



**FUTURES OF
ETHICS**

2040



FUTURE BOOK

A methodological and substantive guide to anticipating plausible futures



**DRIVEN BY
INTEGRITY**
TO PROTECT WHAT WE LOVE



FUTUREHEADS





INITIATIVE HOST

**HILTRUD D.
WERNER**

MEMBER OF THE GROUP BOARD OF MANAGEMENT
INTEGRITY AND LEGAL AFFAIRS



**“MANAGEMENT MEANS DOING THINGS RIGHT.
LEADERSHIP MEANS DOING THE RIGHT THINGS.”**

This is how the American management mastermind Peter Drucker put it. The Volkswagen Group feels committed to this claim of a modern company. We have set the course with our “Together 2025+” strategy. We are moving forward and taking a leading role in the automotive industry. Electromobility, digitalization, new forms of mobility: At the heart of it all are trends, technologies and upheavals.

But for me personally, the question of “how” also arises. How do we act? What is our attitude, how do we live it? What is important to us, what values and standards do we stand for - within the company, in dialogue with our stakeholders, in exchange with society?

Our answers to these questions must make us a role model of openness and diversity. In short: to a modern, successful, future-proof company. This is the task we set ourselves.

Within the framework of the “Future Heads Network”, 25 colleagues have dared to look ahead in recent months, up to the year 2040. The result is in your hands.

The book not only emphasizes the importance of ethics in a fast-moving, highly complex world and forms the basis for our new divisional strategy in the Integrity & Legal Affairs department, but also provides a comprehensive overview of the latest developments in the field of ethics. It also defines our position and recommends courses of action to ensure that what we achieved during the Monitor mandate is sustained after the mandate ends.

I can tell you this much: Ethics, compliance, legal and risk management are more important than ever. Why, read on below.

I hope you enjoy reading!

**Your
Hiltrud D. Werner**



Strategy work without external management consultants? That is possible - thanks to the many colleagues from the “Future Heads Network”.

Breaking out of the silos, into the internal know-how of four brands and nine business units. That was our motto when we launched the “Futures of Ethics” initiative in January. Six months later it has become a flagship within the Volkswagen Group. For the first time, the project takes a 360-degree view of the world in 2040, from politics, social developments and technologies to economic and ecological issues.

Our so-called “Future Heads” have spent more than 500 hours researching, interviewing and debating with experts and developing knowledge through dialogue - always accompanied by the motivation to help shape a responsible corporate architecture. Their work is impressive proof of the wealth of knowledge and expertise our company possesses. It only takes the right questions to leverage it.

On the basis of figures, data and facts, scenarios have been developed that give us a feeling of what the future corporate environment might look like and how our future stakeholders will address us with their wishes and needs.

Every interested reader is invited to use this book as an inspiration and starting point for their own reflections. Transparency, openness and exchange have shaped its development.

Next step: Future 2040 - from theory to reality.

**Your
Torben Oeder & Paul Hünecke**



Paul Hünecke

Torben Oeder



 INITIATIVE HOST

BEATE
HOFER

HEAD OF
GROUP INFORMATION SYSTEMS



He who thinks the unthinkable gains clarity. He can prepare himself for possible developments in the future.

To describe this view ahead in scenarios is not new. Nevertheless, the method is more important than ever. The final effects of the shock waves that triggered events such as the Fukushima catastrophe or the COVID-19 pandemic will be seen years from now. The consequences of technologies such as e-mobility or digitalization have also already changed our lives today. As a consequence, however, their full significance can only be experienced in the true sense of the word in years - possibly decades to come.

One thing is certain: technology will have an impact on our interaction, on our society, on the companies embedded in it. It will bring new opportunities and at the same time force debates on ethical guidelines, values and laws. It is not the computer that decides on 0 or 1, right or left, but the developer who programs its algorithm. Understood in this way, technology that puts people at the center can serve the well-being of the environment and society.

The task for us is enormous. It may overwhelm the individual. But collectively, it can be solved. The power and creativity of the many enriches, it offers space for different perspectives, future prospects and solutions. In this sense, the "Futures of Ethics" initiative has a signal effect.

You too can be inspired by the results of the many,

**Your
Beate Hofer**



INITIATIVE HOST

ELHADJ
AS SY

MEMBER OF THE
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So, the future is now; but to paraphrase Nietzsche, it's a "Weg" and not a "Ziel", way to travel and contribute to shaping the world we want, a journey that will test us in many ways, but will above all challenge our Ethos.

Our future and our world are one, yet plural, diverse, rich but vulnerable, and force us a responsibility towards the planet and humanity we all share. The strive to improve the quality of our lives, our consumption patterns, the way we do business must reflect that responsibility, protect our common goods, address the concerns of society and drive us on a sustainability path. That is a leadership journey, a leadership that foresees to better manage, a leadership that cares to gain respect, a leadership that delivers on promises to deserve trust, an inclusive leadership that will carry people along the same ethical path.

The future is open and transparent, and governance is also exercised outside the board room. As everybody has a stake in the planet and humanity we all share, everybody takes the right to watch, judge, criticize, denounce but also praise and support. Science, politics and activism co-exist in a mutually challenging way, amplified by digitalization, and continuously test our Ethos.

Beyond the methodical and pertinent prospective analysis, this book questions and challenges our certainties, and directs to ethical ways towards sustainability.

Enjoy the read!

Your
Elhadj As Sy



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→ IN A NUTSHELL

The world is changing rapidly. Some might find it difficult to keep up. But whether we can keep pace with our future in its entirety or not: Concerning ourselves with it seems the only way to prepare for what is to come. At least, that is our hope.

The Future Book is our attempt to anticipate the future up to the year 2040. It describes future drivers as well as remaining uncertainties, outlining the process from possible scenarios to the stakeholder-oriented handling of future challenges and risks.

All this, however, with a focus on the ethical effects and our answers as corporate citizens. In a nutshell: The Future Book helps preparing for the future by shaping it to a certain degree, for a sustainable future – and generations to come.



STEEP¹ RESULTS FOR THE YEARS UNTIL 2040

01 FUTURE OF SOCIETY



Driving topics are the redefinition of common welfare, immense effects of technological and demographical changes to the work force, and the upcoming shifts to economic and socially sustainable mobility.

02 FUTURE OF TECHNOLOGY



The future will hold changes in advanced technological applications, such as Artificial Intelligence, and show a new understanding of human-technological interaction and reality.

03 FUTURE OF ECONOMY



Driving forces are the accelerating de-globalization with following changes in global power structures, also catalyzed by the expanding digital economy. Management and pricing of public goods will gain further importance.

04 FUTURE OF ECOLOGY



The ecological future is driven by a growing scarcity of critical resources, real and massive effects of climate change on society and economy, and therefore an expected shift to more ecological driven decision making.

05 FUTURE OF POLITICS



Main drivers, identified in desk research, are aspects of globalized citizenship, shifts in geopolitical power structures, and the consequences of extended public and private investments.

06 IMPACT OF COVID-19



STEEP factors were checked against COVID-19 impacts. Expectation is that the COVID-19 pandemic will significantly speed up digitalization and the re-development of regional and domestic markets.



SOURCE:
¹Society, Technology, Economy, Ecology, Politics
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting



FUTURE SCENARIOS 2040 AT A GLANCE

01 PUZZLED WORLD



The baseline scenario is characterized by a decoupling development between the Eastern and the Western world. Nation states have returned to the stage putting much effort into reinstalling domestic and regional markets, where big tech-driven “super star” firms dominate. Advanced robotics accelerate automation and has led to lay-offs and increased inequality. The world still operates well beyond its sustainable limits.

02 GREEN EVOLUTION (CC)



COVID-19 has led to a paradigm shift. Social activism demands policy-makers to refocus towards sustainable value creation and preservation of limited natural resources. Circularity has been established as a mainstream profitable but also necessary business model for corporations that benefit from circularity as competitive advantage. Unethical and unsustainable behavior is punished and highly sanctioned on both a national and international level.

03 TRAUMA CONTROL



COVID-19 and the years that followed have traumatized both, populations and policy makers. Nation states agreed to pursue common efforts for averting future crises. Establishing transparency is a major aspect of international cooperation. Nation states have become regional custodians, being equipped with extensive surveillance technology. Effective achievement of policy objectives such as public health, sustainability and climate neutrality seems possible.

04 INNOVASIA



Suffering from a deep recession following the COVID-19 crisis, the western world has lost its predominant position in the global economy and political impact. Mastering the crisis well, China became the spearhead of the newly formed hemisphere of influence. Asian “super star” firms emerged, taking over the leading positions of former western giants, e.g. in the digital economy. Western firms need to strictly comply with and show transparency towards Asian regulators.

05 STRUCTURAL DECAY



The COVID-19 pandemic works as facilitator of broader social unrest and protests against existing political and economic structures intensified by mass unemployment. Populist parties take over a major role, leading to a significant trend towards self isolation. No global consensus is found in regard to intensified climate and environmental problems. Cyber crime and digital realities make it hard for individuals to decide among real and fictional reality.





FUTURE USE CASES 2040

06 USE CASES



In order to obtain the broadest possible view of the needs of future stakeholders of the Group in the different futures, a methodology from user experience was used. Fictitious personas were derived from the Group's Stakeholder Map, who formulate their needs and requirements towards the Group and contact the 1st Line of Defense. These Stakeholder Journeys inevitably generate opportunities for invention, the realization of which can be supported by the 2nd Line.

07 INSIGHT MAPS



The Insight Map is a convergent thinking tool which helps to sort insights and learnings from Personas and Stakeholder Journeys. In this case, insights are generated from the opportunities for innovation on one hand and the points of contact with the 2nd Line of Defense on the other, which reveal optimization potential. This holistic overview also shows the strengths and risks of future stakeholder engagement.

08 ETHICAL IMPLICATIONS



Both the scenarios and the developed insight maps contain ethical conflicts and stakeholder questions resulting from the various interactions between society, politics and corporations. These implications were used in the next step to identify solution areas for answering the ethical questions on the basis of developed "How Might We?"-Questions in order to minimize risks. This ultimately makes it possible to derive both fields of action and role profiles in the Integrity & Legal Affairs department.

09 NEXT STEPS



The next step will be the strategy development. After deriving a normative future based on the analysis results from Futures of Ethics, the new vision, goals, KPIs and strategic initiatives will be developed and planned. The focus will be on cross-brand and cross-divisional activities to work out and implement common ethical standards and governance mechanisms for the Group. An overall objective is to anchor integrity as an integral part of brand strategies.



