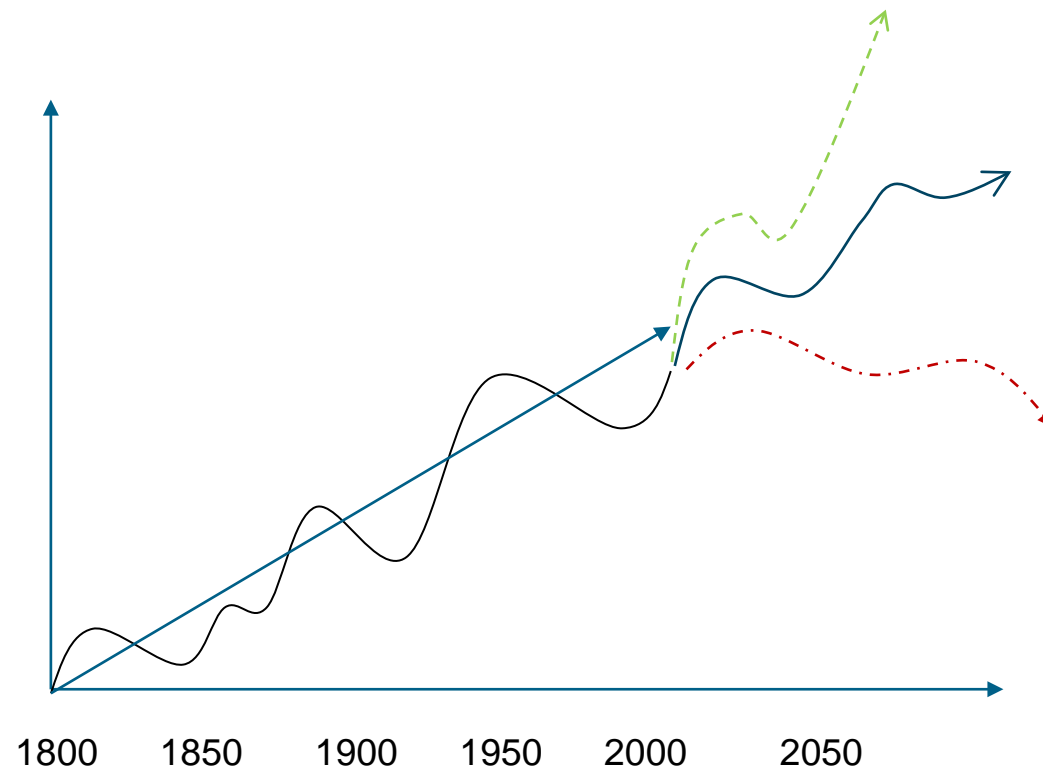




05 – Future Megatrends

Karel Pernica | 15.3.2023

The World has changed...



... and we have to change our current mindset.

Strategic forecasting



The future is not enough just to be imagined, it must be actively created.

Trends vs. Uncertainties

Megatrend: people download more and more music free of charge from the internet



But we may INDUCE and get to the NEW BOX how to benefit from this trend



Uncertainty Type I: Who will win Wimbledon next year?

We try to forecast.

Uncertainty Type II: Do you remember the volcano in Island which made all the planes land few year ago?

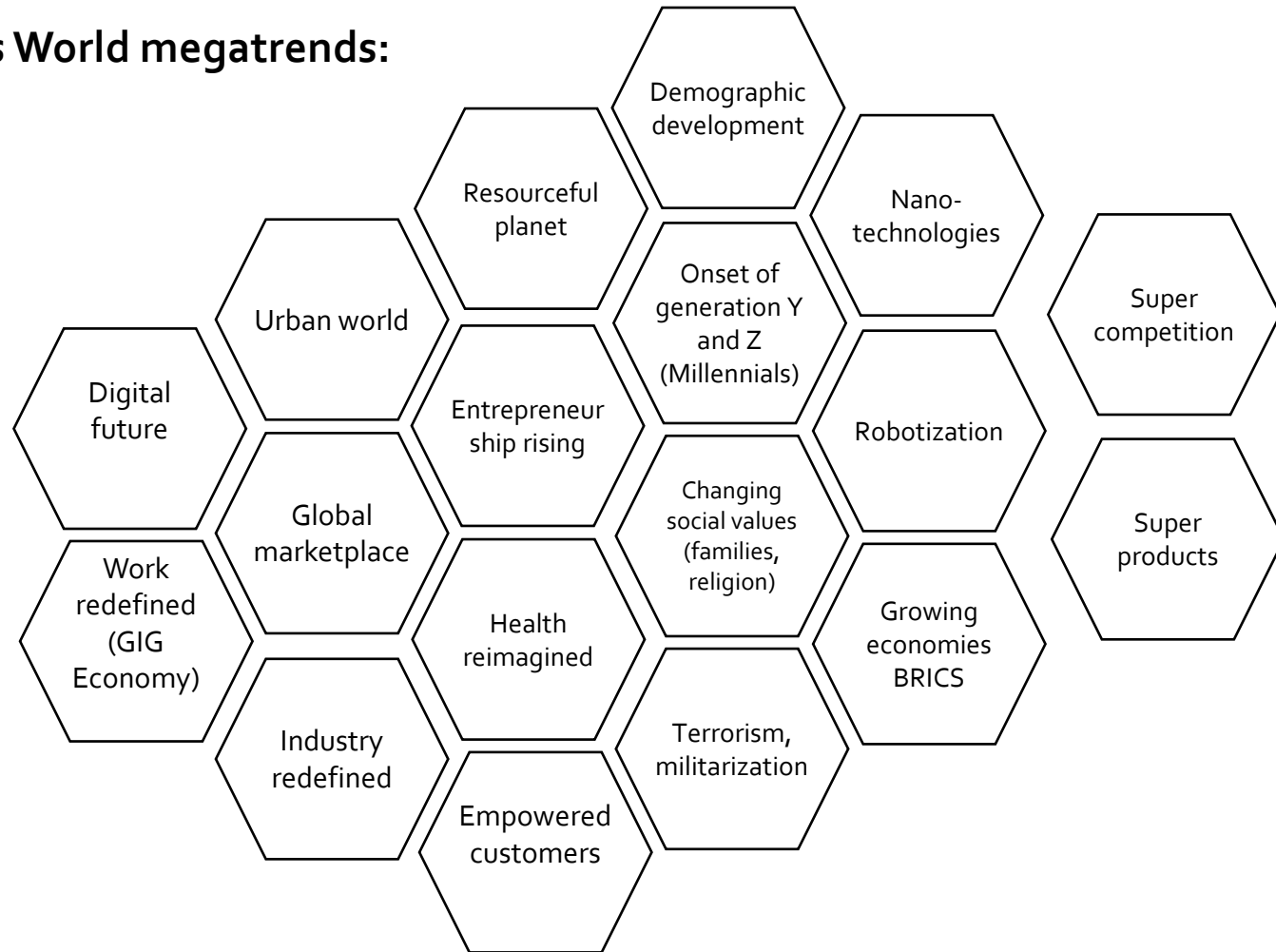
You may only prepare yourself!

