Business Research Class

Adjunct Professor
Max Lapin
2019

What The Class is About

Corporations have value chain organizational blocks that use models and research to take decisions

- Category management
- Total Cost of Ownership
- Tender process

- Production planning
- Maintenance mgmt
- Ongoing improvement

- Pricing decisions
- Volumes delivery
- Product PnLs

Strategy

- Value chain
- Alternatives
- Prioritization

Invest-ments

- Valuation
- Capex Planning
- Capital Structure

Marketing

- Market Sizing
- Channel Selection
- Funnel and Conversions

Finance

- Reporting
- Analysis
- Value management

What is MECE?

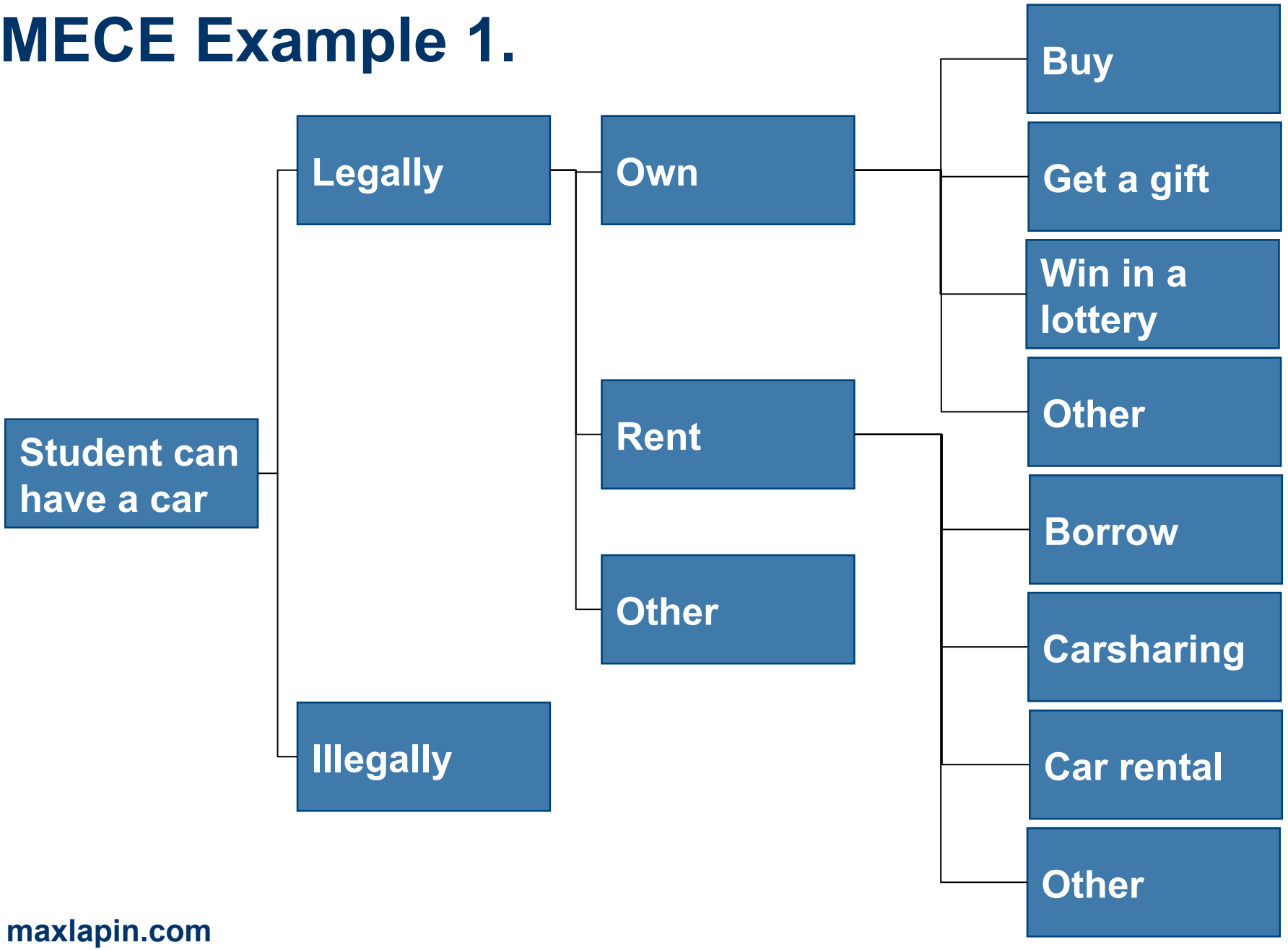
Approach to classification when the parts are:

- Mutually Exclusive
- Collectively Exhaustive

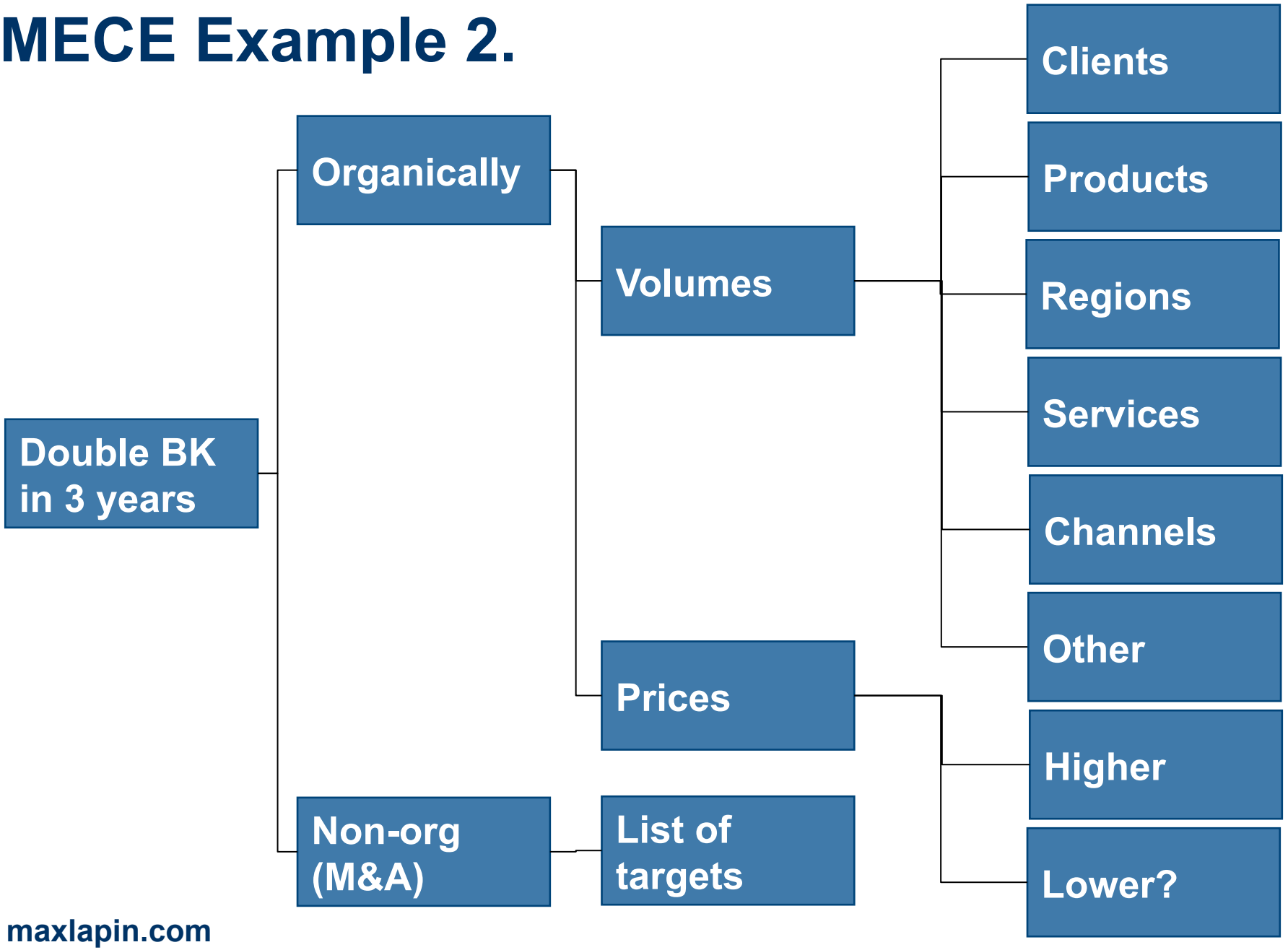
Mutually Exclusive = independent, do not overlap