NEW CHALLENGES & NEW COLLABORATION



Societal expectations and demands towards economic actors have been increasing. And companies need to win trust by being ethical. These challenges ask for new answers and forms of collaboration. That is why enthusiasts and activists from the Group Future Heads Network have brought the “Futures of Ethics” initiative to life. Together with their hosts Hiltrud D. Werner, Beate Hofer and Elhadj As Sy, the team has set out to develop “futures” in which ethical challenges and opportunities could be addressed in a holistic fashion – supported by colleagues in governance, risk management, compliance, legal affairs and integrity, as well as IT, human resources and innovation.





MAPPING THE IMPACT OF ETHICS ON ECONOMIC ACTIVITY



Volkswagen Group’s legacy and purpose of corporate ethics date from a time long before the Diesel crisis – and our futures reach far beyond the ensuing Monitorship. However, while our initiative did not enter uncharted territory when the team came together in late 2019, it would set the scene for a powerful move towards a long-term approach to address ethical challenges. This strategy was to be developed the following year for the department of governance, risk management, compliance, legal affairs, and integrity – and it would have to offer orientation to the company as a whole.

Over the past years, societal expectations and demands towards economic actors, especially towards multinational corporations and their representatives, have been increasing. But while business, at least on a global level, is perceived as “competent” to handle today’s challenges and to deliver on promises made, companies are not seen as “ethical” institutions doing the right thing and working to improve society. This imbalance matters: “Ethical drivers such as integrity, dependability and purpose drive 76 percent of the trust capital of a company, while competence accounts for only 24 percent,” the Edelman Trust Barometer reported.¹ Trust is one of the most valuable attributions to attain today. But trust is nothing a company can create, however competent it may be. It can only be won by being ethical.



CHALLENGE

Ethics drive **stakeholder trust**



SOURCE:
¹Edelman Trust Barometer 2020

BUILDING ON A FRAMEWORK OF FUTURES KNOWLEDGE



Ethical drivers like integrity or purpose need to be addressed holistically. Asking for a long-term corporate strategy to improve processes and structures has to incorporate a holistic view of the company as well as its environment. For this reason, “Futures of Ethics” has decided on developing future worlds, or simply “futures”, in which ethical challenges and opportunities can be conceived of in an encompassing fashion.

Step by step, the initiative has worked out impact factors, i.e. a set of most relevant future drivers for ethics across the fields of society, technology, economy, ecology, and politics. Consistent pictures of different possible futures were created that would all have to be considered in a holistic, resilient strategy. Finally, “Futures of Ethics” has dived into human-centered use cases, following stakeholders exploring these futures and learning about their needs and expectations towards business as an both competent and ethical institution.

On this basis, it will be possible for the Integrity and Legal Affairs department to develop their strategy – and to make it reach beyond their functional area, impacting the company as a whole.



GOAL

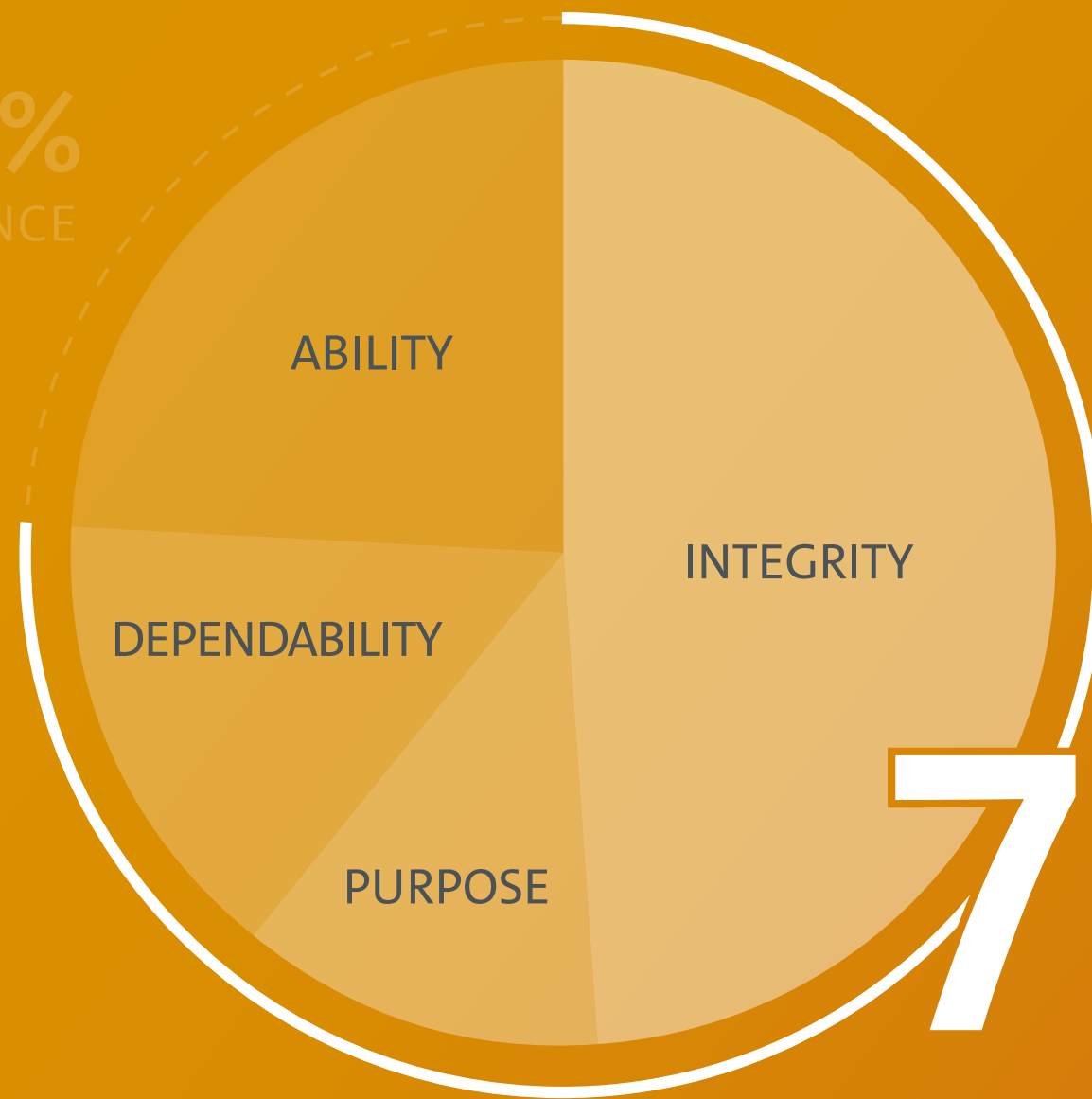
Define a **governance for ethics** for Volkswagen Group 2030

→

ETHICAL DRIVERS

3x more important to company trust than competence

24%
COMPETENCE



76%
ETHICS



SOURCE:
2019 Edelman Trust Management Tracking Study

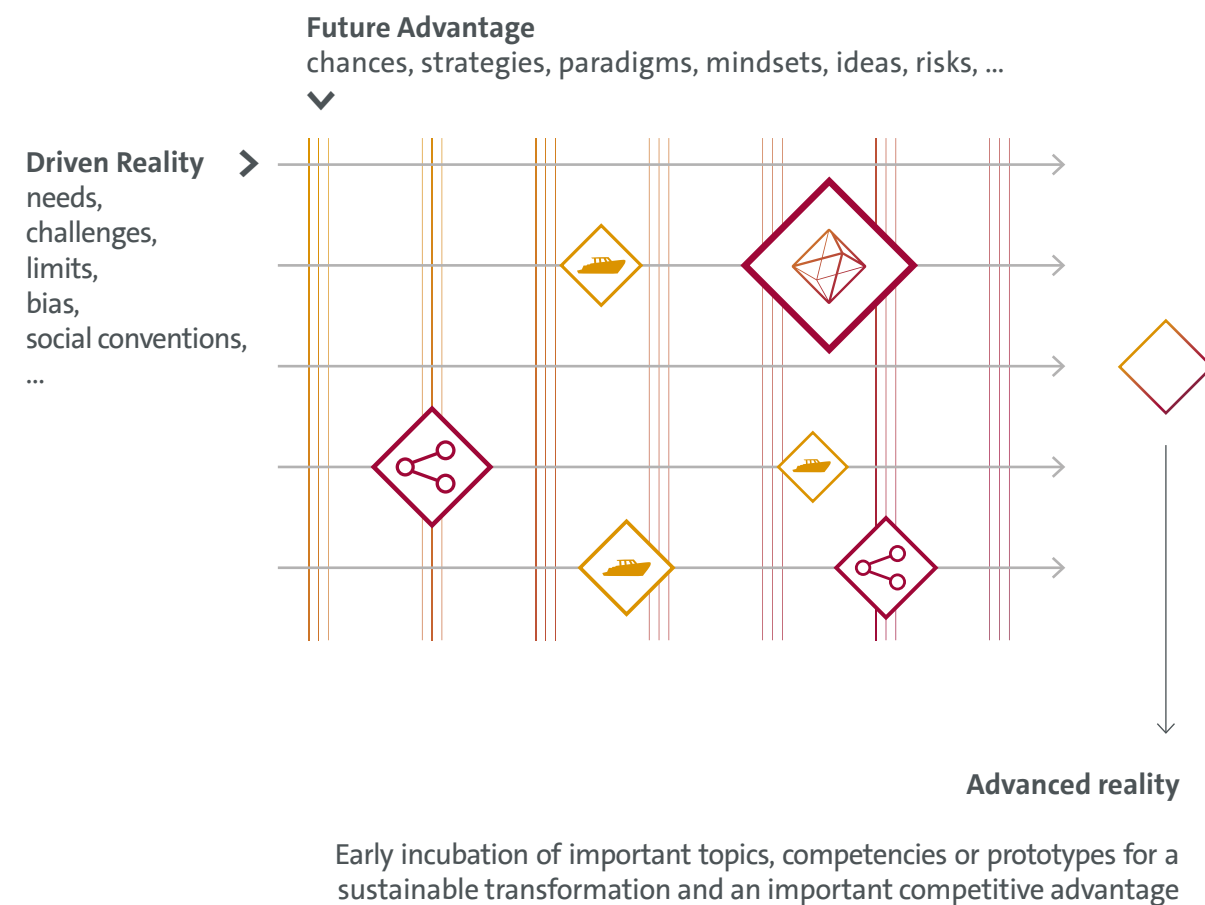
FUTURE IN OUR HEADS, CULTURE IN OUR HEARTS



With the challenges we face today and tomorrow, and especially the day after tomorrow, we need to pool our strengths in a new way within the Group and beyond. We know that the future can not only hold opportunities, hopes and uncertainties, but that it is also the greatest creative force for the moment. With this in mind, we have launched the Group Future Heads Network in 2017. But who are the Future Heads?

