



Master in Innovation and Research in Sustainability

FUTURE STUDIES & STRATEGIC INNOVATION

2026/2027

Paulo Soeiro de Carvalho

soeirocarvalho@iseg.ulisboa.pt



INTRODUCTIONS



PAULO SOEIRO CARVALHO

Paulo Soeiro de Carvalho is an expert in Foresight, Strategy and Innovation, with more than 20 years of experience in consulting, teaching and training in these areas.

After years of professional experience in the areas of Strategic Proposition, Innovation and Entrepreneurship, he created. "IF Insight & Foresight", a consulting studio that combines Foresight, Strategy and Innovation to create added value and distinctive experiences for organizations and professionals.

PhD in Management Sciences at Université Jean Moulin Lyon 3 with a Thesis on Scenario Planning, Weak Signals and Competitive Intelligence. Graduated in Economics from ISEG, he completed a Master's Degree in Economics and Management of Science and Technology (ISEG) and a Post-Graduation in Prospective and Strategy of Organizations (IESF).

He has more than 20 years of experience in Strategic Foresight and Innovation in public and private organizations and has worked in several consulting projects, also developing teaching, training and research activities in those areas.

Over the last 15 years has been carrying out multiple teaching activities and advanced training in the areas of Foresight, Strategy and Innovation at ISEG, with the Coordination and Teaching in The Post Graduation in "Foresight, Strategy and Innovation", and the Advanced Training "Scenario Planning and Strategic Agility" and "Futures, Strategic Design and Innovation". Since 2020 he is the Executive Director of ISEG MBA.

He is a consultant in the areas of Foresight & Innovation for the European Commission, Joint Research Center and European Environmental Agency, working also as an expert with the World Economic Forum in the areas of Strategic Intelligence and Scenario Planning.

PROGRAM STRUCTURE

An aerial photograph of a surfer riding a wave. The surfer is a small figure in the middle of the ocean, positioned to the right of the main text. The wave is breaking, creating white foam and spray that contrasts with the dark blue water.

STRATEGIC FORESIGHT: PRINCIPLES, CONCEPTS AND APPLICATIONS

Strategic Foresight: Origins, Principles and Schools of Thought

- Foresight: Between Science, Art and Practice
- Assumptions and Distinctive Principles of Foresight/Futures Studies
- Foresight vs. Forecasting Models: Differences and Synergies
- Epistemological Principles of Foresight
- Schools of Foresight / Futures StudiesThe New Era of Foresight: Curated vs. Big Data and the Power of Artificial Intelligence and Machine Learning

Strategic Foresight : Basic Concepts and Methodological Tools

- Strategic Foresight Core Concepts: Strategic Focus, Time Horizon, Megatrends, Trends, Weak Signals, Wild Cards, Uncertainties
- Mapping the techniques and methodological tools to anticipate and explore trends, signals and uncertainties.

STRATEGIC FORESIGHT: PRINCIPLES, CONCEPTS AND APPLICATIONS

Foresight Applied to Public Administration / Government

- Distinctive Elements of the Foresight applied to the Public Administration /Government
- Exploration and comparative analysis of International Projects of National and Regional Foresight
- Design and Organization of Foresight Projects applied to Public Administration

Corporate / Organizational Foresight

- Objectives and Functions of the Foresight applied to Organizations and Industries
- Structural Characteristics of Foresight Processes in Organizations and Industries
- Corporate & Industry Foresight Methods and Tools

Regional or Territorial Foresight

- Distinctive elements of Regional & Territorial Foresight
- Exploration and comparative analysis of international Territorial Foresight projects
- Design and implementation of Territorial Foresight Projects - Exercises

Technology Foresight & Assessment

- Objectives and Potential of Technology Foresight
- Technology Assessment, Technology Roadmapping, Delphi Method



METHODS AND TOOLS OF STRATEGIC FORESIGHT

Presentation of a Strategic Foresight Toolbox *

- Environmental Scanning / Horizon Scanning & Trend Analysis
- Futures Wheel
- Delphi Method
- Stakeholder Analysis
- Morphological Analysis
- Scenarios: Three Scenario Planning Schools
- Three Horizons Framework
- Strategic Maps and Roadmaps

* Concepts and tools related to creative techniques (Brainstorming, etc.), Design Thinking (storylines, personas and customer journeys, etc.) and entrepreneurship (rapid prototyping, business model playbox, etc.) will also be addressed.

STRATEGIC INNOVATION

The Foundations of a brave new world

- **Uncertainty; Complexity; Acceleration; Convergence; Digitalization; Virtualization**

The skills and mindset of a future-proof leader

- **The Foundations: Purpose, Ethics and Values**
- **10 Critical Skills for the Leaders of the Future**
- **Strategy and Innovation meets Design, Agility, Entrepreneurship and Emotional Resilience**

Basic concepts of a future-proof strategy and innovation

- **Futures, Exponential and Systemic Thinking**
- **Zoom-In & Zoom-Out**
- **Digital Transformation to the Core**
- **User, Human and Planet Centricity**
- **Innovation Ecosystems**
- **Innovation: Make It Distributed and Nimble**
- **Talent: Scarcer than Capita**

STRATEGIC INNOVATION IN ACTION

- **Case Studies: Oil & Gas; Mobility; Public Institutions/Government; Smart Cities; IT/Software**

SCENARIO PLANNING LAB: FROM ANTICIPATION TO ACTION

The Scenario Planning Lab offers the possibility to design and develop a full project of Horizon Scanning, Scenario Planning and Strategic Innovation. The participants, working in groups, go through the entire process of Scanning and subsequent Scenario Planning and strategic analysis and action.

As teams, participants will explore and experience the various steps of a Scenario Planning project, ranging from defining the Strategic Focus and Time Horizon, making the Horizon Scanning and building a Scanning Dashboard integrating Megatrends, Trends, Weak Signals, and Wildcards. Then the project focuses on the selection of Critical Uncertainties and the definition of the "Structure" of the Scenarios.

In the end will be made the construction of scenarios using techniques and approaches such as system dynamics, mashup storyboardings, the construction of narratives and timelines.

Participants will also explore the different ways of presenting the Scenarios and exploring the implications and strategic options derived from the scenarios built using strategic and innovation maps and roadmaps.

In this Scenario Planning Lab will be used the Strategic Intelligence and Scanning Platform of the World Economic Forum, with whom IF Insight & Foresight has worked over the last 4 years.



STRATEGIC FORESIGHT CASE STUDUES

- **Strategic Foresight for Public Policy – European Commission; JRC (Joint Research Center); EEA (European Environmental Agency); Finland Business**
- **Corporate Foresight– Shell, Intel, Daimler, Siemens, etc.**
- **Strategic Intelligence & Horizon Scanning – World Economic Forum, Ageas**
- **Strategic Foresight for Non Profit Organisations - Copenhagen Institute For Future Studies (Denmark); International Red Cross; SITRA (Finland)**

BIBLIOGRAPHY & WEBSITES

An aerial photograph of a surfer riding a wave. The surfer is a small figure in the center-right of the frame, riding a white wave that is breaking to the right. The water is a deep teal color, and the sky is a lighter, hazy blue. The overall mood is dynamic and adventurous.

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- World Futures Studies Federation (WFSF), www.wfsf.org
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European Union / European Commission

- Strategic Foresight - https://ec.europa.eu/info/strategy/priorities-2019-2024/new-push-european-democracy/strategic-foresight_en
- Strategic Foresight Report - https://ec.europa.eu/info/strategy/priorities-2019-2024/new-push-european-democracy/strategic-foresight/2020-strategic-foresight-report_en
- Megatrends Hub - https://ec.europa.eu/knowledge4policy/foresight/tool/megatrends-hub_en

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- DHL, www.logistics.dhl/global-en/home/insights-and-innovation/insights/logistics-trend-radar.html
- Daimler, <https://www.daimler.com/innovation/en/>
- Salesforce, <https://www.salesforce.com/video/300669/>
- Siemens, <https://new.siemens.com/global/en/company/innovation.html>

Think Tanks

- Copenhagen Institute for Future Studies, www.cifs.dk
- Dubai Future Foundation, www.dubaifuture.gov.ae
- Futuribles, www.futuribles.com
- Institute for the Future, www.iftf.org/
- Joint Research Center - <https://ec.europa.eu/jrc/>
- Kairos Future AB, www.kairosfuture.com
- RAND Corporation, www.rand.org
- SITRA - www.sitra.fi/en/
- World Economic Forum, <https://intelligence.weforum.org/>

Consulting

- Decision Strategies International, Inc., www.thinkdsi.com
- Fast Future, <http://www.fastfuture.com>
- Forum For The Future, www.forumforthefuture.org
- Future Management Group AG, <http://www.futuremanagementgroup.com>
- Itonics, www.itonics-innovation.com
- Quid, www.quid.com
- Rohrbeck Heger, www.rohrbeckheger.com/
- Shaping Tomorrow, www.shapingtomorrow.com
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- The Future Laboratory, www.thefuturelaboratory.com
- The Vision Center for Futures Creation, www.framtidsbygget.se
- Z_punkt The Foresight Company, www.z-punkt.de

Innovation

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- IDEO, www.ideo.com
- Innosight, LLC, <http://www.innosight.com/>
- InnovationPoint LLC, <http://innovation-point.com/>
- Strategos, www.strategos.com
- The Idea Factory, www.ideafactory.com

Trendscouts

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- Springwise, www.springwise.com
- PSFK, www.psfk.com
- Trendhunter, www.trendhunter.com
- Trendwatching.com, www.trendwatching.com

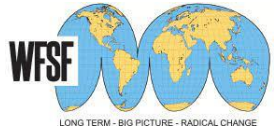
International Associations of Foresight



ASSOCIATION OF
PROFESSIONAL
FUTURISTS



WORLD FUTURE SOCIETY



LONG TERM - BIG PICTURE - RADICAL CHANGE

European Union / European Commission



European
Commission

Strategic Foresight
European Union / European Commission



European
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Strategic Foresight Report
European Union / European Commission