Let us be ready for change...

Today's World megatrends:

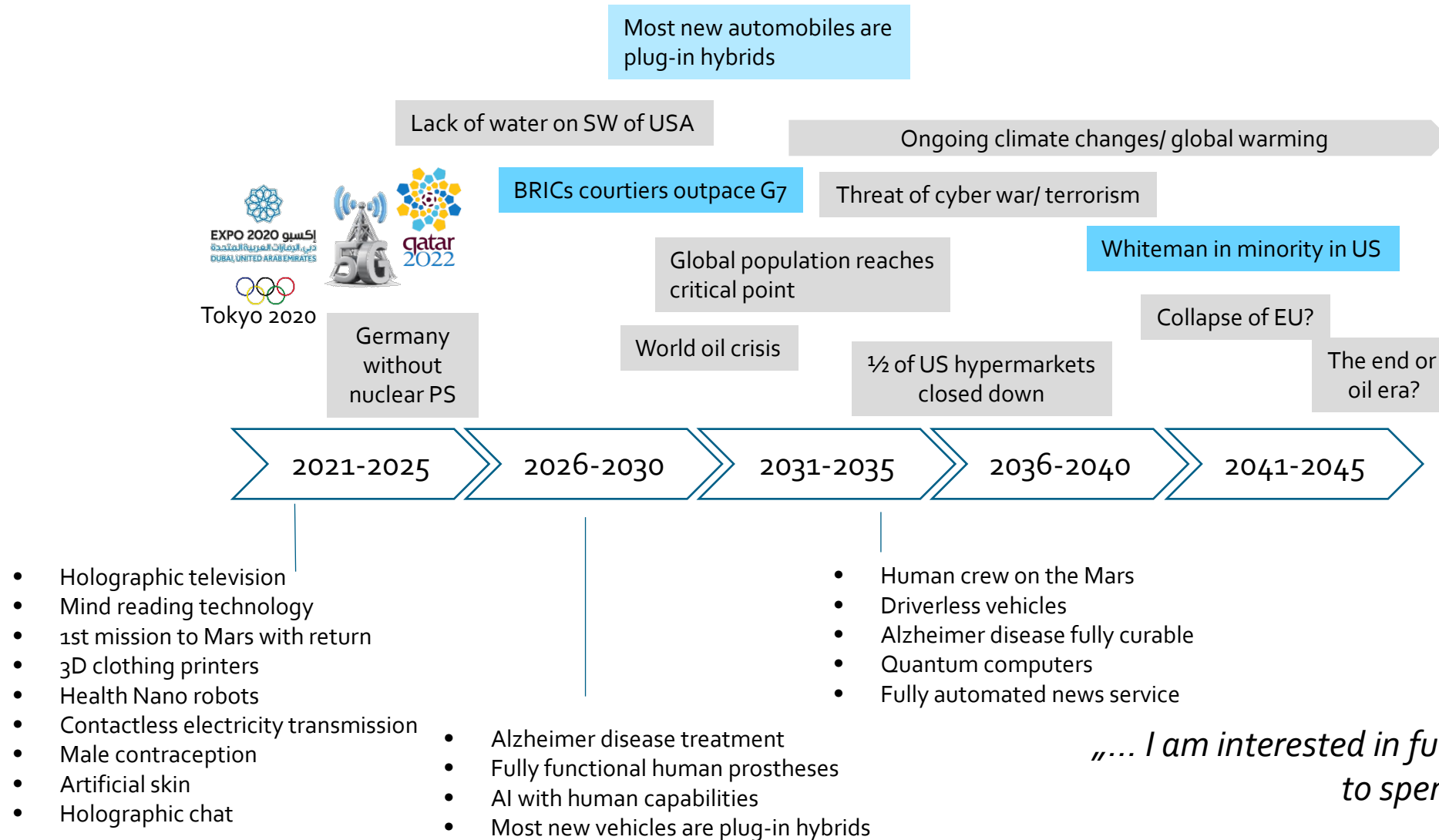
"There are only two kinds of businesses. Those that change and those that disappear."

P. Kotler



„... who is prepared is not surprised“

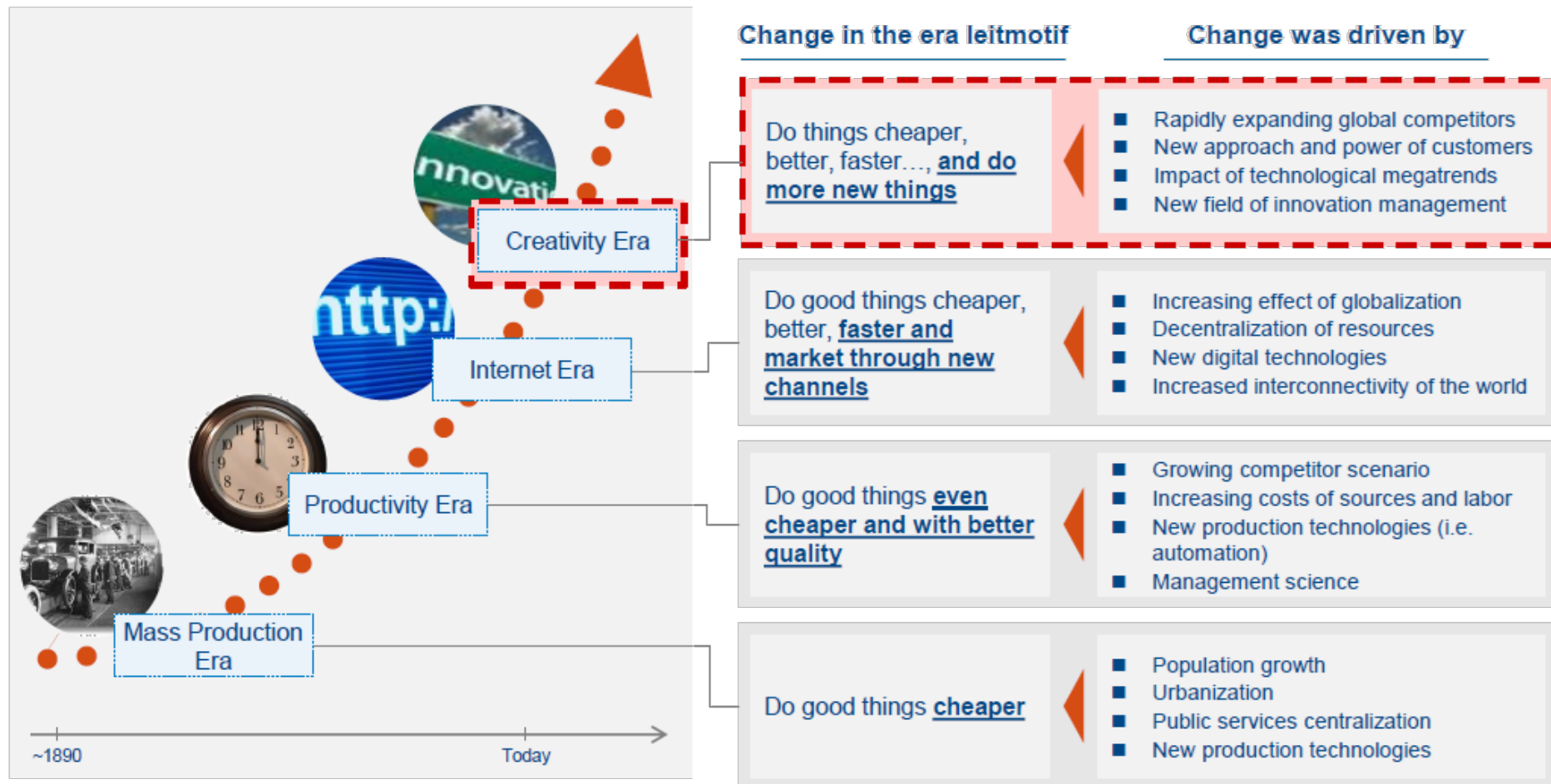
Let us be ready for change...