Over 350 heads, including experts, strategists, managers and thought leaders from a wide range of disciplines and brands, form a Network that thinks about the future, drives transformation and makes a difference. Culture and integrity, collaboration and innovation, as well as sustainable strategies beyond silo thinking, uncertainty and individual egos form the spirit of this movement. As a transformative Network, the Future Heads work on relevant future topics, strategic issues and a holistic cultural change beyond their daily roles. The goal is to become the leading, sustainable mobility provider in order to contribute to our purpose "Shaping mobility for generations to come". Intrinsically motivated and based on forward-looking values, the cooperation of the Future Heads is structured in various Network formats: agile speedboats, multiplicative nodes and comprehensive Futures Initiatives. The Future Heads Network connects intellectual capital that ensures competitiveness, empowers the people and issues that shape the future, and creates new narratives that give our transformation important facets for a sustainable organization. As a prototype of a fluid Network organization, the collaboration of the Future Heads enables us to use effective swarm intelligence for the most important issues in the Group. We have learned that sharing knowledge can mean joining forces and working together on a matter does not have to mean being in agreement. Future starts in the head, but culture in the heart.

FUTURE IS NOW: ADVANCED REALITY



Four Future Initiatives
2020 – 2017

- FUTURES OF ETHICS
- FUTURES OF THE GLOBAL ECONOMY
- FUTURES OF PRODUCTION
- FUTURES OF MOBILITY

SHAPING THE FUTURES OF ETHICS TOGETHER

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“It is important to describe plausible futures. To me, it is as important to project the future you would like to see. That is the true meaning of “shaping the future”.



Elhadj As Sy

Chair of the Kofi Annan Foundation Board, Co-chair of the WHO/World Bank Global Pandemic Preparedness Monitoring Board and Member of the Group Sustainability Council





“We must define integrity similar to our existing standards: “One name, one standard, everywhere.”



Prof. Dr. Peter Felix Tropschuh
Former Head of Sustainability Strategy AUDI AG





HOW WE SHAPE THE FUTURE

A structured approach is the basic requirement for comprehensible and reliable results. That is why it was an essential part of the project to determine the respective methodology used in the different project phases beforehand. Although the first glance methodology appears to be less important than the formulated scenarios and journeys as the result of the project, both elements together were essential to execute the project within our ambitious time frame.

This chapter is intended to provide transparent information about how different methods were carried out and linked:

It will introduce the reader into the trend scouting during which we used the STEEP method and further explain how we transferred identified uncertainties in plausible alternative futures. Most recently, it will explain why user journeys were used to explain and analyze differing stakeholder requirements to derive new roles for K-I until 2040.



FROM GENERAL ENVIRONMENTAL FACTORS

to the role of Integrity & Legal Affairs department (ILA) in 2030

01 FUTURE DRIVERS



General environmental factors until 2040

Selection of the **top drivers relevant for the Group**

Description of the **key topics per driver**

Selection of **key certainties and uncertainties**

02 SCENARIOS



Prioritized (un-)certainties with impact on the Group

Definition of **relevant scenarios**

Description of **baseline & alternative scenarios**

03 USE CASES



Definition of **stakeholder personas** within scenarios

Development of **future journeys** with demand for group and Integrity & Legal Affairs department

“How might we” **Impulses for Group & Integrity & Legal Affairs department**

04 ROLE OF INTEGRITY & LEGAL AFFAIRS DEPARTMENT



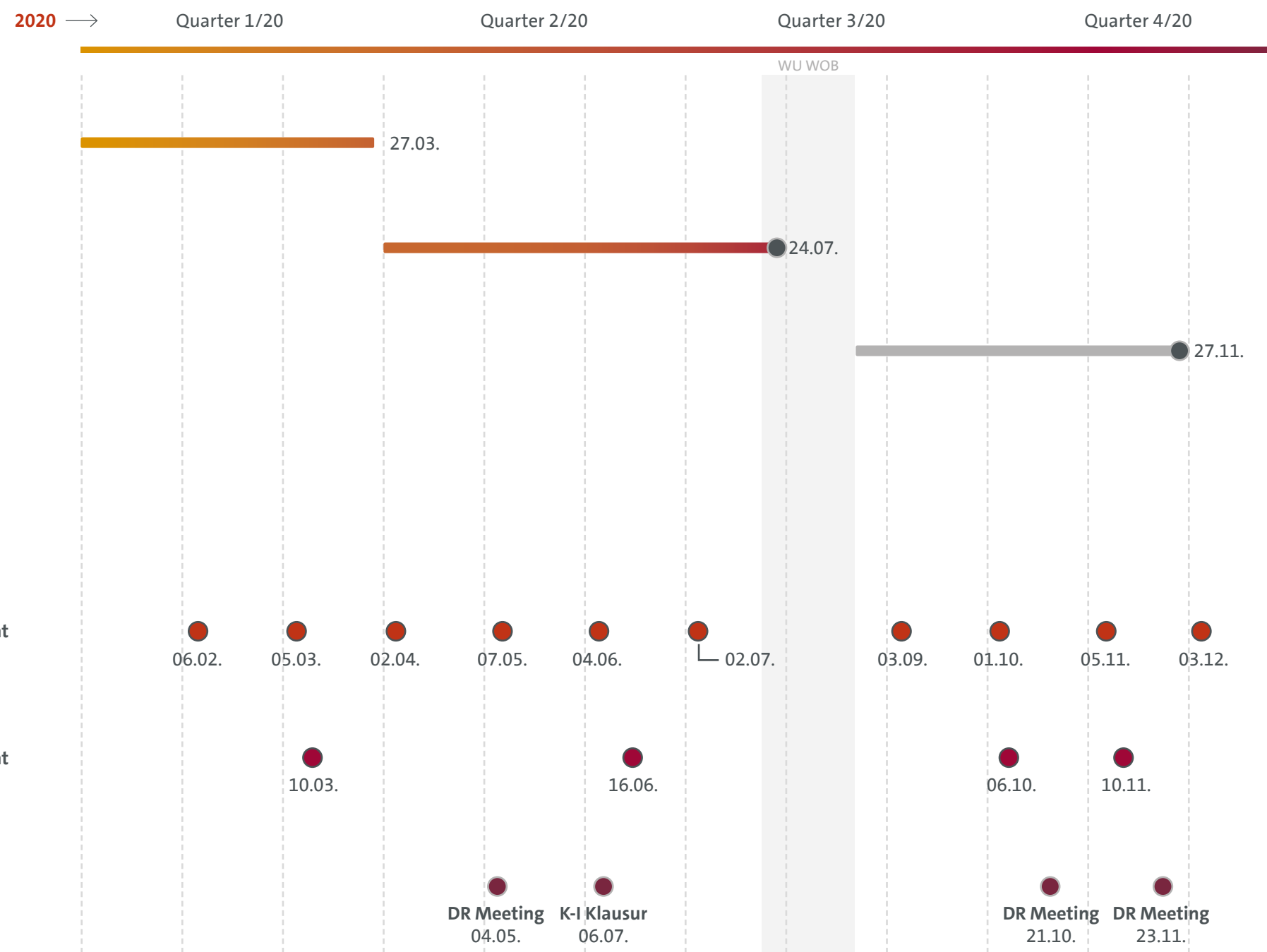
Normative scenario described by Integrity & Legal Affairs department

Integrity & Legal Affairs department Strategy 2030

Strategic Initiatives Roadmap to Integrity & Legal Affairs department 2030



INITIATIVE FUTURES OF ETHICS



- INITIATIVE LEADS & FUTURE HEADS
- INITIATIVE LEADS & FUTURE HEADS & SUBJECT MATTER EXPERTS
- STRATEGY LEAD & SUBJECT MATTER EXPERTS
- INITIATIVE LEADS & K-I REPRESENTATIVES
- INITIATIVE LEADS & BRAND REPRESENTATIVES
- INITIATIVE HOSTS & INITIATIVE PARTNERS

WHAT DO WE PUT TOGETHER TO IDENTIFY FUTURE DRIVERS?



Key drivers are elemental for the development of the future. Working them out is one of the essential tasks of the analysis phase. The STEEP grid provides methodological guidance. It is part of the classical method of futures studies. The STEEP method focuses on five essential dimensions: Society, technology, economy, ecology and politics. The wide-ranging 360° analysis prevents blind spots. It was therefore also used in the “Futures of Ethics” project.

The starting point of the STEEP analysis was an initial list of topic proposals drawn up by the core project team, which was supplemented and refined in a large-scale workshop. Based on these findings, the structured analysis started in small groups. It was important to those responsible for the project that the analysis teams should be as diverse and thematically broadly based as possible, that the results should be developed iteratively, and that they should be verifiable at all times with references to sources.