European
Commission

Megatrends Hub
European Union / European Commission



European
Commission

Joint Research center

Companies



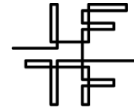
DAIMLER



SIEMENS

Think Tanks

COPENHAGEN
INSTITUTE
FOR FUTURES
STUDIES



INSTITUTE FOR THE FUTURE

SITRA

WORLD
ECONOMIC
FORUM

Consulting



FMC
FutureManagementGroup AG



THE : FUTURE : LABORATORY



Innovation



!f IDEA FACTORY

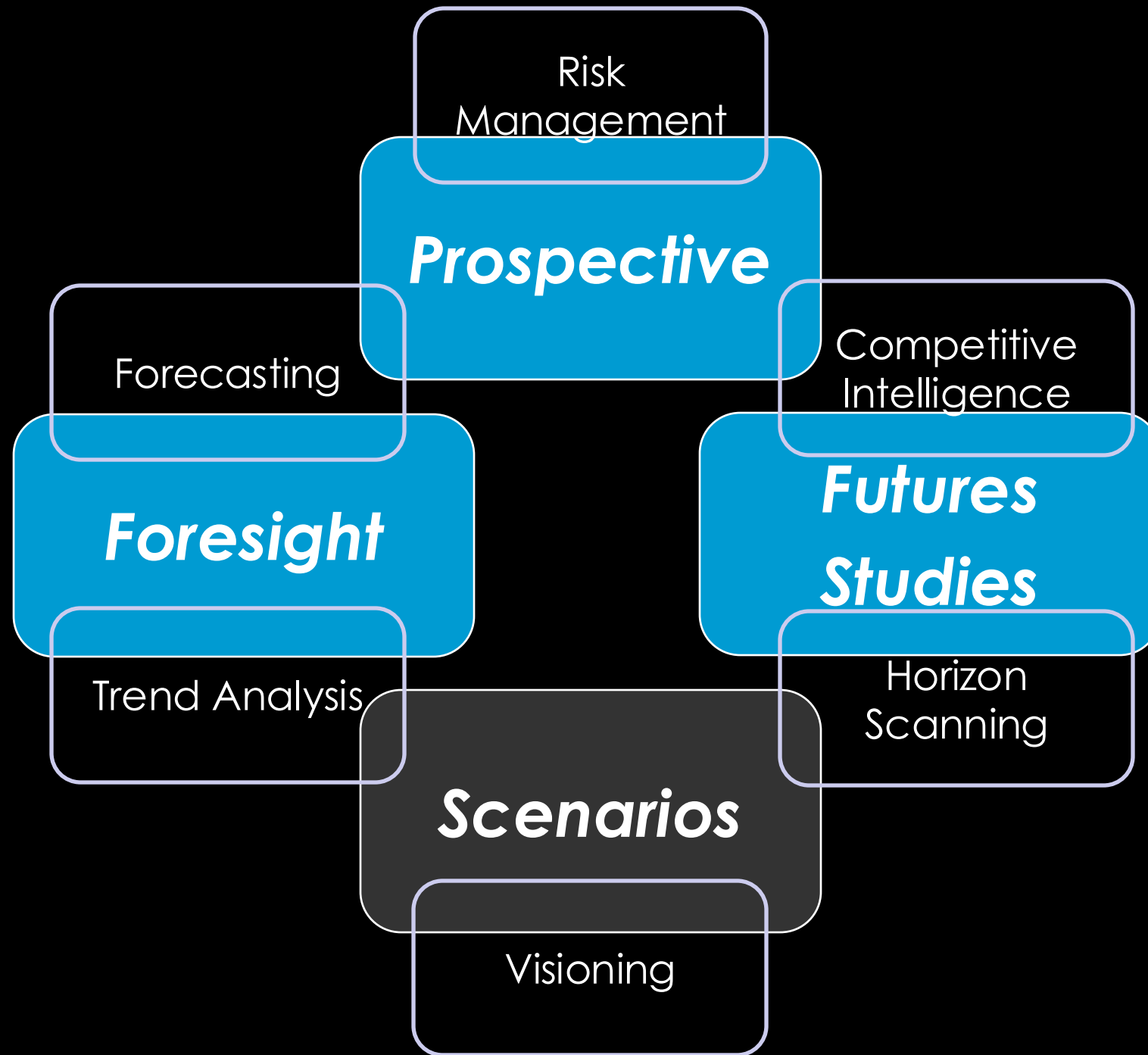
Trendscouts

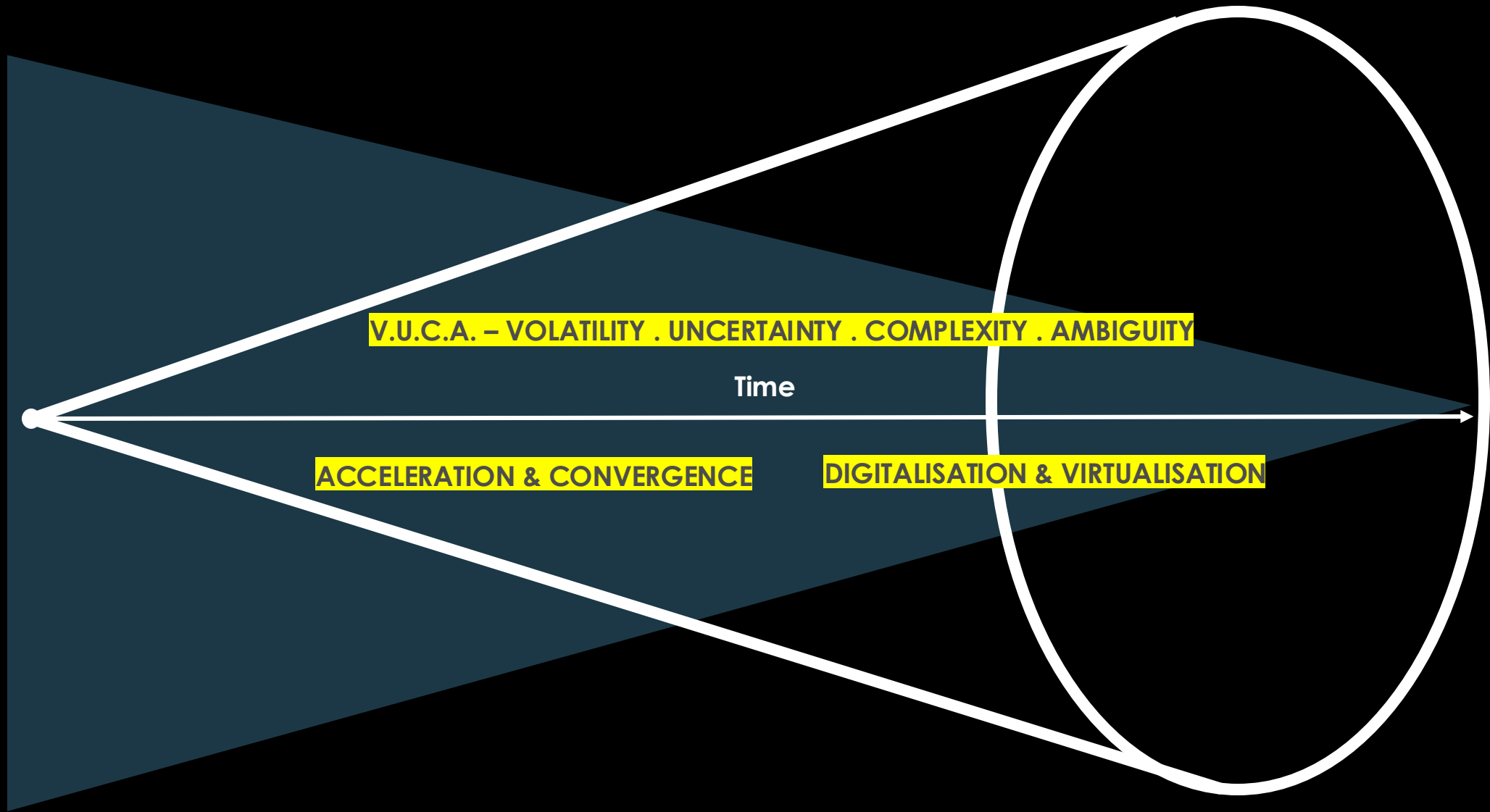
TRENDSHUNTER
CREATE THE FUTURE

TREND
WATCHING

FUTURE

FUTURES

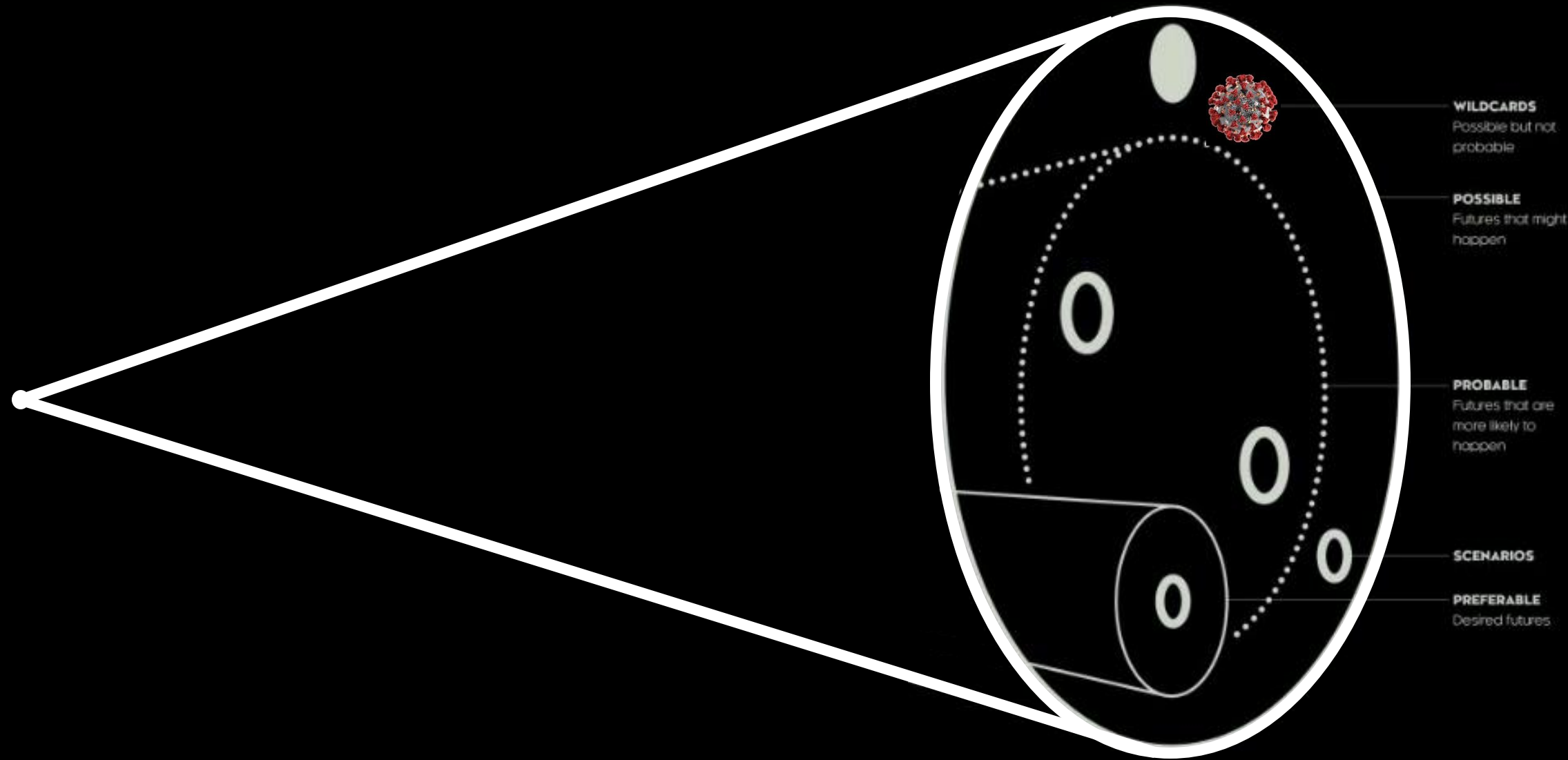




We can't
Predict the Future

We can think about
Alternative **Future(s)**

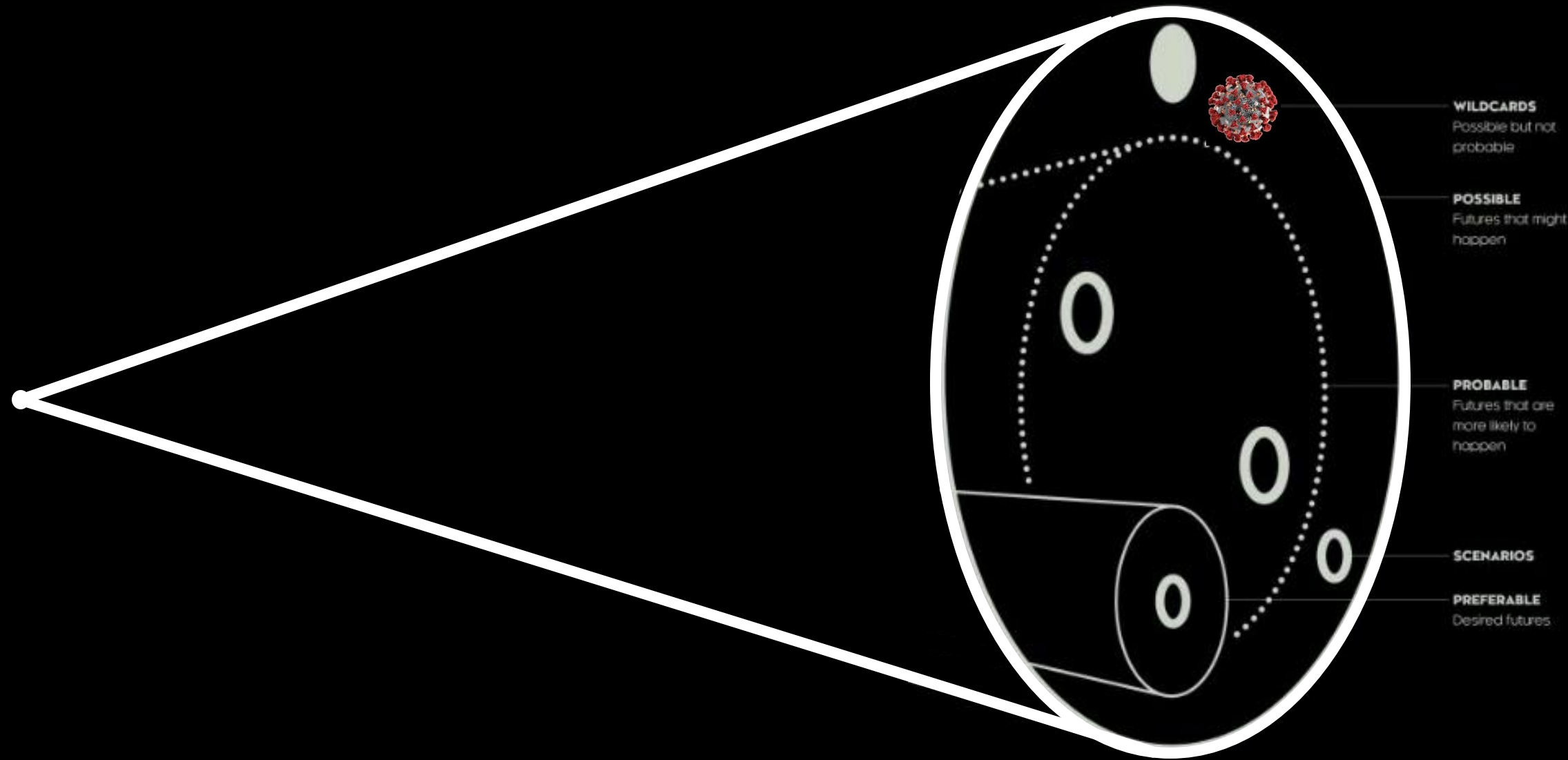
We have our **Assumptions**
about the Future



We can't
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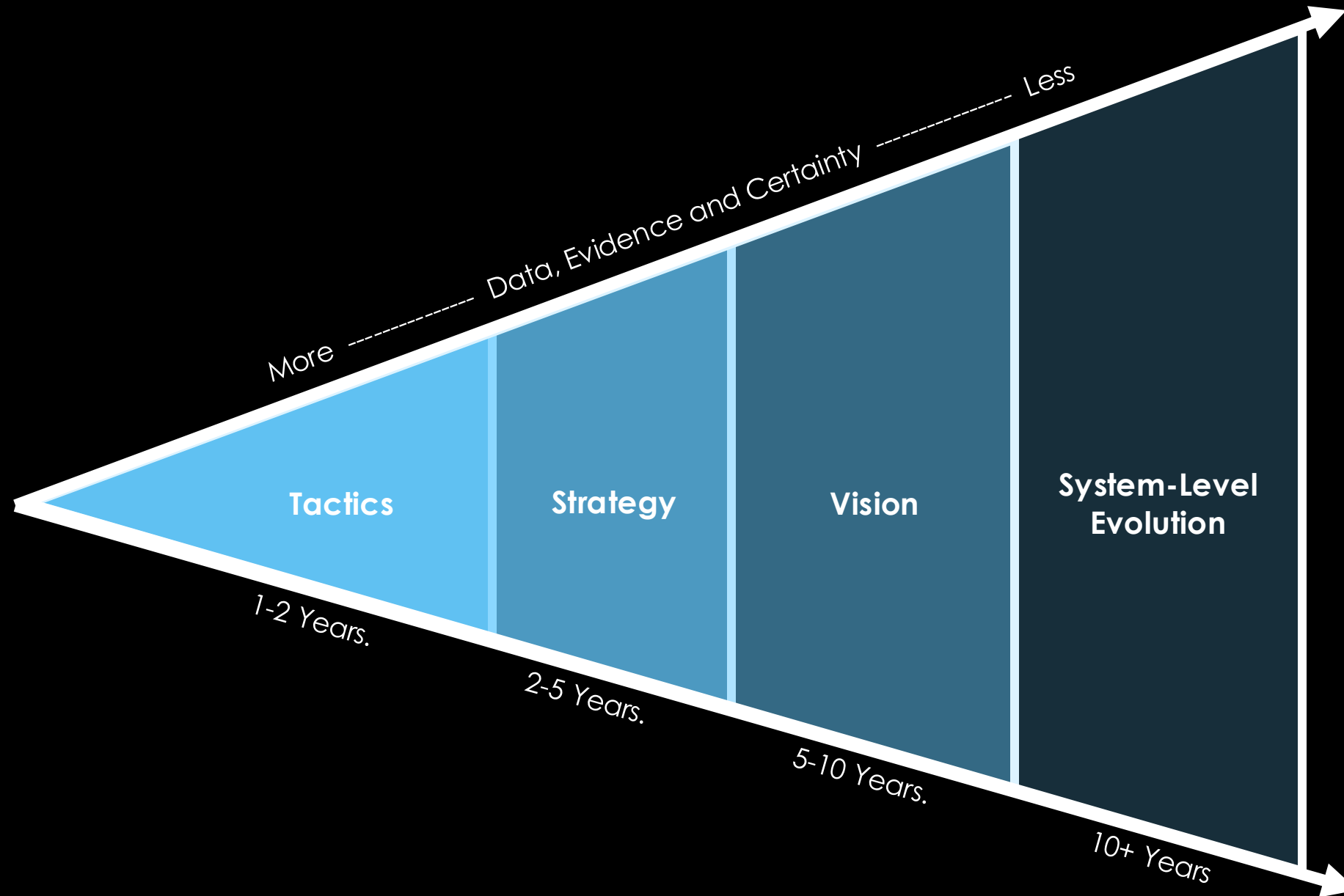
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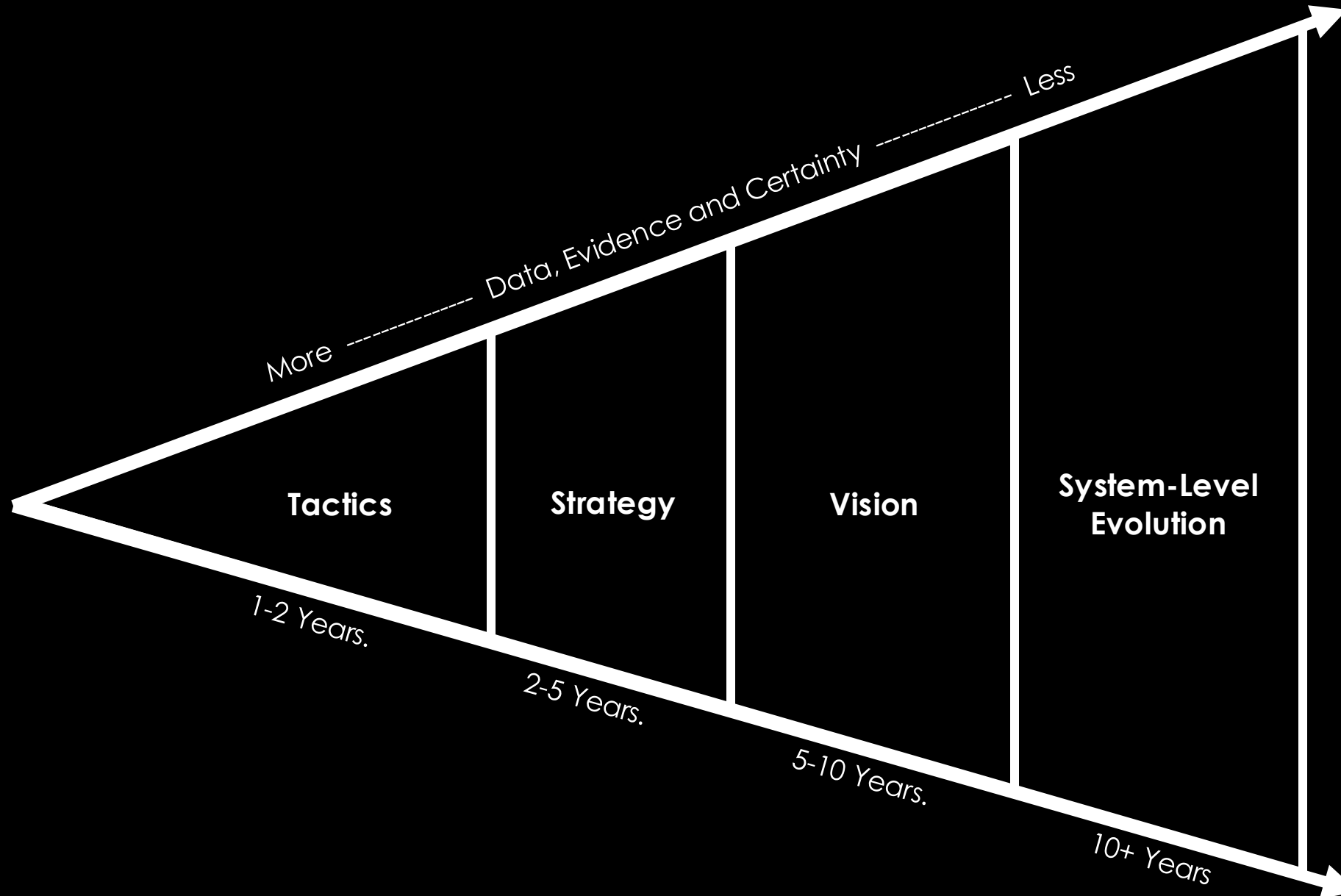
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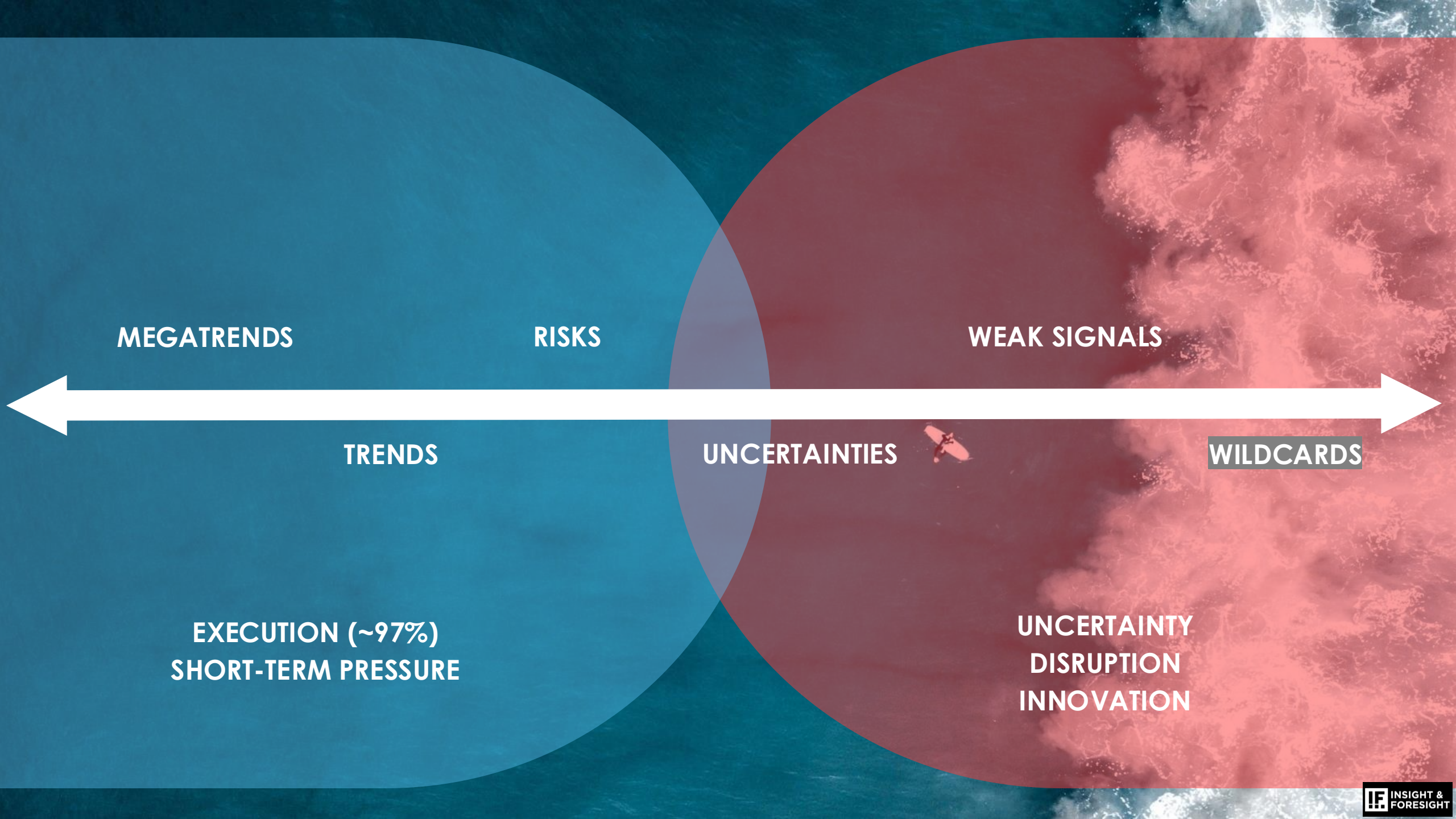
We can't
Predict the Future