„... I am interested in future, because I intend to spend rest of my life in it.“
Ch. Chaplin

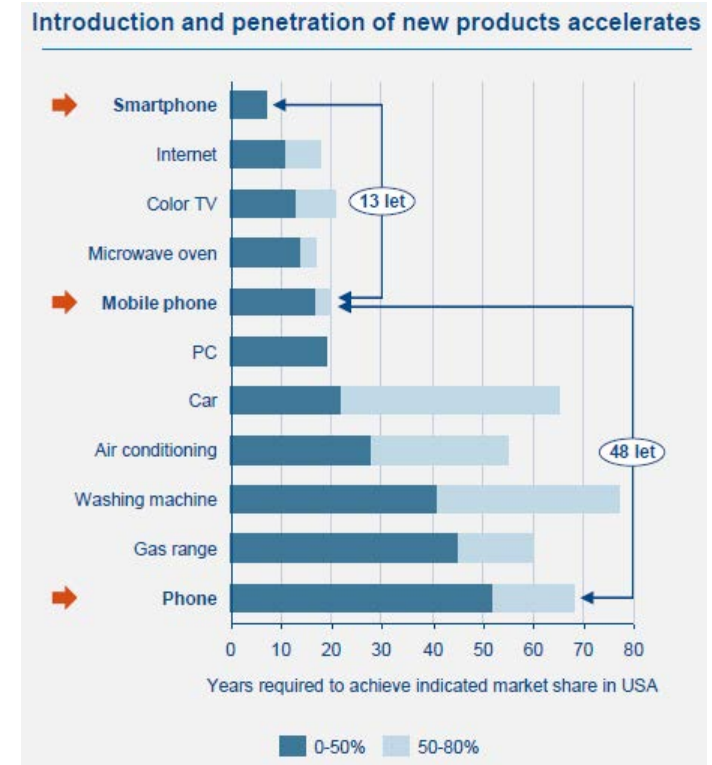
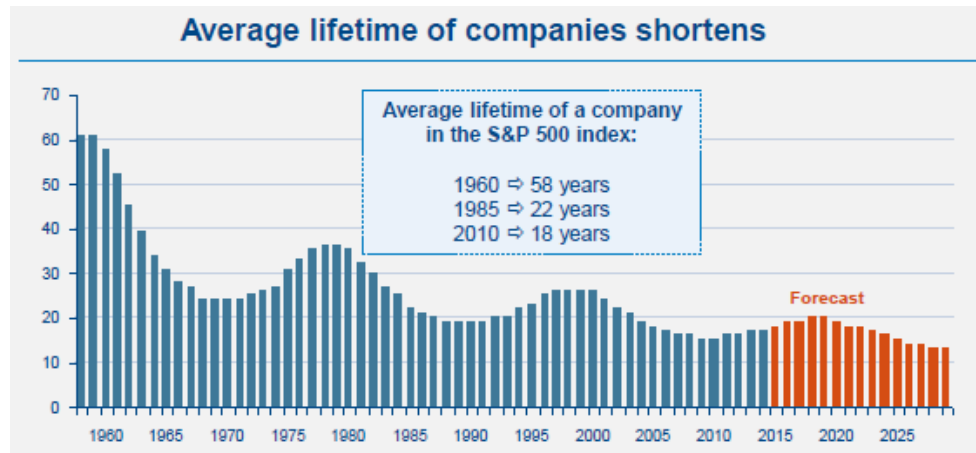
Trends in Megatrends – 4 eras

During the last century industry focus has been heavily influenced by four main eras, where the current Creativity era set new perspectives for companies, industries and nations.



The World is accelerating

Faster pace is relevant for products, employees, and even whole companies.



Source:
INNOSIGHT/Richard N. Foster/
Standard & Poor's, Asymco, Chief Executive,
Arthur D. Little

We live in an exponential World

From scarcity to abundance

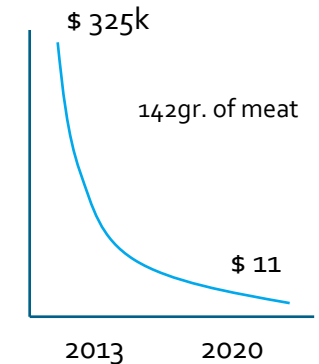


What do you think of as scarce?