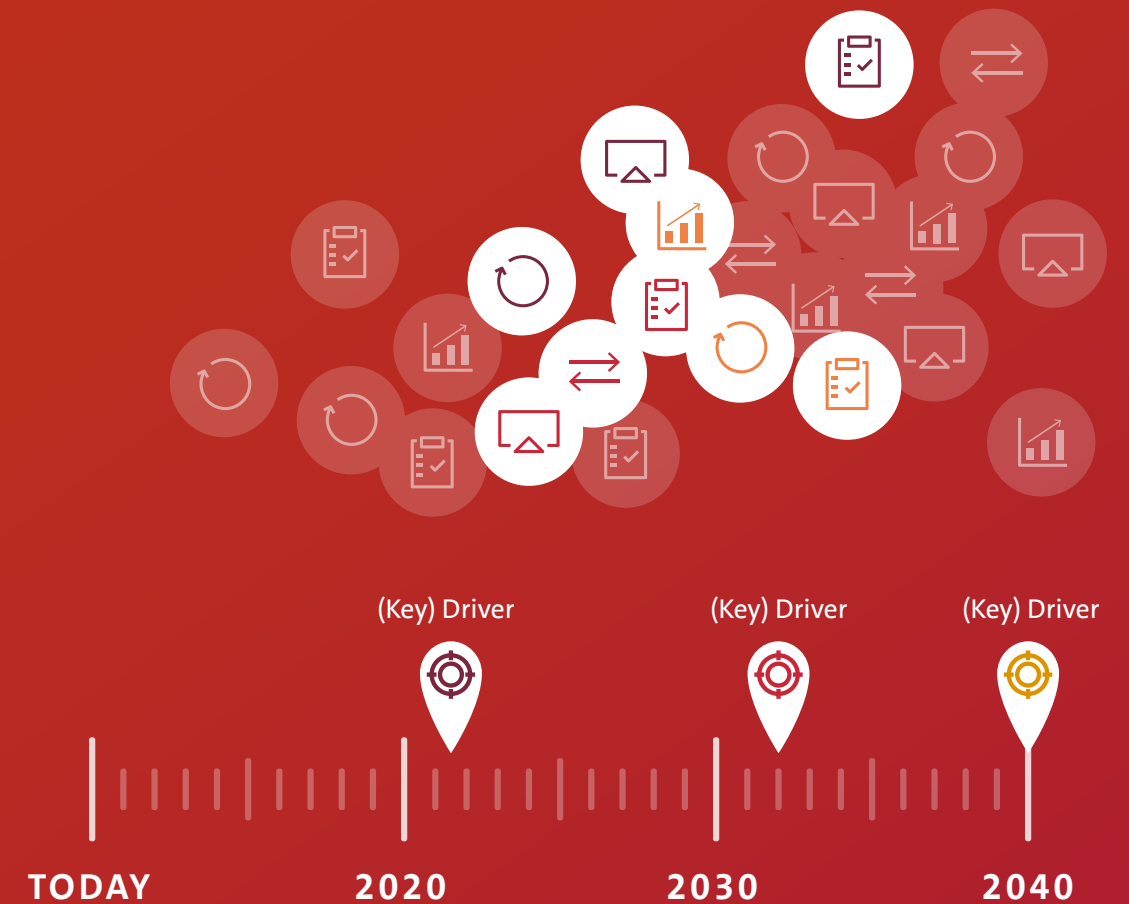
In addition to evaluating expert interviews and studies, the work was based on the analysis of cyclical developments and plans of relevant actors. The period under review extended into 2040, and the topics developed were then summarized and consolidated to filter out the relevant key drivers.

For those key drivers, the team worked out the so-called “Projected Developments”, and at the same time presented the associated uncertainties in the form of “Alternative Directions” on how the core drivers could develop in other directions. The insights gained from the multi-stage analysis phase thus open up the scope for future scenarios.

STEEL FACTORS

- Society
- Technology
- Economy
- Ecology
- Politics

(KEY) DRIVERS MAP



- Cycles
- Plans
- Trends
- Projections
- Constants
- (Key) Driver

SOURCE:
K-FIGE/1, K-SU-3

HOW COULD WE HANDLE COMPLEX AND UNCERTAIN FUTURE OUTCOMES?



Thinking the unthinkable: COVID-19 has shown the difficulty to predict disruptive situations precisely. Future developments are often dependent on a variety of different factors and develop in different directions.

However, many companies have developed sophisticated forecasting models, built on thoroughly selected variables. Thereby, they are able to predict outcomes such as sales, liquidity, EBIT, etc. quite precisely. While forecasting depends on the assumptions' adequacy, it is suited for short-mid term planning.

Long-term planning appears more difficult. The longer the planning horizon, the more uncertainty about specific developments occur, limiting the applicability of traditional strategic planning approaches. Minor indications and trends gain importance over certain events and outcomes.

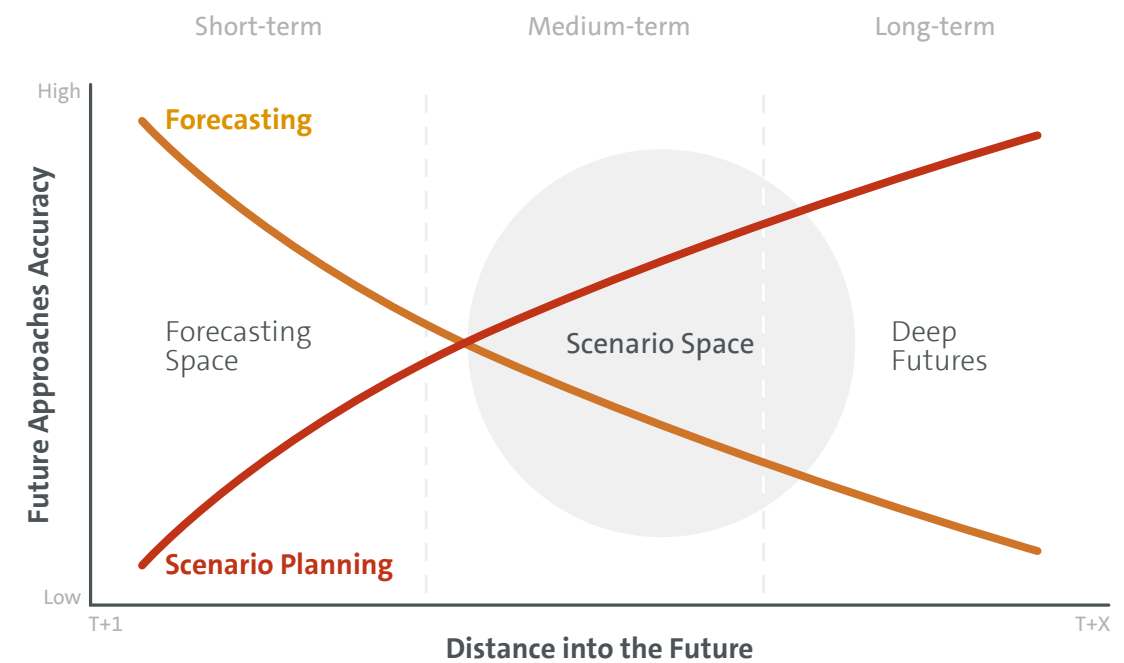
How to actively deal with this aspect of uncertainty?

For companies and industries, the scenario planning approach has successfully established itself over the past decades. Instead of assuming that a specific future result will occur, scenario planning creates different future worlds from the interaction of many, even slightly observable indications.

Trends, events and developments with a high level of impact and uncertainty are marked as key uncertainties. They are subject to further analysis and interpretation and their respective developments are projected in order to derive alternative directions, the so-called alternative future worlds.

Even though events, aspects and developments shown by the scenarios might only occur partially, their strength lies in the holistic picture they are able to generate.

DIFFERENCE BETWEEN FORECASTS AND SCENARIOS



SOURCE: apted from McKay (2016), University of St Andrews; Courtney, Kirkland & Viguierie. (1997). Strategy under Uncertainty. HBR

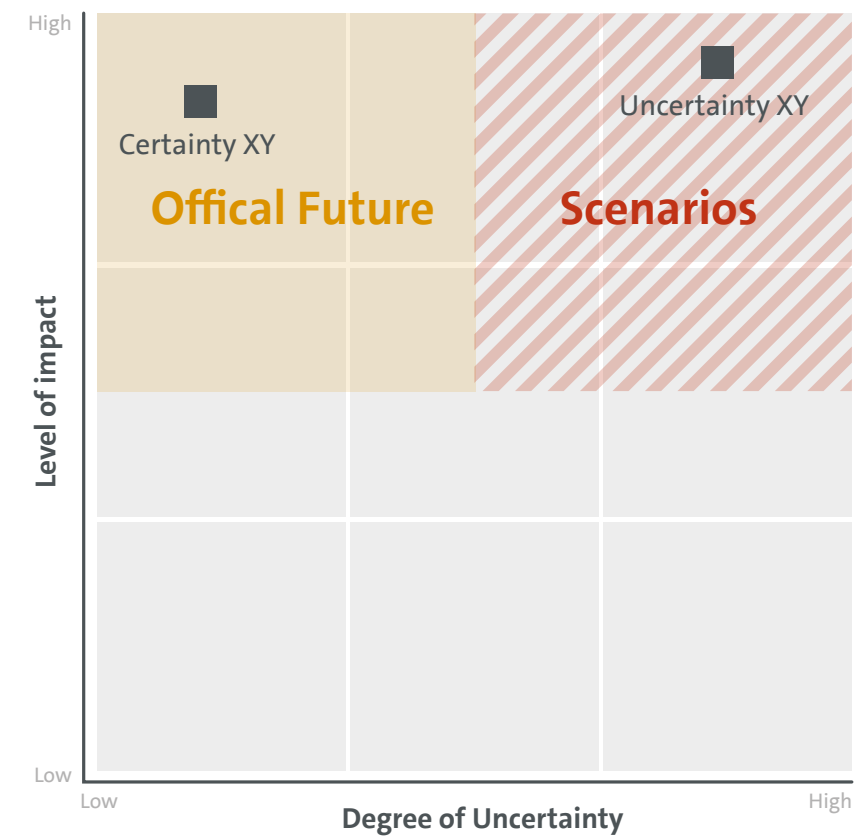
HOW DO WE DIFFERENTIATE AND INTEGRATE LIKELY AND UNLIKELY EVENTS?



The official future is the future decision-makers might believe in. Usually, it is an unsurprising scenario. It features continued stable growth and dispenses with discontinuous changes to current trends and crisis. Its structure is formed by a 2x2 matrix, mapping the degree of uncertainty against the level of impact for Volkswagen.

Thus, the official future focusses on trends with significant importance on the focal question of “Futures of Ethics” and a low level of uncertainty.

