Presentation on Capital Budgeting Course, March 26, 2024

Forecasting and scenario analysis

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AGENDA

PART 1	Brief presentation of Katja Kolehmainen and Capful
PART 2	Forecasting and scenarios: two approaches for analyzing business environments How does the forecasting context effect the choice of forecasting methods?
PART 3	What does the term scenario analysis mean? What kind of approaches do we have for utilizing scenario analysis? For what purposes can scenario analysis be utilized?

Consultants for the project

CV | Katja Kolehmainen

Introduction

Katja Kolehmainen (D. Sc. (Econ.)) works in Capful as Senior Advisor for Foresight and Strategy. Katja has broad understanding of strategic and financial management in both private and public sectors. This understanding has been developed during a series of multifaceted, demanding positions in business, government, academy and consulting. Katja is a conceptual and analytical thinker who can transform concepts into practically relevant implications as well as an experienced speaker and facilitator with a capability of inspiring and relating to versatile audiences.

Experience

- **4/2023 → Senior Advisor, Foresight and Strategy, Capful Oy (member of the management team)**
- **2016 → Partner (Vice Chairman of the Board 2018-2020), Board Professionals Helsinki**
- 2020-2023 Executive Consultant / Senior Managing Consultant, Verona Consulting Oy (ex. Talent Vectia)
- 5-12/2019 Project Director (strategy process), Finnish Institute of Public Management
- 2018 – 2019 Project Director / Senior Advisor, Academy for Change Management, Finnish Ministry of Finance
- 2016-2017 Director, Capful Oy
- 2005-2016 Assistant Professor for Strategic Management Accounting) / Post Doc Researcher / Research Assistant, Aalto University School of Business
- 2000-2007 Development Director/ Development Manager, If P&L Insurance (on parental/study leave 2002 onwards)
- 1998-2000 Development Manager, Vattenfall
- 1996-1998 Consultant, SIAR-Bossard Oy

Education

- D. Sc. (Econ.), Aalto University Business School (2012)
- M. Sc. (Econ.), Helsinki Business School (1996)

Examples of client projects

Strategy Process	• Business Finland: Strategy Process, 2020 • Kekkilä-BVB: Growth Strategy, 2020 • HSL Helsinki Region Transport: Strategy Process, 2021 • Unemployment Fund Aaria: Strategy Process, 2021 • Wellbeing Services County of Central Finland: Strategy Process & Implementation, 2022-2023 • Finnish Federation for Equestrian Sport: Strategy Process, 2022 • The Governing Body of Suomenlinna: Scenario-based Strategy Process, 2022 • Association of Finnish Pharmacies: Scenario-based Strategy Process, 2023 • KEHA-keskus: Scenario-based Strategy Process, 2023
Scenario Analysis / Business Environment Foresight	• Tiera: Business Environment Scenarios 2025, 2016 • Helsinki-Uusimaa Regional Council: Helsinki-Uusimaa Region Scenarios 2050, 2016-2017 • HUS: Finnish Health Care Sector Scenarios 2030, 2017 • Publicly listed Finnish company: Business Environment Scenarios 2025, 2017 • Finnish Ministry for Economic Affairs and Employment: Finnish Growth Portfolio 2.0, 2020 • Puro Earth: Business Environment Scenarios, 2023 • Tiera: Business Environment Scenarios 2027, 2023
Management Models / Financial Management Development	• Crisis Management Institute: Management Model Renewal and Management Group Development, 2021 • Primary Healthcare Organization in Espoo: New Management Model and Development of Management Group Work, 2020-2021 • Labkotec Ltd: New Management Model and Development of Management Group Work, 2021 • HSL Helsinki Region Transport: Productivity Program and Financial Management Development, 2022 • Wellbeing Services County of Southwest Finland: New Management Model for the Well-being Services County, 2023

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Capful is a forward-thinking consulting firm, focused on foresight, scenario and strategy work.

We help our clients make sense of the future so that they can make better strategic decision today.

500+
projects

200+
scenario projects

22
professionals

Capful's experience: 500+ scenario and strategy projects

In various industries

Royal Shell
Global energy company
Three scenario projects

Danske Bank
International finance group
Scenario project

Kemira
International chemical industry company
Two scenario projects

F-Secure
Finland's largest cyber security company
Scenario project

Which Way Nigeria
A citizen initiative to steer Nigeria to a better direction
Scenario project

Svitzer
A Maersk Group company
Scenario project

OP Group
Finland's largest finance group
Scenario project on disruption in finance industry

EPV Energy
A Finnish energy producer and supplier. EPV is a forerunner in wind power in Finland.
Several scenario and strategy projects

Elo
Finland's third largest pension insurance company
Several scenario and strategy projects

HUS, Helsinki University Hospital
One of the leading health care organisations in Europe
Two scenario and strategy projects

Nokia
A Finnish telecommunications and information technology company
Scenario and strategy projects

Bank of Finland
Scenario project

Stora Enso
Top 5 pulp and paper company globally
Several scenario projects

Post of Finland
Finland's post
Scenario project on disruption in logistics industry

Business Finland
Supports and funds Finnish companies to go global and attracts investments in Finland
Two scenario projects on Finland's competitiveness

Examples of findings and actions based on Capful's scenario projects

*"**We will lose 30% of revenue** if we will continue as we have been doing!"*

PHARMA INDUSTRY

*"We will need to **change our business from B2C to B2B."***

ICT

*"We need to **change our just prepared strategy**. Without the scenario work and improved insight and understanding we would not have had the **courage to do it."***

CONSTRUCTION

*"We are too small in the future and our distribution channel is not strong enough alone. **We will need to merge with another company."***

PENSION INSURANCE

*"There is a very high risk that we will not get raw material (timber) from current sources. Therefore, we will need to **source them from other geographical areas."***

FOREST INDUSTRY

*"**We can make the planned 10 M€ investment**. This investment would improve our competitive advantage and reduce production costs."*

FOOD AND FEED INDUSTRY

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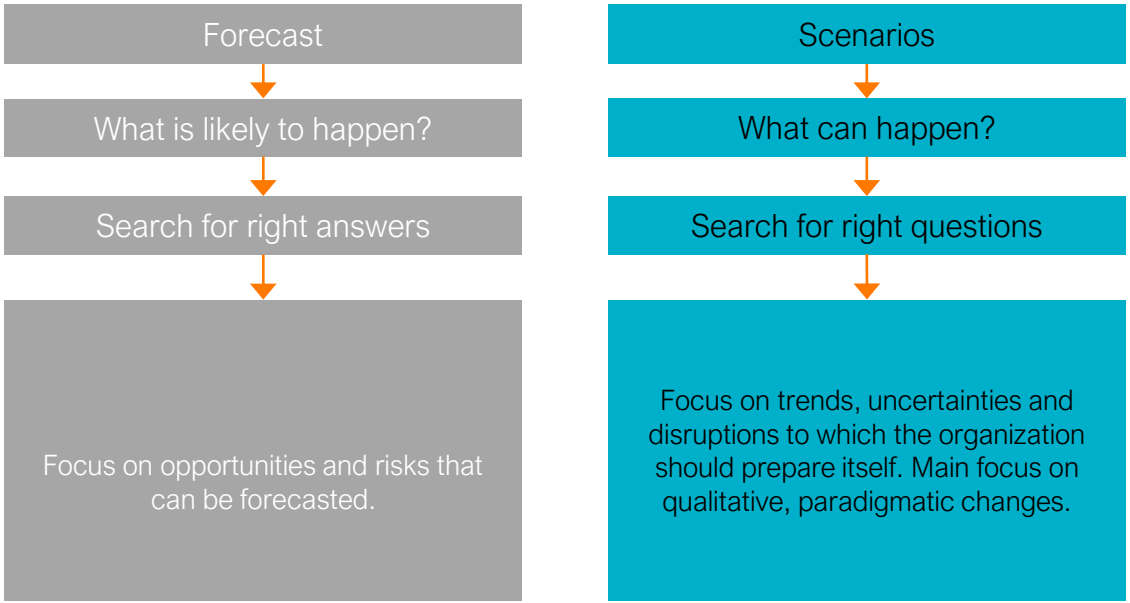
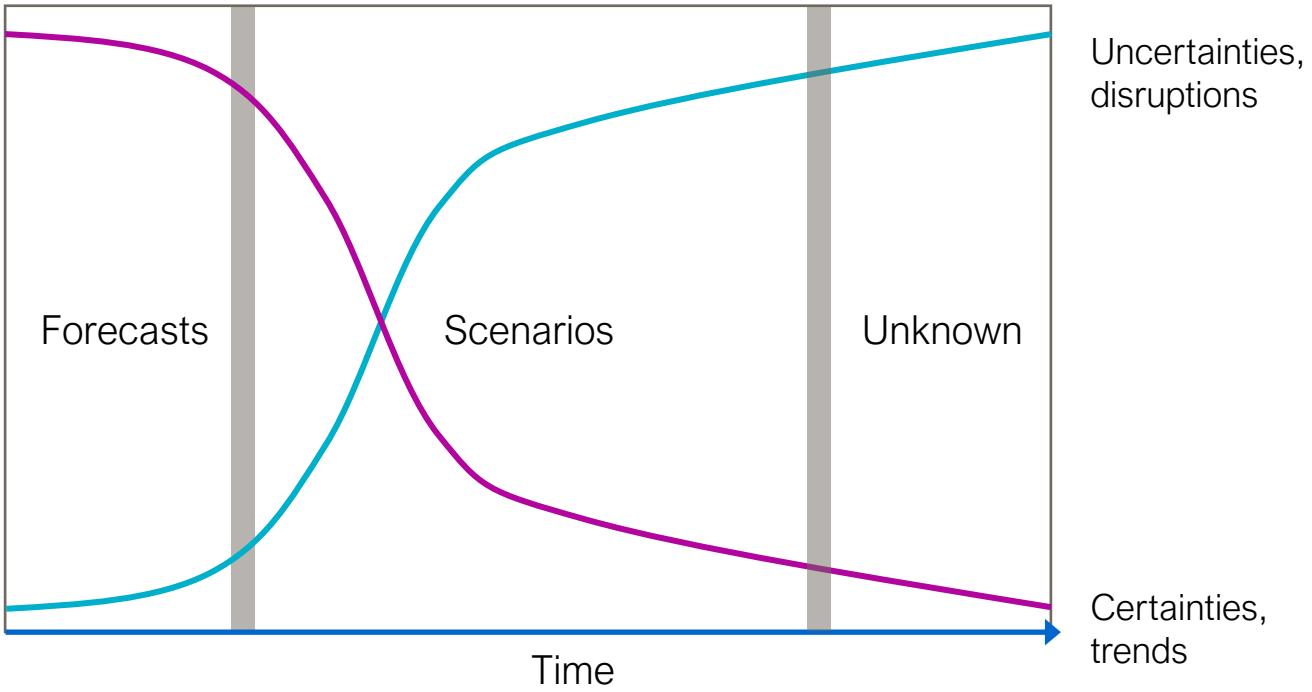
Forecasting and scenario analysis: Two approaches for analyzing future business environments