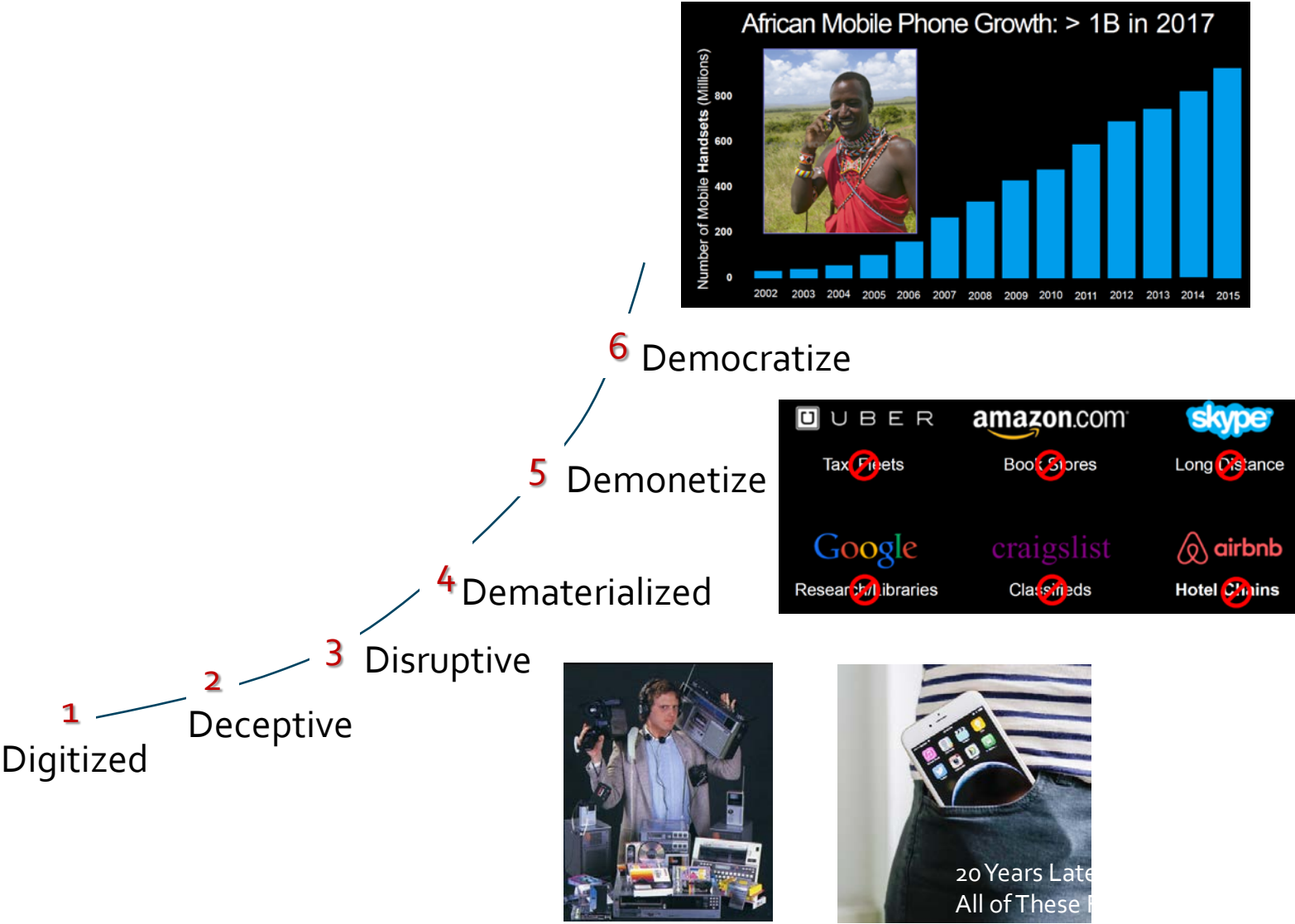
1. Energy
2. Water
3. Health
4. Learning
5. Time
6. Money
7. Expertise
8. Resources

"Technology can take that which was scarce, and make it Abundant.."

Greenhouse gasses
30% Methane
5% CO₂

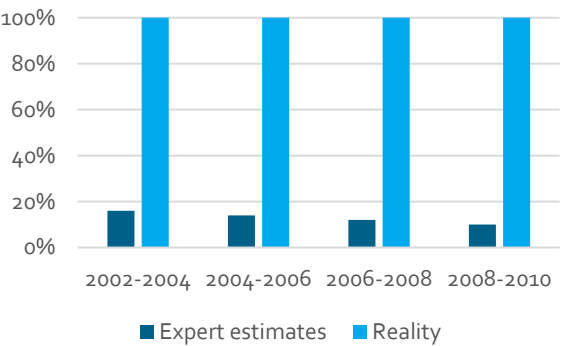


6D's exponential framework



Linear world has ended

Mobil phone industry (Y/Y GR)



Note: Average estimates published by Gartner, Forrester, McKinsey, Jupiter
Source: <https://venturebeat.com/2011/08/31/vinod-khosla-says-get-rid-of-experts-and-invent-the-future-you-want-video/>

Get rid of experts and invent the future you want

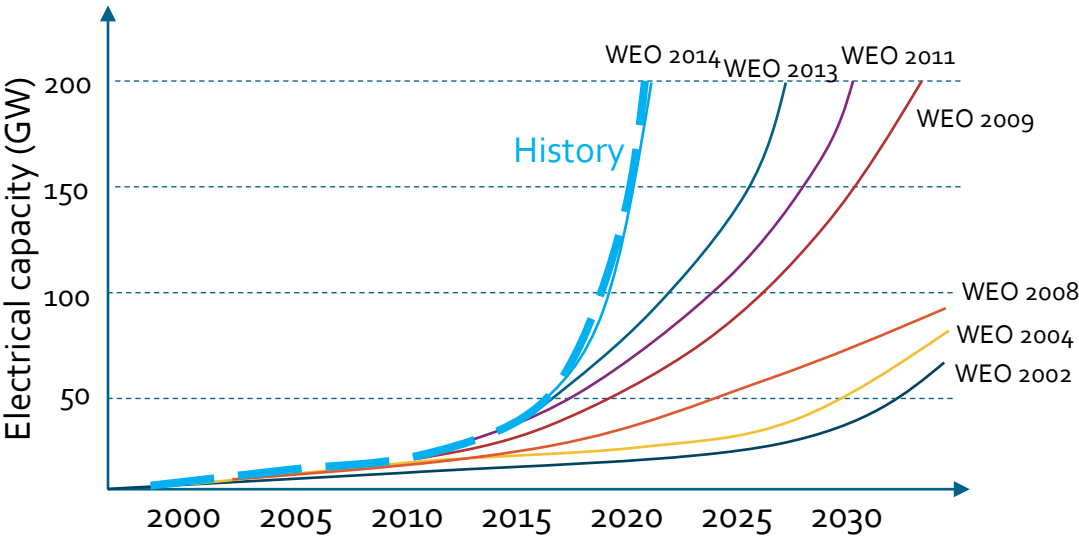
Vinod Khosla

„...in early 80’s McKinsey advised AT&T not to enter mobile phone business, predicting that there would be fewer than 1M cell phones by 2000. In fact, there were 100M cell phones by 2000.“

„...in 2009 Gartner Group forecasted that by 2012 Symbian would be the top OS for mobile devices with 39% market share (203M units shipped) and Android with only 14,5%. Reality – Symbian shut doors at the end of 2012 after shipping only 2,2M units in Q4, while Android shipped over 1B in 2014.“

	Cost (averages) for equivalent functionality	Scale
3D printing	\$40,000 (2007) to \$100 (2014)	400x in 7 yrs.
Industrial robots	\$500,000 (2008) to \$22,000 (2013)	23x in 5 yrs.
Drones	\$100,00 (2007) to \$700 (2013)	142x in 6 yrs.
Solar	\$30 per kWh (1984) to \$0,16 per kWh (2014)	200x in 20 yrs.
Biotech (DNA sequencing of one whole human DNA profile)	\$10M (2007) to \$1000 (2014)	10,000x in 7 yrs.
Neurotech (BCI devices)	\$4,000 (2006) to \$90 (2011)	44x in 5 yrs.
Medicine (full body scan)	\$10,000 (2000) to \$500 (2014)	20x in 14 yrs.

Source: Salim Ismail: Exponential organization



Source: <https://www.iea.org>

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Jak dobře si podle vás naše planeta žije?