OFFICIAL FUTURE VS. SCENARIOS



SOURCE: K-FIGE/1, K-SU-3

FROM TRENDSOUTING TO SCENARIO-BUILDING



METHODOLOGY OF UNCERTAINTY ANALYSIS

and derivation of alternative directions

TITLE

Step 1 Hypothesis Development

Sum of the four **most plausible alternative directions** as indicated by STEEP scouting results

HYPOTHESIS DEVELOPMENT

Placeholder text for hypothesis development

DIRECTIONS OF UNCERTAINTY

Placeholder text for directions of uncertainty

Placeholder text for directions of uncertainty

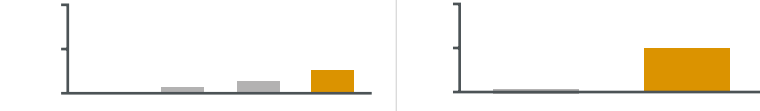
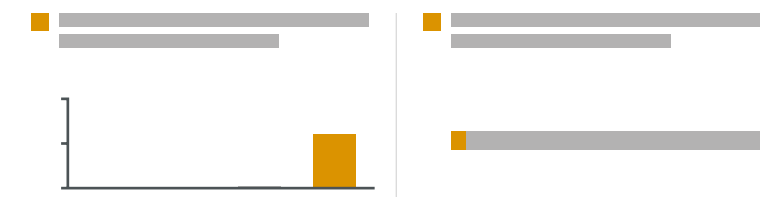
Placeholder text for directions of uncertainty

Placeholder text for directions of uncertainty

Step 3 Formulation

Based on respective indicator, formulation of short descriptions of each direction

INDICATORS (SELECTION)



Step 2 Plausibility Check

Set of indicators to cross check and **validate/adapt** direction of development

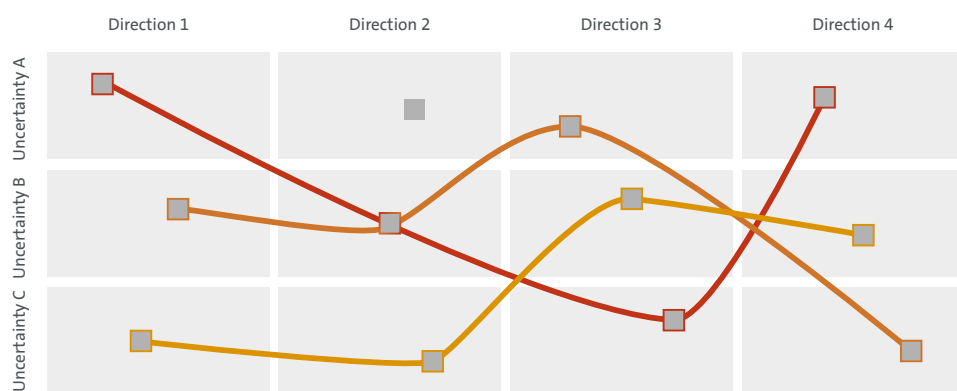
TRANSFORM UNCERTAINTIES AND RESPECTIVE PROJECTIONS INTO PLAUSIBLE ALTERNATIVE FUTURES (SCENARIOS)



Many traditional approaches to strategic planning find it very difficult to predict the world exactly. This is due to the fact that the future includes many unknowns. People have difficulties to always understand exactly how a trend will develop. Individual decisions, disruptions or conflicts can quickly set off chains of effects that we can hardly imagine. But those have a great influence on how the world could evolve in the future.

Taking this limitation into account, scenarios focus on working with these uncertainties and making them tangible and their impact better understandable for managers. They show how chains of effects and uncertainties collectively interact with each other and unfold over the analyzed time frame. This in turn allows leaders to question their personal former understanding of the future.

Although it is difficult to project a single development direction for each identified uncertainty, it is possible to develop a set of hypotheses how the uncertainty might evolve. A thorough and qualitative analysis of data allows the identification of indicators, forming the base of the testing of the hypothesis and to reduce them to only a set of alternative directions. Indeed, this was the focus of the uncertainty analysis. While this allowed for a thorough understanding on each uncertainty and its different development directions, it was necessary to do a cross-impact analysis. This showed, which directions occurred at the same time or reinforced each other. As a result, different alternatives and mutually different worlds (scenarios) were derived and described.



THE UNCERTAINTY ANALYSIS WAS JOINTLY DEVELOPED BY THE SCENARIO AND STEEP ANALYSIS TEAMS. IT IS BASED ON SEVERAL PREMISES.



One premise of the uncertainty analysis was that it should focus on four different alternative projections about each identified uncertainty, in sum able to depict the sum of all possible and plausible future outcomes. Moreover the analysis should be backed with expert knowledge and available data.

For a holistic and profound uncertainty analysis a close and joint-collaboration between the STEEP trend scouting team and scenario building team was essential. While the trend scouting had a thorough understanding on certain developments and uncertainties, they supported the scenario team by challenging the analyzed alternative directions for the identified uncertainties. This in turn prevented misinterpretations and misunderstandings and allowed a quick handover between the phases.

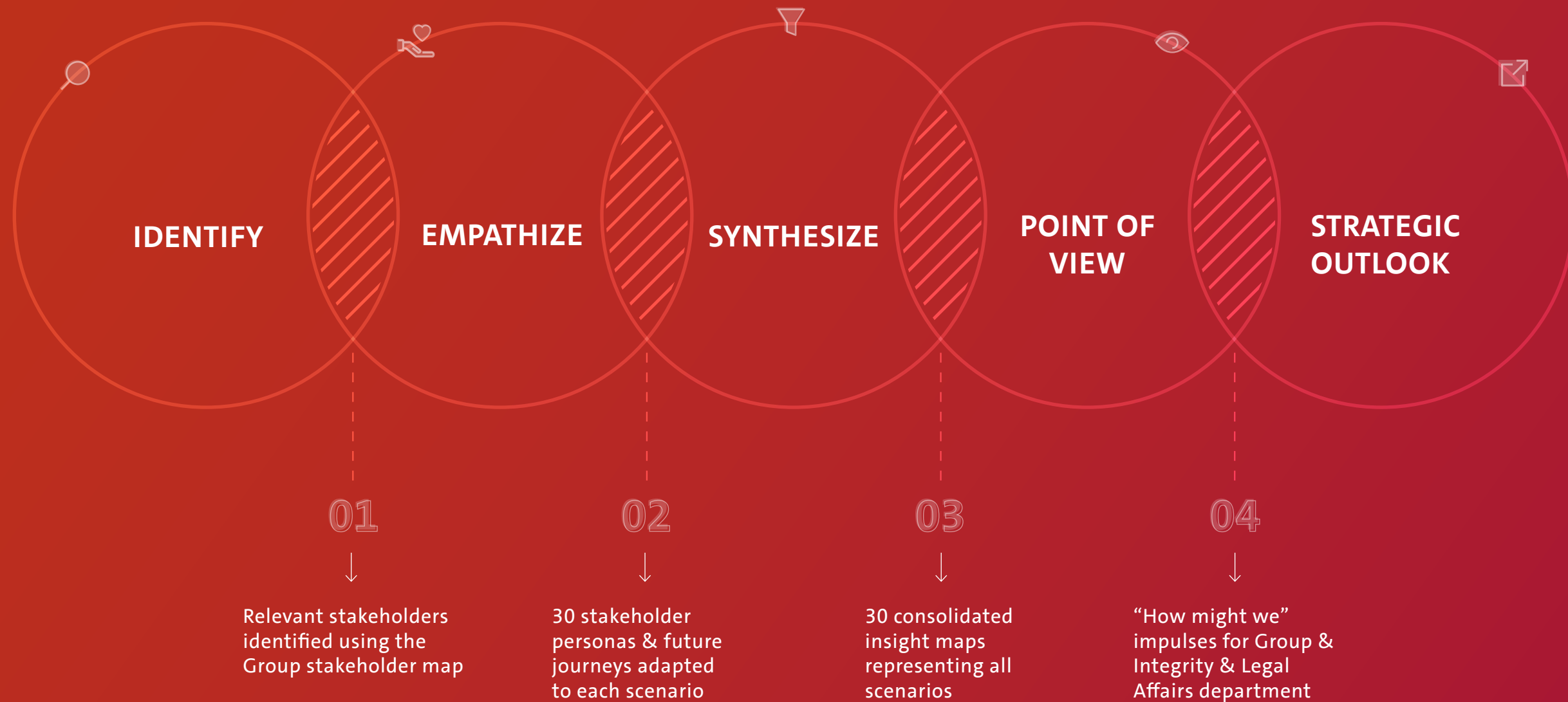
Moreover, the STEEP team supported the scenario building team in interpreting and searching for most relevant and profound data to test the made hypotheses and assumptions on how the uncertainties could evolve.

FROM "USER EXPERIENCE DESIGN"

to "Stakeholder Futures Experience"

People are put at the heart of the "Futures of Ethics" initiative for two reasons. First and most obvious: The future will be inhabited by people. They will continue making ethical decisions that are important for us. Second: Even organizations like the Volkswagen Group ultimately consist of people and their internal structures and processes are made by people.

The used methodologies build on techniques and tools from User Experience Design¹. They were adapted to focus on stakeholders and their interaction with the Group instead of users and their use of a certain product or service.



SOURCE:
 Future Heads Network, K-FIGE/I, K-GAD
¹NN Group 1998-2020, d.school Stanford University

EMPATHIZE: DEVELOP STAKEHOLDER PERSONAS & FUTURE JOURNEYS



The team created stakeholder personas and sent them on future journeys, i.e. interaction journeys within the different future scenarios. The main goal was to empathize with them. In order to get a feeling for the personas' needs and expectations, they were based on socio-economic milieu structures and generational analyses, and also given professional backgrounds and psychological profiles. Characters taken from both history and fiction are helpful to elaborate mindsets. Everything was combined by a plausibility check with colleagues who actually are in contact with comparable stakeholders today.

Volkswagen Group Stakeholder Clusters incl. White Spot Analysis

The Volkswagen Group's stakeholder map was the starting point for the persona development. It ensured that no important stakeholders were missed – and ultimately that no, important use cases were left out.

This map is published annually within Volkswagen Group's sustainability and annual report and helps to organize stakeholder management structures.¹ It lists employees, customers, workers council, and supervisory board, but also media, academia and education, competitors, business partners and suppliers, investors and analysts, politics and associations, NGOs and charitable organizations, as well as residents and local authorities. Based on the personas' internal counterparts, remaining white spots were identified and filled.

Adapted Journey Method for all scenarios

To tell the story of a future journey, the team defined a specific goal for the stakeholder personas and identified their logical first point of contact in the subsequent interaction to reach that goal. For a journalist, this may be an employee working in communications. The journey would describe the steps of their interaction, the stakeholders' thoughts and emotions, as well as opportunities for innovation that open up for their internal counterparts – and their touchpoints with colleagues. The first version of these journeys is always set in the baseline scenario. From there, the journey is modified by imagining it taking place in each of the four alternative scenarios.