*The term scenario analysis is used here to refer to explorative, business environment oriented scenario analysis which is the most common interpretation of the term and the approach utilized for example by Shell, the forerunner in scenario analysis.

The complemantary nature of forecasts and scenarios



Source: Postma ja Liebl. 2007. How to improve scenario analysis as a strategic management tool? Technological Forecasting & Social Change.

The purpose and nature of forecasting

- The purpose of forecasting is not to predict the future, but rather to anticipate what is likely to happen, given a reasonable set of assumptions about the world
- Forecast is not a target
  - forecast (what we think will happen)
  - target (what we would like to happen)
- Managers use forecasts for decision-making, either to pursue what has been forecasted or to try to prevent it

Classification of forecasting contexts

- "Subway" uncertainty refers to what we can model and reasonably incorporate into probabilistic predictions.
- "Coconut" uncertainty pertains to events that cannot be modeled as well as to rare and unique events that are simply hard to envision. Extreme coconut events which lie outside the realm of our imagination are labeled "Black Swans".

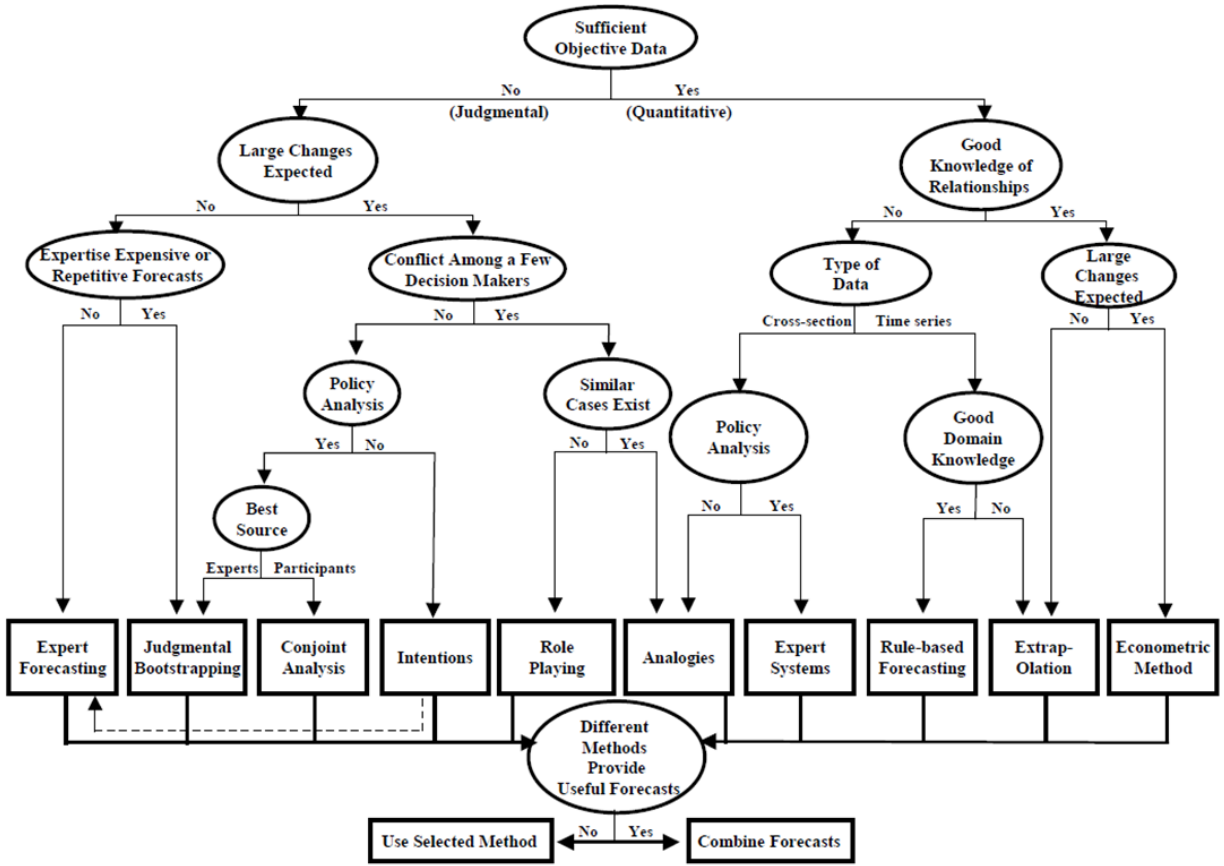
Source: Makridakis et al. 2009. Forecasting and uncertainty in economic and business world. International Journal of Forecasting.

Classification of forecasting methods by Armstrong et al. (2015)

Judgmental methods	Causal methods	Extrapolation methods
Forecasting methods that rely on subjective analysis and judgement Used when quantitative methods are not feasible; or to complement quantitative methods	Quantitative methods, typically based on regression analysis	Statistical methods that seek to estimate the value of a variable or function outside the tabulated or observed range

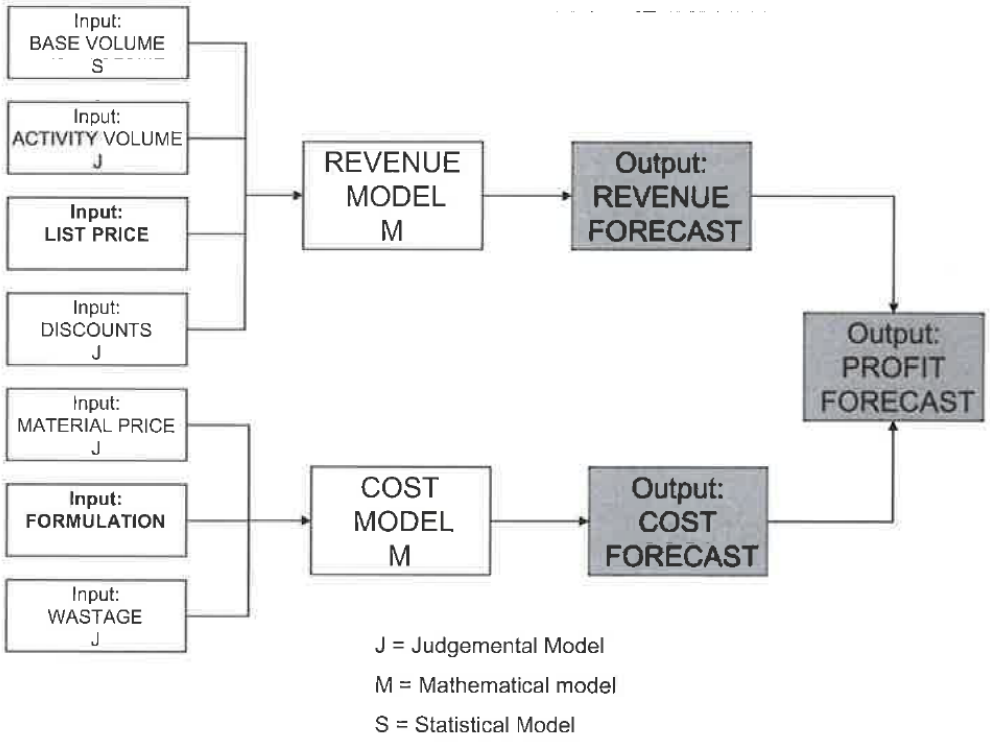
Source: Armstrong et al. 2015. Golden rule of forecasting: Be conservative. Journal of Business Research.