We can think about
Alternative **Future(s)**

We have our **Assumptions**
about the Future



- Four Time Horizons that allows organisations to incorporate uncertainties.
- We should not think of Time in a linear way
- Time has a great plasticity in a VUCA + Acceleration & Digitalisation World
- Our analysis tend to be locked in the first two time horizons.
- The 3rd and 4th time horizons are more Strategic and Transformational.
- The Time Horizon should be combined with a Strategic Focus. This is particularly critical if we want to be make Strategic Foresight and connect Anticipation with Action through Appropriation & Mobilisation.
- Combine Futures Thinking with Exponential and Systemic Thinking. But also be aware of "Pace Layers"



MEGATRENDS

RISKS

WEAK SIGNALS

TRENDS

UNCERTAINTIES

WILDCARDS

EXECUTION (~97%)
SHORT-TERM PRESSURE

UNCERTAINTY
DISRUPTION
INNOVATION

EXECUTE

Linear, stage-gate thinking
Design right the first time
Focus on design for X
Systematic product design

Known

Linear, Product development

Functional / Process oriented

Efficiency

Maximize



KNOWN

**EXECUTION (~97%)
SHORT-TERM PRESSURE**

EXPLORE

Playful, open-minded risk taking
Focus on Jobs-to-be-done
Generate the right ideas
Fail Fast and Cheap
Relearn cycle to learn

Unknown

Iterative, Non-linear, Lean Innovation

Inter-disciplinary teams

Learning

Find



UNKNOWN

**UNCERTAINTY
DISRUPTION
INNOVATION**



Strategic Intelligence

Strategic insights and contextual intelligence
from the World Economic Forum

Explore and monitor the issues and forces driving transformational change across
economies, industries, and global issues



Watch Video

Highlights

New



New



New



Strategic foresight



Changes in climate, digital technologies and geopolitics are having a profound effect on the lives of Europeans. These transformations are taking place at all levels, from grassroots politics to global power structures. President von der Leyen has mandated Vice-President Šefčovič to lead the Commission's efforts to embed strategic foresight into its work by ensuring that the Commission makes full use of the knowledge, information, and research to future-proof our policies, as well as strengthen our culture of preparedness and evidence-based anticipatory policy-making. This is crucial in supporting the work on the transitions to a green, digital and fair Europe.



Menu

COPENHAGEN
INSTITUTE
FOR FUTURES
STUDIES

We are an independent, non-profit
futures think tank — founded in 1969.

What's New at the Institute?

SHELL SCENARIOS

We have been developing possible visions of the future since the 1970s, helping generations of Shell leaders explore ways forward and make better decisions. Shell Scenarios ask “what if?” questions encouraging leaders to consider events that may only be remote possibilities, and stretch their thinking. Our scenarios also help governments, academia and business in understanding possibilities and uncertainties ahead.

IN THIS SECTION



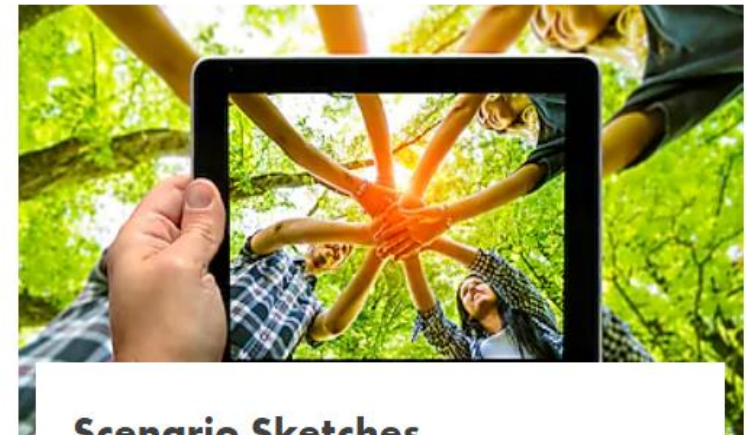
What are Shell Scenarios?

Shell has been a pioneer in developing scenarios to explore the future and deepen its strategic thinking for almost 50 years.



NEW: Rethinking the 2020s

COVID-19 is changing the world in significant ways. We have explored the impact of the crisis and what might lie ahead.



Scenario Sketches

We turn insights about how the world is changing – politically, economically, technologically and socially – into ‘sketches’ to help us think about the future.



...

Create

INSIGHTS & TRENDS -...



Element Type Trend ▾

Status Select Option ▾

Created By Select Option ▾

Updated Select Option ▾



58 Elements



Updated Date ▾



TREND

DRAFT

FLYING TO THE CLOUDS

Everything is moving towards the Cloud and there is an increasing demand for cloud services at...

cloud

4 Months Ago by Paulo Carvalho



TREND

DRAFT

CORPORATE ENTREPRENEURSHIP

Being a Corporate Entrepreneur is leading the Change. The importance of recognize the cultural...

corporate entrepreneurship startups

4 Months Ago by Paulo Carvalho



TREND

DRAFT

VR & AR - SUPERCHARGED HUMANS

Augmented reality (AR) and virtual reality (VR) have the potential to become the next big...

ar vr

4 Months Ago by Paulo Carvalho



TREND

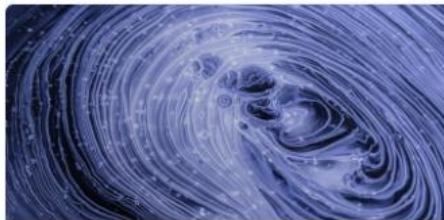
DRAFT

MARKET-ORIENTED ECOSYSTEM

Today's companies need to replace old hierarchical models with a "market-oriented ecosystem."...

ecosystems

4 Months Ago by Paulo Carvalho



TREND

DRAFT

THE RISE OF AI AS A SERVICE

Making everything much smarter using cheap powerful AI that we get from the cloud. Kevin Kelly...

ai cloud



TREND

DRAFT

XaaS - EVERYTHING AS A SERVICE

Moving from fixed products to always upgrading services and subscriptions. Kevin Kelly calls this...

saas subscriptions



TREND

DRAFT

SIMPLIFIERS VS. MULTIPLIERS

Entrepreneurs and established companies can overcome competition, not by overtaking competitors,...

entrepreneurs established companies



TREND

DRAFT

ZOOM IN - ZOOM OUT APPROACH TO STRATEGY

Zoom in (6 months to one year) - Scalling the edge; what is the one thing that we can support...



Find Elements



...

Create

MEGATRENDS DASH...



Element Type Select Option ▾ Status Published ▾ Created By Select Option ▾ Updated Select Option ▾



START

EXPLORER

ROADMAP

RADAR
Trend Radar Completo ▾



Adoption Stage
Emerging Improving Mature Aging



Time to get going again.

Let us help you spot the trends that matter and the meaningful business opportunities they bring.

Join 100,000+ future-focused professionals in 180 countries already receiving our free trend updates.

[Sign up](#)



SCHOOL OF BUSINESS AND SOCIAL SCIENCES
AARHUS UNIVERSITET



2018

Corporate Foresight Benchmarking Report

Strategic Foresight
Research Network

How leading firms build a superior position in markets of the future

<http://futureorientation.net/>

FORESIGHT

Between Science, Art and Practice

Between Logic, Intuition and Experimentation

FORESIGH

From Anticipation
to Action

Through Appropriation

FORESIGH

From Anticipation
to Action

Through Appropriation &
Mobilization



Master in Innovation and Research in Sustainability

FUTURE STUDIES & STRATEGIC INNOVATION

2023/2024

Paulo Soeiro de Carvalho

soeirocarvalho@iseg.ulisboa.pt



FORESIGHT

Explore the future in a(n) ...

- Organized and Flexible
- Systematic and Interactive
- Systemic and Structured
- Creative, Intuitive and Logical
- Useful

Foresight, Strategic Foresight and Strategy (Godet)

Q1: What can the future bring? » Foresight

Q2: What can we do? » Strategic Foresight

Q3/Q4: What am I going to do? How am I going to do it? » Strategy



Exploratory Foresight

It aims to "illuminate" possible futures of a system and its context, being frequently applied to the analysis of macro issues

» It's equivalent to a **RADAR of an organization**

Strategic Foresight

It is an element in a learning chain of organizations that allows them to anticipate the evolution of the context and based on these simulations, test existing Strategies, illuminate decision-making and/or define a new Strategic Vision

» It's equivalent to a **FLIGHT SIMULATOR of an organization**

FORESIGHT ≠ FORECAST

*“Different Worlds and not just different outcomes
in the same World”*

(Pierre Wack, 1985)

FORECAST

FORESIGHT

- It focuses on Certainties; Hides Uncertainties
- Originates projections on a single point and linear
- Privileges Continuities
- Affirms the primacy of Quantitative over Qualitative
- Hides Risks
- Starts from what Is Simple to what Is Complex
- Usually adopts a partial approach

- Focuses on Uncertainties
- Gives rise to diverse but logical images of the future
- Takes into account Ruptures and Discontinuities
- Combines the Qualitative and Quantitative
- Underlines the Risks
- Starts from the Complex to what is Simple
- Adopts a global approach

OBJECTIVES OF FORESIGHT

- Opening of discussion spaces, focusing the attention of organizations in their context ("to force" to admit the eventuality of their change) and in medium and long-term horizons
- Creation of commitments (participation and implementation) « shared understanding of the challenges facing the organization and its vulnerabilities
- Easier communication and coordination between stakeholders
- Anticipatory & Competitive Intelligence (encouraging the intelligence effort by organizations)
- Alignment and Visioning (Mobilizing and Framing Vision of the Strategy)
- Contribution to the definition and testing of priorities and strategic guidelines
- Organizational Learning

FUTURE LANDSCAPE

A background composed of a dense grid of small, dark, pixelated squares, creating a digital or mosaic-like texture.

ECONOMY

A person's head in profile, wearing a VR headset. The image has a high-tech, digital aesthetic with glowing blue and green lines overlaid on the face and headset.

TECHNOLOGY

An abstract, high-contrast image with a blue and orange color palette. It appears to be a stylized representation of an industrial or construction site with various structures and lines.

SOCIETY

A background of pixelated blue and white squares, creating a digital or mosaic-like texture, similar to the Economy panel but with a different color scheme.

ENVIRONMENT

A dark, textured globe or sphere with a network of glowing white lines overlaid, suggesting a global network or data flow.

(GEO)POLITICS

A dark, blurred background with several bright, glowing teal or cyan circular lights, creating a sense of depth and focus.

SECURITY

MEGATRENDS

Surfing the Big Waves

A close-up, low-angle shot of a person's head and shoulders, wearing a VR headset. The scene is bathed in a deep blue light, with a digital, ethereal overlay on the headset's display and the person's face. The text "DIGITAL TRANSFORMATION" is centered in white, bold, sans-serif font.