SOURCE:
¹Volkswagen AG

SYNTHESIZE: DERIVE CONSOLIDATED INSIGHT MAPS



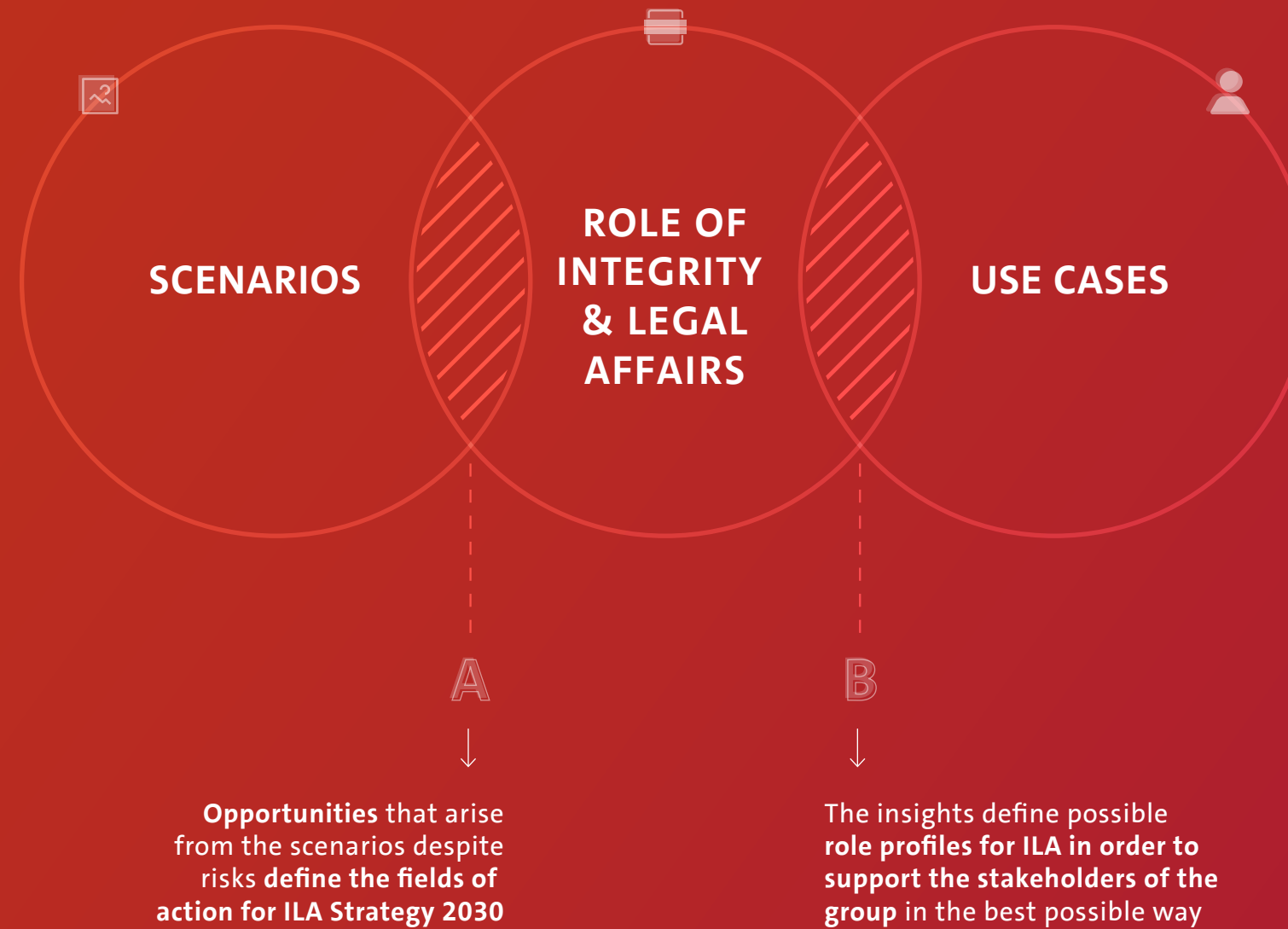
The “opportunities for innovation” and additional “touchpoints” identified in the resulting five future journeys form the basis of an insight map, outlining innovation impulses for the internal counterpart's job profile as well as the organizational context this job would be embedded in. Each combination of stakeholder persona, internal counterpart, journey and scenarios results in one insight map - 30 maps in total. They represent a synthesis and specification: In the last step, job profile and organizational context are combined to formulate up to five main insights – incorporating ideas developed in just one or in different scenarios simultaneously.

Point of View: “How might we” impulses for Group & Integrity & Legal Affairs department

The main insights from the future journeys are transferred into a so-called “solution space”. This workshop aims to boil down the content-heavy use cases to specific requirements. In this case, to the strategy development process of the Integrity and Legal affairs department. The method asks “How might we help this person realize that insight?” to set off a stream of ideas and answers. “Maybe Like This” - Notes result in a first set of specific steps. “Let's Do This” - Answers energize the process from where the team handed them over to colleagues at Integrity and Legal Affairs department.

IMPLICATIONS

for Integrity & Legal Affairs department





FUTURES OF ETHICS

Method is always only a means to an end. Only the results obtained thanks to a method ultimately enable the gaining of insights and derivation of measures.

The next chapter presents concrete results of the “Futures of Ethics” initiative. Comprehensive and down to the smallest detail. The goal is to enable interested readers to adapt the results to his or her own personal and professional needs.

“Futures of Ethics” show us developments we already suspect today. Some might confirm our current thinking. Some might provide new insights and confront us with new challenges we can only solve together. Without silos and hierarchies, prejudices or old thinking patterns. And some developments might surprise and provoke, might be uncomfortable or even frightening.

Let us find answers to the ethical questions of the day after tomorrow!



DESK RESEARCHES, INTERVIEWS & WORKSHOPS

have shaped our picture of the future until 2040

 **504**

HOURS OF RESEARCH

- ↓
- 14 weeks
- 12 Future Heads
- Ø 3 hours research per week

 **227**

PAPERS & STUDIES

- ↓
- STEEP Analysis
- Trends, Constancies, Cycles, Plans, etc.
- Certainties & uncertainties until 2040

 **281**

COLLEAGUES

- ↓
- Integrity & Legal Affairs Strategy Team
- Attendees GRC Conference
- Future Heads

 **787**

LITRES OF ENERGY

- ↓
- 

SCOUTING FOR FUTURE IMPACT FACTORS VIA STEEP ANALYSIS

Top 15 drivers for the years until 2040

SOCIETY

Human Mobility

- » Adapting mobility to the needs of humans & nature
- » Challenges of rural mobility
- » Restriction of urban mobility



Future Work Force

- » Aging society & growth of population
- » Skills & abilities in times of digitalization
- » Diversity & Incentive Systems



Redefining Common Welfare

- » Justice & Personal Activism
- » Social coherence & compliance
- » Post Growth: Redefinition of success & wealth



TECHNOLOGY

Connected infrastructure

- » Quantum Computing changing the Baseline
- » Digital Platforms & Ecosystems
- » Trust & Transparency through Blockchain



Artificial Intelligence

- » Deep Learning vs. digital rights
- » Smart Mobility
- » Predictive Analytics



New Reality

- » Extended Reality
- » New Robotics & Transhumansim
- » Ambient Experience



ECONOMY

(De-)Globalisation

- » A Multipolar World
- » Power Shift to the East
- » Near shoring



Digital economy

- » Digital products, services & currencies
- » Digital surveillance by companies
- » Distribution of profits



Public goods as a resource

- » Value/cost/price of nature
- » Value/cost/price of health
- » Value/cost/price of food



ECOLOGY

Eco. driven decision making

- » Circular Economy & Waste Management
- » Post Growth ecological indicators
- » Climate Justice



Availability of resources

- » Race for water, energy & mining
- » Biodiversity loss
- » Climate caused shift in demand & supply



Human powerlessness

- » Activation of Tipping Points
- » Socio-ecological interdependencies
- » Failure to prevent human made damages & disasters



POLITICS

Global Citizenship

- » Management of Global Public Goods
- » Securing or Hacking Polities
- » Balancing Urban-Rural Relations



Redefinition of Power

- » Asian Ascendancy
- » 21st Century Warfare
- » Regional Innovation Systems



Updated Investment Schemes

- » Systemically Relevant Investments
- » Corporate Statecraft
- » Adapting Taxation Models



Impact could increase

No or not yet definable impact

Impact could decrease

HUMAN MOBILITY

Detailed description of top societal drivers

01 TOP SOCIETAL TOPICS

↓

ADAPTING MOBILITY TO THE NEEDS OF HUMANS & NATURE

02 DETAILED DESCRIPTION

- ↓
- » In the design of mobility in cities, there will be a higher focus on human scale and pace.
 - » Mobility will be more orientated towards human needs and well-being, thereby people are more motivated to use public space.
 - » This will change the way we move from A to B (e.g. less long-distance flights, more use of public transport).

03 PROJECTED DEVELOPMENT

- ↓
- » The walkability of cities will play a more important role (counteraction to health problems).
 - » Sustainability awareness will also increasingly influence the way people move.
 - » Current mobility concepts will be revolutionized (e-mobility, intermodal mobility, ride-sharing, hyper-loop, urban air mobility, autonomous driving).
 - » electric vehicles taking up 57% of the global passenger car sales by 2040 (electric busses 81%).¹
 - » 2045 before half of new vehicles are autonomous, and 2060 before half of the vehicle fleet is autonomous.²

04 UNCERTAINTIES

- ↓
- » Will the idea of sustainability prevail in cities or will there still be more vehicles than parking spaces?
 - » Will city officials use public spaces for social projects or will even more space fall victim to inner city traffic?

CHALLENGES OF RURAL MOBILITY

- » While the focus on urban mobility is growing more and more, people in rural areas also need sustainable mobility solutions.
- » Due to urbanisation, i.e. the migration of people from rural regions to the cities, the “remaining” are facing great challenges: Closure of banks, grocery stores & other shops for daily needs, lack of medical practices and leisure facilities.

- » As rural communities age, their public transport is shrinking.³
- » Autonomous vehicles will breathe new life into rural communities.⁴
- » It is unlikely that self-driving cars will replace public transit services before the 2030s.⁵

- » Will urbanization increase further as in the last decades or will rural living space become more attractive again?
- » Is it possible to increase the attractiveness of rural areas with new mobility services, e.g. mobile medical practices, food suppliers and leisure facilities, or are they completely neglected?