Collectively Exhaustive = make whole together

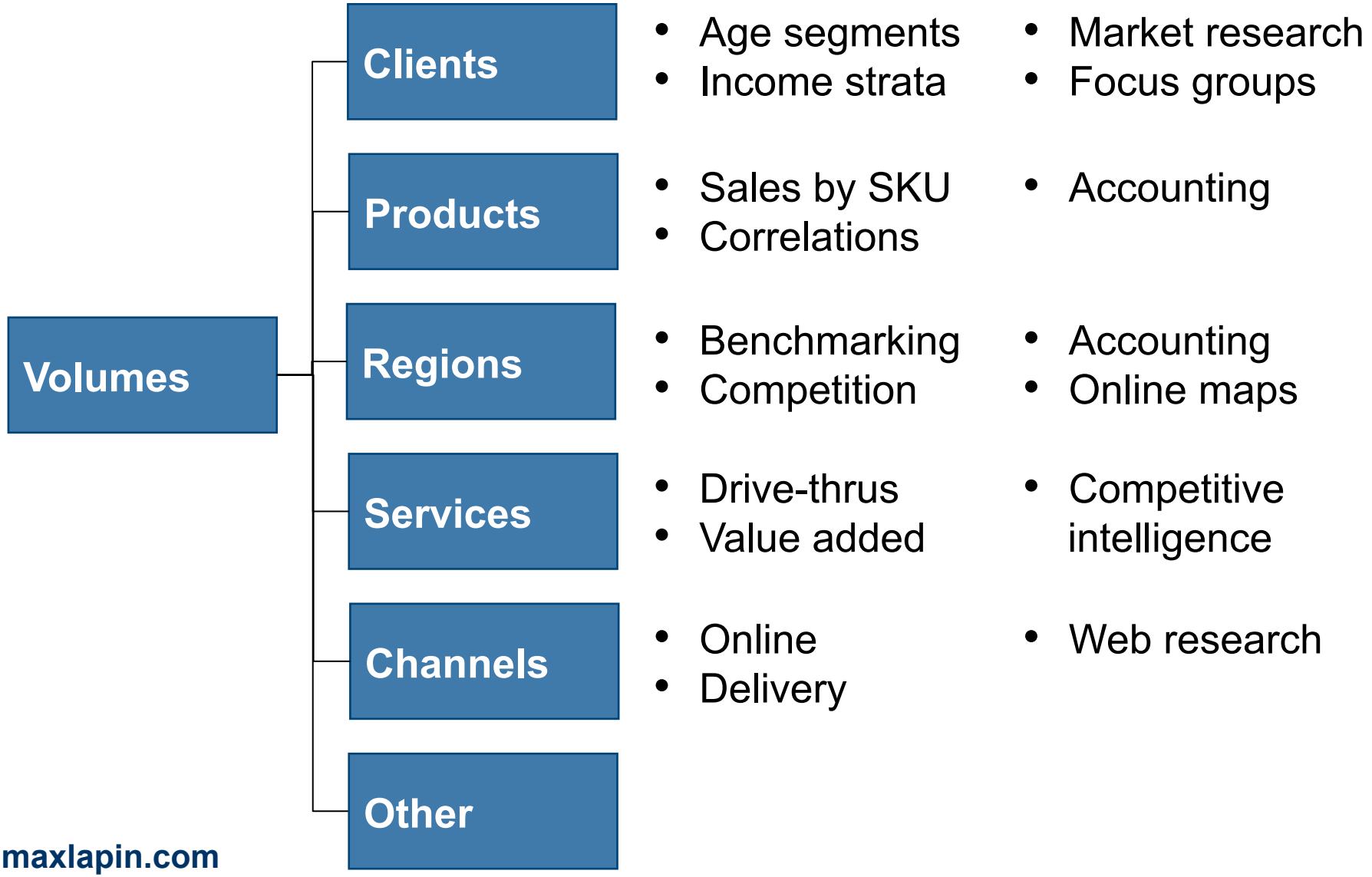
MECE Example 1.



MECE Example 2.



MECE Example 2.1.



Purchasing Key concepts

Category management

- Purchasing is split into distinct categories (equipment, materials, services, logisctics, etc)
- Every large enough category has a manager, a strategy, a supplier list, a negotiation tactics and strategy

Total Cost of Ownership

- A concept that accounts for the costs of a product or a service around its lifecycle
- Includes the list price, the delivery, the installation, maintenance, repairs, utilities, dismantling, scrapping and any revenues if sold

Tender Process

- Requirements standardized and made public
- The requirements must include all relevant options from volumes and technical spec to delivery terms and adjacent services
- Not perfect, but works

Case 2.1. Category Management

Task

- You are the procurement boss in the BK
- You have to introduce category management
- What are those?

Hypothesis

Data

Solution

Case 2.2. TCO

Task

- You buy yourself a car
- You want to run a comparison against saving the money and riding carsharing vs owning

Hypothesis

Data

Solution

Case 2.3. Tender Process

Task

- You buy a cleaning service for the office
- It needs to be reliable and cost-conscious

Hypothesis

Data

Solution

Operations

Key concepts

Production planning

- Company churns out volumes in response to the demand in the market. Thus, production capacities need to be filled with orders
- Price might be changing, market might be cyclical

Maintenance Management

- Downtime vs disruption risk
- Idle time alternative cost
- Scheduled vs agile
- Warehouse stock while idle

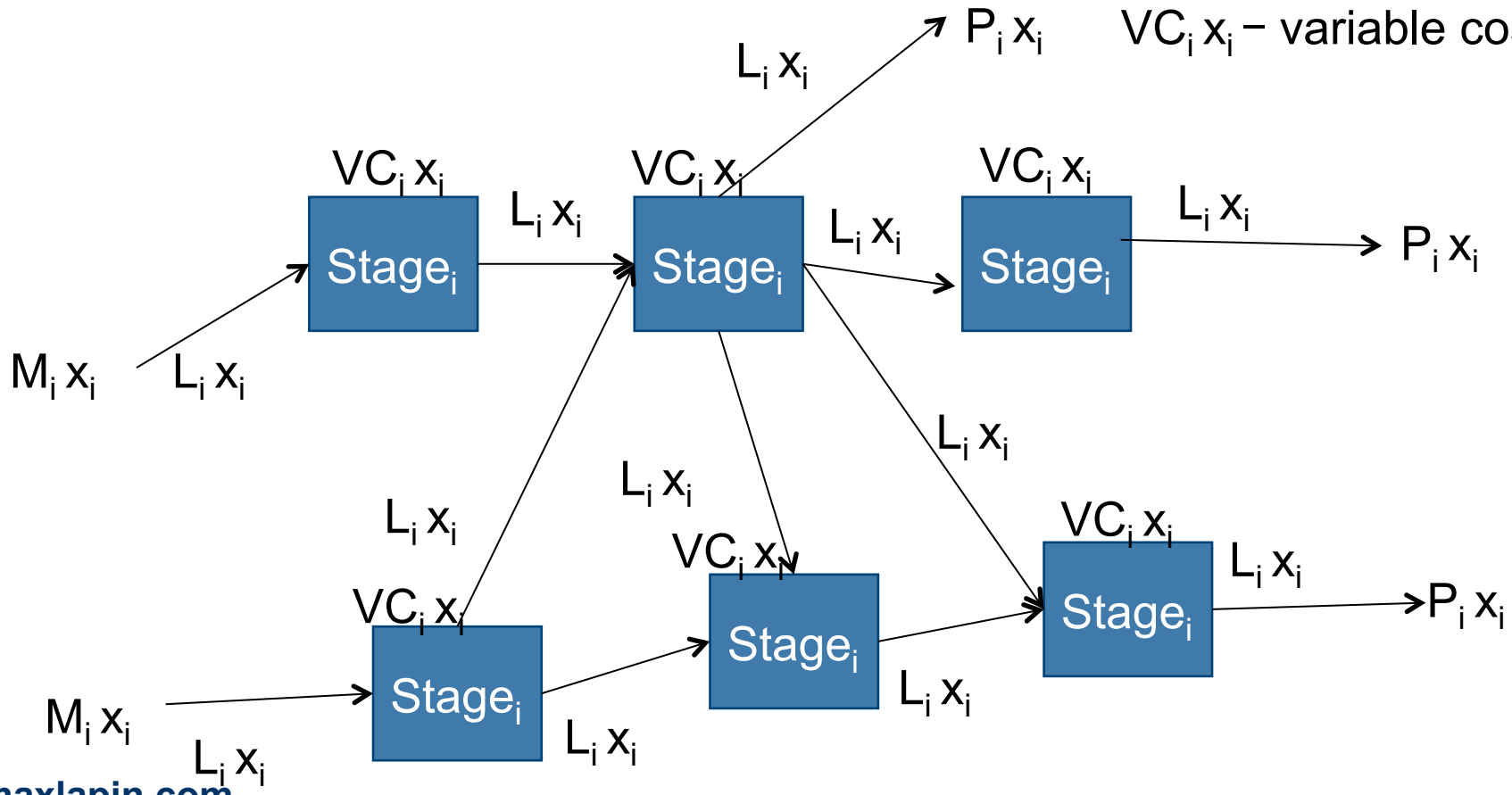
Ongoing Improvement

- Debottlenecking as a mathematical process
- Lean as a tool and a practical concept
- Continious improvement (Kaizen etc) as a philosophy
- Toyota system as an example

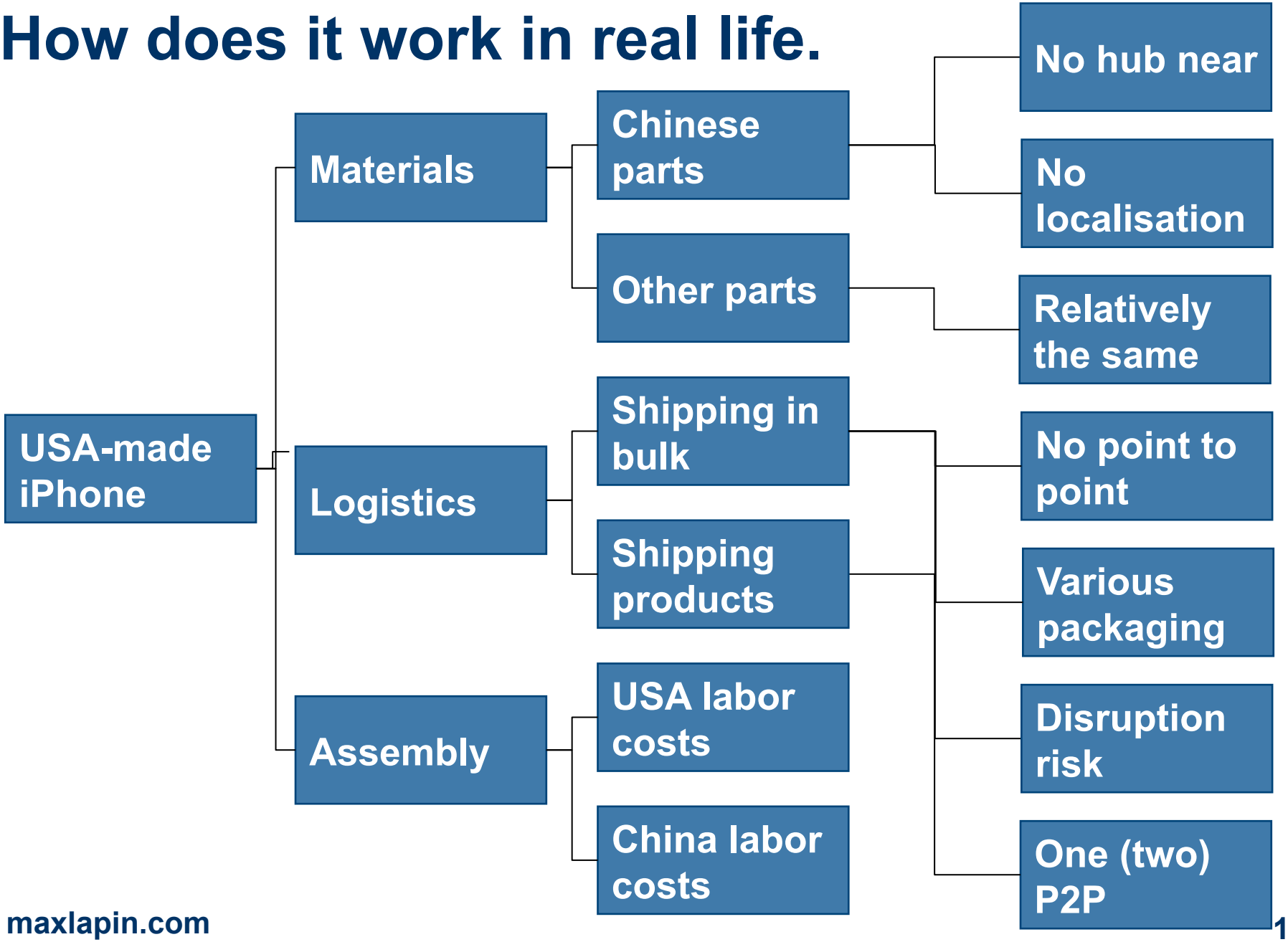
Linear programming in production planning

