

Automating Profit Calculation

in almost any market scenario in nearly every firm
in a capitalistic country.

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Three goals of the project

- Technical: To wrap my mathematical standardized formulas into a non-AI and AI application in the cloud or at place and deliver to the market.
- Operational: To encourage Investors as in my Business Plan of May 25, 2020.
- Marketing: To reach and win all customers over in your firm's market geographic location.

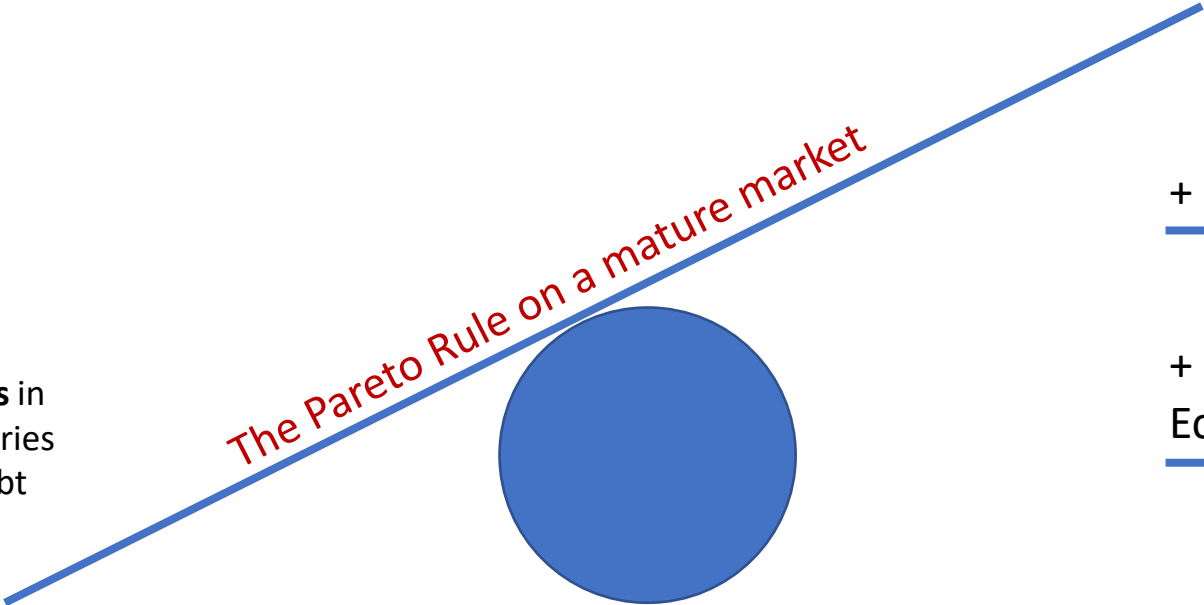
My Business Plan Overview

Example investment by investor: 01 billion USD;
Example investment Pareto Rule generator: 80/30;

Generate 80% of investments
in capitalistic countries,
if $S - I > G - T + (\text{Export} - \text{Import})$