Choosing the appropriate forecasting method



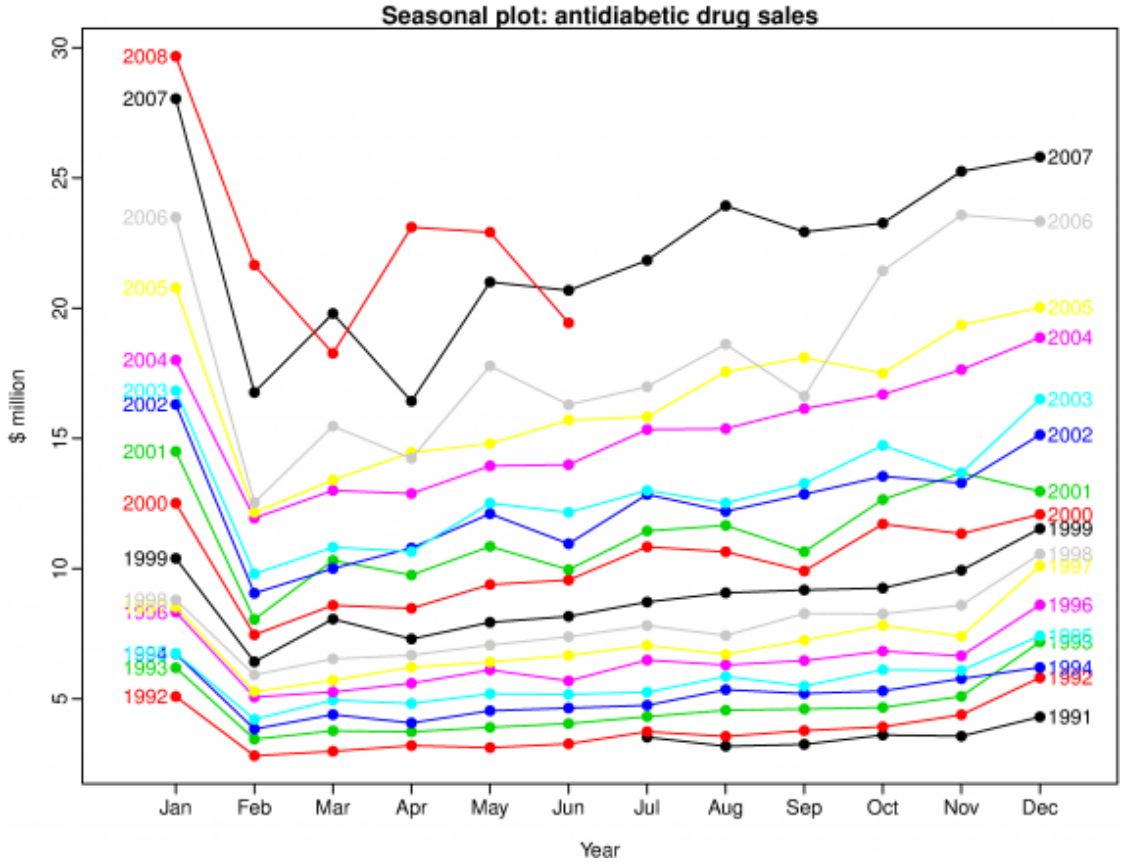
Source: Armstrong. 2001. Selecting forecasting methods. Marketing Papers, University of Pennsylvania.

An example of a forecasting system



Source: Mourlidge and Player. 2010. Future Ready: How to Master Business Forecasting.

An example of a graphical demonstration of time series data



Source:Hyndman and Athanasopoulos. 2014. Forecasting: Principles and Practice.

Forecast update schedule: Case Southwest Airlines

	Economic Relevance	Variability	Speed of Response	Update Frequency	Forecast Horizon
Revenues	High	High	High	Daily	Month
Labor costs	High	Low	Medium	Twice monthly	Six months
Fuel costs	High	High	Medium	Weekly	Quarter
Maintenance Spending	Medium	Medium	Medium	Twice monthly	Six months
Advertising Spending	Medium	Medium	High	Monthly	Six months
Aircraft Ownership Costs	Medium	Low	Low	Quarterly	Year
Airport Rates and Charges	Medium	Medium	Low	Weekly	Six months

Source: Mourlidge and Player. 2010. Future Ready: How to Master Business Forecasting.

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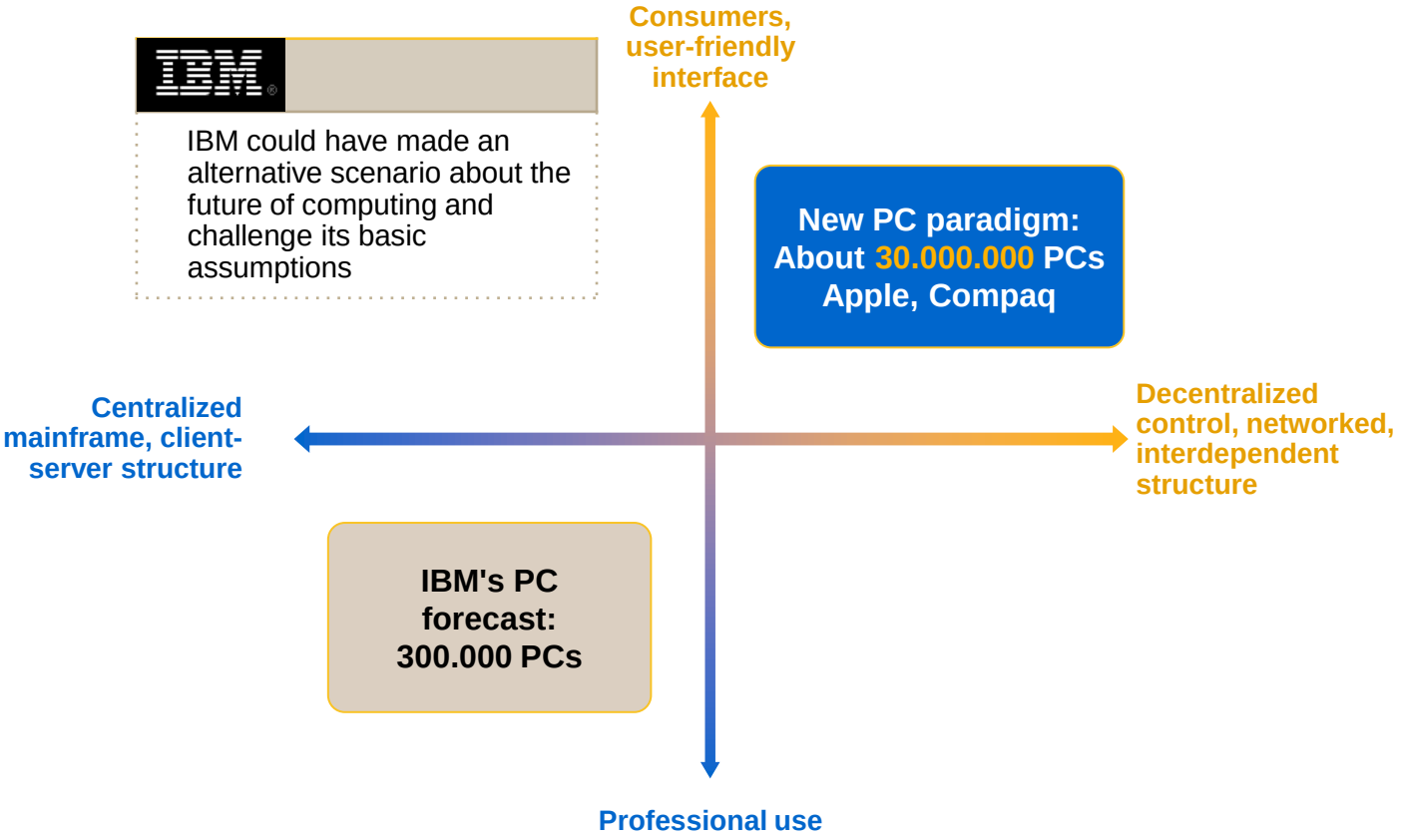
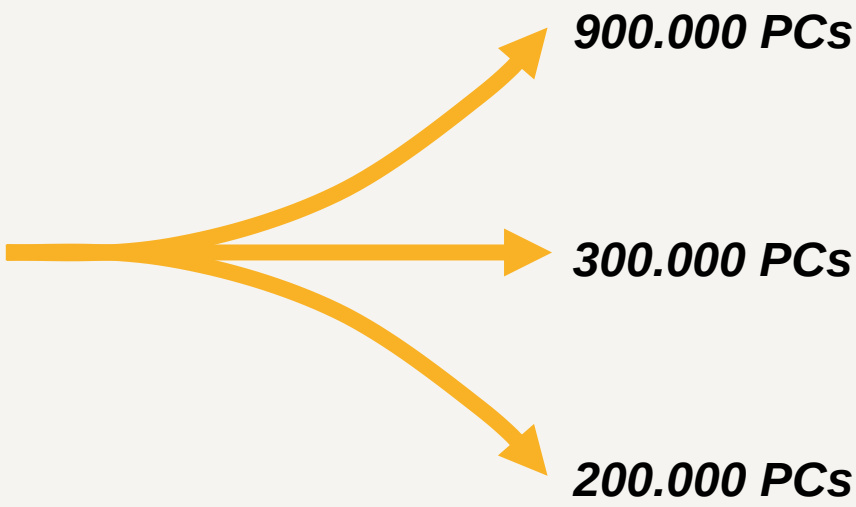
Case IBM and The Future of Computing

IBM could have made an alternative scenario about the future of computing and challenge its basic assumptions