$$\sum_{i=N} (P_i x_i - M_i x_i - L_i x_i - VC_i x_i) \rightarrow max$$

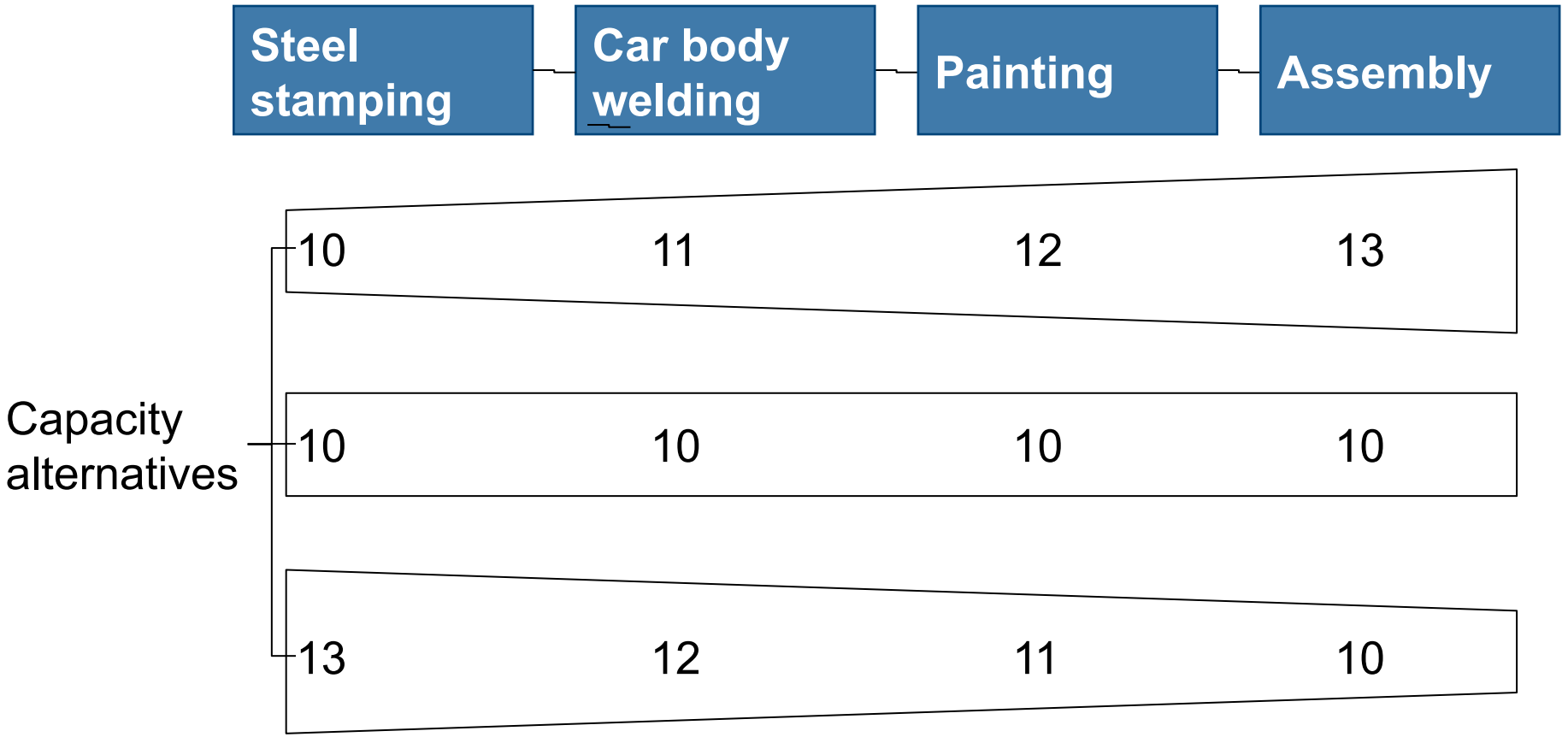
x_i – volume
$P_i x_i$ – sales
$M_i x_i$ – materials
$L_i x_i$ – logistical costs
$VC_i x_i$ – variable costs



How does it work in real life.



Maintenance impact on production



Imagine, what happens if one unit is down in every case

Ongoing improvement

Debottle-necking	Looking for the tightest point in your logistical or production network. And then making it wider
Lean	While debottlenecking is mostly about larger things, lean is akin do de-cluttering and bringing in order
Continuous improvement	A philosophy on neverending search for any better solution than the one currently in place
Toyota System	The personnel and the management are literally obliged to generate new ideas

Case 3.1. Production planning

Task

- You want to start your own pizza shop
- It will have a seating place and it will deliver
- What are the issues to be addressed

Hypothesis

Data

Solution

Case 3.2. Maintenance management

Task

- You are the engineer in the car-making company
- You need to set an interval on the servicing
- What it will be 10000 or 15000 or 20000 km

Hypothesis

Data

Solution

Case 3.3. Ongoing improvement

Task

- HSE St Pete is a great campus
- But what can make it better

Hypothesis

Data

Solution

Sales

Key concepts

Pricing decisions

- Export / Import parity re-pricing of commodities. The key idea is in the arbitrage principle
- Bundling / unbundling of features. Conjoint analysis introduction
- Elasticity sensitivity testing. Real life application

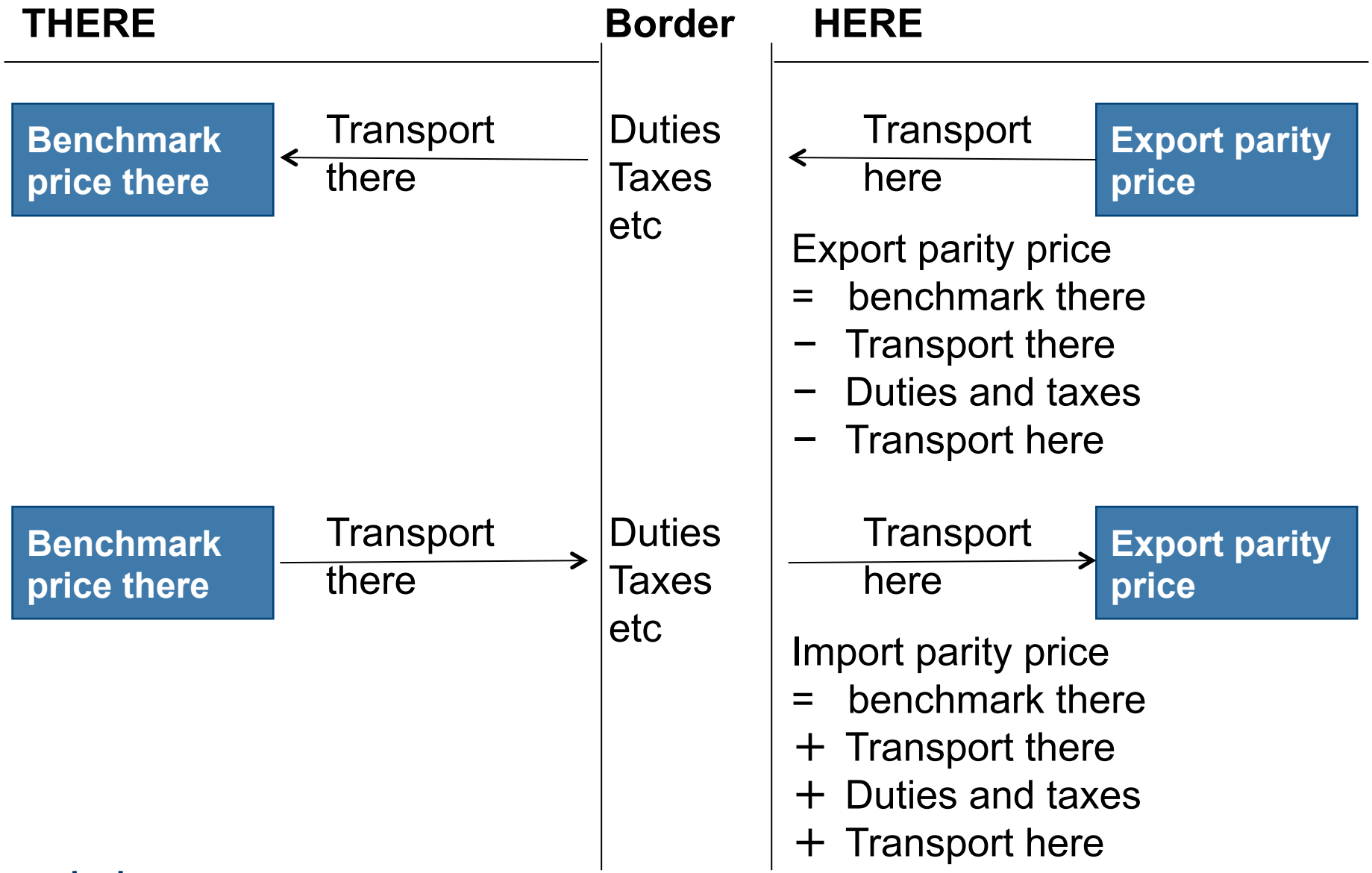
Volumes Delivery

- 'Travelling salesman problem' as a virtually unsolvable, but practically relevant
- EOQ concept for inventories management for driving the costs down
- P2P vs hub in the airline industry as the illustration