30% of Investors in
capitalistic countries
for national debt
repayment

The Pareto Rule on a mature market



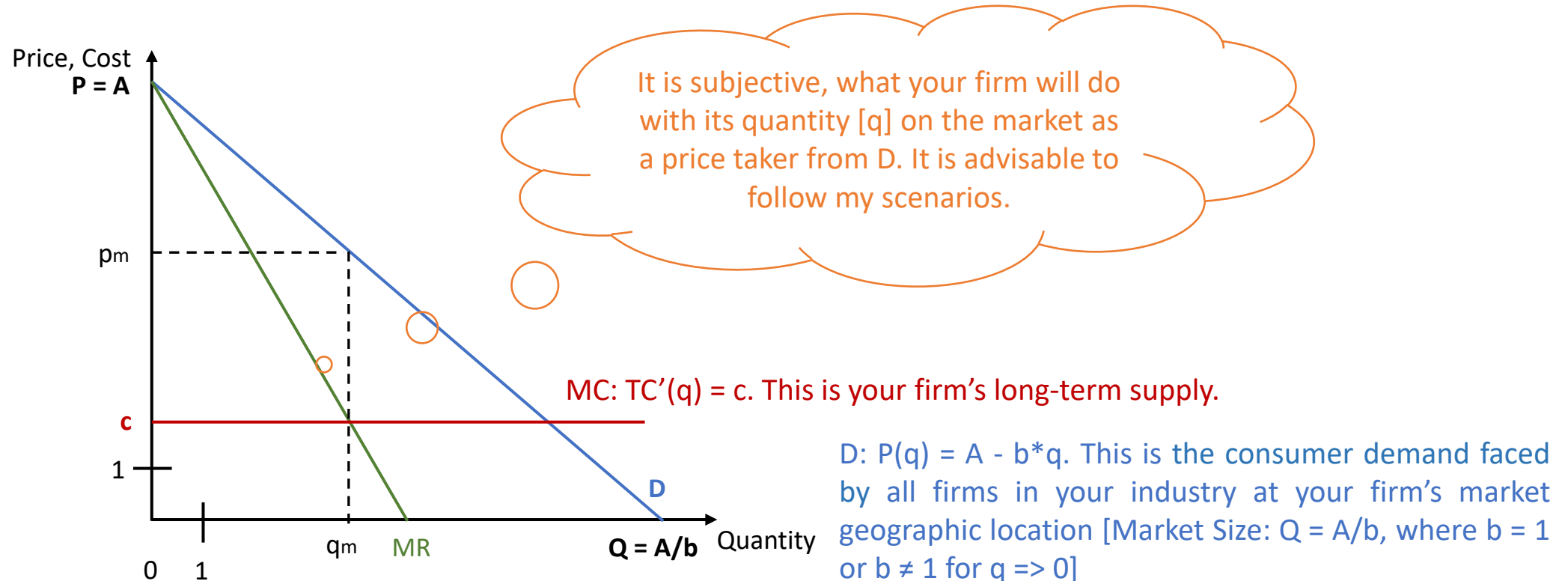
+ My societal Revolution of Prudence

+ Coming back to The European
Economic Community of the 1960s

The division in the Pareto Rule does not necessarily equal 100%.

Industry Consumer Demand vs. Marginal Revenue

If you are an Antitrust Agency, these figures are simply asking you to do something with them!



MR: Demand faced only by your firm; $MR = TR'(q) = f'[P(q) \cdot q] = A - 2 \cdot b \cdot q$; $MR = \frac{1}{2} \cdot Q = \frac{1}{2} \cdot A/b$ for $b = 1$; $A = P(q) + b \cdot q$
 The D slope: $P'(q) = -b$ or $[P(q_2) - P(q_1)] / (q_2 - q_1) = -b$ If $P = 24$ USD per piece of your product and $b = |-1|$, then $A = 24 + (1 \cdot 1) = 25$

Agenda:

1. Where am I with my B2B solution?
2. Objectives for automation
3. Data integration per market scenario
4. Tactical and strategic task automation
5. Unified governance by IBM
6. What do we receive?

1. Where am I with my B2B solution?

- Imagine that you are using a 1/2-accounting and 1/2-marketing application. The application refers to the following software and hardware:
 - (a) non-AI software solutions for working calculations: **IBM SPSS Statistics** and **IBM SPSS Modeler**
 - (b) AI software solutions: **IBM Planning Analytics** [IBM PA] with **IBM Cognos** (inside IBM PA) for my BI analytics. This location is my dream place for my formulas.
 - (c) AI hardware solutions: **IBM Power Systems** and **IBM Z & LinuxONE** - the most advanced solutions, if with (b).
 - (d) **an IBM Quantum Computer**
- I have accomplished all scenario writing.
- I explained 100%* of market scenarios in my project.

*) According to the Agricultural Marketing course at the then KVL – the current University of Copenhagen, Denmark, 2001.

2. Objectives for automation

- A leading role for my Guide to my Business Intelligence (BI) Project of May 13, 2024, as:
 - an end-user future website content
 - a place for all AI Agents' Orchestration in real-time through **IBM Confluent in IBM Bob**
- Each market scenario is a future semantic model. Each scenario is autonomous and should work separately:
 - as a **Marcin AI Assistant**
 - your **non-AI BI Analytics** in your current software
- **Data integration by IBM DataOps in IBM Bob (Microsoft Synapse)**. My Project should:
 - be in the **Corporate Knowledge Base** in a firm as PDF files
 - establish specialized semantic models, which will be integrated with an LLM for a **Marcin AI Assistant**
 - establish the same specialized semantic models for your **non-AI BI Analytics**
- Dashboards and reports creation by Marcin AI Assistant and non-AI BI Analytics
- Displaying a firm's journey on the market from Perfect Competition, through Oligopoly to Monopoly and back
- Finding a better future optimal profit with **Agentic AI**
- **Data integration by IBM watsonx.governance in IBM Bob**
- All the above objectives' execution and management are possible with an **IBM Bob real-time Orchestration**;