RESTRICTION OF URBAN MOBILITY

- » City traffic is getting worse
- » People-friendly streets and a desire for unpolluted surroundings are increasingly en vogue
- » Politian and civic initiatives react accordingly, e.g.: City maut/Congestion Charge, Driving bans for older models, Trading of parking space, redistribution of roads for pedestrian zones

- » By 2030, urban areas are projected to house 60% of people globally and one in every three people will live in cities with at least half a million inhabitants.⁶
- » Cities plan to ban cars with combustion engines (see Berlin) or cars at all in some city areas (see Stockholm, Oslo, London, New York)^{7,8}

- » After the first wave of bans for combustion engine cars, there could be a second wave of banning non-autonomous cars and a third wave of banning privately owned cars because of the space they take up
- » Will individual mobility revive due to COVID-19?



SOURCE:
¹BloombergNEF, ²Victoria Transport Policy Institute, ³World Economic Forum, ⁴Roland Berger, ⁵The American Public Transportation Association, ⁶United Nations, ⁷Business Insider, ⁸The Berlin Spectator

FUTURE WORK FORCE

Detailed description of top societal drivers

01 TOP SOCIETAL TOPICS

↓
AGING SOCIETY & GROWTH OF POPULATION

02 DETAILED DESCRIPTION

- ↓
- » In many developed economies, demographic decline—falling birth rates and an aging population—translates into negative labour growth.
 - » At the same time, increasing social inequality and overpopulation pose further challenges.

03 PROJECTED DEVELOPMENT

- ↓
- » Trends across 25 economies are alarming: between 2020 and 2030, significant worldwide labour-force imbalances—shortfalls, in particular.⁴
 - » By 2050, one in six people in the world will be over age 65 (16%), up from one in 11 in 2019 (9%). Persons over age 65 being the fastest-growing age group.⁵
 - » world's population is projected to 8.5 billion in 2030 (10% increase) and further to 9.7 billion in 2050 (26%) and to 10.9 billion in 2100.⁵

04 UNCERTAINTIES

- ↓
- » Will the ageing of society continue or will further growth be prevented by regulatory measures or environmental influences (COVID-19)?

SKILLS & ABILITIES IN TIMES OF DIGITALIZATION

- » Education and learning of digital skills will be essential for employees and employers.
- » Skills shortage or surplus: Competences of employees do not meet the economic demand in the region.
- » Job Uncertainty: 58% worry about losing their jobs due to lack of skills or training.¹

- » Global shortage of skilled workers 2030 at 85 million – in Germany 4.9 million.⁶
- » between 400 million and 800 million individuals could be displaced by automation and need to find new jobs by 2030 around the world.⁷
- » 85% of the jobs that will exist in 2030 haven't even been invented yet.⁸
- » Predictions for 2030: Web 17.0, integrated life-long learning systems (from pre-natal programs to programs for the elderly), chemistry for brain enhancement (drugs), just-in-time knowledge and learning, use of public communications for pursuit of knowledge, use of simulations (VR, Second Life, gamification).²

- » Can large parts of the workforce be retrained or do large parts of the workforce fall off the grid due to incompatibility?
- » Do the benefits of digitalization lead to social prosperity for all or are there winners and losers?

DIVERSITY & INCENTIVE SYSTEMS

- » Diversity is needed to disrupt the homogeneous mass and to facilitate innovation
- » Ethical thinking and behaviour is more likely to be implemented in a diverse work force instead of a 'herd animal system'
- » Retarding issues of implementation are income inequality and the prevailing gender-pay-gap

- » UNDP indicates that over the past 20 years, within-country income inequality increased by 9% in the developed countries and 11% in developing countries.³
- » WEF identifies incomes disparity as the most likely global risk over the next decade.³
- » Within the working class, people of color will become a majority in the US by the 2030s.⁹
- » closing the gender gap would add \$28 trillion to the value of the global economy by 2025 (+26%).¹⁰
- » British and American companies will not reach parity in boardrooms and other senior roles until 2040 (progress stalled at 60% of companies).¹¹

- » Can the scientifically based benefits of diversity bring about a faster turnaround or are current efforts stalling?
- » Can states and companies stop the trend of income inequality through targeted measures, or will selective efforts ebb away in the sand?
- » Suitable incentives for diverse people are needed; new needs of employee generations.



SOURCE:
¹Edelman Trust Barometer 2020, ²The Millennium Project, ³The Millennium Project, ⁴Boston Consulting Group, ⁵United Nations, ⁶CIO Magazin, ⁷McKinsey Global Institute, ⁸Institute for the Future & Dell Technologies, ⁹Economic Policy Institute, ¹⁰World Economic Forum, ¹¹Financial Times

REDEFINING COMMON WELFARE

Detailed description of top societal drivers

01 TOP SOCIETAL TOPICS

↓
**JUSTICE & PERSONAL
ACTIVISM**

**SOCIAL COHERENCE &
COMPLIANCE**

**POST GROWTH:
REDEFINITION OF
SUCCESS & WEALTH**

02 DETAILED DESCRIPTION

- ↓
- » Preservation and global extension of co-determination rights (or rather democratisation in a broader sense).
 - » Polluter pays principle: Western companies are called into account to deliver a positive impact to society, not only to profit.
 - » Questioning the authorities & Respecting Human Rights are constant issues of the discourse.

- » The natural need for people to join and feel connected to a group still exists, despite digitalization and trends towards single households.
- » At the same time, compliance by individuals with the requirements of communities and states will be severely tested in the future (e.g. social credit systems).
- » Rise of social media, but distrust due to fake news.

- » Millennials have grown up in a time of rapid change, giving them a set of priorities and expectations sharply different from previous generations.
- » Performance culture versus mindfulness.
- » Individualism vs. Conformity.
- » Trust in technologies (social distancing).

03 PROJECTED DEVELOPMENT

- ↓
- » New non-traditional forms of politics have arisen or changed lately under the influence of digital environment. The so-called networked social movements have got an important role in politics.¹
 - » Fridays for Futures: In September 2019 Protests in about 2900 cities within more than 160 states - a total of 1.4 million protesters in Germany.²

- » Global mass population 47 % trust in government – informed public 59 %.³
- » Germany mass population 40 % trust in government (-3%).³
- » Global mass population 56 % trust in NGOs.³
- » In 2020, the current number of surveillance cameras in China is to be increased from 176 million to over 626 million.⁴

- » Rapid technological change, globalization and economic disruption will result in a different set of behaviours and experiences across generations and nations.

04 UNCERTAINTIES

- ↓
- » Will more followers from all walks of life join the global movements or was it all just a flash in the pan?
 - » Will the global movement develop enough power to achieve sustainable results or will the movement remain at the media level?
 - » Strong local and transnational grassroots movements.

- » Segmentation vs. global convergence.
- » Common values vs. individual views & extremism.
- » Can states regulate separatist behaviour or do isolated groups gain power?
- » Will datafication become a great social ideology?

- » Trend reversal back (from postmodern) to modern values of status and wealth through severe crisis.



IMPACT-UNCERTAINTY MATRIX

Society

Certainties

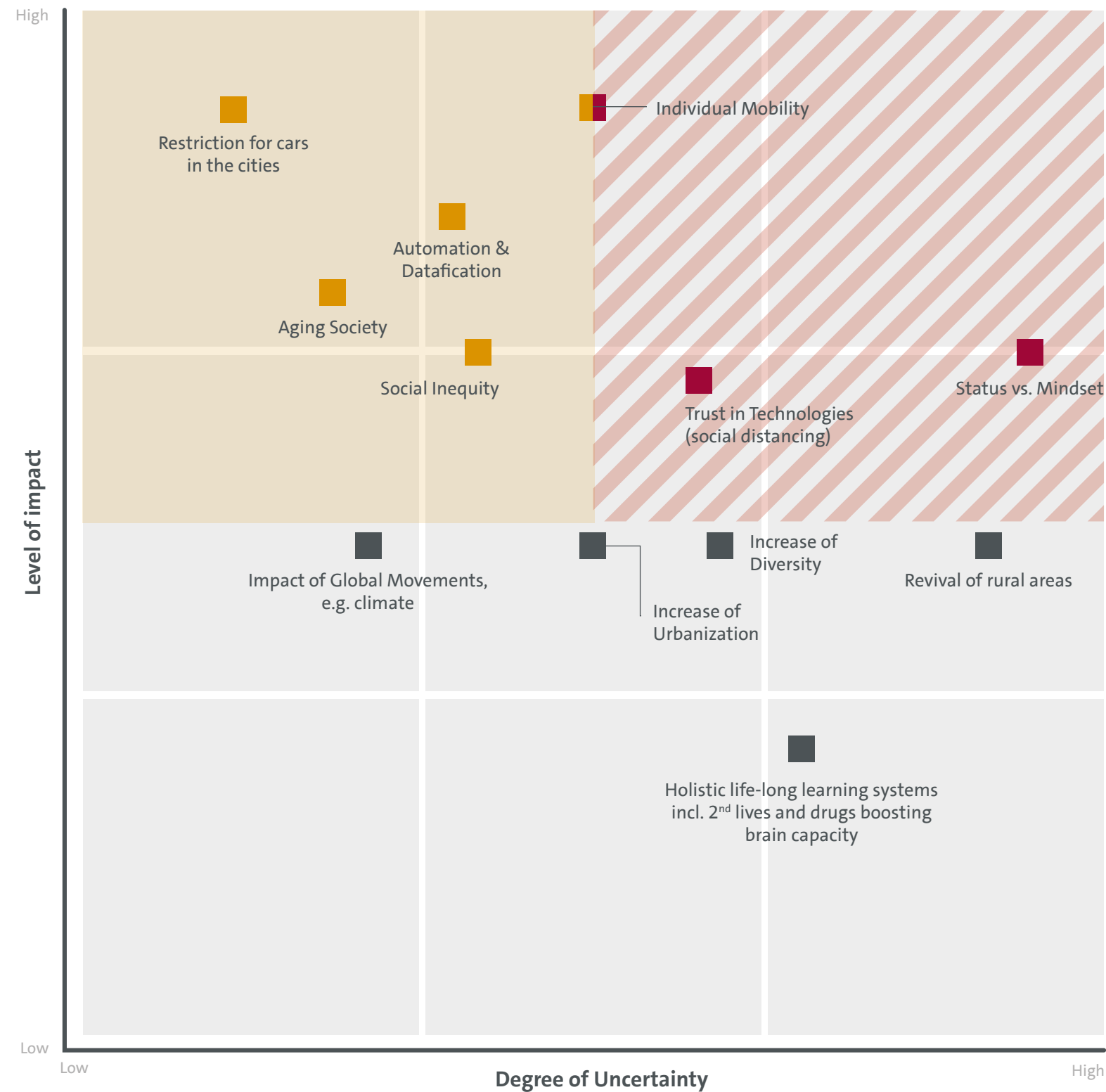
Developing trends that occur, when there are no discontinuous changes to current trends, no crisis, and continued stable growth.