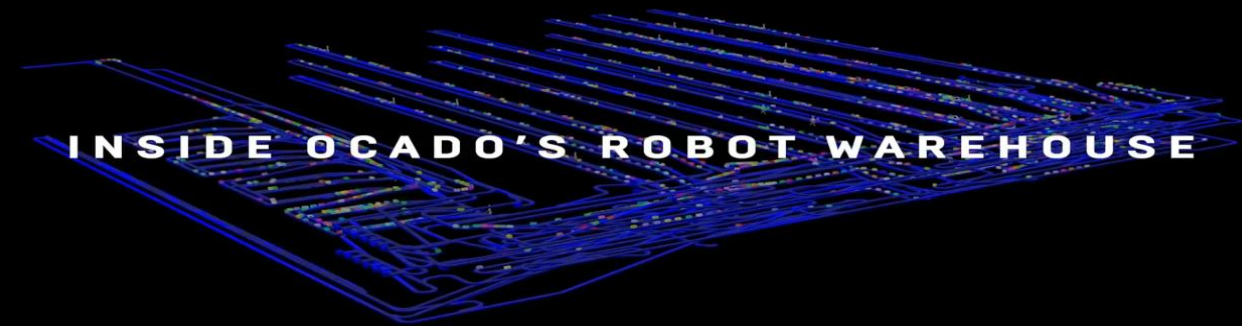
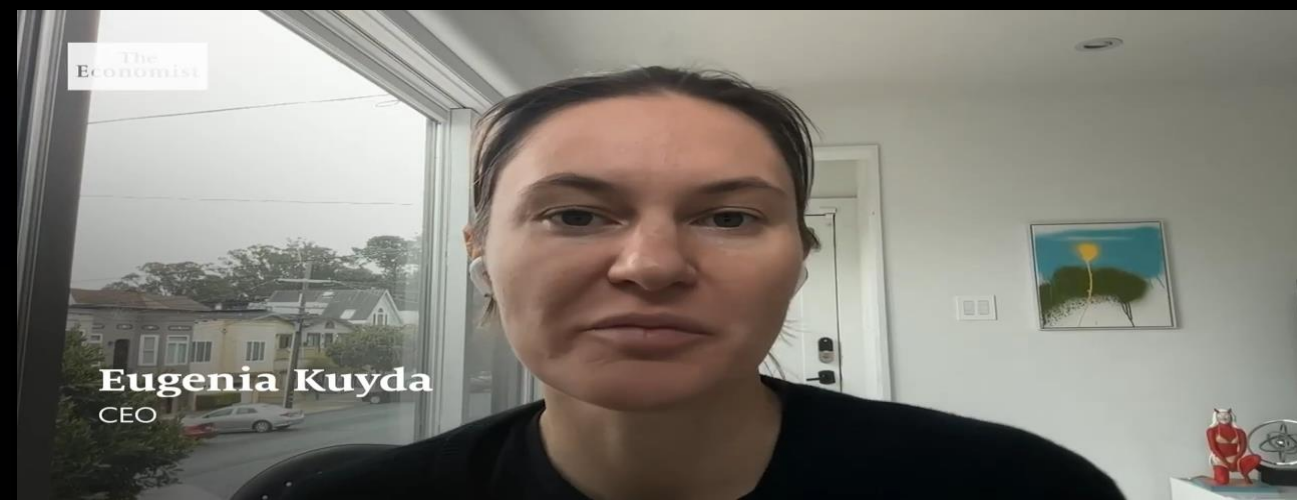
DIGITAL TRANSFORMATION

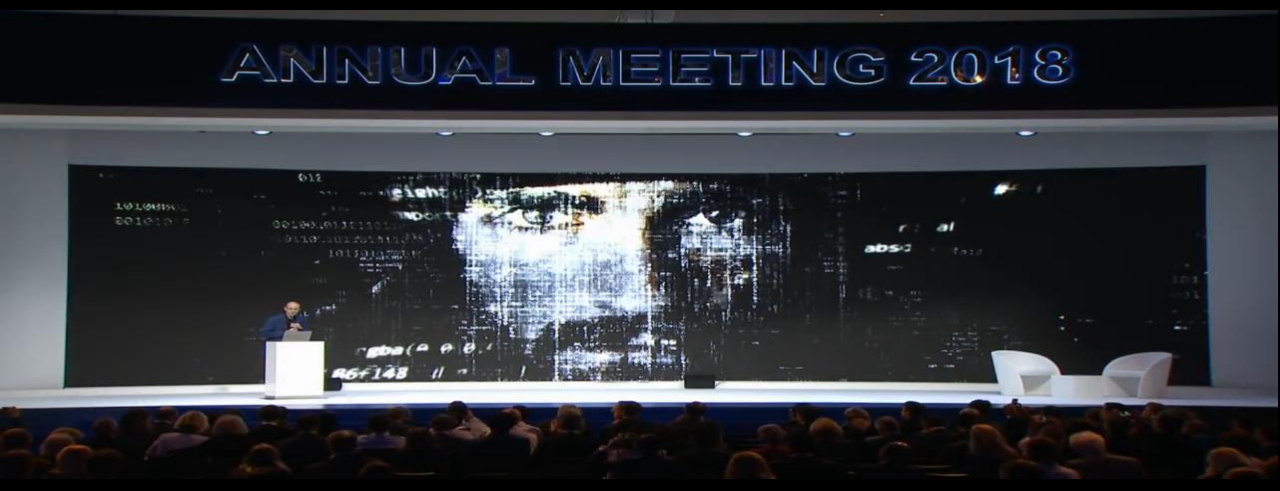
A glowing blue DNA double helix structure, rendered in a translucent, wireframe-like style. The structure is set against a dark background with faint, out-of-focus light patterns. The text "BIOTECH TRANSFORMATION" is centered in white, bold, sans-serif font.

BIOTECH TRANSFORMATION

DIGITAL TRANSFORMATION

Advanced Analytics
Artificial Intelligence
Machine Learning
Deep Learning
Quantum Computing
IoT/Sensoring
AR&VR
Blockchain





BIOTECH TRANSFORMATION

- Gene Testing
- Gene Editing
- Human Enhancement
- Synthetic Biology
- Longevity



MEGATRENDS



Economy
Dynamics



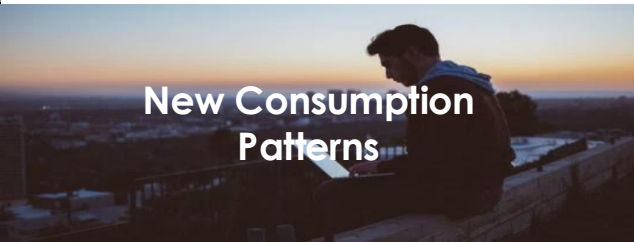
New Patterns
of Mobility



Business Ecosystems
& Networks



Future of
Health



New Consumption
Patterns



Biotechnology
Transformation



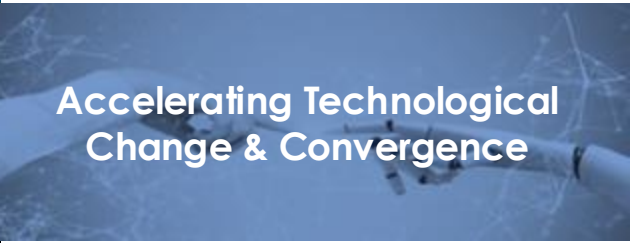
Digital & Virtual
Transformation



New
Individualities

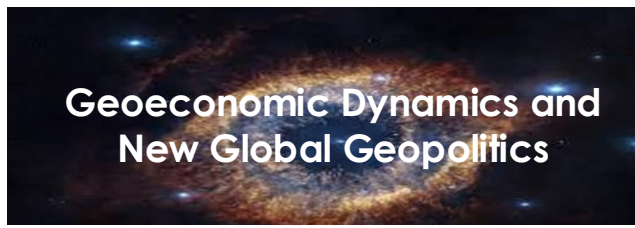


Changing Nature of
Work and Skills



Accelerating Technological
Change & Convergence

MEGATRENDS



Geoeconomic Dynamics and
New Global Geopolitics



Globalisation



Cities and
Urbanisation



Climate Change &
Environmental Impacts



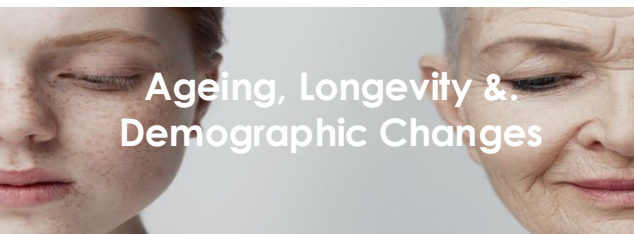
Transition to Clean Energy and
Energy Reversal



Social Welfare
& Inequalities



Changing Security
Paradigms



Ageing, Longevity &
Demographic Changes



Water Challenges



Ocean & Resources

DIVERGING GLOBAL POPULATION TRENDS

- Global population growth
- Shifting migration patterns
- Changing age structures: Ageing and shrinking populations in Developed Countries; Growing Population and baby boom in some Developing Countries

NEW PATTERNS OF MOBILITY

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- New vehicle concepts – new drive technologies

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- Web 2.0: New media find their way into our everyday lives
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ENERGY AND RESOURCE REVERSAL

- Strategic resource scarcities (fossil fuels, freshwater, minerals, metals)
- Use of alternative sources of energy and renewable resources
- Revolution in energy efficiency
- Decentralised energy supply

CLIMATE CHANGE AND ENVIRONMENTAL IMPACTS

- CO2-discharges and global rise of temperatures
- Increase of environmental problems in emerging and developing countries
- Clean technologies
- Corporate responsibility increases

DIFFERENTIATED LIFEWORLDS

- Weakening of traditional gender roles
- New forms of individuality
- Dynamic biographic developments
- Complex identity formation
- "Glocal" patterns of consumption
- Sophisticated consumption

NEW INDIVIDUALITIES

- Women are integrated into the working world
- "Female" soft skills become more important
- Participation as market actors: Defining influence on product and service standards
- Work-life balance

GROWING THREATS TO INTERNATIONAL SECURITY

- Global risk society
- Festering cultural conflicts & failed states
- Global terrorism
- Proliferation of weapons of mass destruction

BIOTECH TRANSFORMATION

- Development of modified and synthetic organisms
- Improvement of human abilities
- Smart materials and new construction principles
- Existential risks

CULTURAL DIVERSITY

- Plural ways of life between tradition and today
- Value systems compete globally
- Emergence of hybrid culture

NEW POLITICAL WORLD ORDER

- China and India join the ranks of world powers
- Crisis of Western democracies
- Russia's renaissance
- Africa awakes

WATER CHALLENGES

- Only a small fraction is freshwater
- Aggravation by consequences of climate change + Urbanisation and water shortage
- Water recycling ("Zero discharge")
- Measurement of water quality
- Advanced water treatment
- Intelligent Waters Grids?

URBANISATION

- Megacities grow strongly
- Development of adapted infrastructure solutions
- New forms of residence, living, and participation

CHANGES IN THE WORK WORLD

- Advances in automation (from the sector of production to the sectors of service and knowledge)
- Highly flexible working practices (anytime, anywhere)
- Flexible, interactive work structures

NEW CONSUMPTION PATTERNS

- The Third World participates in economic wealth (Bottom of the Pyramid)
- Catch-up luxury in China, India, and Russia
- Sustainable consumption in the West (Eco Chic, Moral Commerce)



TRENDS



Weak Signals



WILDCARDS

Think the Unthinkable

The
Economist

Britain after Brexit

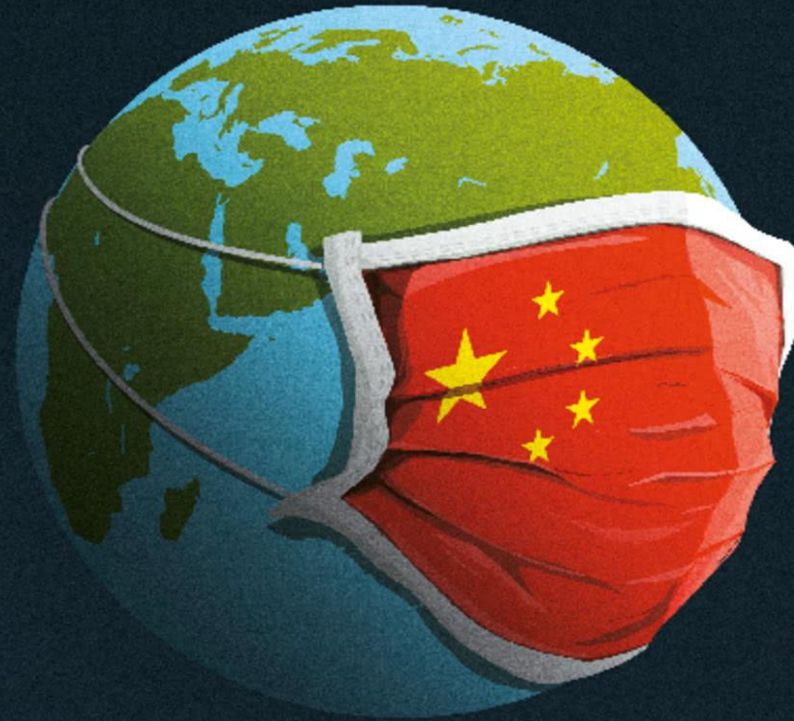
Trump's one-sided peace plan

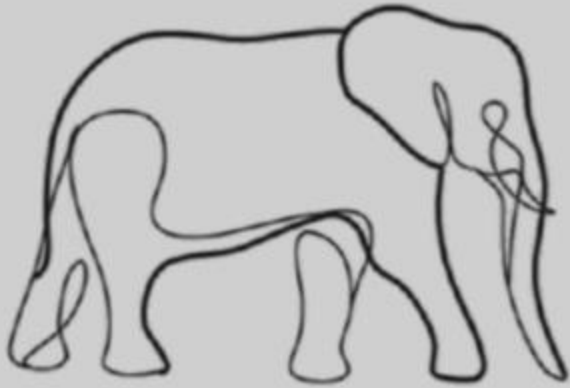
Private markets—a dangerous obsession

The problem with puberty blockers

FEBRUARY 15TH–21TH 2020

How bad will it get?





BLACK ELEPHANT

Extremely likely and widely predicted events that are usually ignored by the society



BLACK SWAN

Events totally outside and way beyond our observations



BLACK JELLYFISH

Things we think we know and understand but which turn out to be more complex and uncertain than we expected

UNCERTAINTIES

UNCERTAINTY

Uncertainties are driving forces that point to alternative and contrasting evolutions.

MEGATRENDS
TRENDS
WEAK SIGNALS
WILDCARDS
UNCERTAINTIES

Constellation of Driving Forces



ASSUMPTIONS UNDERLYING FUTURES STUDIES

ASSUMPTIONS UNDERLYING FUTURES STUDIES

The Meaning
of Time

The Singularity of
the Future

Futures Thinking
and Action

The Most Useful
Knowledge

Interdependence
and Holism

Future Facts?

An Open
Future

Better Futures

Humans Make
Themselves

Source: Wendel Bell, 1997.