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Velmi špatně

Velmi dobře

5

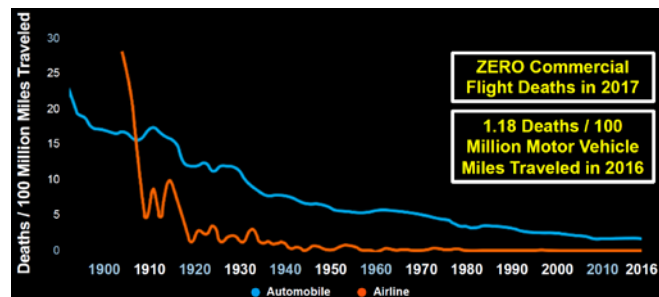
Abundance – The future is better than you think

Evidence for Abundance

- (1) Global Income
- (2) Lifespan
- (3) Food
- (4) Energy
- (5) Transportation
- (6) Communications

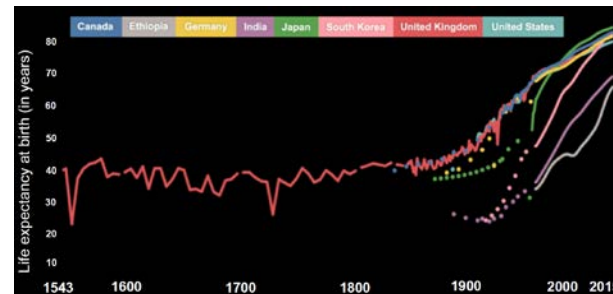
“Why are you so positive about the future? Don’t you watch the news?”

AUTOMOBILE & AIRLINE FATALITY RATES



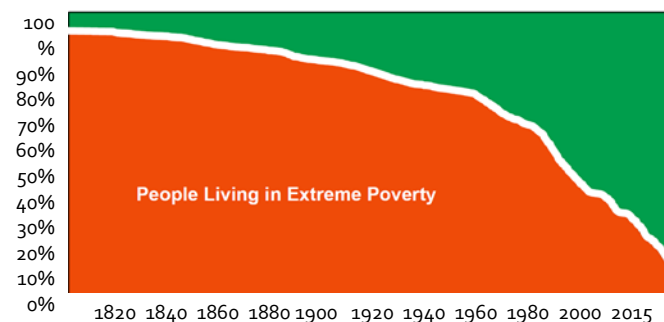
Source: National Highway Traffic Safety Administration

GLOBAL AVERAGE LIFE EXPECTANCY (1543 – 2015)



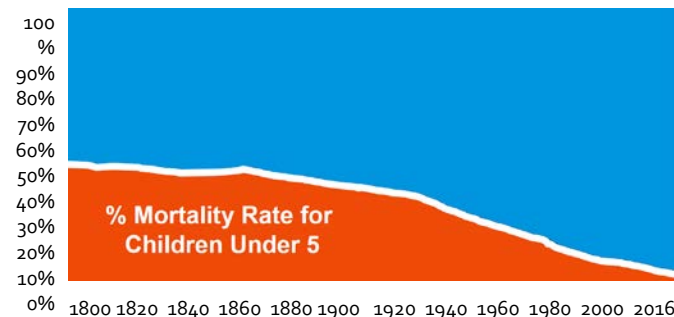
Source: <https://ourworldindata.org/life-expectancy/>

% OF WORLD POP. LIVING IN EXTREME POVERTY (1820 – 2015)



Source: World Poverty in Absolute numbers, Max Roser, World Bank

GLOBAL CHILD MORTALITY – FIRST 5 YEARS (1800 – 2016)



Source: Gapminder and World Bank

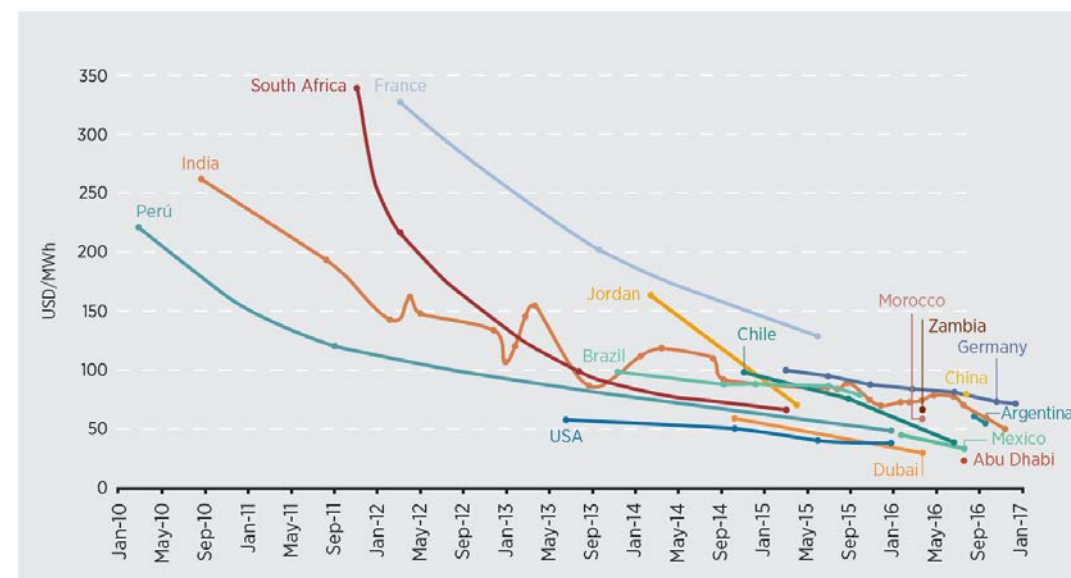
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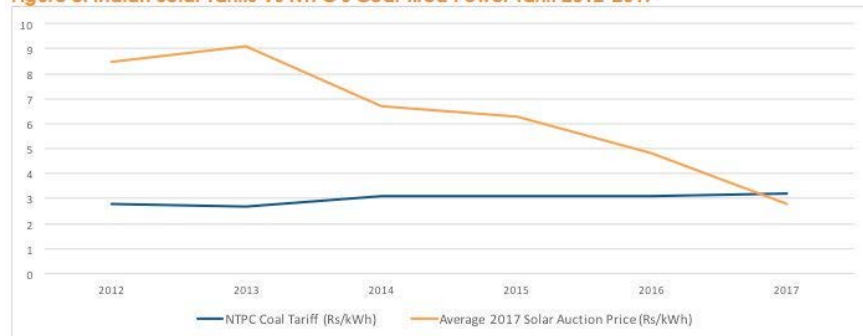
“Why are you so positive about the future? Don’t you watch the news?”