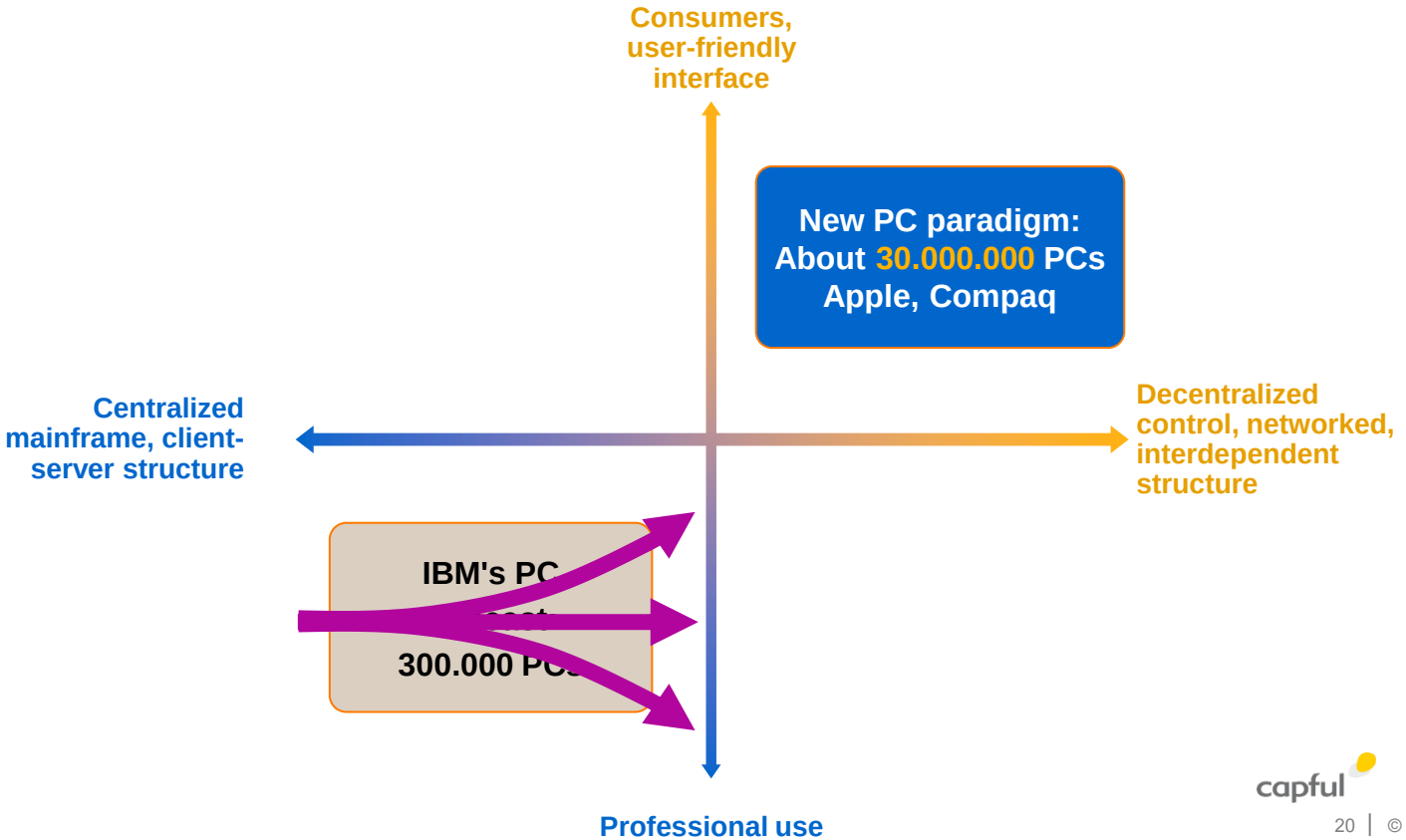


Case IBM and The Future of Computing

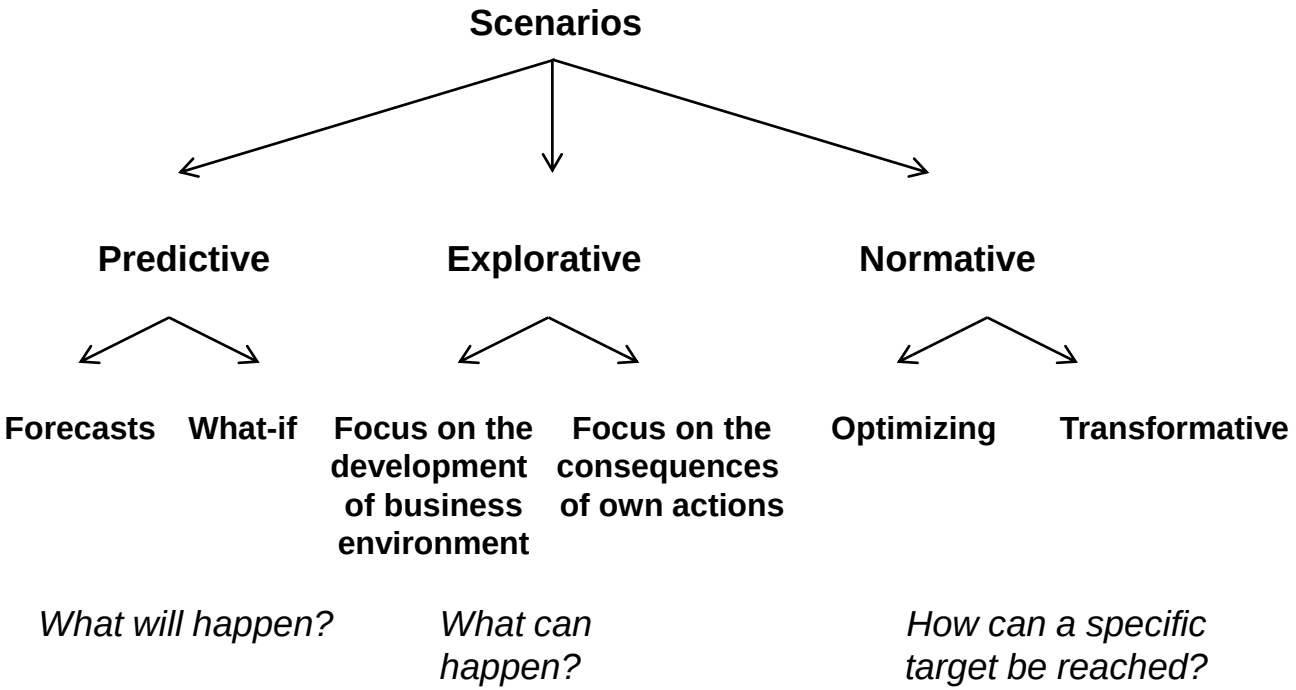
Why sensitivity analysis would not have helped IBM?



Case IBM and The Future of Computing



Scenario typology with three categories and six types (Börjeson et al. 2006)



Source: Adapted from Börjeson et al., 2006. Scenario types and techniques: Towards a user's guide. Futures.

Scenario typology with three categories and six types (Börjeson et al. 2006)

Predictive scenarios

- **What will happen**
- Forecast
  - What is likely to happen?
  - Forecasts give the reference result; often accompanied by low and high scenarios, indicating a span
- What-if model
  - What will happen on the condition of some specified near-future events of great importance for future development, e.g. Brexit

Normative scenarios

- **How can a specific target be reached**
- Optimizing scenario analysis
  - How can a specific target be reached by making adjustments to the current operating model?
  - Typically focus on finding the most cost-efficient solution
- Transformative scenario analysis
  - How can the target be reached, when incremental changes to the prevailing operating model do not suffice to reach the target?
  - Focus on reaching a high-level and highly prioritized long-term target
  - The analysis can utilize a backcastig method, which seeks to determine a logical, stepwise approach to reaching the target; defined by starting from the long-term target

Explorative scenarios

- **what can happen**
- Scenario analysis with focus on the consequences of own actions
  - What can happen if we act in a particular way?
  - Factors in an organization's control as a starting point
- Scenario analysis with focus on the development of business environment can happen
  - How can the external business environment develop?
  - Focus on factors outside an organization's control
  - Used to form a foundation for the strategic planning process or to inform a critical strategic question

Explorative scenarios in business environment analysis

- Are holistic descriptions of possible and alternative future business environments
- Describe possible systemic relations of interconnected factors and the holistic implications of the systems

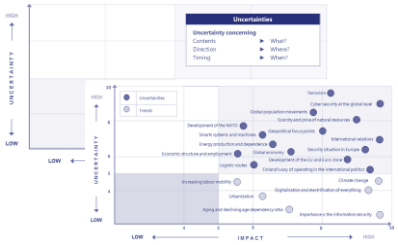
Scenario process

Example

1: Focus and research

Focus and timeline
Scenario survey
Specialist interviews
Desk top information search