PRINCIPLES of STRATEGIC FORESIGHT

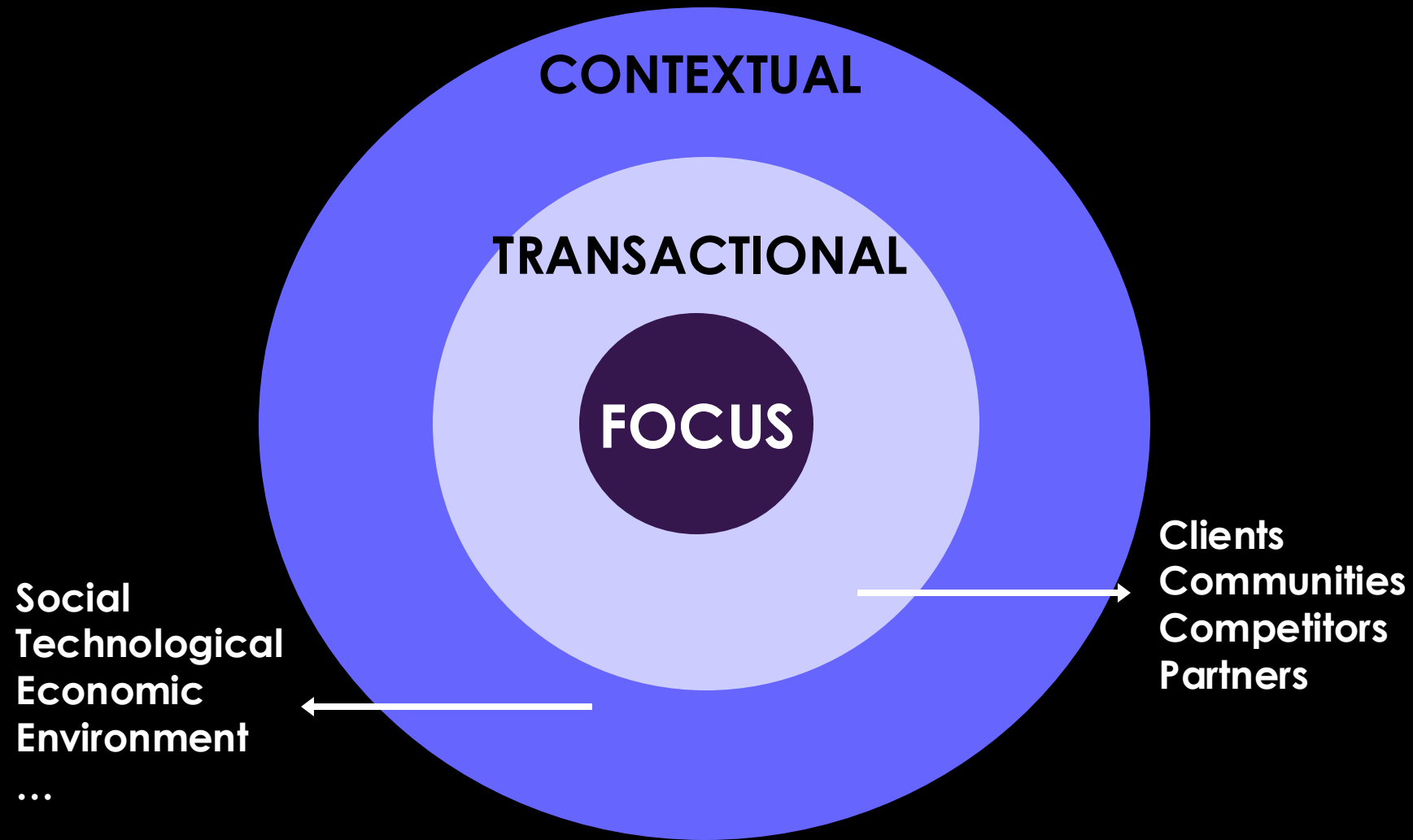
The Long Term and the "Long View"



Retrospective and Peripheral Vision

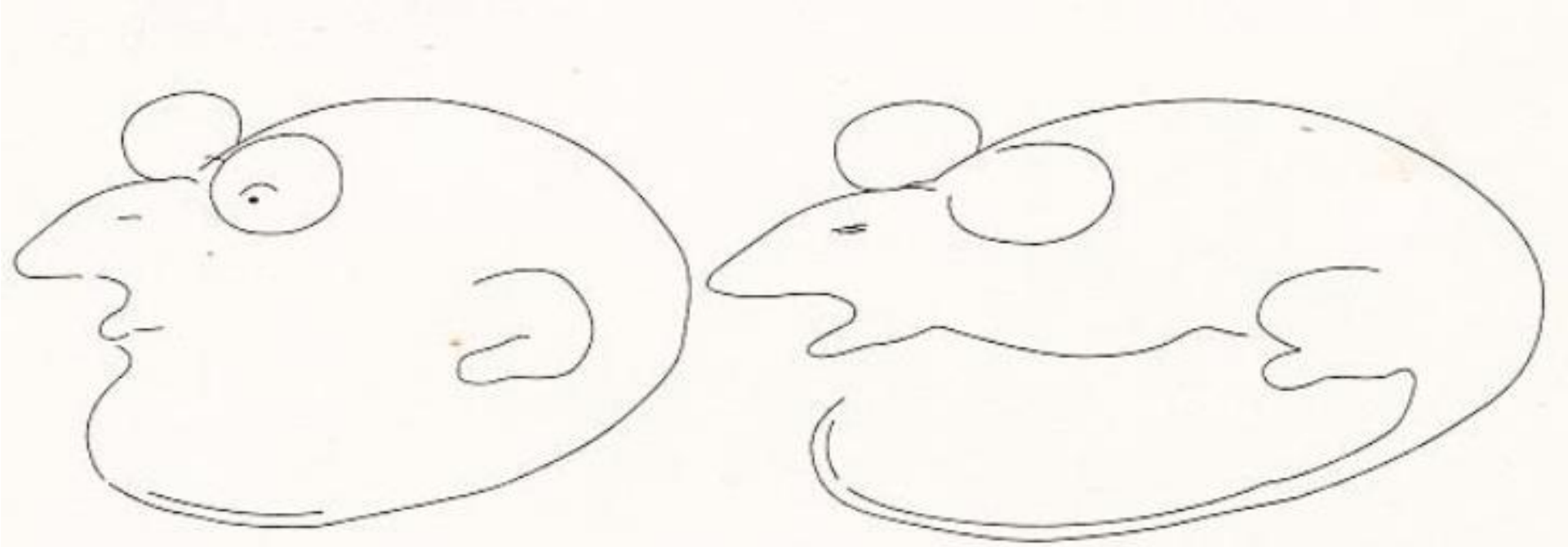


“Outside-in Thinking”



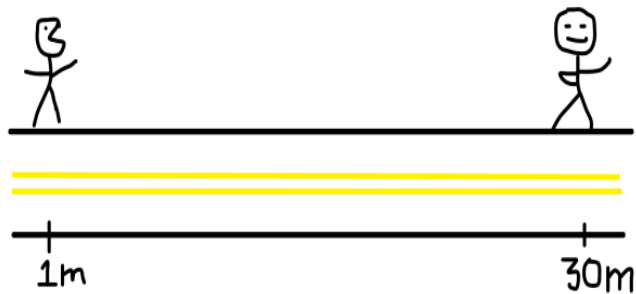
Sense Making



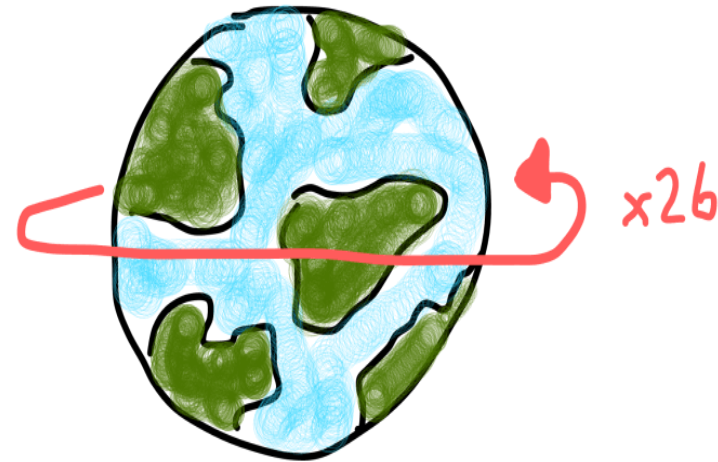


Exponential

If your stride is 1 meter, 30 linear steps will take you 30 meters from the starting point.



With a 1 meter stride, 30 exponential steps will take you 26 trips around the world!



THE NEW YORK TIMES BESTSELLER

THINKING, FAST AND SLOW



DANIEL
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

"[A] masterpiece... This is one of the greatest and most engaging collections of insights into the human mind I have read." —WILLIAM EASTERDAY, *Financial Times*