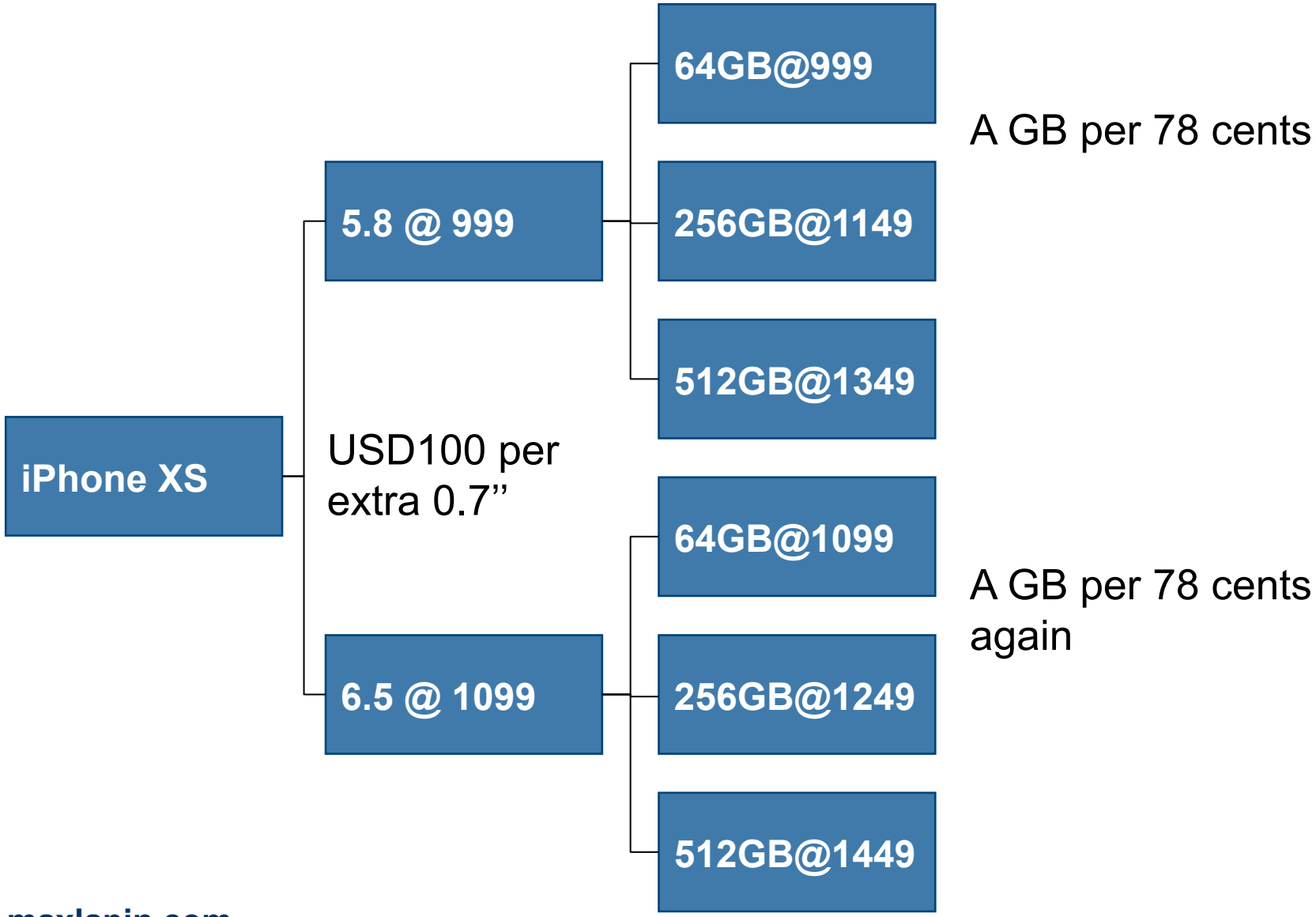
Product PnLs

- Why by product PnLs matter
- Cost allocation issues
- Performance motivation on a progressive scale

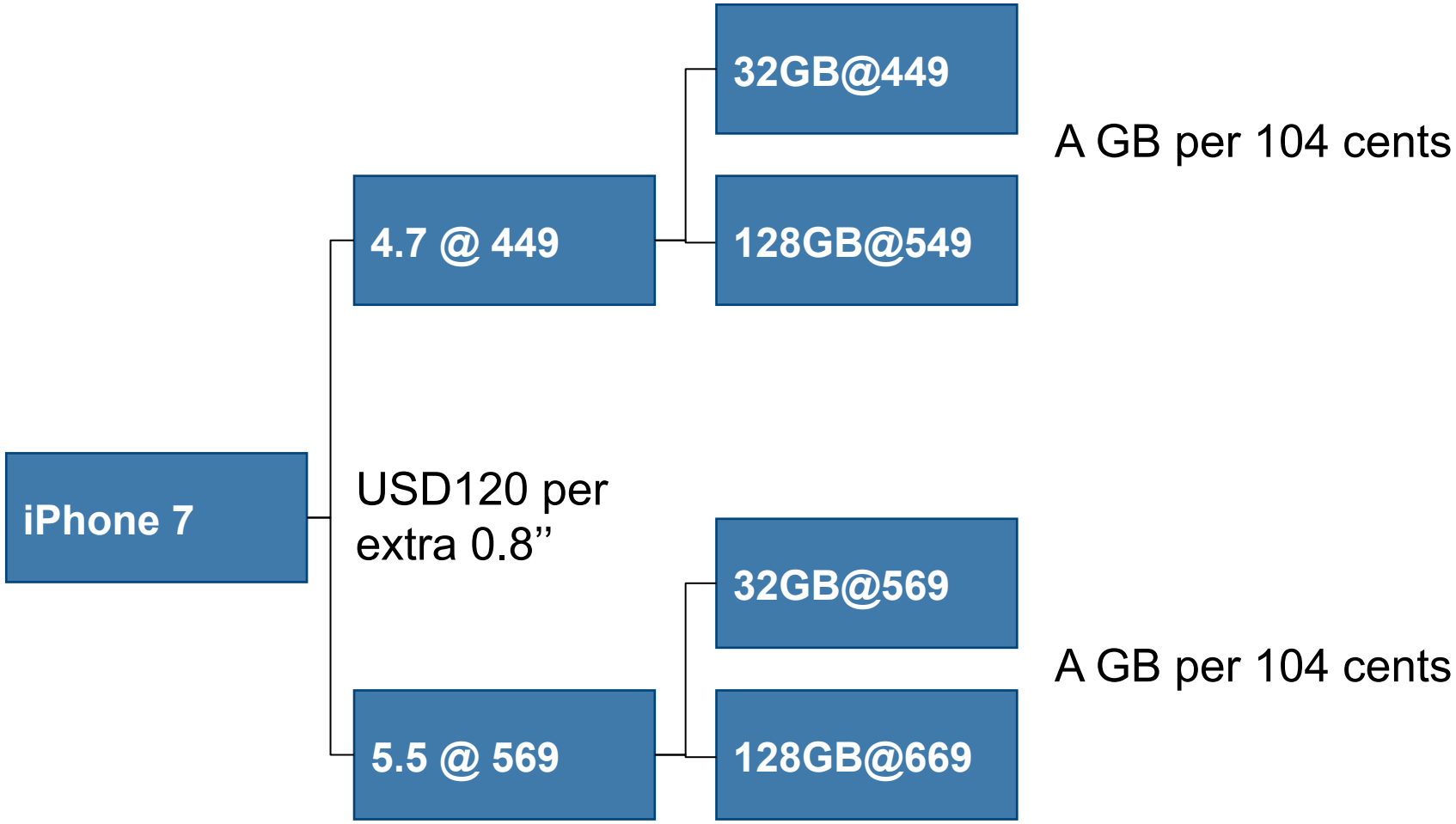
Export / Import Parities



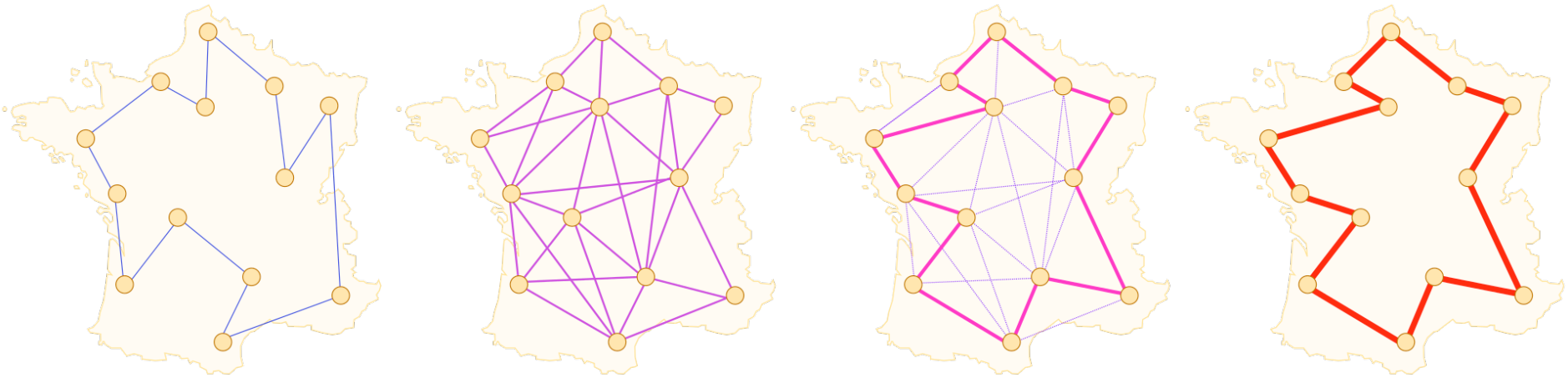
Pricing decisions. Bundling / unbundling