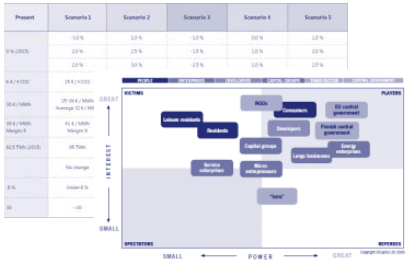
2: Key factors and futures table



3: Scenario Builder™

4: Scenario descriptions

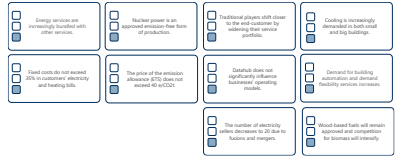
5: Scenario concretisations



6: Scenario implications

7: Back-up plans and actions

8: Assumptions on development of business environment



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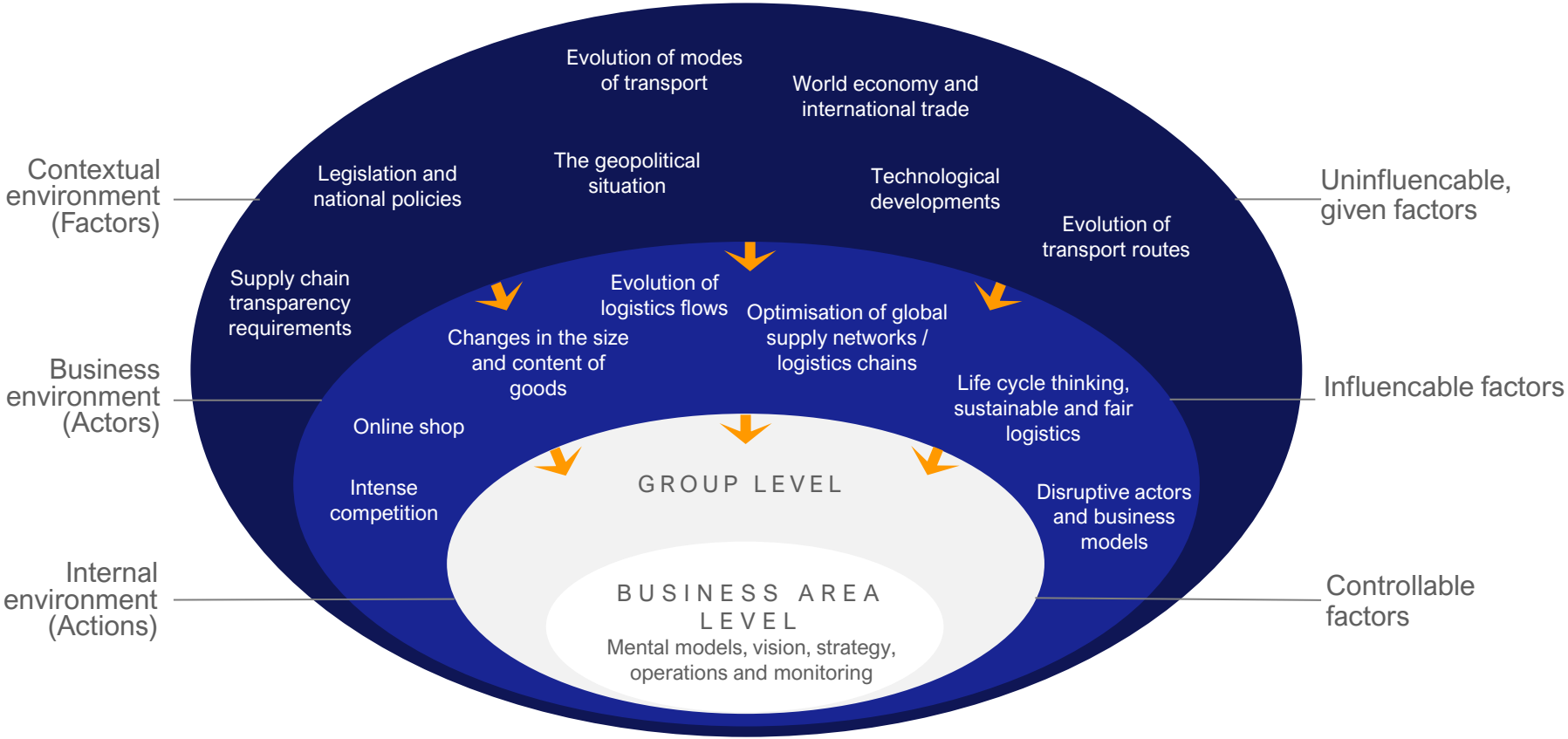
Key influencing factors

Logistics



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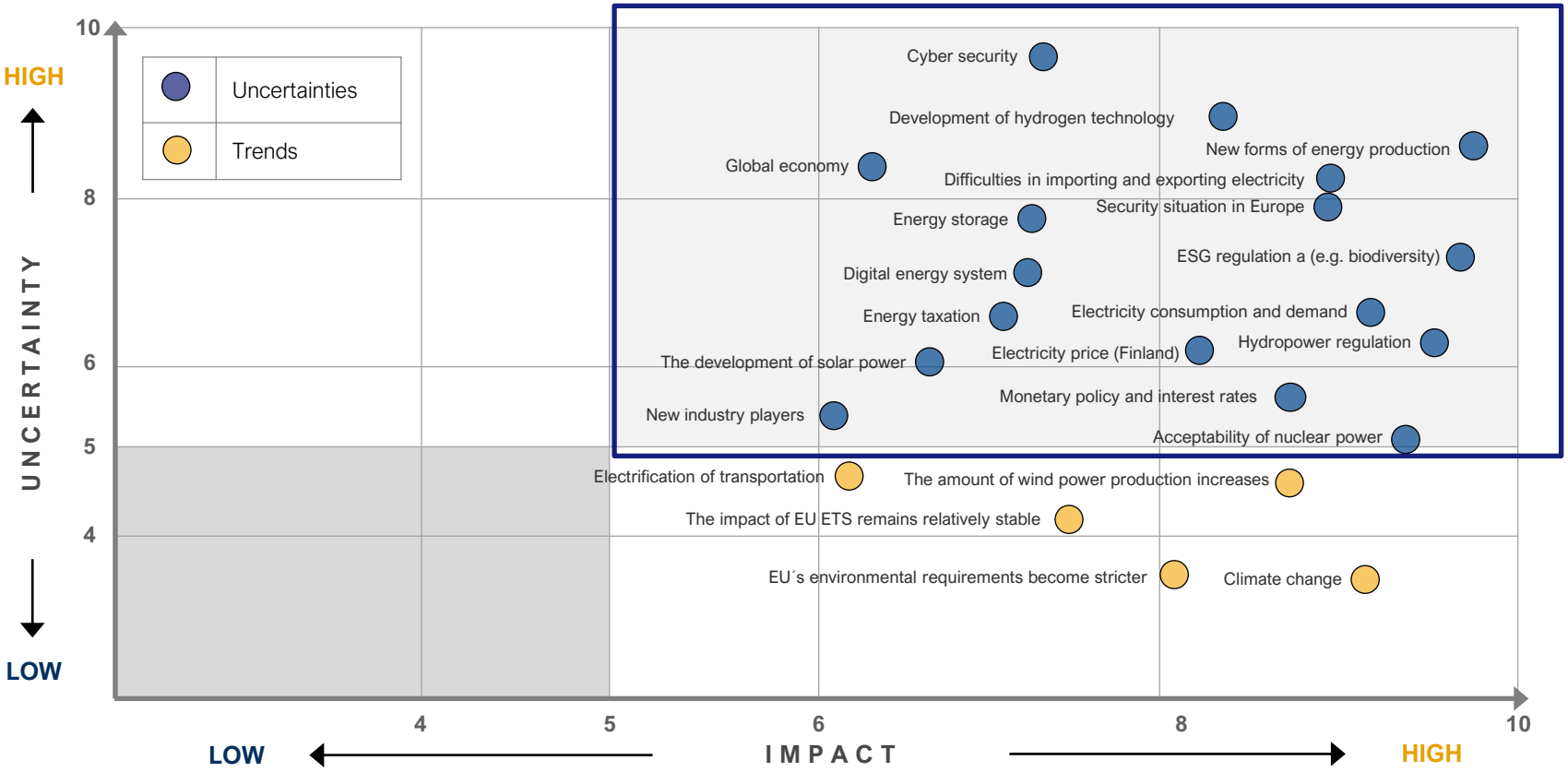
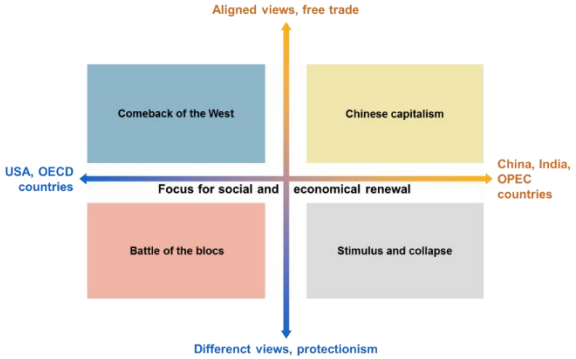
Key influencing factors

Uncertainties and trends

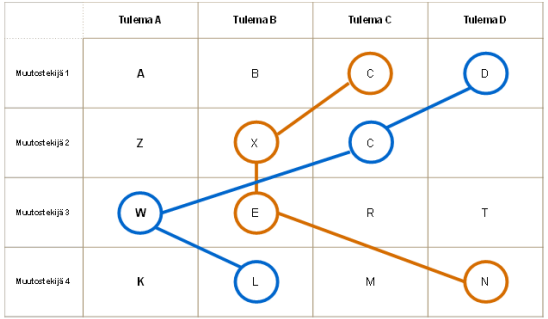


Deductive and inductive approaches to scenario analysis

Deductive approch



Inductive approach



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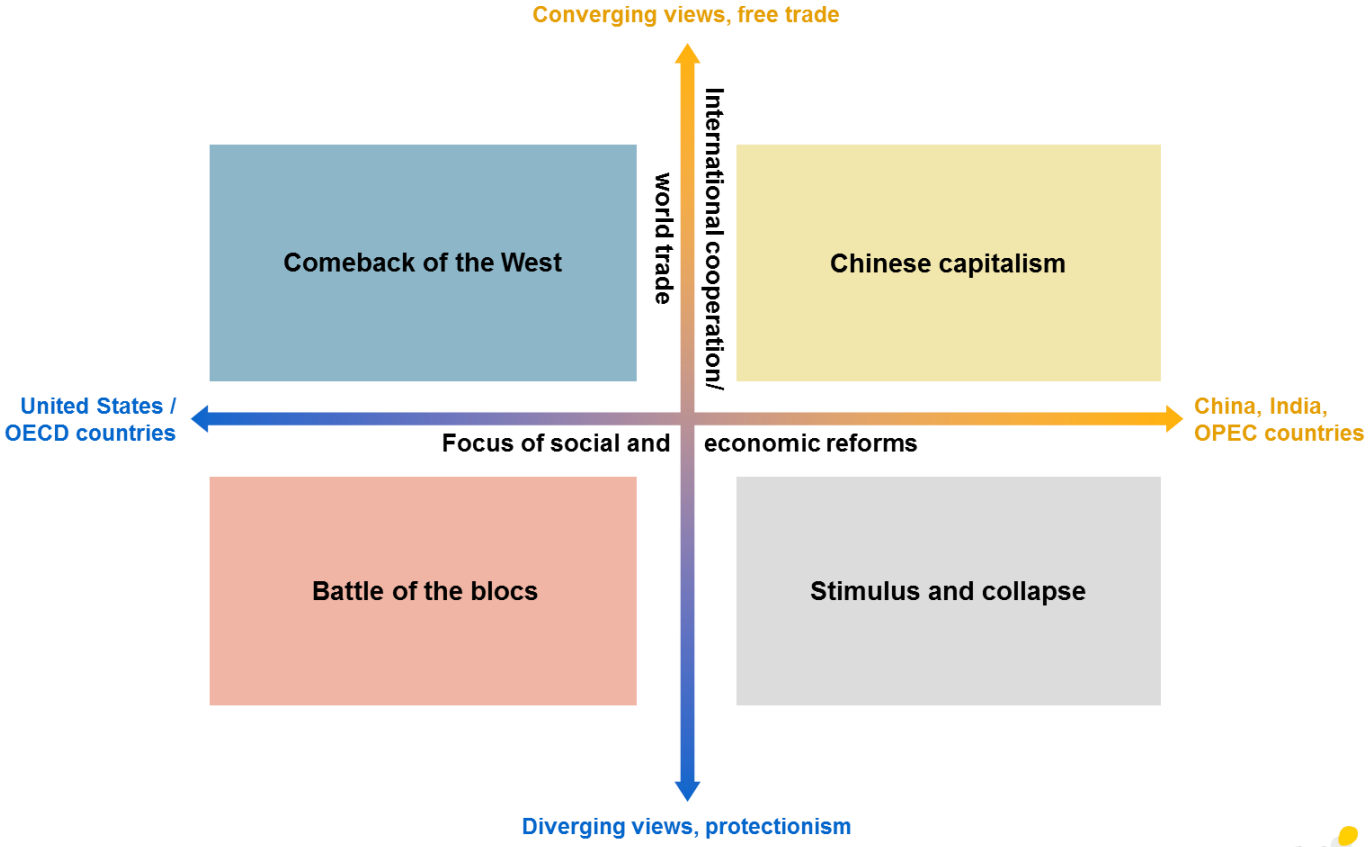
Eva's four global scenarios (2008)



