in French.

For further information, go to www.futuresesport.games