Pricing decisions. Bundling / unbundling



Travelling Salesman Problem

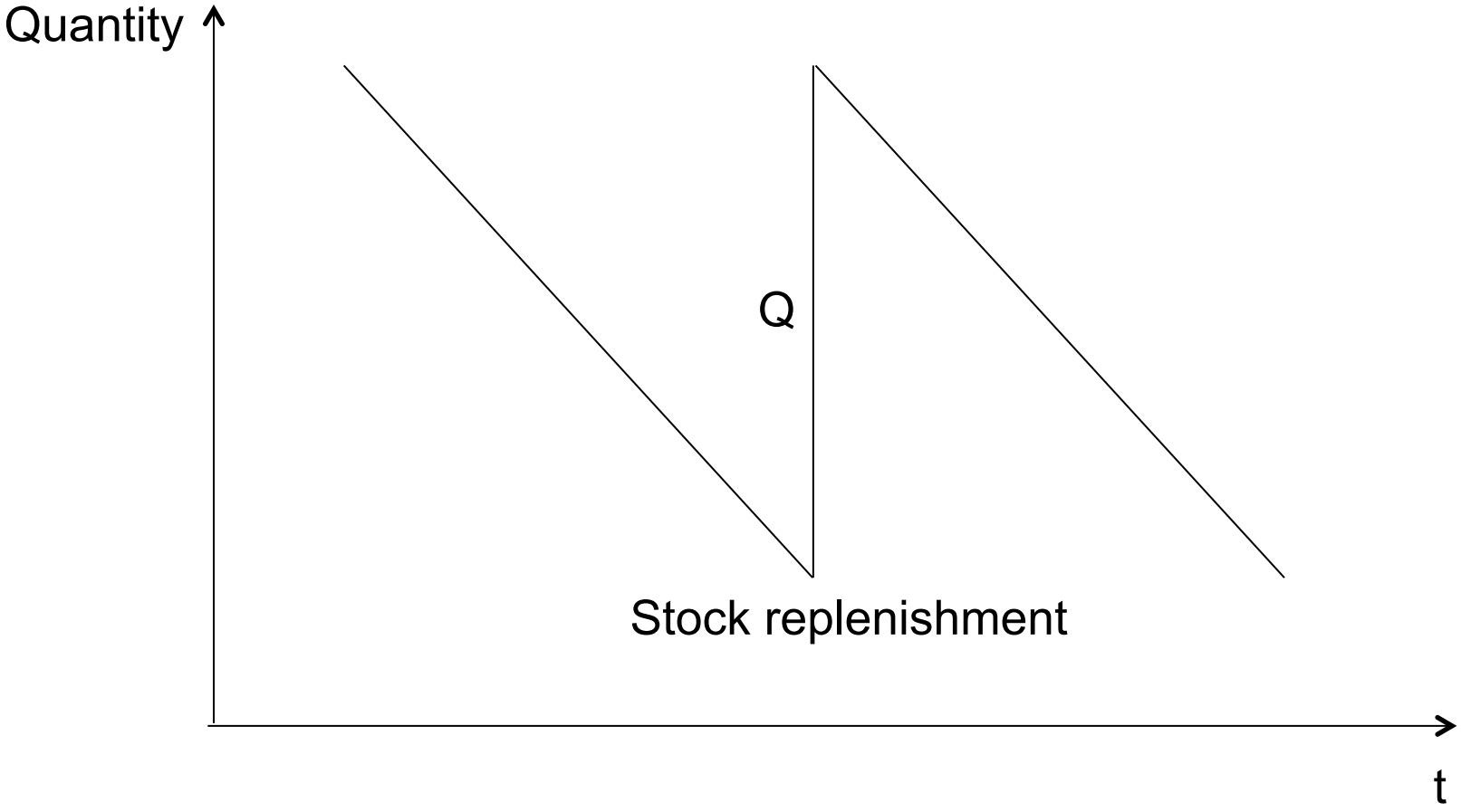


1 2 3 4

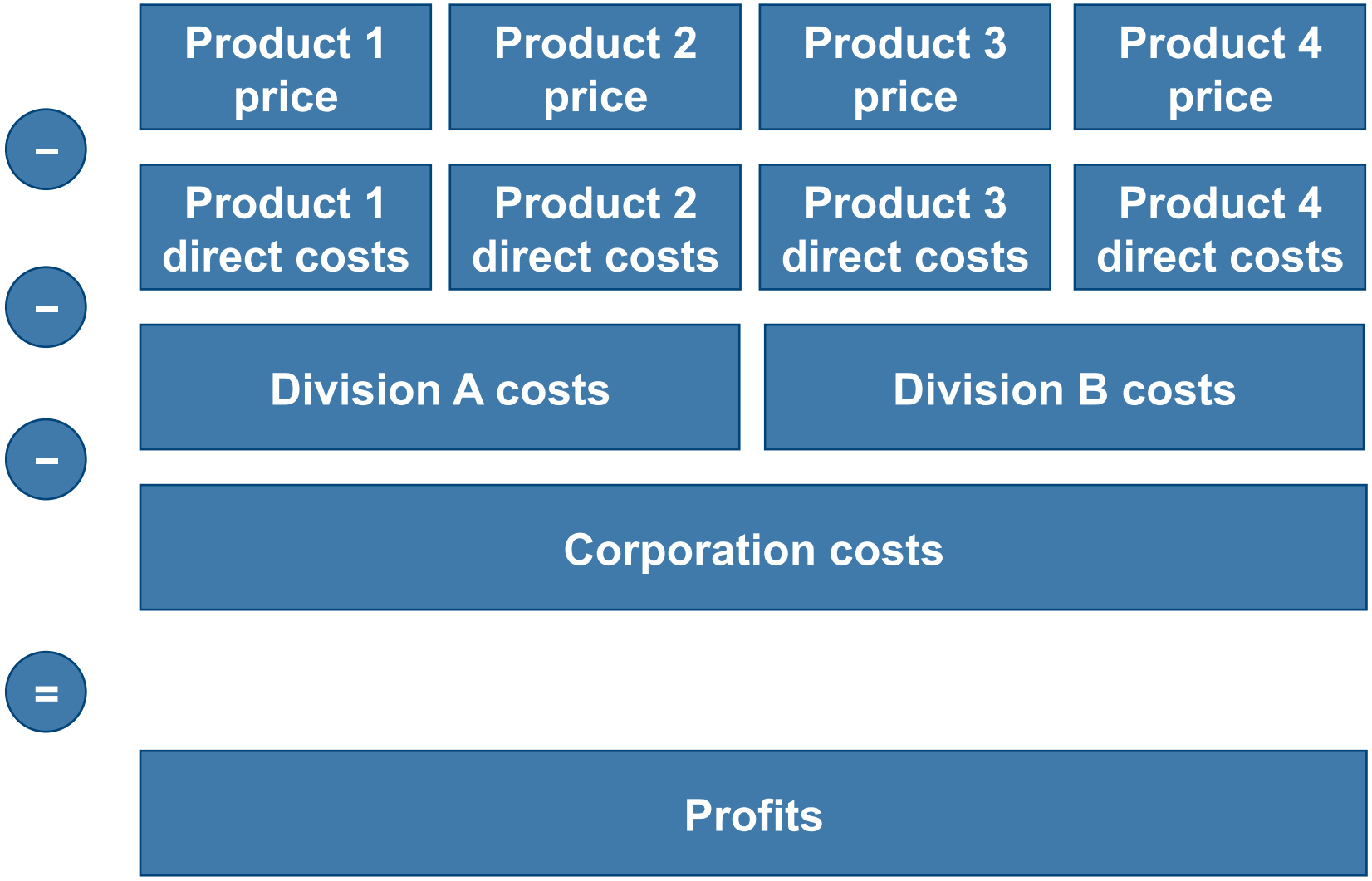
https://en.wikipedia.org/wiki/Travelling_salesman_problem

EOQ – economic order quantity

$$Q = \sqrt{\frac{2 \times \text{annual demand} \times \text{cost per order}}{\text{carrying cost per unit per year}}}$$



What is a product PnL?



Case 4.1. Export / import parity

Task

- Why is the iPhone more expensive in the EU vs US
- Why is Mercedes GLS is cheaper in the US vs Germany
- Why is Mercedes G-klasse price is vice versa

Hypothesis

Data

Solution

Case 4.2. EOQ for a car dealer

Task

- You are a manager with a Toyota dealer
- You sell relatively uncustomizable cars
- You sell about a car a day
- How often should you replenish your stock of cars

Hypothesis

Data

Solution

Strategy

Key concepts

Value Chain

- The company is a process flow for value creation
- Every stage either adds value or not quite
- A business model might be integrated or pretty segmented
- Different winning models exist

Alternatives

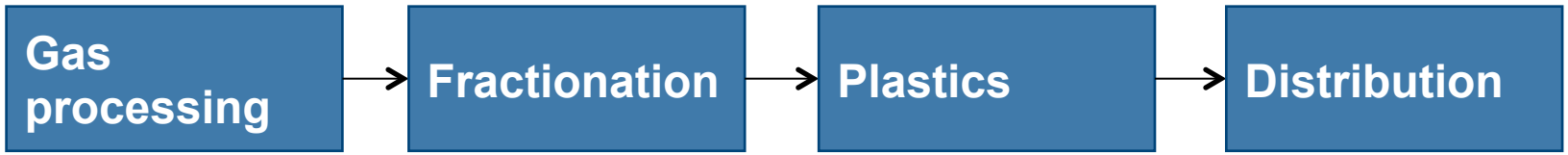
- Organic vs non-organic growth
- Speed of growth limits
- In-house vs outsourcing decisions
- Key competitive advantages vs core capabilities

Prioritization

- Criteria
- Conglomerate discount
- Portfolio decision

Value Chain

Where is the main value created in a vertically integrated petchem company?



You may look at the revenues per segment

You may download the IFRS report with a segment note (the PnL by stage)

You may do your own calculations based on the prices and cost data

BUT

The real question is what unit is indispensable. Once you remove it from the business value chain − the whole cash flow starts to collapse

Alternatives

The question is. Do you build on your own. Or do you buy it.