EVA's global scenarios: Critical questions and uncertainties

The following critical questions and uncertainties in the global operative environment are reflected in the scenarios in different ways.

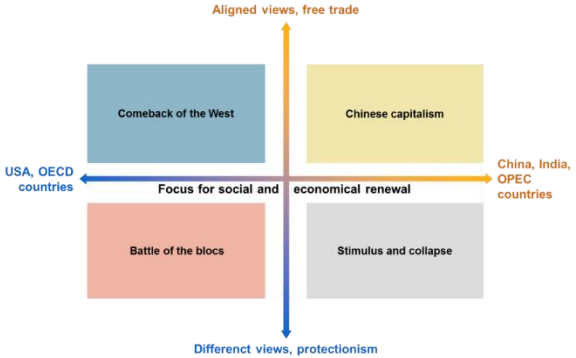
- **International cooperation**: Will decision makers' views converge or diverge?
- **World trade**: Is there a convergence of markets, globalization and free trade or closing of markets and growth of protectionism.
- **Centre of social and economic reforms**: Is the centre of reform in the US and OECD countries or in China, India, Brazil, and the Middle Eastern oil producing countries?
- **World economy crisis**: How deep will we go, how long will the economic crisis last and how fast will we recover?
- **Geopolitics, international relations and geographical regions**: What conflicts, alliances and changes in power politics are to be expected?
- **Ecological imbalances' rate and strength of change:** How will climate change, environmental catastrophes, pandemics, migration and possible scarcity of raw materials, food and clean water affect the environment where we operate?
- **Energy and raw materials**: How will availability and prices develop? How efficiently can energy and raw materials be produced and used?
- **Technology**: How will the environment and internet technology develop? Will they bring new solutions?
- **Competitions for experts:** How hard will the competition be for the best brains and hands?
- **Values, religion, culture and terrorism:** How does the appreciation for sustainable development, leisure time and communities shape values and lifestyles? How will the significance of religion, multiculturalism and terrorism change?

Stimulus and collapse scenarios

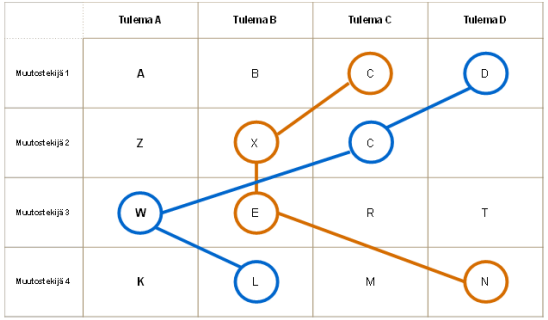
Stimulus fails	Depression and unrest	Conflicts and command economy
2009-2011	2012-2015	2016-2020
• The global economic crisis hits Europe hard. • The European economy suffers. Conflicts on sharing money arise within the EU. Enlargement comes to a halt. • The EU institutions are weak and power is shifting more and more to nations. The EU is unable to prevent the rise of nationalism, protectionism and racism. • France witnesses strikes and riots. • The German automobile industry lays off workers. • Exports of export-dependent Central and Eastern European countries come to a standstill. • Old EU countries resort increasingly to protectionism. Their own industry sectors are favoured and mobility of labour is restricted. • The recovery package of the EU is not effective. • The Lisbon Agreement is not ratified. • Youth unemployment grows. • The support for populists that favour restrictions on immigration increases.	• **Russia strives to strengthen its superpower status but this and the extremely low price of oil have devastating effects on the country.** Russia divides into power cliques, some of which are nationalist, some western-oriented. • EU countries make more and more bilateral agreements inside and outside the EU. • Powerful EU countries stray from common rules concerning the four freedoms (free movement of goods, people, services and capital), EMU criteria and climate objectives. • Aspirations for local self-sufficiency increase. Investments are divided amongst numerous sectors and this undermines the development of expertise. • The grey economy expands locally. • **Russia takes over the Crimean Peninsula and a part of Georgia.** • **The Baltic countries and Poland cry for NATO's help.** • Italy and Greece are deemed to have collapsed. Populist leaders arise amidst anarchy. • Materialism and consumption decrease.	• **The US' main rival for the global dominance, Russia, is still flexing its muscles in nearby areas**, which adds to problems between the EU and Russia. • EU countries have difficulties responding to the defence cooperation demands of the US. • European competitiveness has weakened. The economy is growing slowly and internal conflicts on the sharing of money are weakening the Union. • EMU criteria have not been followed for years, and the EMU is only nominally active. • It is difficult for the dysfunctional EU institutions to control the discontent, poverty, crime and racism brought about by the long recession. • Unresolved conflicts between EU countries, the inconsistency of the Union and structural rigidities cause national counter-reactions. • Proposals have been made to disband the EU. • Cracks are beginning to form in the structures of welfare states and as pensions are lowered, especially family-centeredness and more modest levels of living increase.

Deductive and inductive approaches to scenario analysis

Deductive approch



Inductive approach



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BUSINESS FINLAND

FUTURE CHANGE DRIVERS AND UNCERTAINTIES

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1	2	3	4	5	6	7	8	9	10
The future of the EU	**International agreements and relations between the great powers** (incl. trade wars)	**Sustainability of the economic system**	**Transformation of work and competition for talent**	**Global climate decisions** (incl. companies and individuals)	**Energy availability and production**	**Focus of technological development** (incl. global platforms)	**The future of production** (incl. location, material circulation)	**Change in consumption**	**Data ownership and use**
Economic slump in Europe and the erosion of the EU's power The economic crisis drives the EU into disagreements	**Triumph of democracy** International institutions retain their role. Coalitions of rule-based states.	**Segregation of well-being and economic growth** The significance of central banks decreases radically – experimental monetary politics (the expanding role of companies)	**Local creation of value and job security** Employment for all supported by states, little labor mobility	**Global and coherent climate policy strongly steers** People awaken to the global crisis and a functional international framework is created for a climate agreement	**Electrification and a transformation in the energy system** The development of energy storage system and "free" renewable energy, local energy markets	**Platform war and regional blocs** National interests steer development (e.g. EU+USA vs Asia), a few super platforms	**Streams of raw material steer production location decisions** Locating near raw materials and circular economy hubs	**The consumption of services and goods defines identity.** Digital and analogical services increase inequality	**Technology giants as creators and controllers of data** Closed platforms and the centralization of power in the hands of a few major operators, great regional differences
Strong mutual dependency The shift towards a federal state picks up momentum	**The role of nation states diminishes** International companies create global standards, which approaches supranational legislation.	**Feeble balance** The current feeble balance remains and is prolonged – the significance of fiscal policies is emphasized as methods of monetary policies decrease	**The polarization of the labor market and gig economy** Traditional paid employment remains valid as the labor market polarizes	**China as a climate leader** China has an effective leadership position with respect to tightening emission limits and investments	**A centralized, traditional energy system** Electrification takes place gradually on the terms of traditional players, a state-led system	**Violent breaking up of markets** The power of technological giants is restricted, data security and privacy are guiding principles. The EU and the superpowers create the rules.	**Local small-scale production, price does not determine location decisions** Transparency in production increases in significance and guides location decisions, high level of automation	**An illusion of responsibility** Quality consumption increases. Companies engage in greenwashing. A transfer from ownership towards a sharing economy.	**Supranational regulations regarding the security of data use** Ethical principles of data use
Position weakens and relationships crumble Power to steer and role in international decision-making decreases, radical openings from member states.	**The focus of international cooperation moves East** China assumes the US's role as the leader and funder of institutions	**Releasing from the power of central banks** Instead of national currencies, citizens choose to use cryptocurrencies	**Work on digital platforms and in virtual work environments.** The competition for top talents grows fiercer. The employer is more significant than the profession.	**Corporation-led development** The role of corporations in climate actions increases in lack of global agreements	**An international networked energy system.** New parties have entered the market, and the market is unstable.	**Development defined by large corporations** Increase of open giant ecosystems, standards created by corporations and self-regulation (Big Techs).	**New materials and printing technologies enable home production** New materials and printing technologies enable locating production close to demand.	**Gradual development towards sustainable consumption** Sustainable thinking grows stronger. More regulation, e.g. steering consumption with taxes.	**The position of individuals as data owners is emphasized** Personal data as a medium of exchange
The EU turns into an insignificant pseudo-institution The power of other players increases, and the EU becomes a regulatory body for corporations	**Trust in international agreements collapses** Decision-making is fragmented and bilateral arrangements gain popularity	**Asian Monetary Fund** Problems in the Asian economy drive Japan, China and India to establish the Asian Monetary Fund	**"The spectre of uselessness"** Explosive development of automation and mass unemployment, work can mean services for community (time banks)	**Direct democracy by utilizing AI** Data collected of individuals steers global climate decisions	**Decentralized and optimized energy system** The energy bill of data transfer increases (price per bit), environmental impacts increase.	**Fragmentation of platforms** The field is fragmented, no clear position of power. Quickly developing new technologies all over the world	**Economies of scale and large production units. The prices of factors of production determine locations.** The price of technology and competence, in particular, steer location decisions	**Collapse of consumption when there is no other alternative** Extreme phenomena have forced us into solutions. Strong regulation and a society based on bans and prohibitions.	**Uncertainty in data use increases** Misuse of data, cyberattacks, solutions become more local and national interests are highlighted.