NOISE

A Flaw in Human Judgment

DANIEL
KAHNEMAN

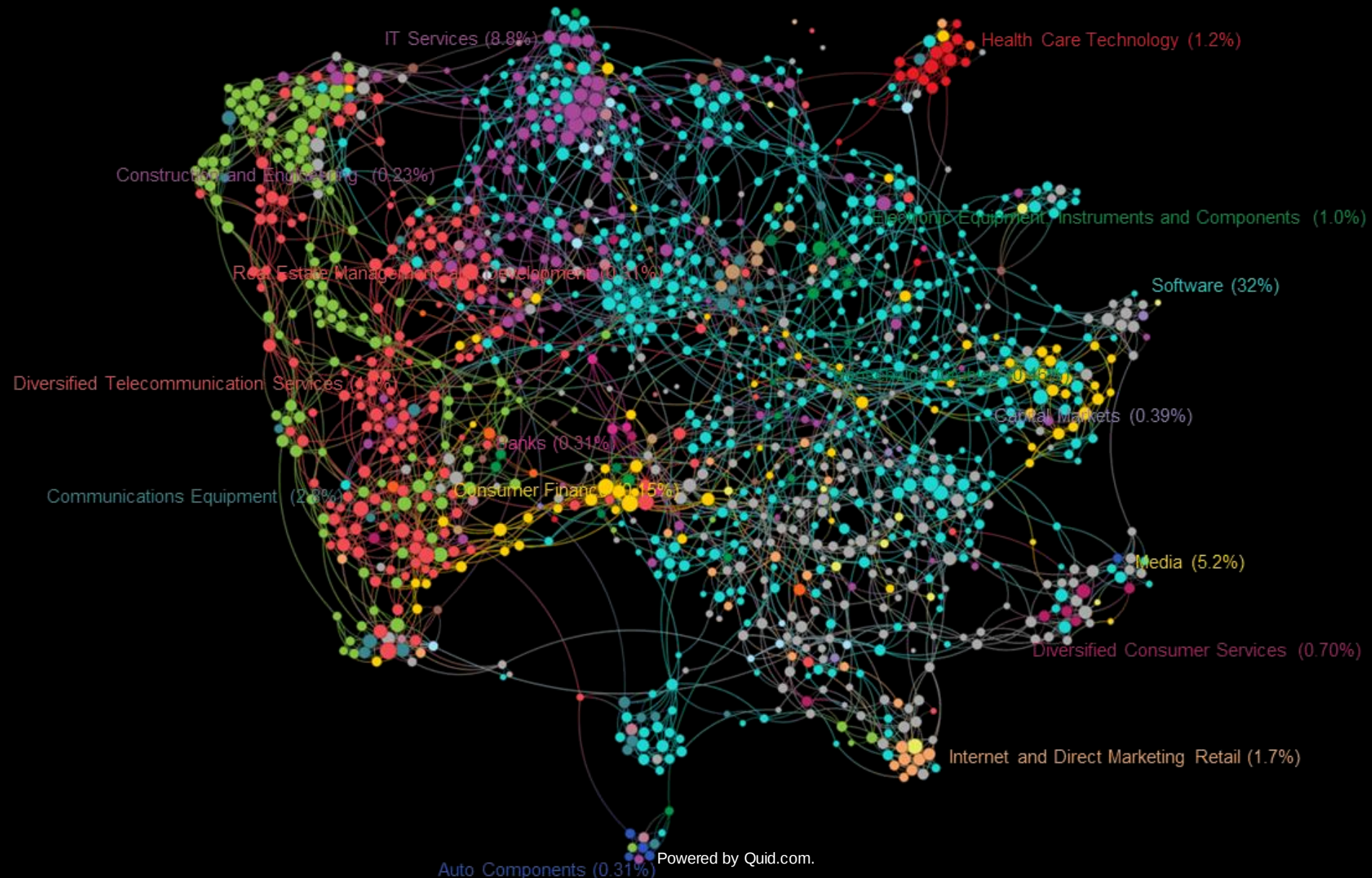
AUTHOR OF *THINKING, FAST AND SLOW*

OLIVIER
SIBONY

CASS R.
SUNSTEIN

Multiple Perspectives

Morphology of the Future



Discipline Creativity and Imagination





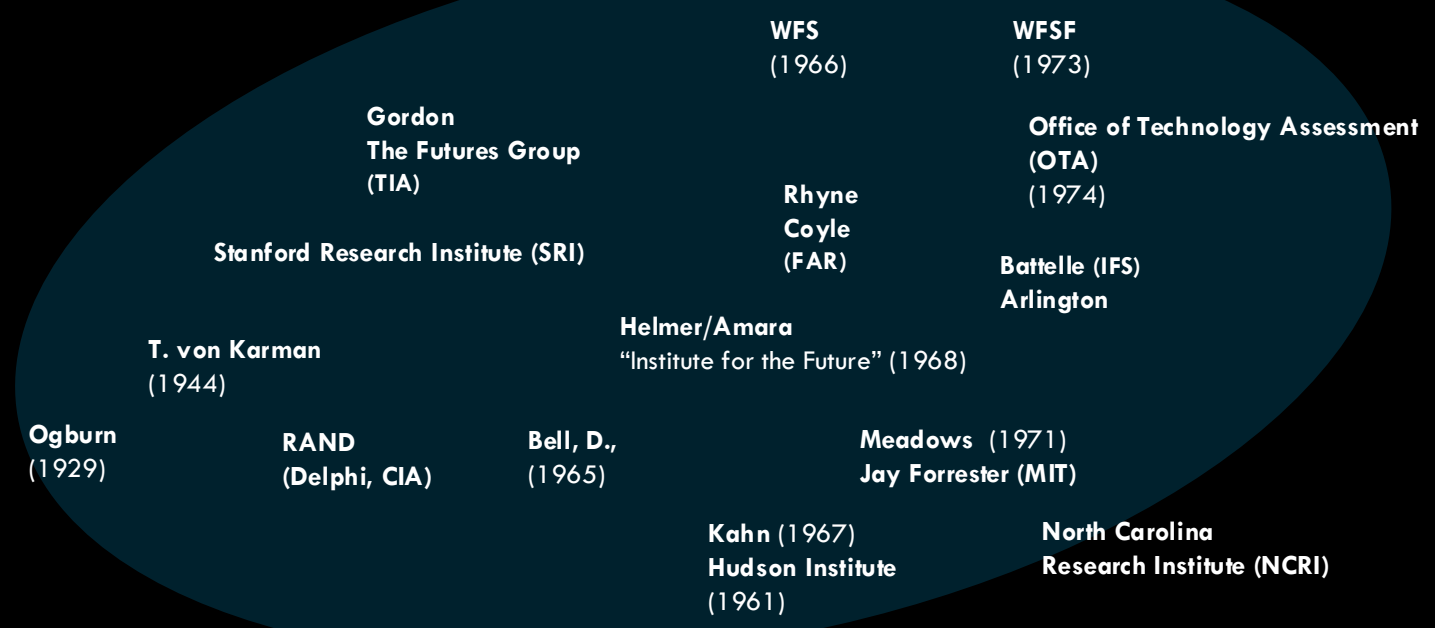
A BRIEF HISTORY OF FUTURES STUDIES



Futures Studies and Foresight

Constellations of Authors and Institutions

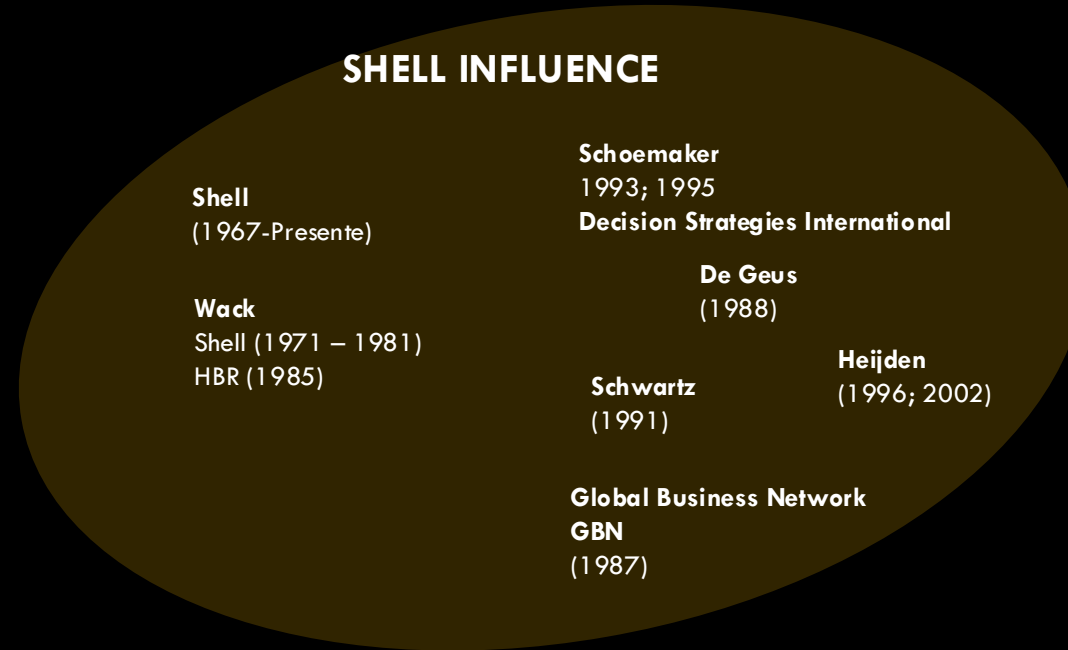
ORIGINS & PIONEERS



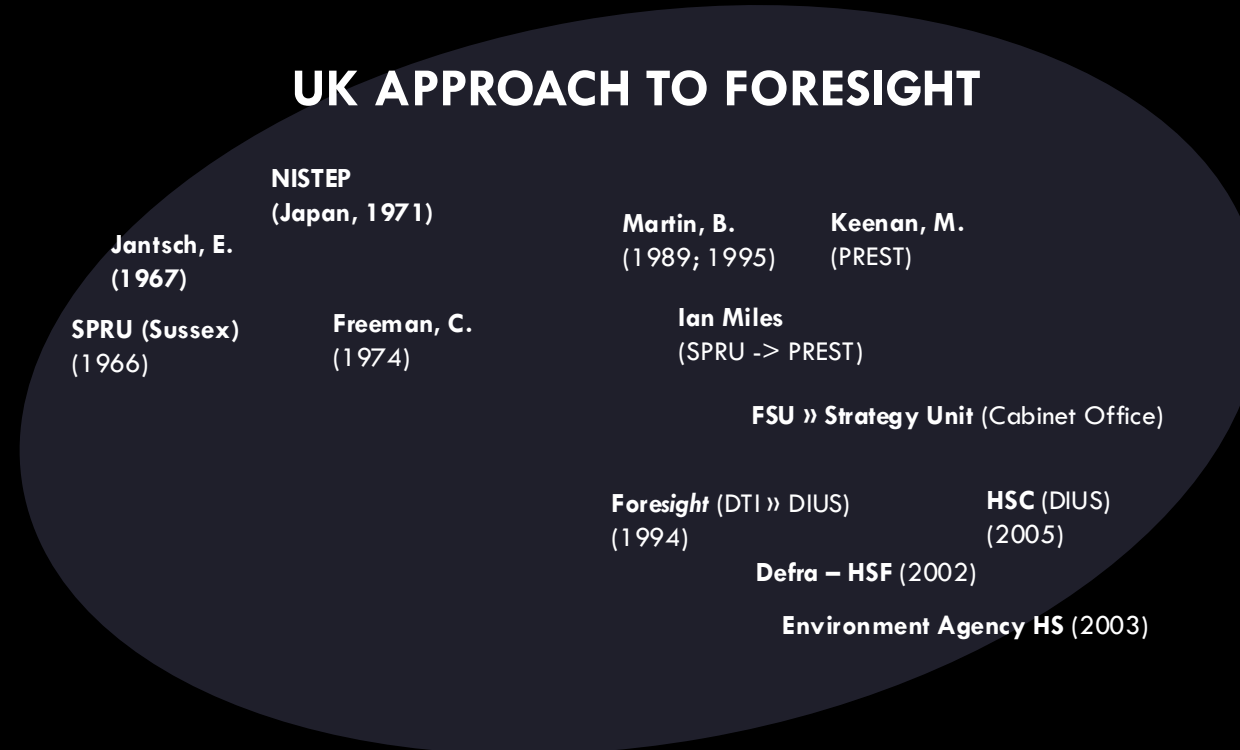
LA PROSPECTIVE



SHELL INFLUENCE



UK APPROACH TO FORESIGHT



OTHER CONTRIBUTIONS AND TRENDS



1940's

1950's

1960's

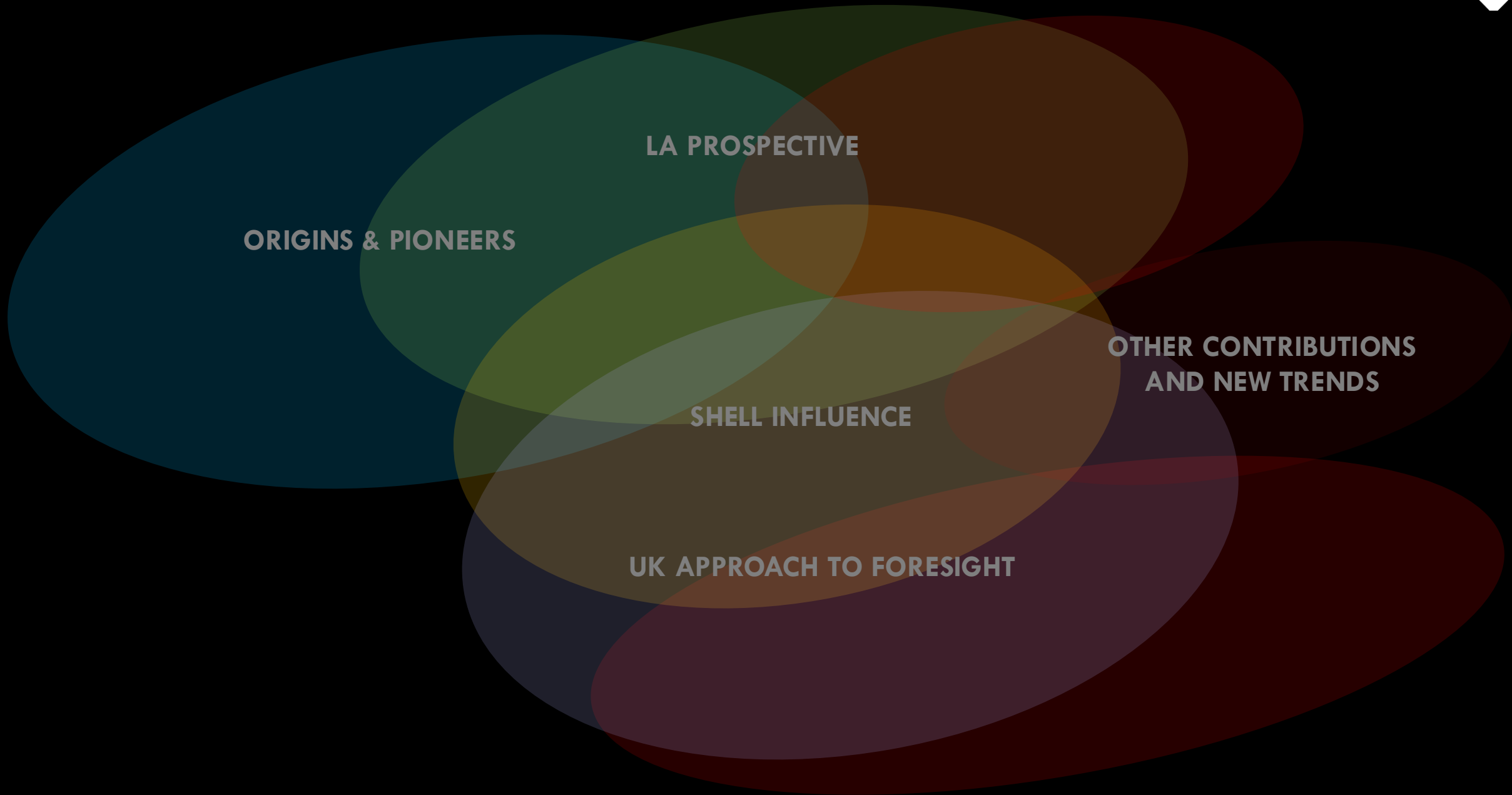
1970's

1980's

1990's

2000's

2020's

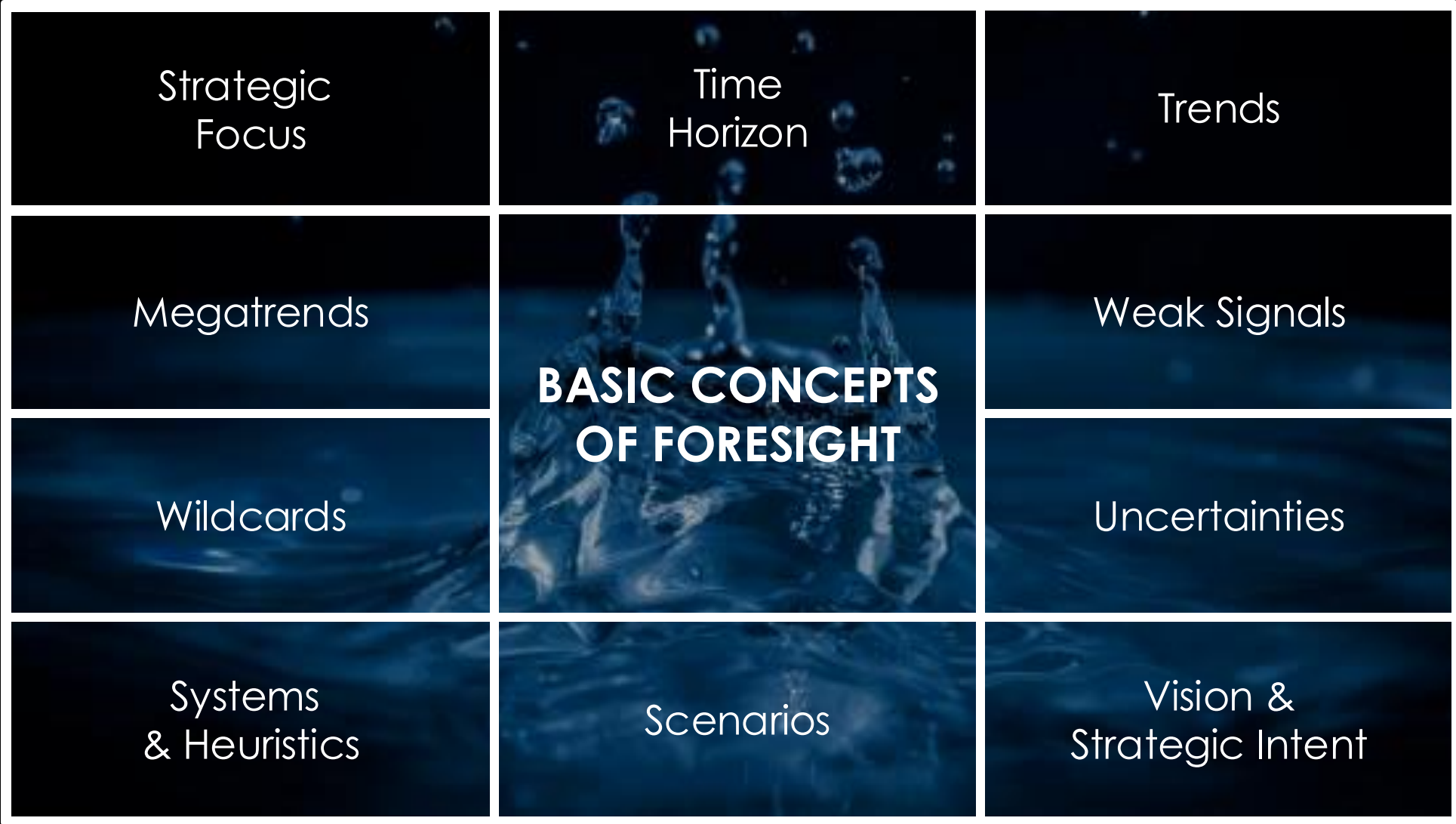


Futures Studies and Foresight

Past and Emergent Paradigms



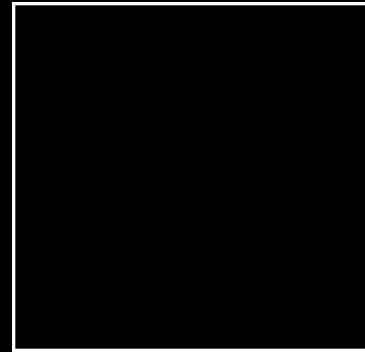
CONCEPTS of STRATEGIC FORESIGHT



STRATEGIC FOCUS

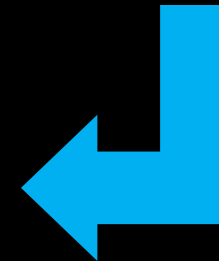
THE VALUE OF THE STRATEGIC FOCUS AND THE TIME HORIZON

Emergence of
what is **relevant**



Creates a platform for
discoveries and
explorations

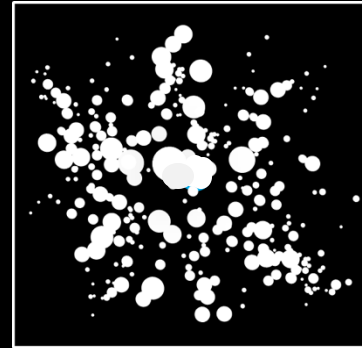
Allows you to “**Anchor**” the
discussion and **questions**



THE VALUE OF THE STRATEGIC FOCUS AND THE TIME HORIZON

Exploratory

Emergence of
what is **relevant**



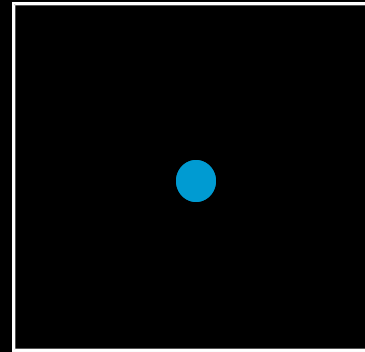
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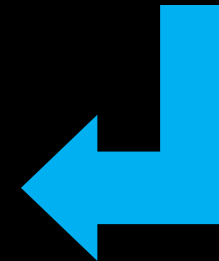
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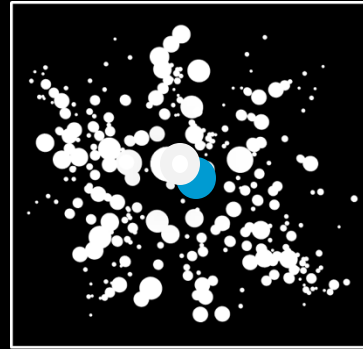
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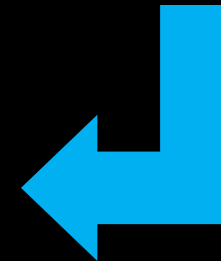
Decisional

Emergence of
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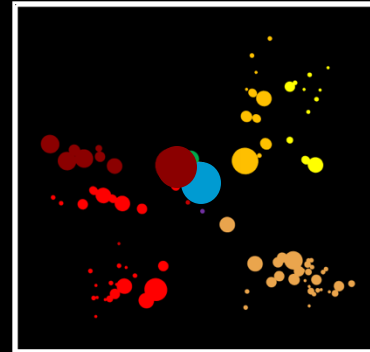
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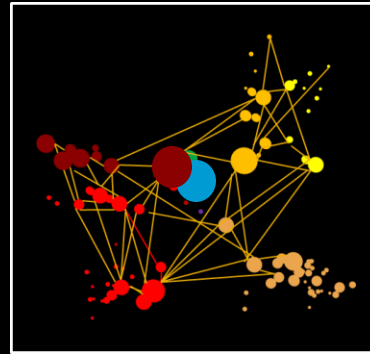
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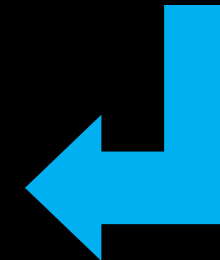
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TIME HORIZON

THE CHOICE OF THE TIME HORIZON

- The Time horizon is "Negotiable"
- One rule: consider the long term as the time frame necessary for changes in historical relationships and trends to take place.
- The ideal time horizon is the "Horizon of Disruption / Discontinuities". However, this is not always identifiable, and in certain situations there is a succession of micro-ruptures that could lead to a new dynamic.