Evolution of average auction prices for solar PV, January 2010-February 2017



Source: http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Jun/IRENA_Renewable_Energy_Auctions_2017.pdf

Figure 8: Indian Solar Tariffs Vs NTPC's Coal-fired Power Tariff 2012-2017



Source: NTPC, Bloomberg New Energy Finance, Livemint, Bloomberg Gadfly

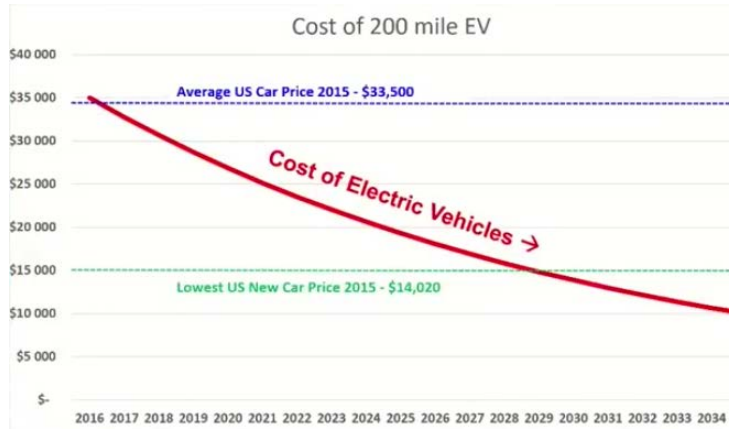
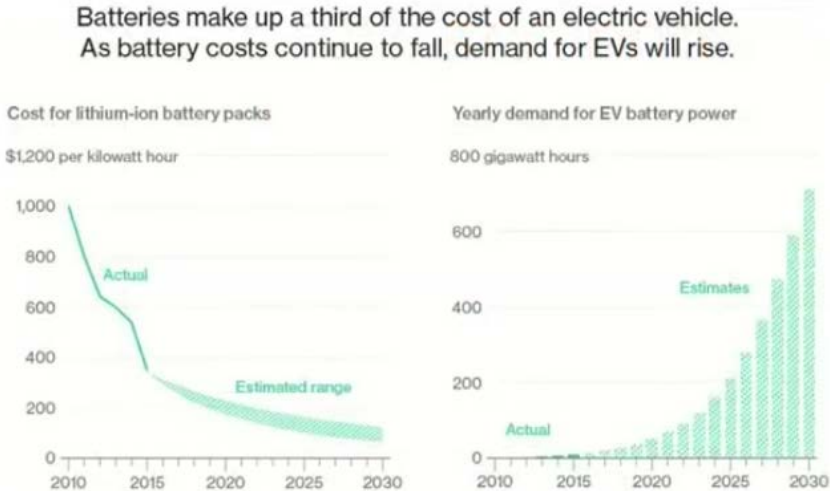
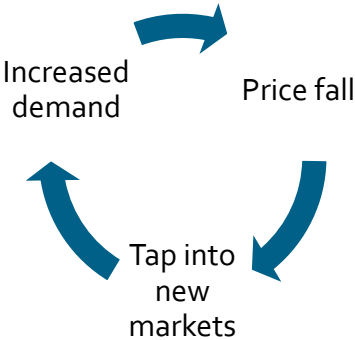
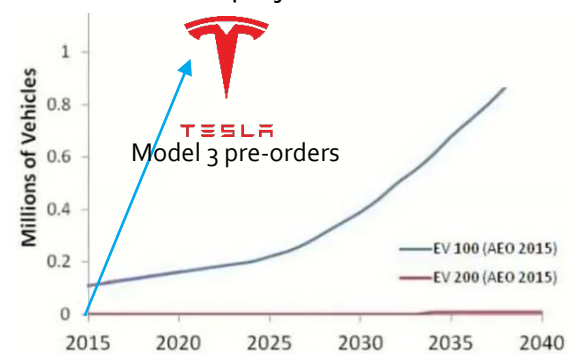
The Stone Age didn't end for lack of stone, and the oil age will end long before the World runs out of oil.



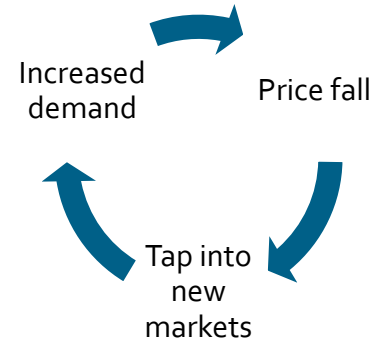
Sheikh Ahmed Zaki Yamani
Saudi Arabia ex-minister of oil

Exponential logic

Electric vehicle projection (USA)



Exponential logic



„...by 2030 demand for oil will flatten out... maybe even decline“

Joel Couse (TOTAL)

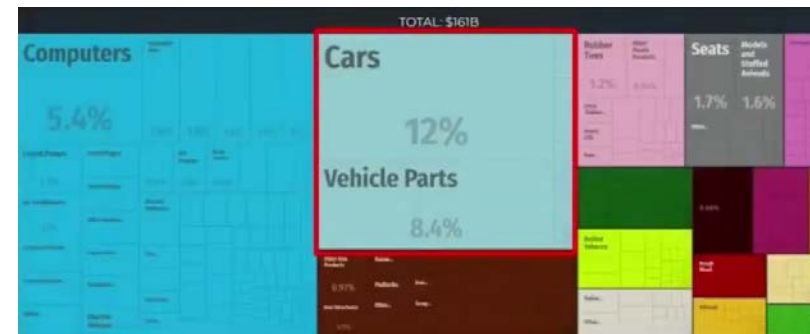
„...demand could peak by 2020, then we'll have a shrinking oil industry“

Elder Saetre (Statoil)



70 % of foreign revenues from oil and gas
What does that mean to you???

Czech Republic Exports in 2016



Winners and losers

Winners



Losers



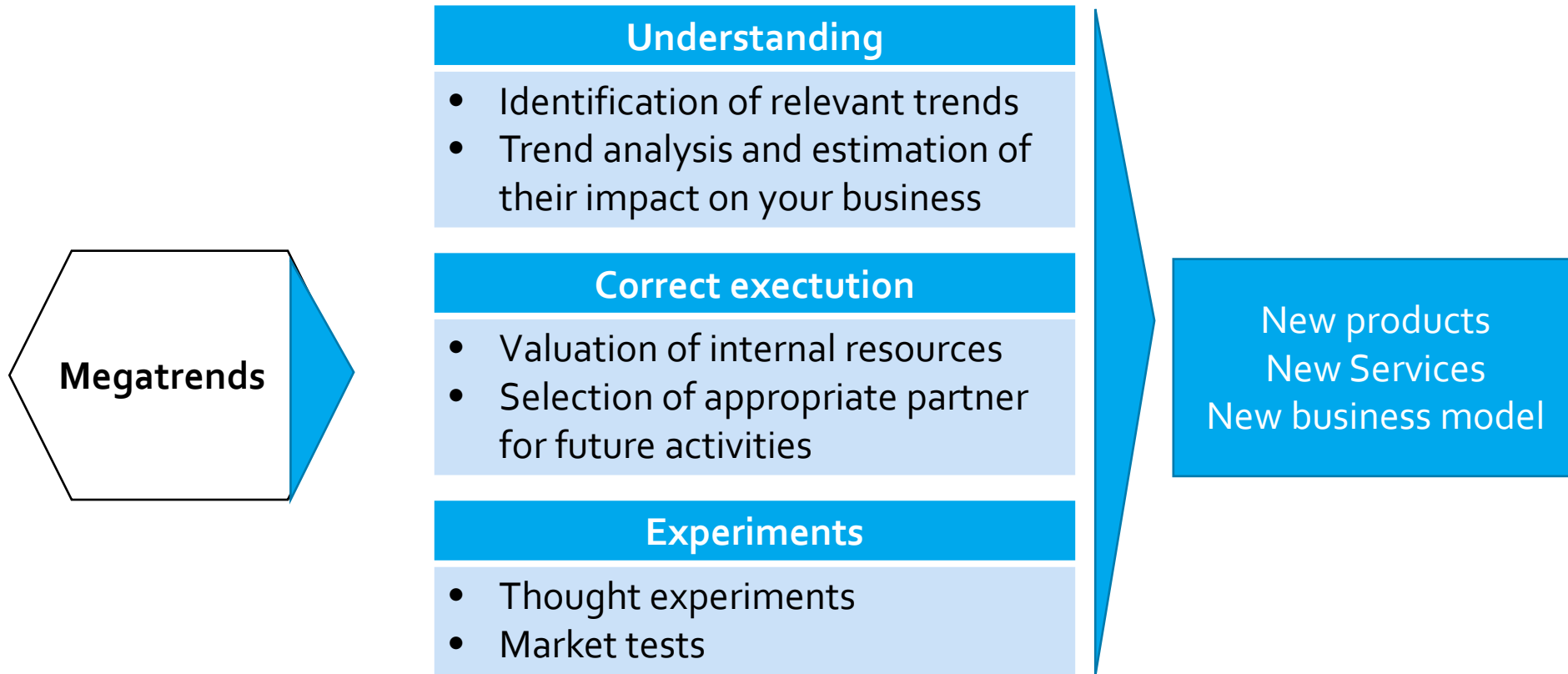
Upcoming events and discoveries of the 21st century