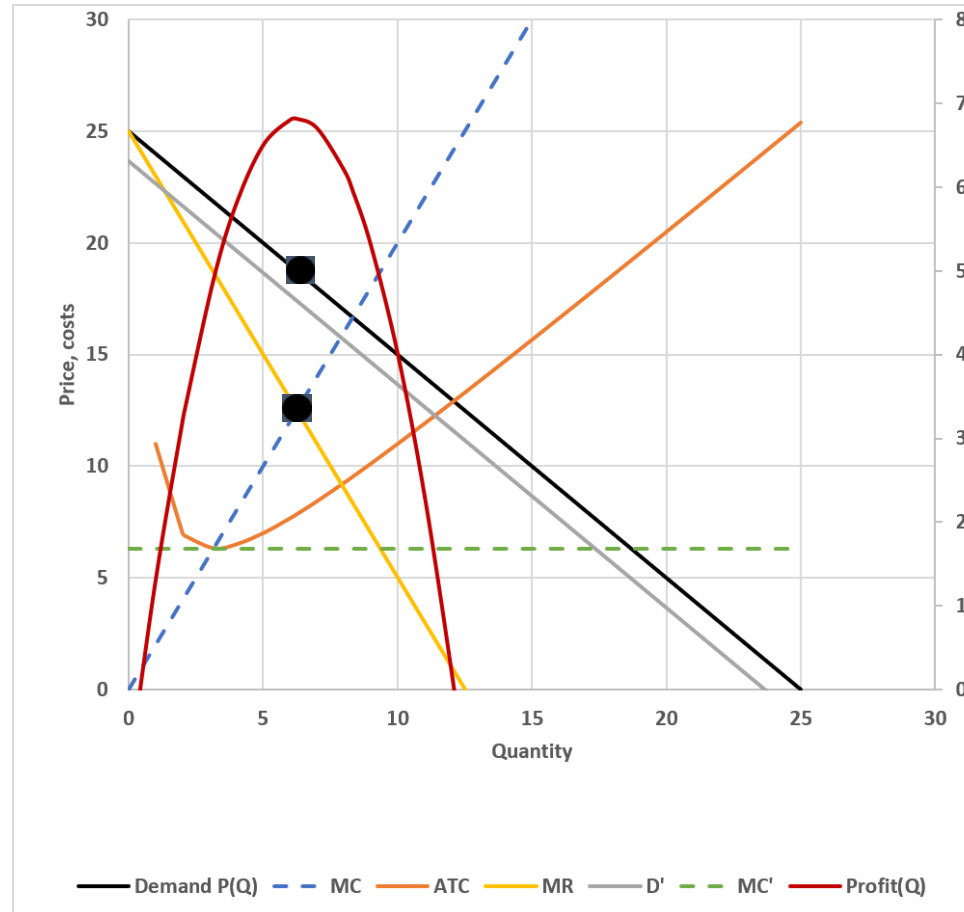
3. Data Integration per market scenario

Create this **Marcin Super-Agent** that will collaborate with 3 Sub-Agents: Text Analyzer, Number + XY Charts Analyzer, and Image Analyzer.

- With **IBM Bob** through **IBM Docling**, the text and images are extracted from PDF documents and compared with an LLM for better data description. These are your Text and Image Analyzers. PDF documents are stored in repositories on **GitHub**.
- Once you have a calculator function as in your old **DWH Oracle schema**, it is possible to type all algebra for marginal values calculation, profit calculation, and consumer surplus in **IBM Bob manually**. XY charts will appear after the marginal values are delivered. Distance assessment for Product Differentiation in Address Models is applicable after Euclidean distance calculation. That way, you create skills for a Number + XY Charts Analyzer. Your SQL data pipelines will not be clogged through IBM Docling.
- Demand curve and Cost curve coefficient manipulation are possible for **strategic tasks** now.
- Please make sure that you have **the same calculation outcomes** in your non-AI BI Analytics, on AI software, and on AI hardware. Rules of Economics matter here before AI solutions.
- I have delivered example data.