MEGATRENDS
TRENDS
WEAK SIGNALS
WILDCARDS
UNCERTAINTIES

MEGATRENDS



MEGATRENDS (European Commission)

- Megatrends are long-term global driving forces that are observable in the present and are likely to continue to have a significant influence for a few decades.
- They can be used to reflect on the future in a systemic way!
- The European Commission has decided to monitor 14 Global Megatrends relevant for the future of the world, with some focus on Europe. (EU FORESIGHT: What is the Megatrends Hub. How to use megatrends to make your work future-proof)

MEGATRENDS (SITRA)

- A Megatrend is a general direction of development, consisting of several phenomena, or a wide-ranging process of change.
- They are often considered to occur at the global level and development is often believed to continue in the same direction.
- Megatrends are not surprising: they are familiar things, changes that are already happening today and highly likely to continue happening tomorrow.
- They provide a useful view of broad future changes that can be narrowed down by focusing on more detailed trends, weak signals and the analysis of tensions.

MEGATRENDS (CIFS)

- Megatrends are the big drivers of change. They have massive consequences for all organisations in the medium term. Amongst the most important megatrends are automation, urbanisation, population growth, ageing, greater interconnectedness, globalisation, environmental change, and environmentalism.
- Knowing and understanding the trajectories of megatrends is crucial for any decision-maker seeking to make more futures-informed decisions in an increasingly complex world.

MEGATRENDS (Z_Punkt)

- Drivers of global change and strong impact that affect a system during a long period of time.
- Megatrends are driving paradigm shifts within areas of **basic need**. This leads to the emergence of **new growth areas** and **value creation opportunities** (Z_Punkt).
- But far-reaching **conflict lines** in society and politics are also recognizable against the background of the megatrends in question (Z_Punkt).



Economy
Dynamics



New Patterns
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Business Ecosystems
& Networks



Future of
Health



New Consumption
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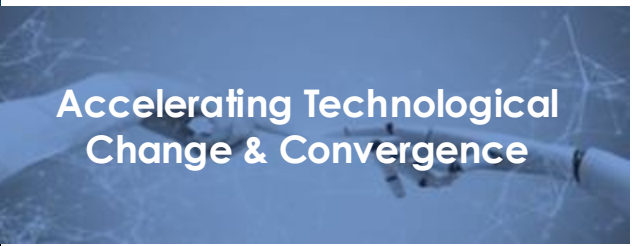
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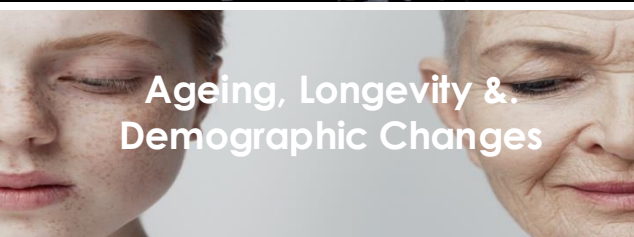
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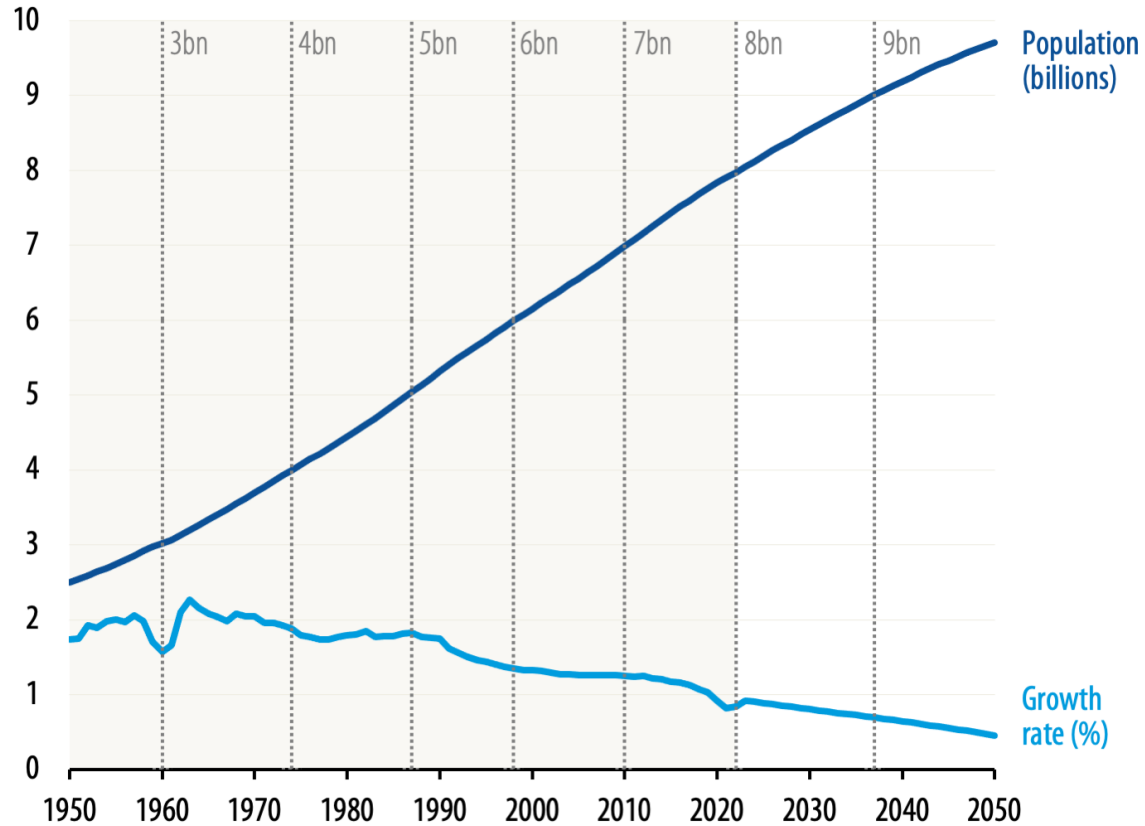
Ocean & Resources

MEGATRENDS

SILVER TSUNAMI

Population boom fizzling

Even as global population passes 8 billion, the rate of growth continues to decline.

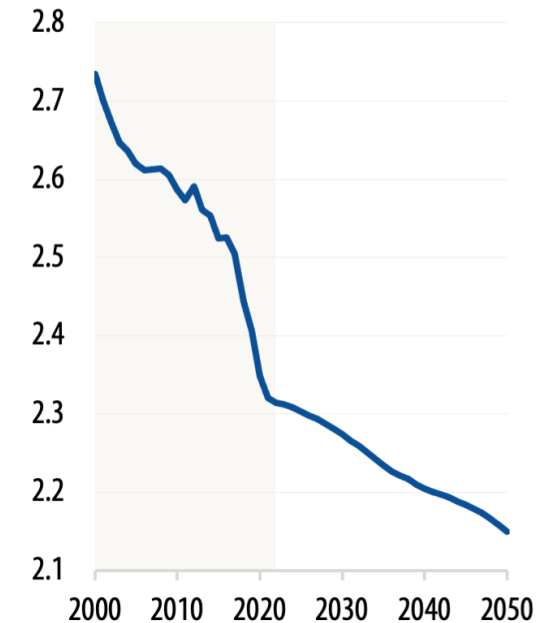


Sources: United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects, 2022 Revision.

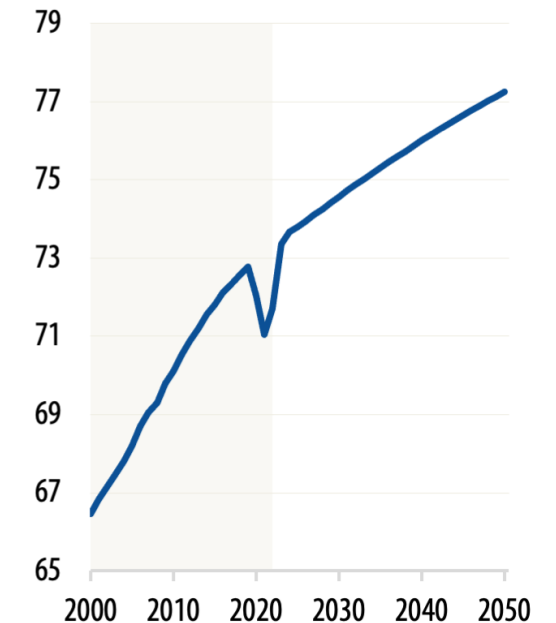
Aging population

People are living longer and having fewer children, leading to a greater proportion of elderly in the population.

Total fertility rate, worldwide
(births per woman)



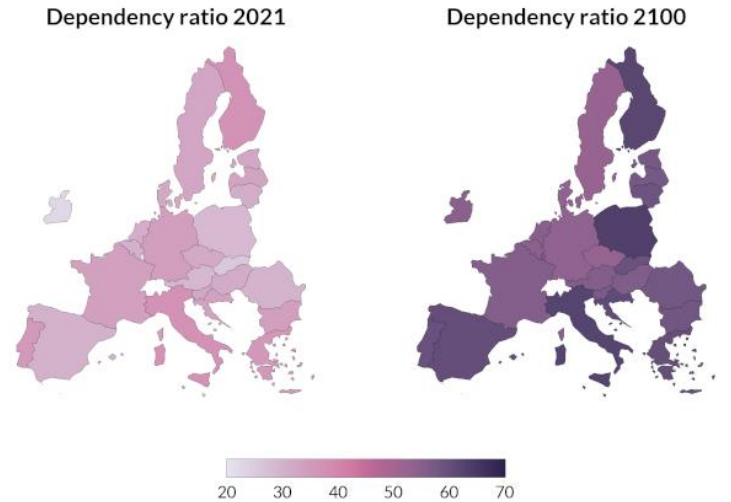
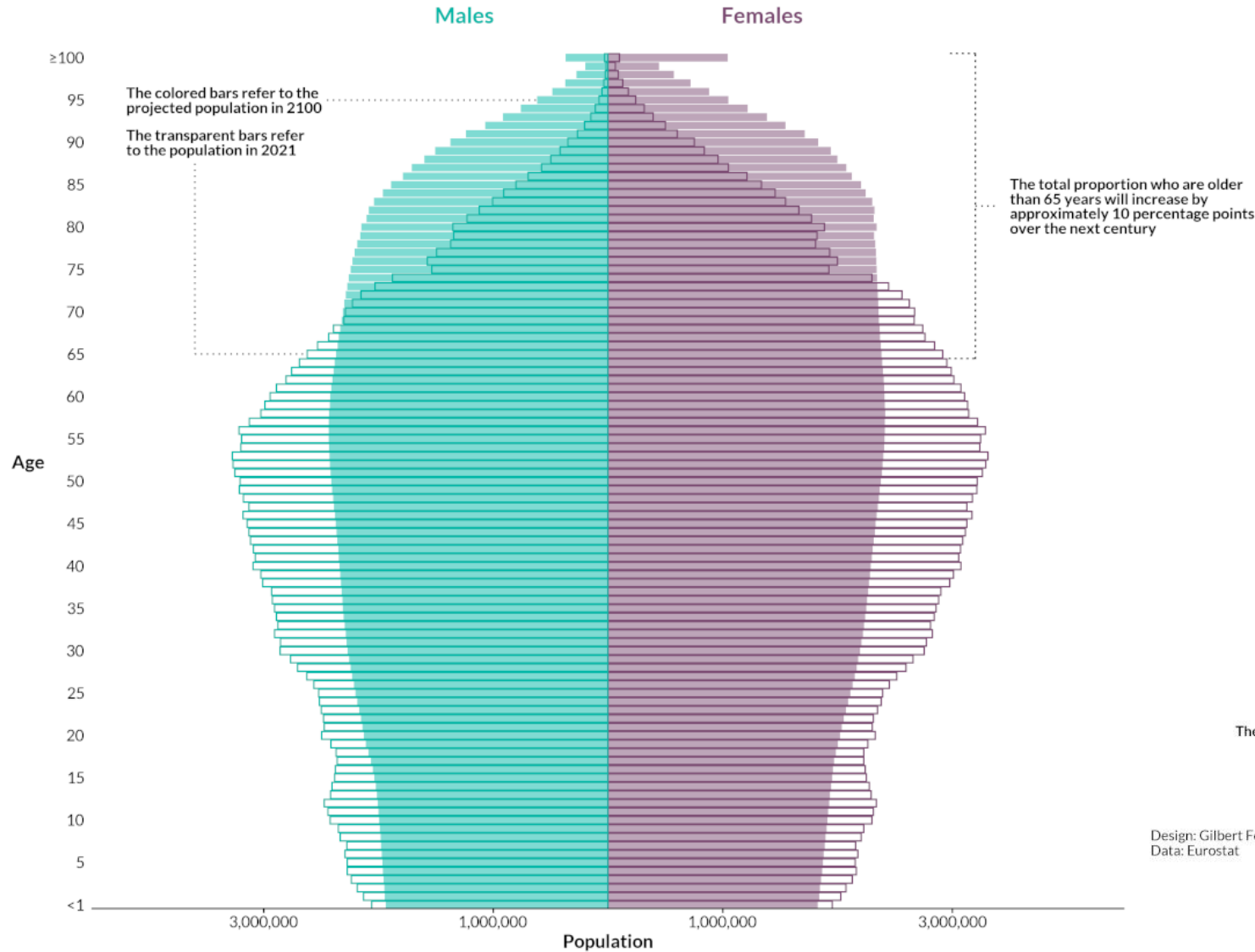
Life expectancy at birth, worldwide
(years of life expectancy)



Sources: United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects, 2022 Revision.

The EU's Aging Population

2021 vs. 2100



The dependency ratio is calculated as the ratio between the number of persons aged 65 and over (age when they are generally economically inactive) and the number of persons aged between 15 and 64. The value is expressed per 100 persons of working age (15-64).