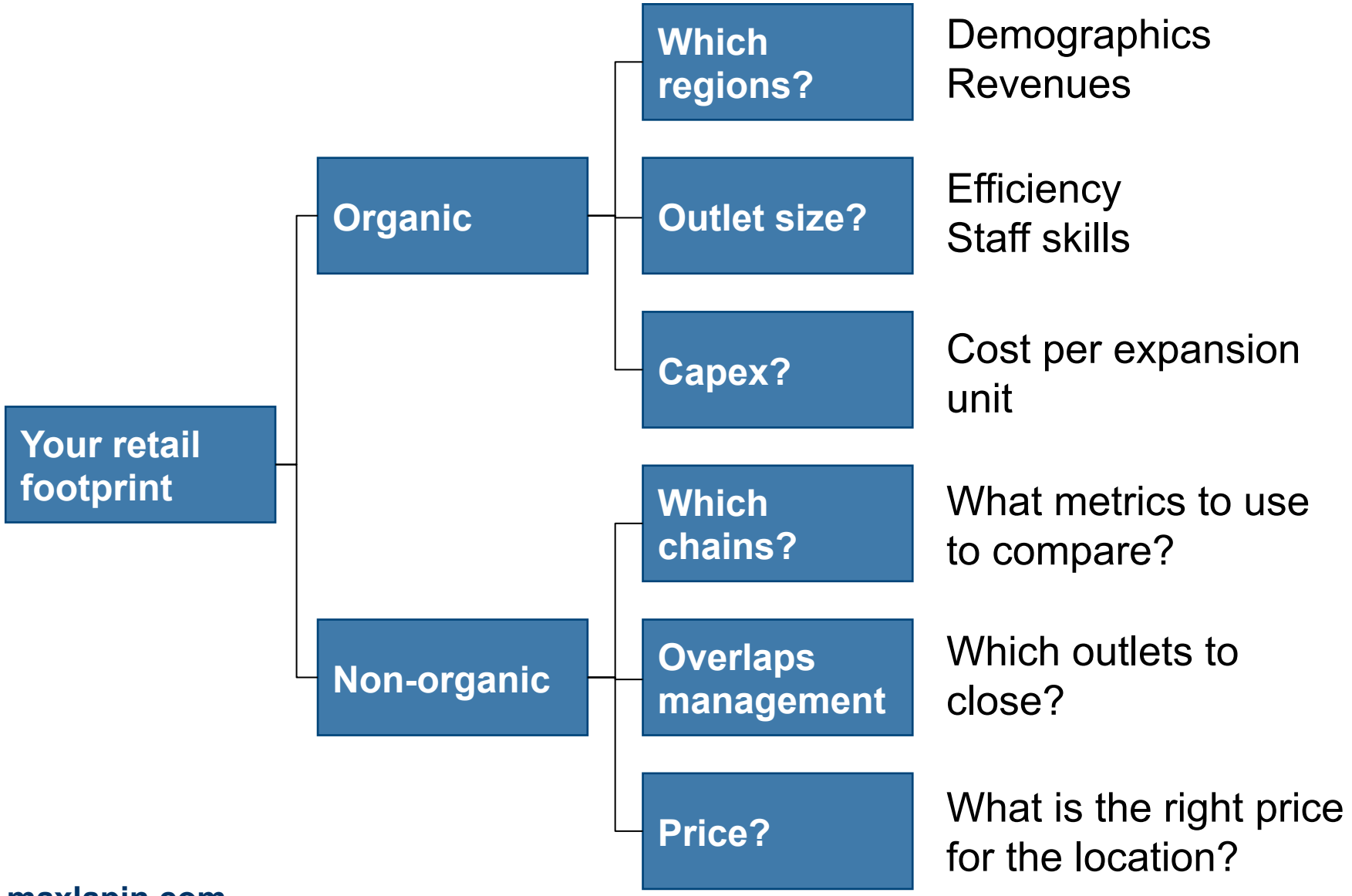
Organic	Non-organic
• Can you expand on your own?	• Do you have the cash?
• Do you have the skills?	• Integration / post merger management skills?
• The manpower?	• The need?
• The network?...	• The urgency?
• The time?	

Alternatives

Typical example

Build your gas stations	Buy a chain of
• Do you have a concept and transparent skills and costs for the roll out?	• Are there any?
• Do you have standard operational procedures (SOPs)?	• Are they good at all?
• Do you even have a brand?	• Can you manage them? Do you have a team that is capable of controlling the acquisition process?
	• Are there any issues in the due diligence?

Prioritization



Case 5.1. Value chain

Task

- Draw a value chain for the fast food chain
- Identify the key value generating asset in it

Hypothesis

Data

Solution

Case 5.2. Alternatives

Task

- You are working at Tesla and need to choose on the distribution channels strategy
- What are those?

Hypothesis

Data

Solution

Case 5.3. Prioritization

Task

- You inherited/ won/ earned a billion dollars
- What will you do with it

Hypothesis

Data

Solution

Investments Key concepts

Valuation

- Sum of discounted cash flows (and its advanced Monte Carlo variations, including Black-Scholes formula and beyond)
- Multiples
- Liquidation value
- Cost +

Capex Planning

- Assumptions
- Stages
- Liquidity concerns

Capital Structure

- Leverage benefits
- When too much debt is way too much

Valuation

The catch with the DCF? It is always wrong. The question is by how much?

Foreseeable future	Terminal value
• What are the assumptions that you use? Reliability is always the question. • Is business / project a usual one or is it a startup with a ‘magical stairway to the unicorn heaven’?	• What is the terminal growth assumption (g-ratio)? • What is the probability to survive in the long run? • What is a valuation with 20% of value in the foreseeable future and 80% in terminal value?

Capex Planning. Always about assumptions

Why revenues?

- Do we have contracts on the table?
- Where does the price come from?
- Whose volumes are those?

Why OpEx?

- Which throughput / raw materials ratios ?
- Again, what is the price of resources?
- And who plans the fixed costs?

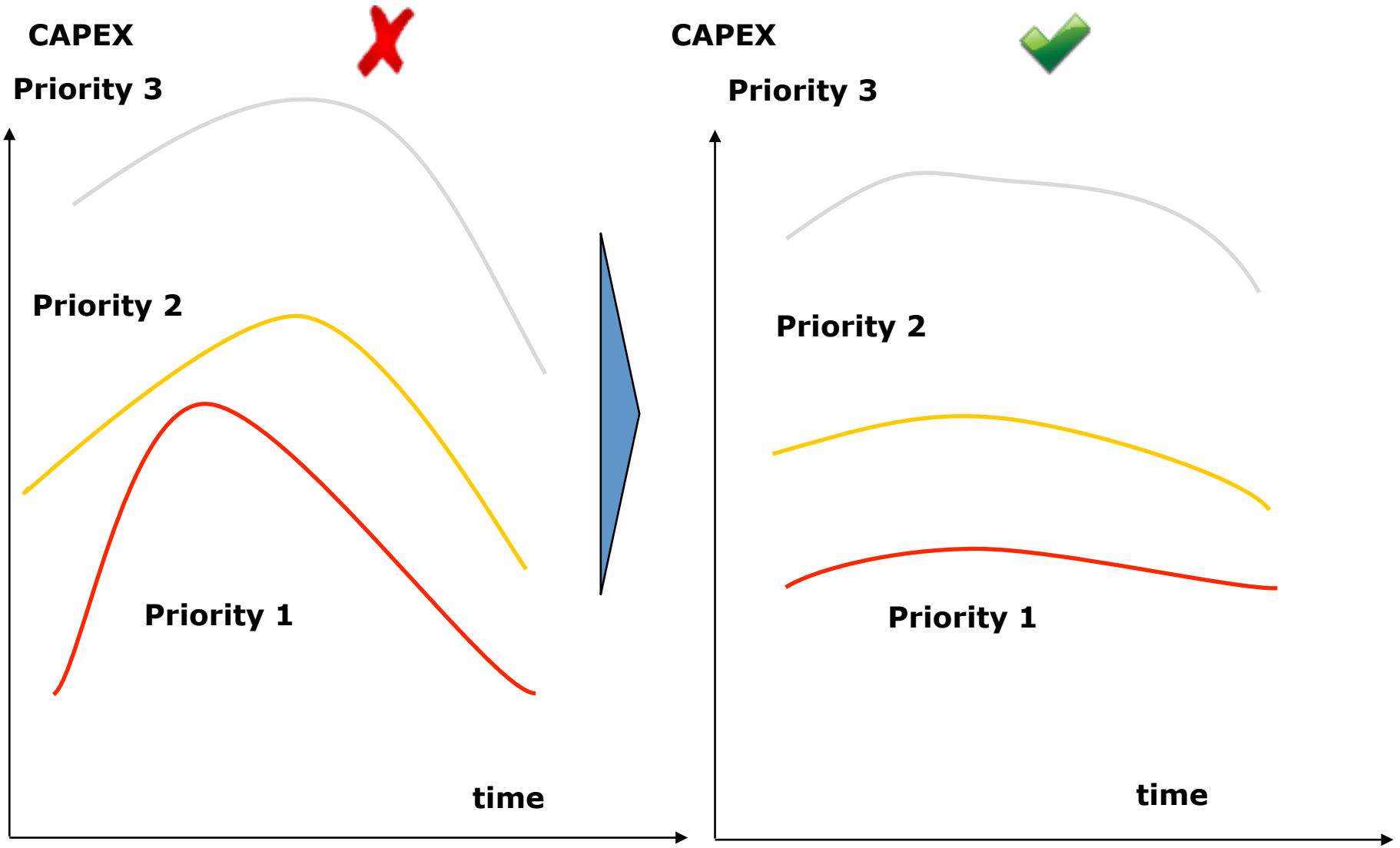
Why CapEx?

- Any benchmark?
- Who are the experts?
- What are the tolerances?

Capex Planning. Never bet everything

Idea	Pre-project	Early project	Late project	Ramp-up
• First formal draft • Broad strokes on resources, timeline and overall budget	• Team • Engineering • Layouts • Blueprints • Funding	• Order bottleneck equipment (with long delivery times) • Ground works	• Fully fledged construction	• Move from project team to operations • Do final polishings • Pay the bonuses
0.1% of budget	**1-3% of budget**	**10-25% of budget**	**70-85% of budget**	**1-3% of budget**

Capex Planning. Liquidity concerns



Capital structure.