4. Tactical tasks automation

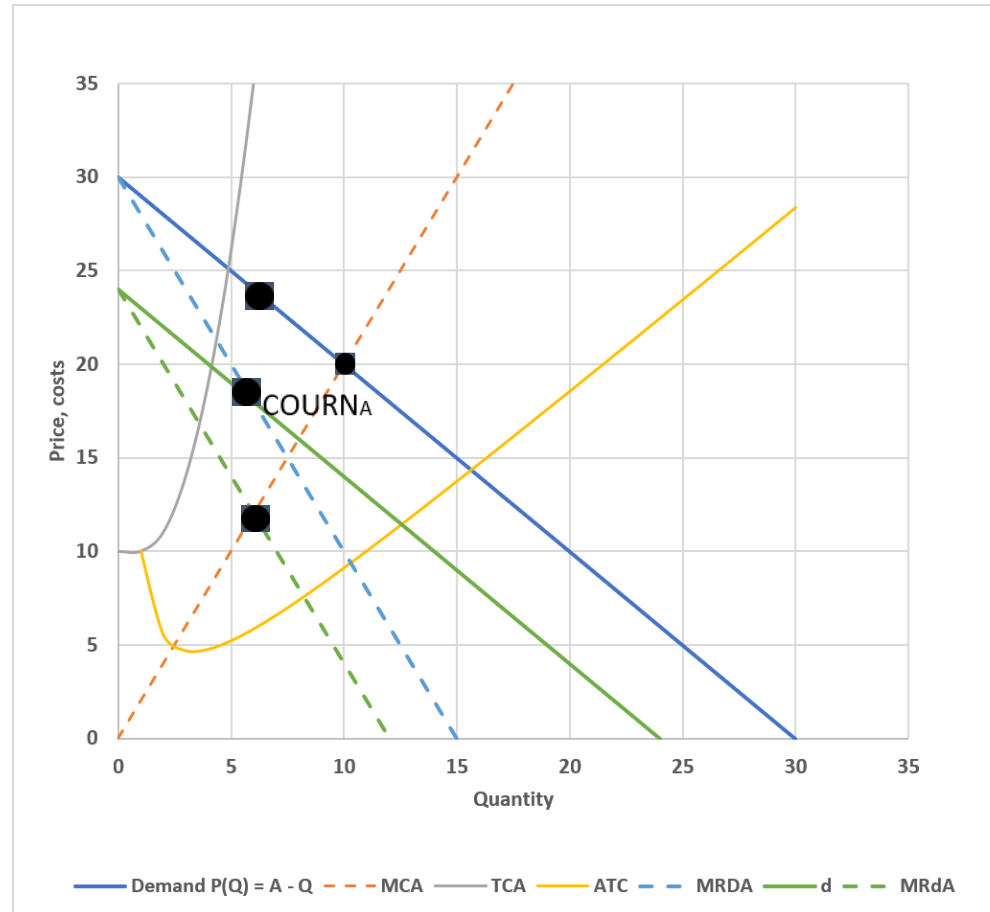
Case: max. Perfect Competition Profit for $\langle 6.25; 12.50 \rangle$ vs. max. Monopoly Profit for $\langle 6.25; 18.75 \rangle$, where **D** coordinates are $\langle 0; 25 \rangle$ and $\langle 25; 0 \rangle$



Source: My article.

4 (a). Tactical tasks automation

Case: max. Oligopoly Profit for $\langle 6.0; 18.0 \rangle$ as a momentum in the **journey**. There is a demand shift from **D =25** to **D=30** due to the valuable investment in R&D.



Source: My article.