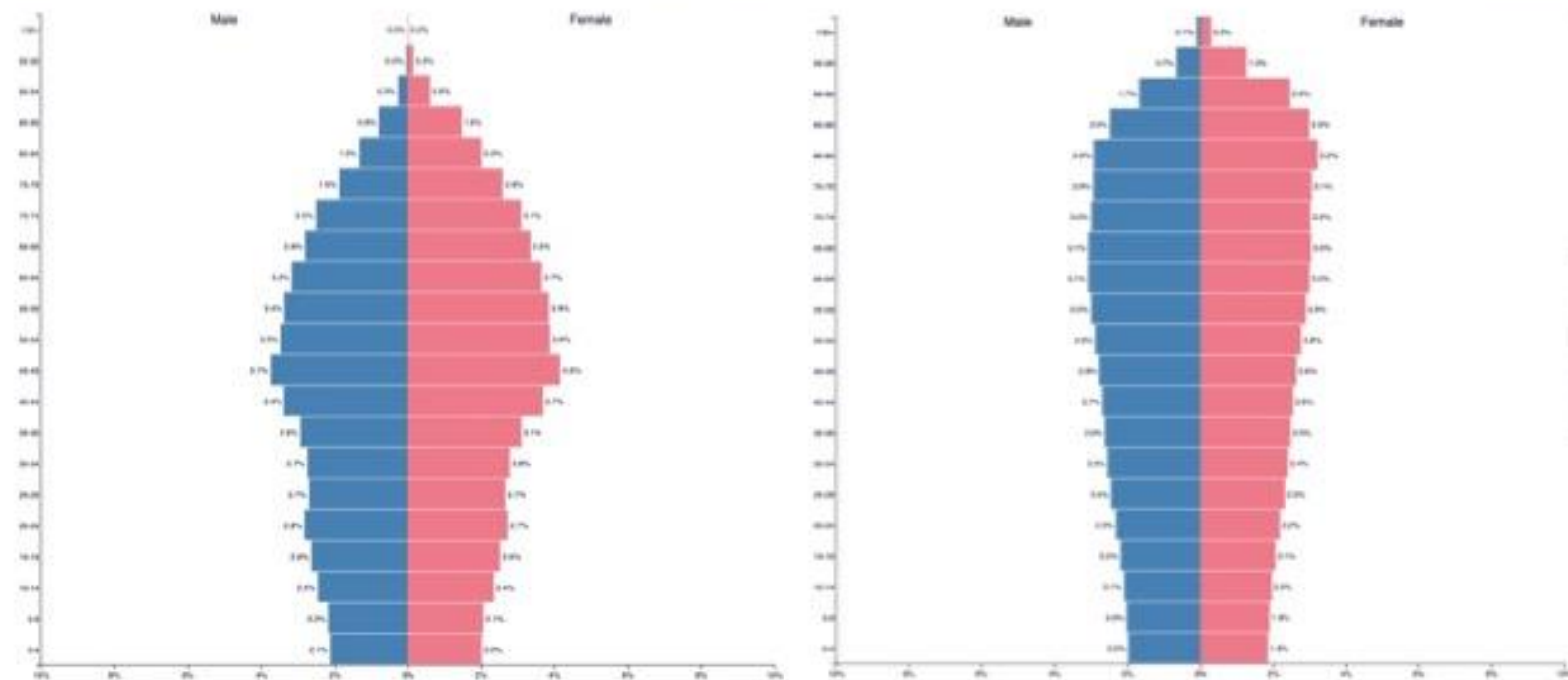
Design: Gilbert Fontana
Data: Eurostat

Portugal ▼
2022

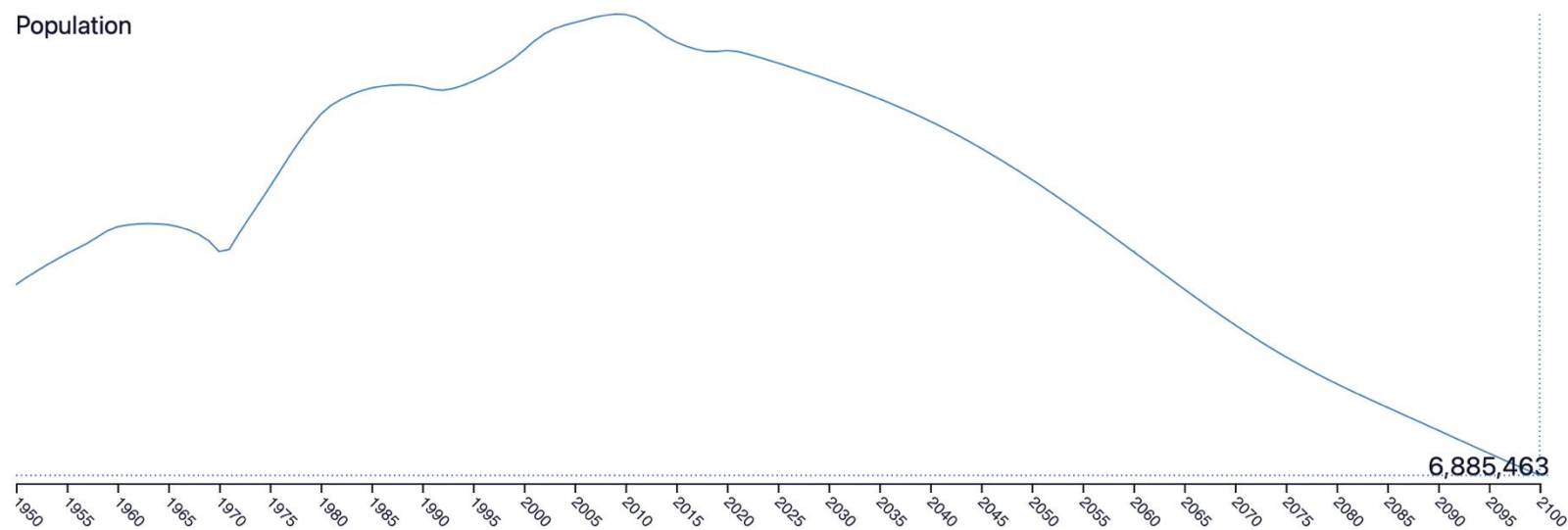
Population 10,270,865

Portugal ▼
2100

Population 6,885,463



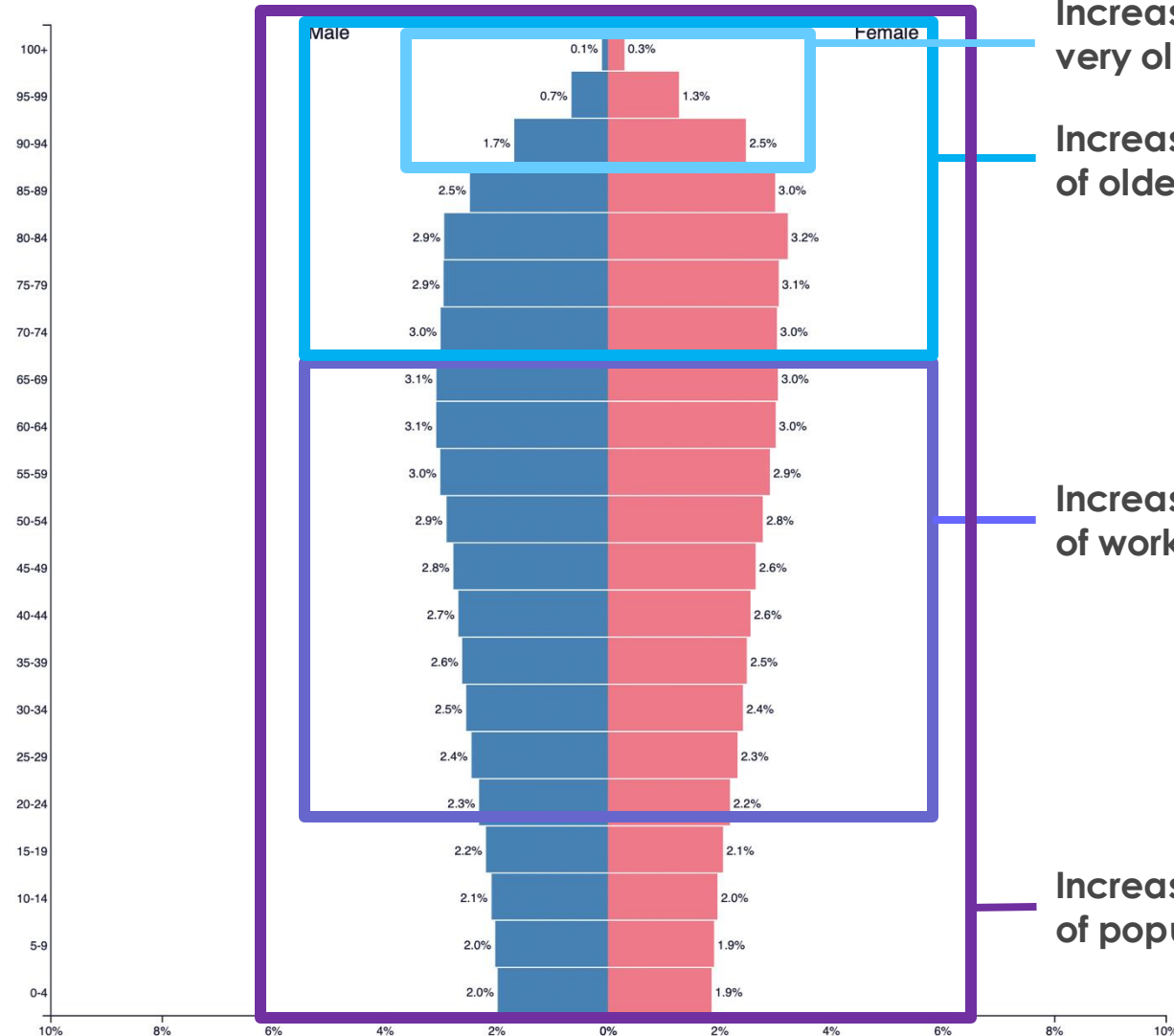
Population



Population Pyramid in 2100

Portugal ▼
2100

Population: 6,885,463



Increase average of
very old people (+90)

Increase average age
of older people

Increase average age
of working population

Increase average age
of population in general

TRENDS



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- "Glocal" patterns of consumption
- Sophisticated consumption

NEW INDIVIDUALITIES

- Women are integrated into the working world
- "Female" soft skills become more important
- Participation as market actors: Defining influence on product and service standards
- Work-life balance

GROWING THREATS TO INTERNATIONAL SECURITY

- Global risk society
- Festering cultural conflicts & failed states
- Global terrorism
- Proliferation of weapons of mass destruction

BIOTECH TRANSFORMATION

- Development of modified and synthetic organisms
- Improvement of human abilities
- Smart materials and new construction principles
- Existential risks

CULTURAL DIVERSITY

- Plural ways of life between tradition and today
- Value systems compete globally
- Emergence of hybrid culture

NEW POLITICALWORLD ORDER

- China and India join the ranks of world powers
- Crisis of Western democracies
- Russia's renaissance
- Africa awakes

WATER CHALLENGES

- Only a small fraction is freshwater
- Aggravation by consequences of climate change + Urbanisation and water shortage
- Water recycling ("Zero discharge")
- Measurement of water quality
- Advanced water treatment
- Intelligent Waters Grids?

URBANISATION

- Megacities grow strongly
- Development of adapted infrastructure solutions
- New forms of residence, living, and participation

CHANGES IN THE WORK WORLD

- Advances in automation (from the sector of production to the sectors of service and knowledge)
- Highly flexible working practices (anytime, anywhere)
- Flexible, interactive work structures

NEW CONSUMPTION PATTERNS

- The Third World participates in economic wealth (Bottom of the Pyramid)
- Catch-up luxury in China, India, and Russia
- Sustainable consumption in the West (Eco Chic, Moral Commerce)



TRENDS

- A trend is a pattern of gradual change in a condition, output, or process, or an average or general tendency of a series of data points to move in a certain direction over time, represented by a line or curve on a graph. (OECD)
- Trends are large-scale, long-term shifts in social, economic, technological, environmental, or political conditions that influence a wide range of activities, processes, and perceptions. (European Environment Agency).
- A Trend Is a direction towards which an industry or market Is moving. A Trend can be understood as a significant development of one or more variables in the same direction and constant over a certain period of time. Compared to so-called "fashions" or "hypes", trends last at least five years and have a significant impact on the corporate environment. A trend exists outside of the company and independently from it. (Itonics)

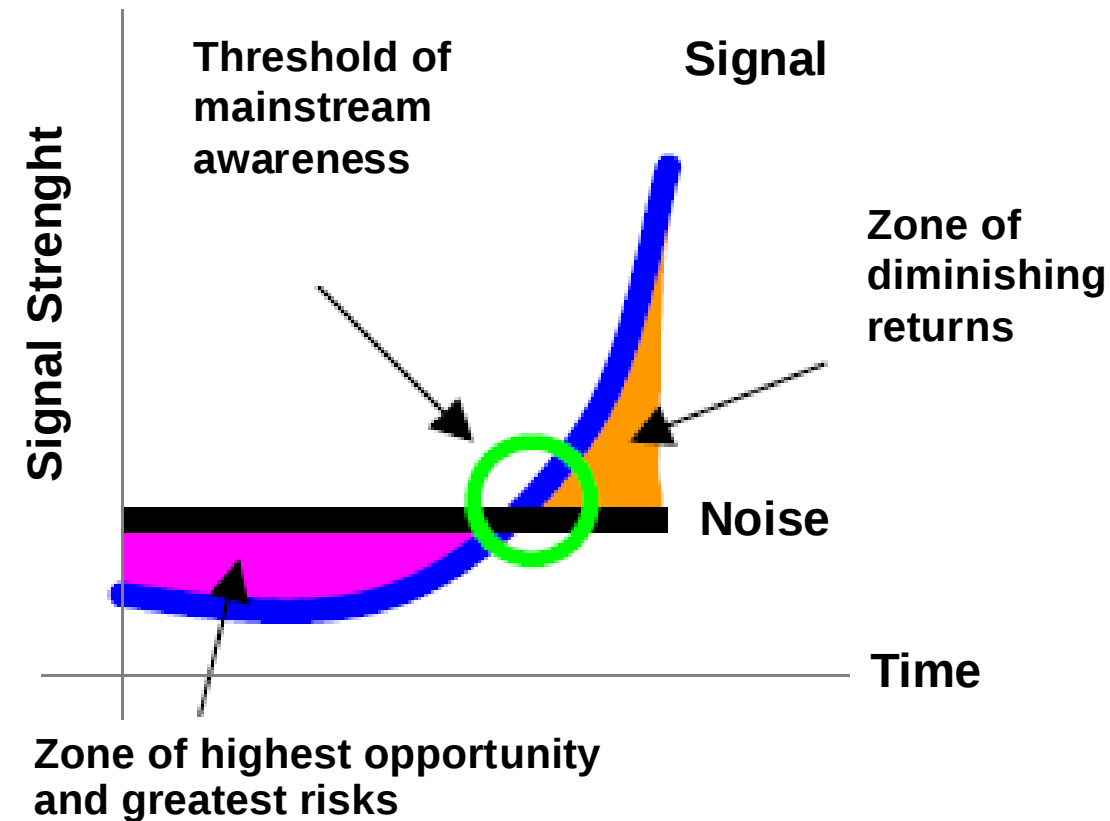
Weak Signals



WEAK SIGNALS

Weak signals are those ambiguous and controversial bits of information about the competitive environment that are typically hidden among the "noise" of the prevailing sense making paradigm and that gradually coalesce to form a pattern of intelligence that alerts sensitive leaders that it may be time to change their game.

Amplification of the Signal on a Channel with Noise



Source: Coffman, 1997.

WILDCARDS

Think the
Unthinkable



WILDCARDS

Think the
Unthinkable

The
Economist

Britain after Brexit

Trump's one-sided peace plan

Private markets—a dangerous obsession

The problem with puberty blockers

FEBRUARY 15TH–21TH 2020

How bad will it get?



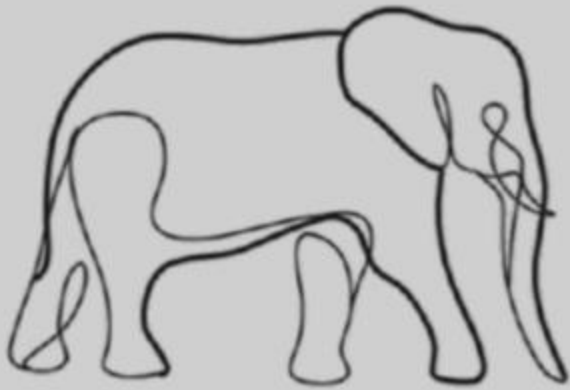
INSIGHT &
FORESIGHT

WILDCARDS

- "A wildcard is a future development or event with a relatively low probability of occurrence but, if it were to occur, would have a high impact" (Petersen).
- "Wildcards are events or developments that have a low likelihood of happening but, if they did happen, would have a huge impact on our world" (Mendonça et al).
- "Wild cards are low-probability, high-impact events that are difficult to predict in advance." (Wilson)

WILDCARDS

Discontinuities and sudden events with a low probability of occurrence, high impact and unexpected character.



BLACK ELEPHANT

Extremely likely and widely predicted events that are usually ignored by the society



BLACK SWAN

Events totally outside and way beyond our observations



BLACK JELLYFISH

Things we think we know and understand but which turn out to be more complex and uncertain than we expected

UNCERTAINTIES

UNCERTAINTY

Uncertainties are driving forces that point to alternative and contrasting evolutions.

CRUCIAL UNCERTAINTIES

Importance/Relevance (strong potential impact) to the FOCUS

Relative Independence

High level of Uncertainty

Critical forces with a high level of uncertainty and strong impact in the strategic focus. Crucial Uncertainties are the basis for the construction of Scenarios.