SCENARIOS

BUSINESS FINLAND

SCENARIOS

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POWER GAMES IN A DIVIDED WORLD

The trade war intensifies and **the worlds become divided** into two digital blocs and trade areas.

China's economic growth accelerates and **China dictates the rules of international trade and cooperation.**

China spreads surveillance capitalism and introduces strict system of social & climate credit.

China uses climate policy to promote its interests and increase its influence internationally.

The focus of climate policy shifts to Asia.

The European economy becomes recessionary, Rifts within the EU's deepen further, its global position is weakened and international investments decline dramatically.

Increase in cyber attacks and information warfare.

DATA SAVES AND ENSLAVES

Trust in the existing international institutions wavers and people call for opportunities to exercise global influence on global challenges.

A forum for global citizens' initiatives is established and there is a shift towards decision-making driven by AI and algorithms.

The need for labor is reduced as a result of radical technological progress and traditional paid employment loses significance.

Earning income from the use of personal data becomes possible. Only a few people have the luxury and possibility of breaking away from digital devices.

A new class division based on **digital competence**.

Cryptocurrencies replace traditional money issued by central banks.

DIGITAL PATRONS OF A NEW ERA

Responsible capitalism is emphasized in corporate activity.

The size of major corporations increases radically and giant conglomerates are formed across the boundaries between sectors and industries.

Giant corporations assume a growing role in decision-making as the relative significance of the nation states diminishes.

Giant corporations own and govern their own cities, where they **provide services to their employees and the broader community ranging from education and healthcare to housing.** People strongly identify themselves with their employer.

Regions and populations become polarized between the members of the giants and the non-members.

Energy transformation and a revolution in energy storage.

FROM CRISES TO AGREEMENTS

Major crises shake up the world and global agreements assume an increasingly important role in responding to the challenges. **Global climate policy control instruments are introduced.**

Technology giants and the use of data are regulated internationally and the significance of digital ethics is highlighted through crises.

China's international bargaining power is reduced when the Chinese economy stalls and internal crises are exacerbated.

The strong mutual dependence within the EU leads to a shift towards a federal state.

The democratic contract society becomes stronger and the popularity of representative democracy increases, particularly in the Western world.


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POWER GAMES IN A DIVIDED WORLD

SCENARIO 1:
A DIVIDED WORLD

Climate	**China as an authoritarian climate leader**
Technology	**Diverged blocs, the focus of technological innovation is in Asia**
Power	**A bipolar world divided into blocs. Growth of China's power.**

Strong economic growth in China. The trade war continues. Belt & Road and the digital silk road expands.

Bargaining power in China. Democracy appears weak.

The world becomes divided into two digital blocs.
Europe's digital eastern border. Divided Internets.

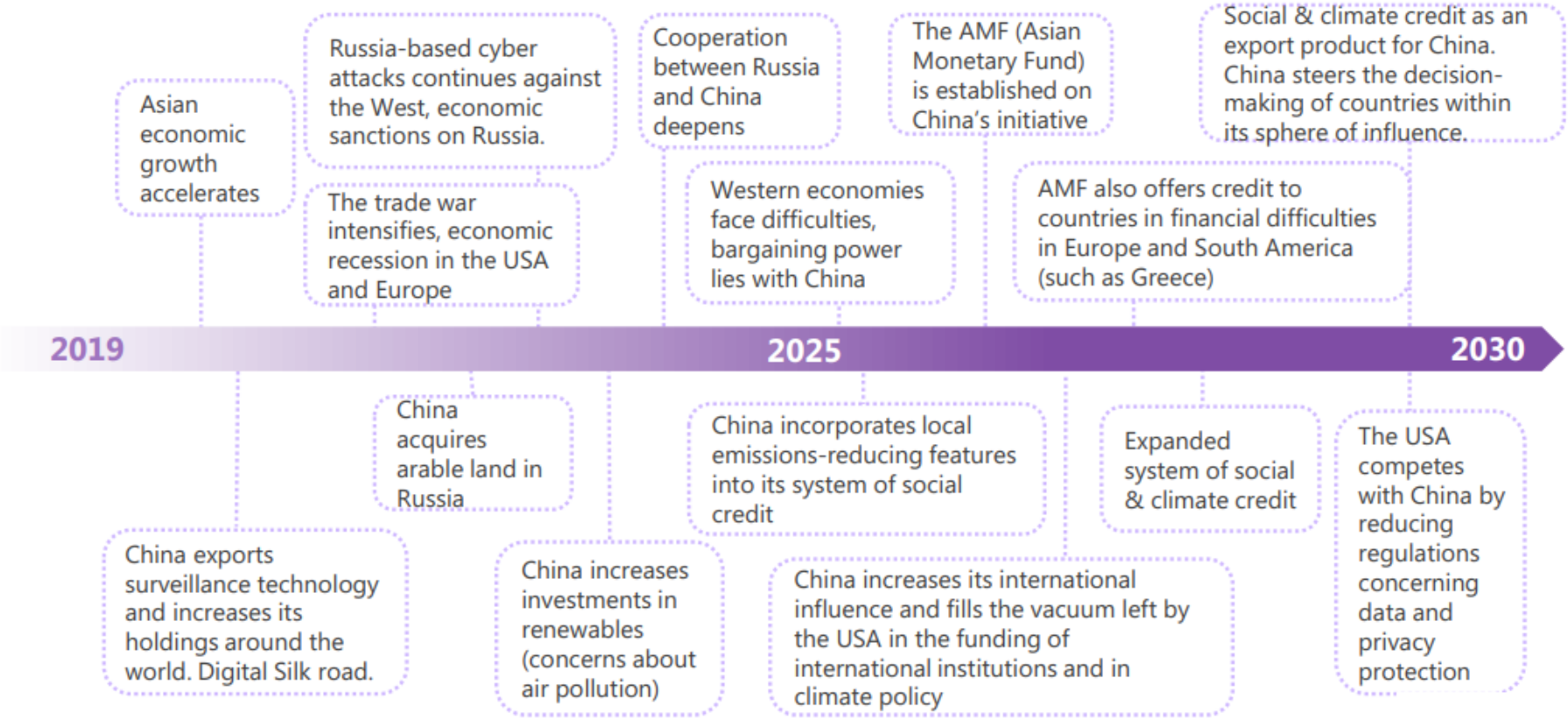
The use of surveillance technology spreads from China and becomes increasingly common. Personal carbon allowances are included in the social & climate credit system.

The focus of climate policy is in Asia.

Recession in Europe and in the USA. EU is losing coherence after Brexit and it's global role weakens. Investments to Europe decrease radically.

Information warfare, cyber attacks and increasing lack of trust.

HOW DID THE WORLD BECOME DIVIDED?



BUSINESS FINLAND

SCENARIO 1

Power games in a divided world

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2019–2023

- China's economic growth continues and Belt & Road Initiative expands. China increases investments around the world. Chinese holdings in other countries increase and China starts to acquire media companies in target countries. Information warfare intensifies, leading to increased distrust between the West and the East.
- The digital silk road expands. China introduces its surveillance technology in other countries, especially in Africa and the Middle East. China's influence over these countries grows.
- China's internal conflicts and disputes with Hong Kong and Taiwan are resolved "in a manner that benefits China". The international community's attention is on other things and China's influence is so significant that no sanctions are imposed as a result of the breach of international agreements.
- Air pollution increasingly complicates people's lives in China. China makes large investments in renewable energy.
- India benefits from rising production costs in China and a substantial proportion of production shifts to India, where labor is cheaper than in China. The polarization of society continues as a result of economic growth and reforms.

2024–2027

- Trump is re-elected and the trade war continues, having a negative effect on economic growth in the USA in particular. In Europe and the USA, the economy stagnates and enters a recession.
- The development of renewables in China (solar and wind energy) continues. New energy storage technologies are created in China.
- China starts to react in the diminishing arable land. China shifts its eyes to the remote parts of Russia in the hope of gaining access to new farmland. Occasional conflicts emerge on the border between Russia and China.
- Russian censorship increases and things get more difficult for minorities. The detachment of the global Internet and firewalls get stronger.
- The EU is turbulent after Brexit. Several countries make various demands and threaten with leaving the EU. A common ground is not found easily. Countries establish direct bilateral trade relations with the USA, China and Africa.