We follow:

- New strength distribution in the World
- Economic development of new economies (BRICS)
- Climate changes
- Terrorism and international conflicts
- New international and regional groupings
- The lack of water and other natural resources

What will be the World like? Like we will make it...

Megatrends – how to react



Super-products

Product or service with features that customers do not expect, however, perceive them and they are willing to pay for.

- Products with extreme parameters of usual characteristics



- Extremely customized products



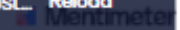
GENSTER

- Products with surprising characteristics



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Super-products

Problem areas that need to be handled at launching onto the market:

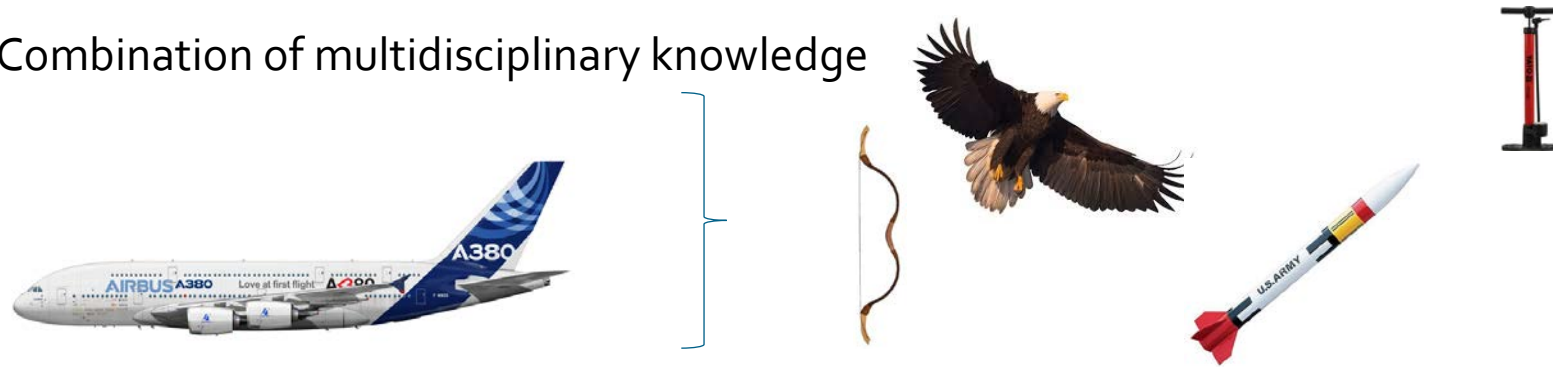
1. Ensure a sufficient supply of new, ground-breaking „crazy“ ideas
2. Master the marketing of new products' introduction and correctly anticipate the demand
3. Overcome legislative and other barriers



4. Master the cash flow and profit management

Super-products – sources of ideas

Combination of multidisciplinary knowledge



Watch: Engineering Connections Documentary

1. Phase: We explore customers' needs
2. Phase: We seek for analogous solutions from other disciplines (botany, anthropology, etc.)
3. Phase: Transferring the method to our conditions, building a prototype, testing

Super-products – sources of ideas

SCAMPER Method:

Substitute: e.g. sugar by sweetener, glass by plastic, acrylate instead of steel

Combine: e.g. combination of a motorcycle and bicycle = motobicycle

Adapt: e.g. city collapsible motorbike or motob-icycle

Modify: e.g. fuel engines to ethanol or LPG

Put: e.g. microchips in shoes, navigation on bicycles etc.