What are the metrics

Debt to EBITDA

Rule of thumb:

- Below 1 might be too little
- Around 1-2 is a sweet spot
- 2-3 is somewhat risky
- Above 3 you put the company's future on the table

EBITDA / interest

It is interest coverage

- Good to aim above 7
- Somewhat below 7 is okayish
- Below 5 and banks don't like you

Case 6.1. Value me a new social network

Task

- What is the revenue source
- What are the revenue drivers

Hypothesis
Data
Solution

Case 6.2. Capex Planning

Task

- Develop a timeline and actions to open your burger joint

Hypothesis
Data
Solution

Case 6.3. Capital structure

Task

- Debt to equity in real life in a form of a mortgage
- Salary is earnings, interest is interest, downpayment is equity

Hypothesis
Data
Solution

Marketing Key concepts

Market Sizing

- The potential client pool
- The potential share of the pocket or Lifetime Value of a Customer
- Competitive landscape

Funnel and conversions

- Awareness
- Consideration
- Trial
- Repetitive trial
- Loyalty

Channel selection

- Types of channels
- Leads generation
- CTR
- Customer acquisition cost

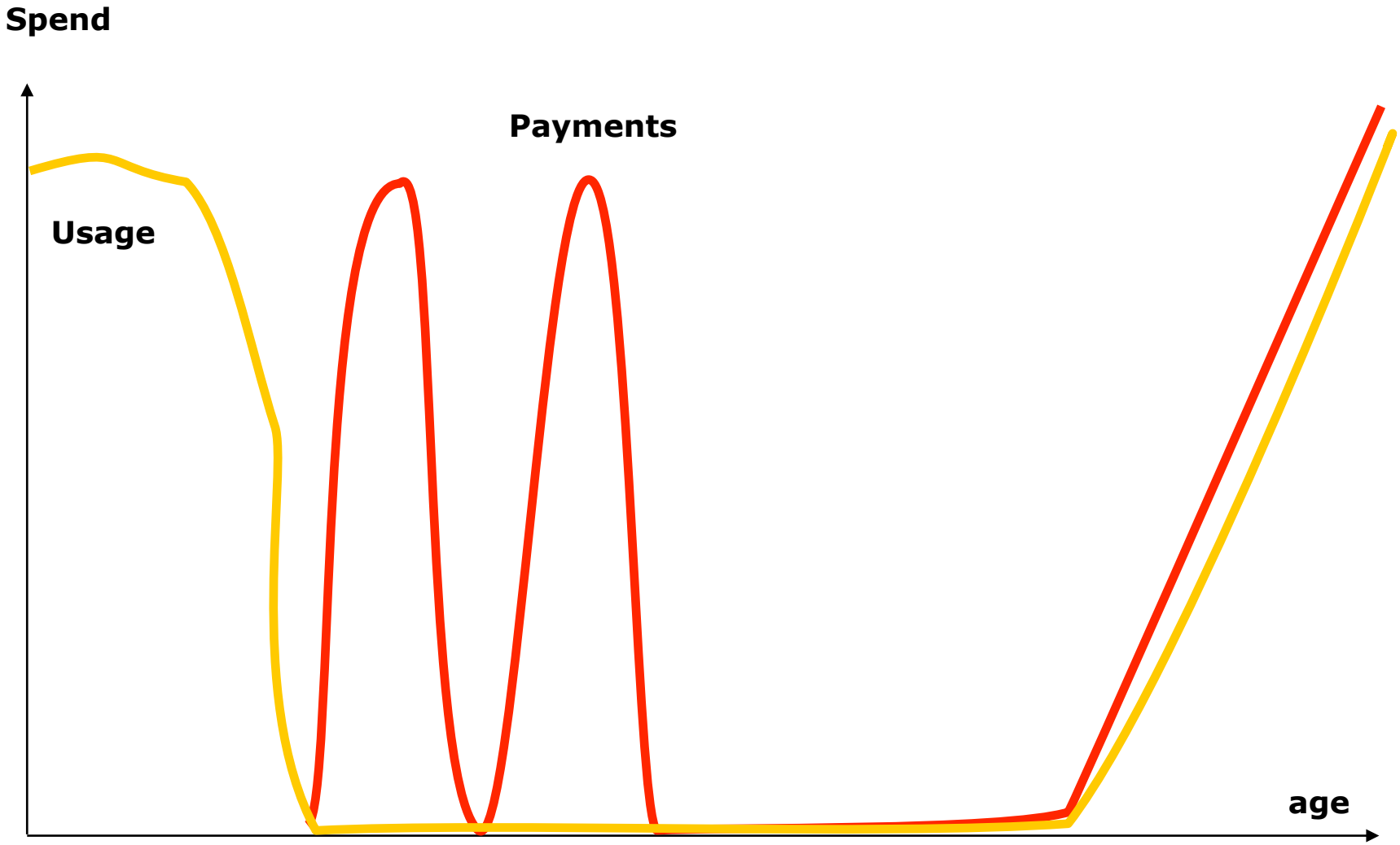
Market size

How many customers	Pocket share / LTV	Competition
• Population • Neighborhood • Traffic flow • Interactions frequency • Regular or non-regular`	• Physical or chemical limits • Existing spend levels • Usage profile over age / other demographics • Fad / not fad	• Commodity or brand? • Consolidated or fragmented • Substituting products and solutions • Uptake profile / or s-curve

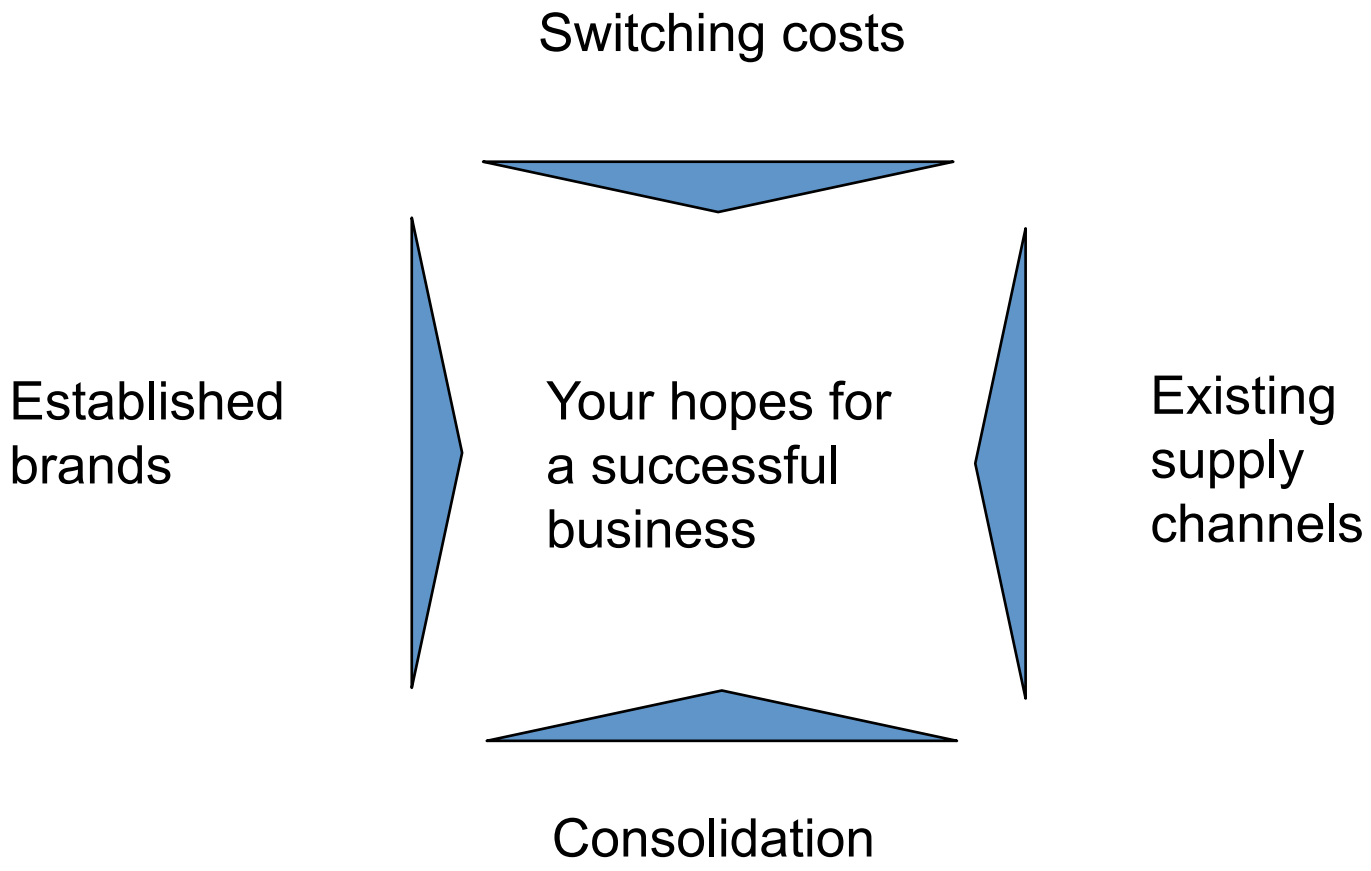
Market size

Population / customer pool	How many potential users are there for a carsharing service? All existing car owners? All those with the driving licenses? The population of large cities only?
Neighborhood / traffic	Where are the customers located? Suburbs? Center? Main roads? Dispersed? Airports? Malls?
Regular / one-off service	Can the product have a high level of repetitiveness? What does it depend on? Can we stimulate it?

Market size. LTV of a customer



Market size. Competition



Case 7.1. Market size

Task

- What is the market size for Tinkoff CS vs Sberbank

Hypothesis
Data
Solution

Case 7.2. Funnel and conversions

Task

- What was the funnel for apple computer in the 90s and early 00s?
- What did it become now?