2028–2030

SCENARIO IMPLICATIONS FOR FINLAND

Power games in a divided world

POWER GAMES IN A DIVIDED WORLD – FINLAND BETWEEN GLOBAL SUPERPOWERS

The opportunities of a small country to influence the terms of trade decrease under pressure from global superpowers and there is increased pressure to choose a side.

Finland has the ability and opportunities to operate between two superpowers and to engage in trade with both sides. Nevertheless, a constant risk of new sanctions looms in the business environment, and operating conditions are extremely insecure.

Companies whose products enjoy high demand in the Asian markets are most likely to succeed. Demand focuses especially on innovations related to renewable energy and the bioeconomy.

POLITICAL CLIMATE

Finland is also seeing a rise in nationalism, and attitudes towards the EU and international cooperation have become more negative. **The political climate in Finland is tense.** The nation is divided on Finland's role and position: can we navigate between two world orders or should we place greater emphasis on European values (such as human rights and freedom of speech) and refrain from cooperating with parties that violate these?

REGULATORY ENVIRONMENT

The EU's internal market stagnates, and Finnish exports are increasingly focused on Asia. **China imposes strict climate sanctions on its trade partners.** The social and climate credit system harnessed to promote climate monitoring, in which the individual is the biggest payer, spreads not only in China, but also to other trade areas. As a result, Finnish companies are also required to allocate emissions per time of use per product.

China's different copyright system and higher demands concerning the transfer of foreign technology and data pose challenges to Finnish companies operating in China and companies that source products from the Chinese market.

NATURAL RESOURCES

The strategic significance of waterways and arable land to the superpowers is emphasized and the prices of the related raw materials increase. This ultimately helps balance the Finnish economy.

LABOR MARKET

Traditional labor market organizations maintain their position on the labor market. The main counterforces are a stream of workers coming from China and Asia and the growth of the grey economy.

INTEREST GROUPS

The status and activities of interest groups are influenced by the export markets in different sectors. Pressure to internationalize lobbying, for example in the energy sector, increases.

CAPITAL

Plenty of capital and risk financing is available in the Asian markets. In the West, interest rates and share prices trail those in the East, pushing European money to seek diverse investments. **In the context of the Silk Road initiative, Finland has invested in infrastructure and 5G/6G projects.**

COMPETENCE

Finland invests in cybersecurity competence, which is seeing increasing demand around the world.

BUSINESS FINLAND

SCENARIO IMPLICATIONS FOR KEY INDUSTRIES

Power games in a divided world

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BIOECONOMY AND CIRCULAR ECONOMY

China has an effective leadership position with respect to tightening emission limits and investments. China is a significant owner of raw materials in Africa, for example.

The circular economy and raw material flows and the boundaries between blocs guide production location decisions. Location is polarized either near raw materials and circular economy hubs or customers and logistics hubs. China guides the implementation of the circular economy in a centralized manner. Implementation elsewhere is slower and more regulation-driven.

The symbiosis between megacities and industrial circular economy hubs leads to scalable and duplicable giant investments. Small companies fall by the wayside.

Forests and waterways emerge as the focus of strategic geopolitics. The blocs need to ensure access to critical natural resources in the future.

ENERGY AND CLEANTECH

China and the USA move in different directions when it comes to climate policy. China emerges as a superpower of cleantech, renewable energy and smart energy networks, while the USA falls behind in technological development, eases climate regulations and extends its support for fossil energy.

The climate policy of a weak EU loses its effectiveness and there are growing regional differences in the forms of energy production.

The energy decisions of EU countries are linked to the bloc that each country identifies with. Some EU countries reach towards the USA and harmonize their climate regulations and energy systems with the USA to maintain trade relations. Some Eastern European countries enter into an energy partnership with China, receive generous subsidies, adopt Chinese technology and join China's supergrid.

The intelligence of energy networks increases and espionage and cyber sabotage related to energy networks increases between the blocs.

HEALTH AND WELLBEING

Europe falls behind in development in the field of health and wellness technology. The stagnant European economy does not have sufficient capital for pharmaceutical development, and companies move to Asia.

China's social credit system awards people points for health-related activities. China is able to collect detailed health data on its citizens and influence their behavior. **China has an advantage in the use of AI and data** and the country takes major leaps in the field of health technology.

Many countries adopt a personal health and wellness budget that takes into account nutrition, exercise and other lifestyle factors affecting health. Citizens receive tax breaks for the desired behavior and, when people get sick, the price of treatment is lower for those who have verifiably followed a healthy lifestyle. Insurance companies collect increasingly accurate health data on their customers and price their services accordingly. Inequality increases.

CONSUMER BUSINESS AND TOURISM

Products and services are increasingly designed to suit Asian preferences, as that region has the largest potential customer base.

China and Asian countries maintain their position as leading travel destinations. China uses political measures to control th destination choices of travelers, creating increased pressure on the destination countries to please China and not take action to address human rights issues, for example. China also strengthen its own business activities in travel destinations. With regard to foreign travelers visiting China, China takes advantage of its vis practices to collect data.

Travel becomes a possibility only for a small group of privileged people. Surveillance technology is used to regulate travel and consumption, especially in Asia.

DIGITALITY

Intellectual property rights are ineffective across blocs, forcing companies to choose their markets and ecosystems based on the blocs. Internal standards emerge within blocs.

China and Russia engage in digital cooperation and have ope interfaces between them. Russia adopts Chinese technology.

Security threats intensify due to the stronger connection between the countries and the roll-out of 5G technology. Russia and China also cooperate in the area of cyber attacks and information warfare.

China launches a renminbi-based cryptocurrency, which is adopted not only in China but also in many African countries. With its mobile payment practices, Africa is fertile ground for growth.

Chinese surveillance technology spreads in African countrie and some Eastern European countries also adopt it.

China's success creates pressure to deregulate technologica development and the use of data in the West.

Different uses of scenario work

FORESIGHT

Analyzing the business environment in a future-oriented way to create foresight information for strategic decision-making

Offering a systematic approach to identifying discontinuities and changes in the rules of the game

ViISION AND STRATEGIC INTENT

Creating vision, strategic intent and strategy for your organisation or evaluating your current operating model

NEW BUSINESS OPPORTUNITIES

Facilitating a structured dialogue and challenging your organization's existing mindset to discover new service opportunities or product conceptS.

STRATEGY

Building agile strategies

Assessing how your current strategy would play out in different future scenarios

Developing market strategies, product strategies, technology strategies, etc.

STRATEGIC OPTIONS

Generating strategic options and evaluating them in the possible futures – testing how well they would fly in a "scenario wind tunnel"

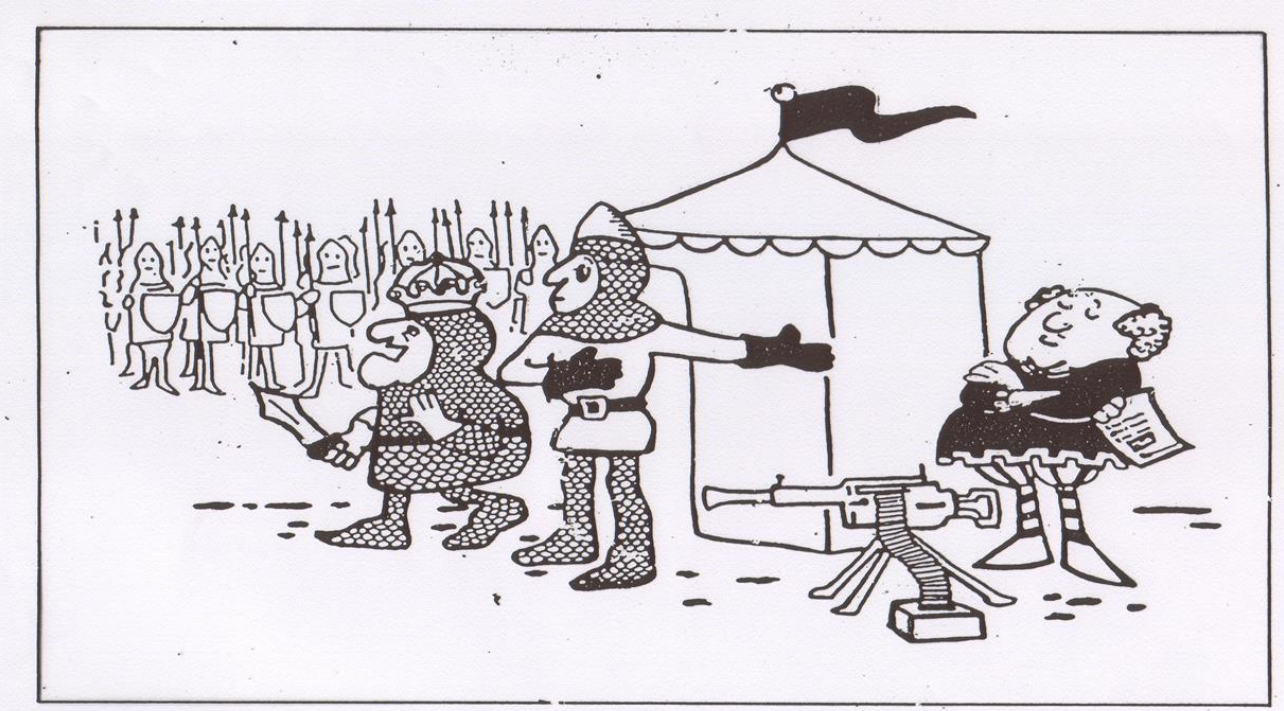
Sorting out strategy alternatives in a systematic manner and choosing a winning strategy

BUSINESS ENVIRONMENT MONITORING

Creating a future-oriented frame of reference for monitoring and analysing the operating environment

Combining market research information and decision-makers' strategic perceptions

The significance of challenging basic assumptions



"No! I can't be bothered to see some crazy salesman. We've got a battle to fight!"