Eliminate or Reduce: e.g. using self-service cash desks we eliminate cashiers

Interdisciplinary approach

Licencing



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 Mentimeter

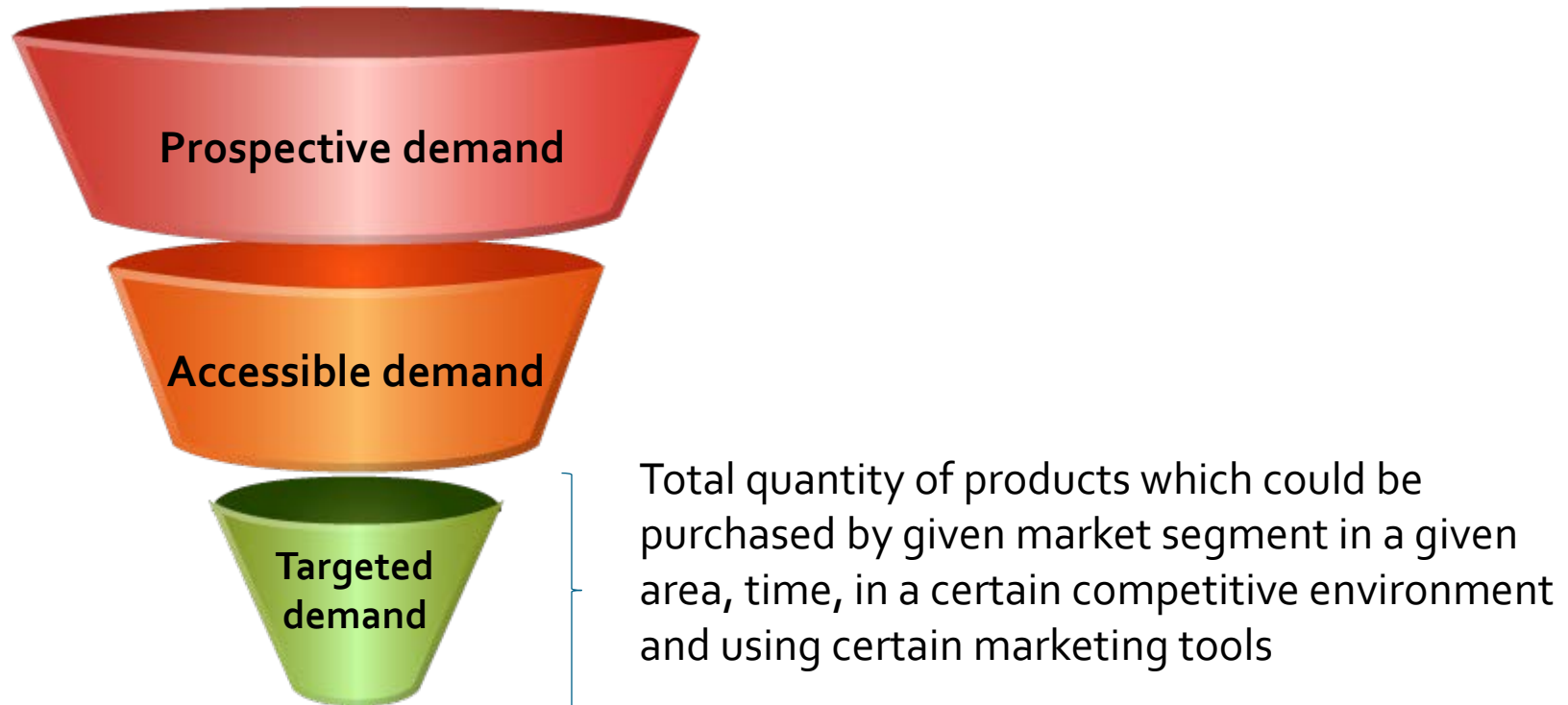


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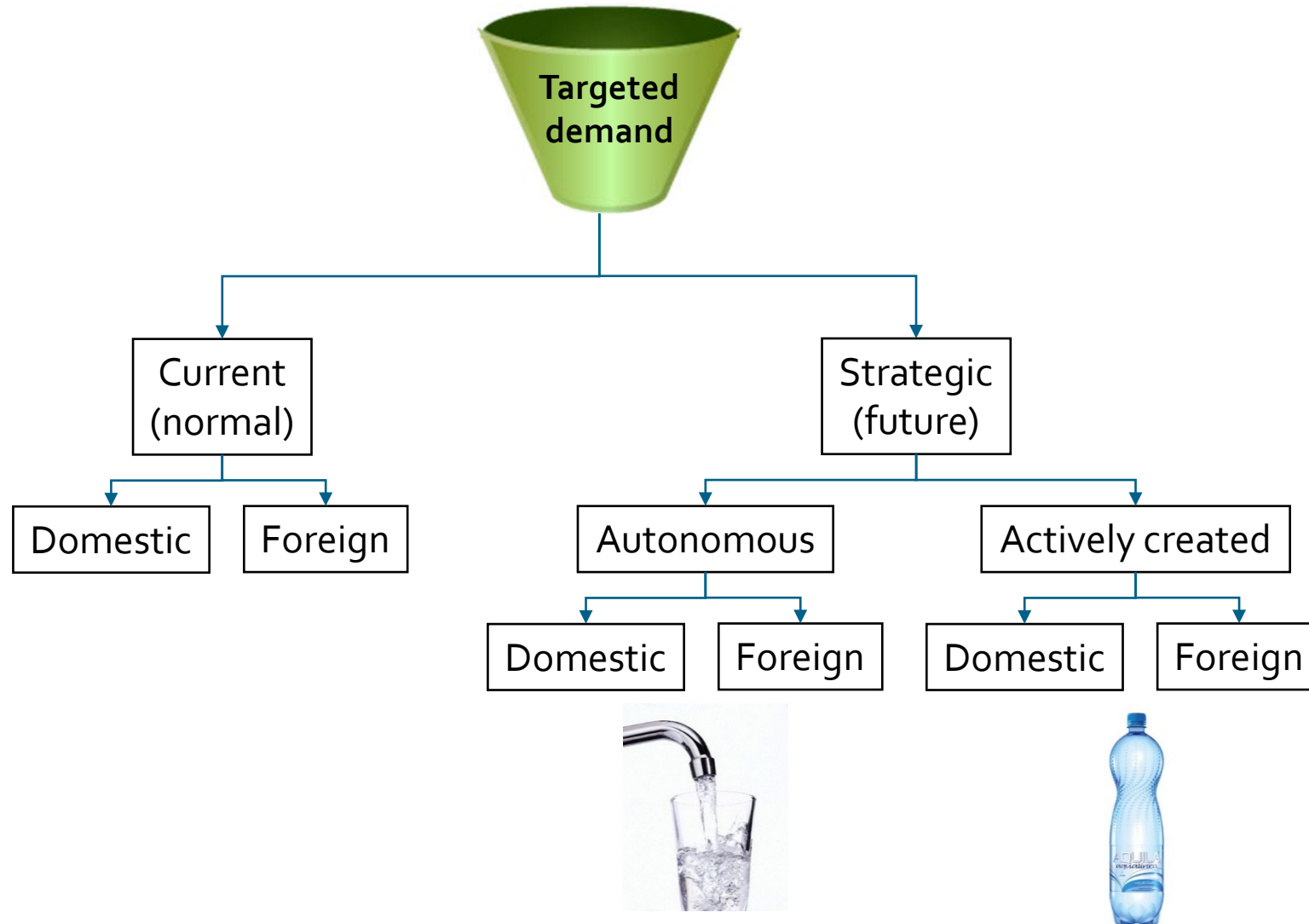
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Demand



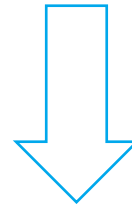
Strategic and current market demand



Strategic and current market demand

The company's greatest strength is in its ability to anticipate and take actions...

1. Shall we offer the same products on the same markets in the future?
2. Or shall we offer new products on the same markets?
3. Or shall we offer same products on the new markets?
4. Or shall we offer new products on the new markets?
5. Where, in which industry we would like to do our business and which type of strategy we are supposed to use?



Determining factors affecting future demand

Factors affecting the demand

- Factors more or less predictable



- Factors affecting the demand in unexpected manner



- Factors influenced by the company
- Factors completely uncontrollable and unexpected

Quantification of strategic demand

E.g. What will be the demand for bread in Prague in next 5-10 years?

Number of citizens * Average bread consumption per capita

- population growth
- home made bread
- other / new bread varieties
- higher frugality
- diversion from feeding domestic animals
- immigration of foreigners with less bread consumption

Strategic demand

Czech companies should focus on those products where there is a growth potential of strategic demand and at the same time where they are capable to satisfy it.

- Products with a high content of highly skilled labour.
(plastic surgery, complex devices, etc.)
- Products hardly imitable in countries with cheaper labour force
(e.g. software)
- Products in the fields with high expected growth potential
(e.g. healthcare)
- Products where they could use a genetically inherited technical know-how of Czech workers (machinery, healthcare)
- Products based on scientific knowledge in the areas, where the Czech Republic takes the leading position
(pharmacy, healthcare, technical cybernetics, technical textiles)

Get your devices ready, please.

The Kahoot! logo is displayed in a large, white, bold, sans-serif font. The word "Kahoot!" is centered on a dark blue rectangular background. A lighter blue, semi-transparent arrow points from the top left towards the text, adding a dynamic element to the design.

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