Hypothesis
Data
Solution

Case 7.3. Design me a marketing campain

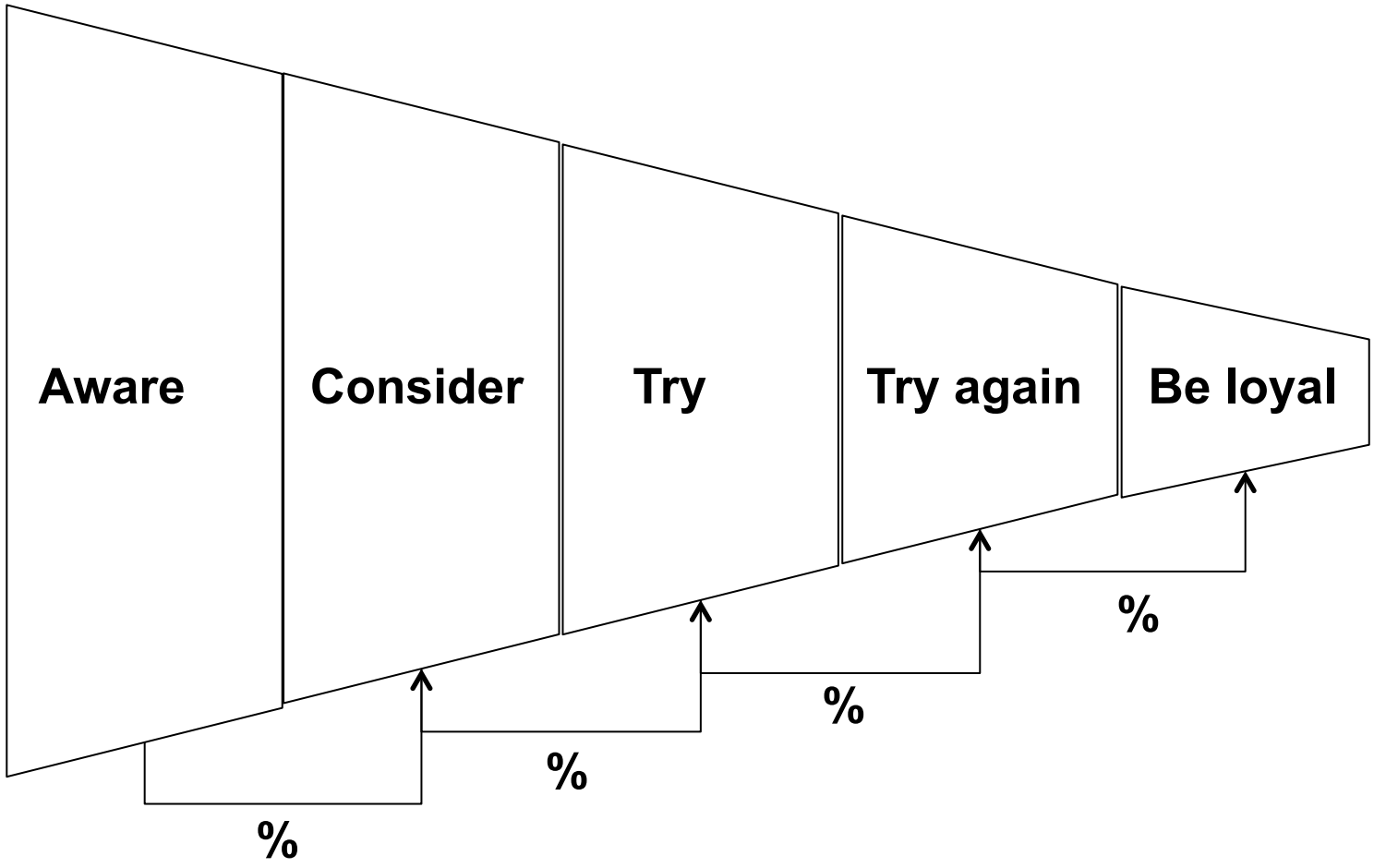
Task

- You want to sell Teslas in Russia

Hypothesis
Data
Solution

Funnel and conversions

This tool works everywhere.
In RnD, startups, marketing, dating services, headhuting, job searching



Channel selection

Where is the truth

Customer Acquisition Cost

- Never believe if your marketing says it is impossible to assess. Either hire a new marketer or educate yours
- Difference between channels may be by orders of magnitude!

Life Time Value of a Customer

- Surprisingly, it does differ between channels
- Customers do cease to be customers, they are not yours forever
- Customers are ‘promiscuous’, they may live with several products simultaneously

Finance

Three CFO levels according to McK & BCG

Data / Reporting

- Bookkeeping
- Accounting
- Reporting

CFO knows what is happening and has an infrastructure to account for every transaction and to report on the results

CFO – is a mirror

Hypotheses / Analysis

- Analysis
- Models
- Plan / actual / past
- Forecasting
- Proactive behaviour

CFO is involved in business issues, Develops opinion on the initiatives, processes, solution. Not backwards looking, but forward looking as well

CFO – as an analyst

Solutions / Value management

- Projects priorities
- Resource allocation
- Strategy
- Valuations
- IR and BoD communication
- Performance management

CFO substantially involves in operational and strategic decisions and sets the KPIs and affects the resource allocation

CFO – as a co-pilot

Data / Reporting

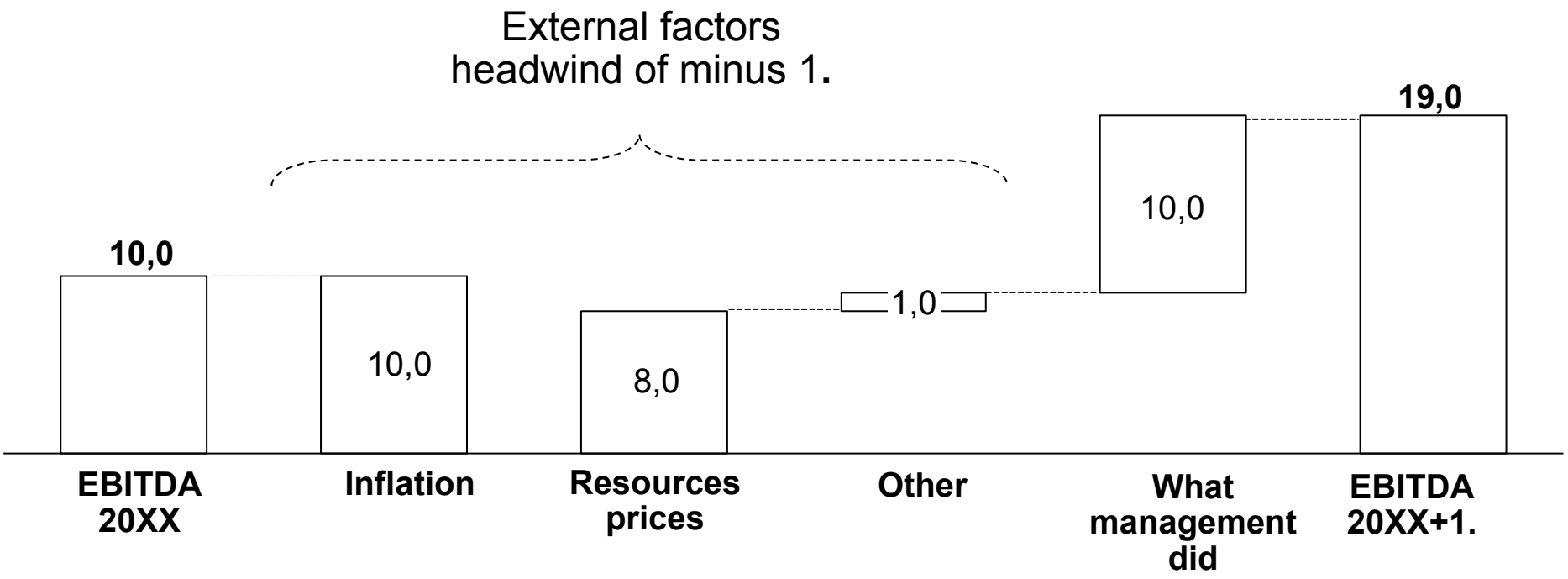
The centuries old basic function

Bookkeeping	Accounting	Reporting
• Every transaction needs to be recorded • The documents preserved • The General Ledger kept up to date • Any historical transaction can be reviewed	• Running adjusting entries on accruals and accounts payable and accounts receivable etc. • Aggregating similar events into same ‘buckets’ to explain the costs better • Explaining	• Management reporting • Local standarts reporting • Tax reporting • International standards reporting

Hypotheses / analyses

Plan / actual / past actual	What changed versus plan? What changed versus past actual? What are the key factors?
Models	Financial function has the power and the authority to engage in virtually any modeling from TCO and CAC to Funnel and costs allocation
Forecasting	Fog ligths Low-beam light High-beam light

Factor analysis to explain the change



Forecasting

The task	The question	The instrument
Payments schedule	•Who do we pay and how much in line with the contracts signed	•Treasury calendar built in within the 1C/ OeBS/ SAP systems
Profit forecast	•What are our profits expected to be next month, this year, next 12 months	•Short-term budget / financial model
Cash flows forecast	•What our cash flows going to be next month, this year, next 12 months	•Short-term budget / financial model and investments projections
Long-term model	•What is the valuation and financial stability of our company years ahead	•Long-term financial model linked to strategy and projects pipeline

Solutions / Value management

Management has to deliver YoY tangible improvements that make the business better. CFO stimulates this process

- **Variable costs efficiency –** lower raw materials ratios, higher throughputs, better uptimes, better cost per unit
- **Fixed costs efficiency –** lower SG&A, more predictable maintenance costs, lower volume of costs allocations
- **Sales efficiency –** pricing power, discounts management, marginal pricing vs variable costs
- **Investments efficiency –** projects valuation and prioritization, post-investment monitoring

Case 8.1. Accounting and reporting

Task

- Company sold customers gift cards, I.e. perfumery or electronics or any other?
- Is it revenue?

Hypothesis

Data

Solution

Case 8.2. Forecasting

Task

- What the sales of your burger shop / gas station / carsharing will be through the summer/ next year/ next five years

Hypothesis

Data

Solution

Case 8.3. Value management

Task

- What should the KPI for the CEO/ COO / CFO be?

Hypothesis

Data

Solution

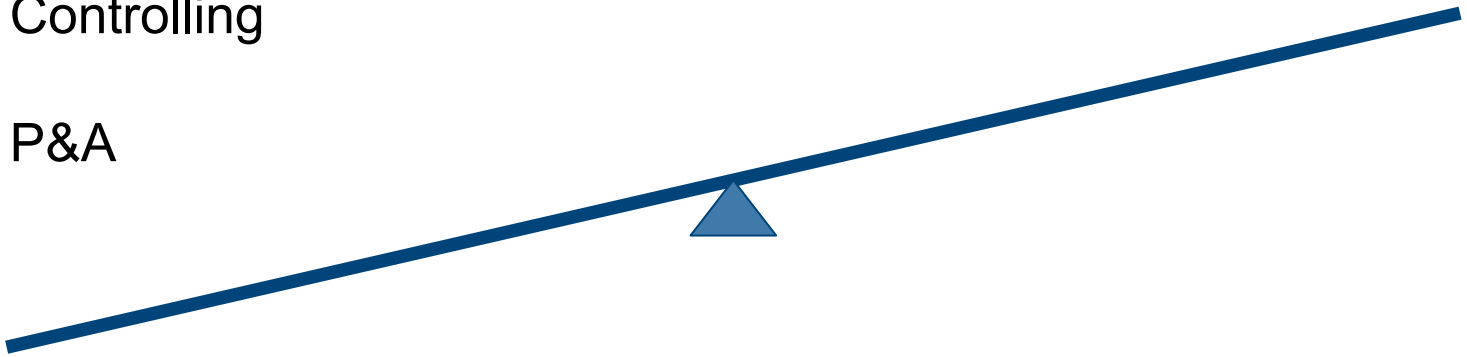
Further trends in the financial function

Processes	Activities
• Risk management	• Strategy shaping
• Compliance	• Organizational design
• M&A	• Performance managemen
• IT	• Capital allocation
• Strategy	• Big Data
• Purchasing	• Financial development
• IR	• Tech

AI / ML / Robots?

Where AI/ ML/ Robots take over:

- Accounting
- Cash management
- Receivables
- Controlling
- P&A

Where the people will still be needed:

- Treasury
- Risk management
- Audit
- IR, PR, GR
- Business Development