4(b). Strategic tasks before tactical tasks

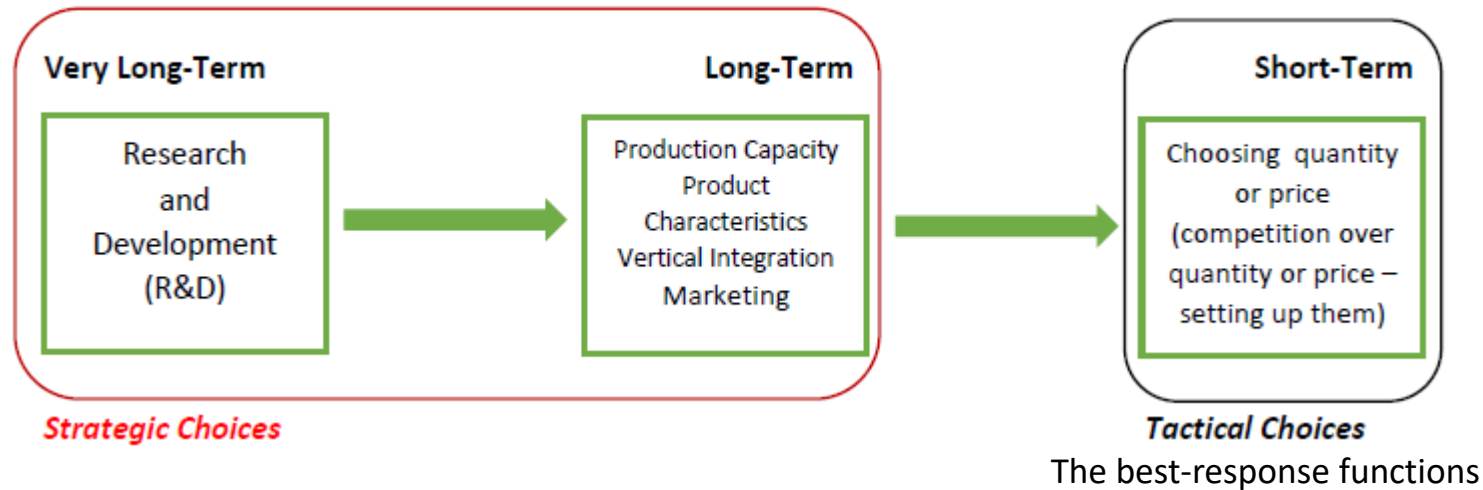


Figure: Decision Horizon with analysis direction. Marketing stands for Advertising Policy in Oligopoly. IBM z17 mainframe strategizes what is standardized beforehand. It prevents quantum computing attacks.

Source: My article and IBM on April 08, 2025.

4(c). Strategic tasks automation

- Coefficients manipulation of the Industry Consumer Demand curve and Costs curves for strategic purposes, e.g., Stackelberg vs. Cournot-Nash:

Assumptions

The Customer Demand Linear Curve is a Residual Demand Linear Curve facing a Duopoly because $Q = q_A + q_B$; where $P = P(Q) = A - b \cdot Q$; $b = 01$; Let there be **constant Returns-to-Scale** (Efekt Skali – in Polish) as constant Average Costs $[AC = TC/Q]$. The 02 firms have identical $TC = c \cdot q_x$, where c is constant Average Costs $[AC]$, and c is constant MC of production. Both with horizontal (non-parabolic) curves. Moreover, in constant Returns-to-Scale, there are no Fixed Costs $[FC = C = 0]$. Here, all costs are variable costs [here: Variable Cost = $c \cdot q_x$] and the costs of the firm's setup or entry $[FC]$ are zero. What are the Models' outcomes?

Solution

The good thing is, that it is not necessary to calculate all derivatives step by step. You can take a look at the table below and compare both standardized Models' outcomes for a Duopoly with constant Returns-to-Scale:

Models' outcomes	Stackelberg*	Cournot – Nash**
Market Output [Q]	$Q^S = 3(A-c)/4b$	$Q^C = 2(A-c)/3b$
Market Price [P]	$P^S = (A+3c)/4$	$P^C = (A+2c)/3$
Leader Profit	$\text{Profit}^S_{\text{firm A}} = [(A-c)^2]/8b$	$\text{Profit}^C_{\text{firm A}} = [(A-c)^2]/9b$
Follower Profit	$\text{Profit}^S_{\text{firm B}} = [(A-c)^2]/16b$	$\text{Profit}^C_{\text{firm B}} = [(A-c)^2]/9b$

*) **Leader's** quantity: $q_A = (A-c)/2b$; and **Follower's** smaller quantity: $q_B = (A-c)/4b$;

**) The quantity per each firm is the same: $q_A = q_B = (A-c)/3b$;

Source: My article.

5. Unified Governance by IBM

Agentic AI = Marcin AI Assistant + the LLM, where the LLM is an (English) Global Knowledge Repository that you are confronted with.

Agentic AI is as good as the Data it is trained on.

Data is as good as the Governance in its DataOps Process.

*First, DataOps is a main **Data Integration** process by IBM Bob. The process is named Synapse by Microsoft. Second, **Data Integration** also belongs to IBM watsonx.governance component through IBM Bob.*

6. What do we receive?

- If you accomplish all objectives for automation, your LLM, Agentic AI, non-AI BI Analytics, and IBM hardware will be enhanced by the semantic scenarios (models) from my project.
- As an end-user, you are ready to work with them now. Models are equations, where we describe the business reality by market scenarios with a small place for undescribed market sub-scenarios.
- In the future at the workplace, you will choose between specialized LLM models by industry – healthcare, legal, financial, agriculture, environmental protection, etc.
- The IT industry says that **my project is important**:
 - if you have a competitive nature and compete with other firms
 - if you love mother nature (as a farmer or artist)
 - if you love human nature (as a memory guard)
 - The IT Industry wants to construct my application. Although the construction cost in IBM Bob is low, cloud maintenance costs and hardware costs are high for me now.
- I search for **first prospective B2B customers** (even for manual calculations), which serve as my proceeds from sales.

Thank you.

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