Uncertainties

Developments, trends and events that might occur (e.g. projected developments).

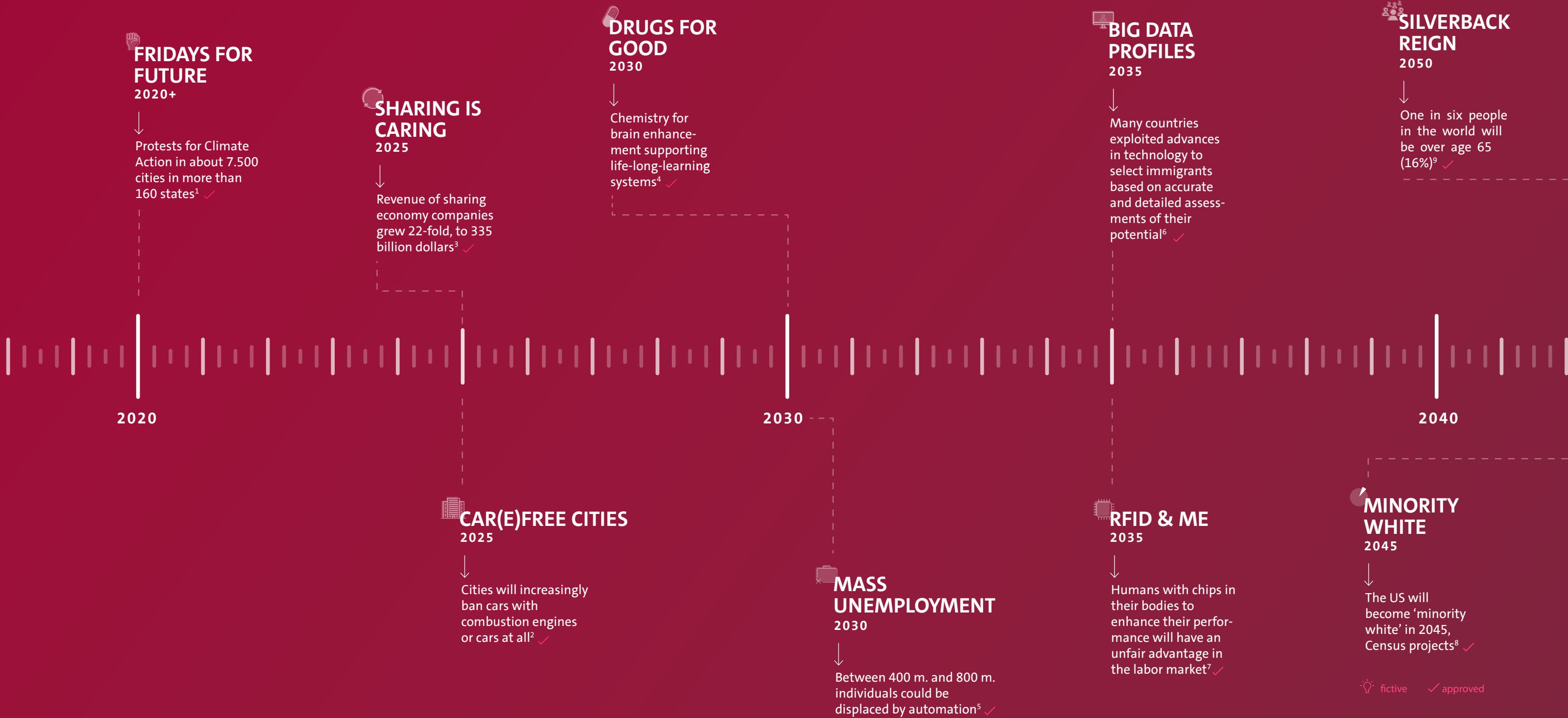
 Official future

 Scenarios



PLAUSIBLE FUTURE EVENTS

Society



SOURCE:
¹Fridays for Future, ²BBC News, ³PricewaterhouseCoopers, ⁴ScienceDaily, ⁵McKinsey Global Institute, ⁶OECD, ⁷Citrix, ⁸The Brookings Institution, ⁹United Nations

CONNECTED INFRASTRUCTURE

Detailed description of top technological drivers

01 TOP TECHNOLOGICAL TOPICS

↓
QUANTUM COMPUTING CHANGING THE BASE-LINE

DIGITAL PLATFORMS AND ECOSYSTEMS

TRUST & TRANSPARENCY THROUGH BLOCKCHAIN

02 DETAILED DESCRIPTION

- ↓
- » Quantum computers leverage the quantum mechanical phenomena of superposition and entanglement to create states that scale exponentially with number of qubits, or quantum bits.
 - » Quantum computers have the potential to run complex calculations, that classical systems could literally never complete.
 - » Potential for acceleration of computation time, as well as the ability to address difficult and complex problems and support other technological developments in AI and Analytics.

- » Platforms and Ecosystems enable the Digital Economy (e.g. Apple iOS, Google Android, Cloud Computing, Amazon Cloud, Alibaba, Wikipedia, FB, Twitter) - Categories/Modes of digital platforms:
 - Business: Intergrator, Product, Multisided
 - Interaction: collaborative vs. competitive
 - Governance: opened, closed
 - Ownership structure: property based vs. free use

- » With its decentralized and trustless nature, Blockchain technology can lead to new opportunities and benefit businesses through greater transparency, enhanced security, and easier traceability.
- » Decentralization of tracking throughout the whole supply chain, especially in socially and economically challenging environments.

03 PROJECTED DEVELOPMENT

- ↓
- » Industry and government believe in potential technology, e.g. for traffic flow optimization & complex optimization problems.
 - » Further technology investments announced, e.g. European Commission announced plans to launch a US\$1.13 billion project, scheduled to start in 2018, to support a range of quantum technologies.⁴
 - » Only speculative data available: greater business cases estimated end of 2030 (Reaching peak of inflated expectations with more than 10 years until plateau of productivity).²

- » Nearly two-thirds (66%, 5.3 billion) of the global population will have Internet access by 2023.⁵
- » The global cloud computing market size is expected to grow from USD 272.0 billion in 2018 to USD 623.3 billion by 2023.⁶
- » Information and communications technology (ICT) could be responsible for up to 3.5% of global emissions by 2020, more than aviation and shipping, and 14% by 2040.⁷
- » Network effects cause firms to “invert”, shifting production from inside the firm to outside. This means firms shift from vertical integration to open orchestration.

- » The global blockchain devices market generated a revenue of \$300 million and is projected to reach \$23.5 billion by 2030, advancing at a 48.7% CAGR during the forecast period (2020-2030).³
- » Some applications like “decentralised web” just at innovation trigger phase with more than 10 years until plateau of productivity.
- » Time span in which 40 % of all companies and 60 % of all large corporations worldwide will consider using blockchain: 2-10 years.¹

04 UNCERTAINTIES

- ↓
- » Still at foundation/lab research level, breakthroughs could speed up development.
 - » Time of breakthrough highly uncertain.
 - » Development also depending on interdependencies with other drivers such as computational needs (e.g. government funding).

- » Will people keep on sharing all their data for a better user experience (e.g. personalized ads) or will there be a shift towards data security?
- » Boundaries: Managing platform trust, responsibility and governance, data privacy.
- » Managing Big Data, data privacy such as data leaks (e.g. Facebook).

- » Development in quantum computing can lead to security problems in cryptography (build on limited computing power).
- » Challenges of deploying blockchain technology are strongly related to context, application or sectorial issues.
- » Especially in private sectors highly dependent from social acceptance (e.g. dark net and Bit Coin).



SOURCE: ¹The Organization for Economic Co-operation and Development (OECD), ²Harvard Business Review, ³Research and Markets, ⁴Nature, ⁵Cisco, ⁶CISION PR Newswire, ⁷Climate Home News

ARTIFICIAL INTELLIGENCE

Detailed description of top technological drivers

01 TOP TECHNOLOGICAL TOPICS

↓
DEEP LEARNING VS. DIGITAL RIGHTS

02 DETAILED DESCRIPTION

- ↓
- » AI enables computer to mimic human behavior. AI systems create a sophisticated intelligence machine that will perform given human functions well.
 - » Machine Learning provides the ability to automatically learn from the environment and apply this learning to make better decisions.
 - » Deep Learning systems can make their own predictions entirely independent of humans by using artificial neural networks.

03 PROJECTED DEVELOPMENT

- ↓
- » The patterns and prediction by using deep learning systems will increase substantially.
 - » Tractica estimates that European revenue from business applications in the area of artificial intelligence will reach US\$8 billion in 2025.¹
 - » The greatest economic gains from AI will be in China (26% boost to GDP in 2030) and North America (14.5% boost), ~\$10.7 trillion; accounting for almost 70% of the global economic impact.²

04 UNCERTAINTIES

- ↓
- » Ethical questions arise, when machines make decisions --> digital rights, transparency
 - » Development depends on legal framework
 - » Reproduction of emotional intelligence
 - » Cultural risks and definition of emotionality and its expression: mimic, move, body, language differentiate from culture to culture
 - » Bias: race, gender, sex, age, culture: How can we make sure that algorithms will not foster social bias?

SMART MOBILITY

- » New forms of individual mobility such as autonomous driving and air taxis will revolutionize how people and goods move from A to B.
- » Connected devices such as smartphones will manage supply and demand in a mobility system in real-time and push new mobility concepts such as ride-sharing forward.
- » Smart Mobility benefits from a Smart City: in a smart city data, processes and analytics make it possible to use the collective intelligence for more efficiency and thus more value of life for its citizens.

- » Connected car will be the fastest growing application type.³
- » High investment in new mobility concepts such as autonomous driving see Argo AI, urban air mobility see Lillium, and hyperloop see Elon Musk.
- » One in 10 cars to be fully automated by 2030—bumping up the total contribution to the US economy to \$13.7 billion.⁴
- » Up to \$2.5T potential economic impact from continued adoption of mobility services by 2025.⁵

- » Are we willing to take technical residual risks to benefit from the potential (trolley problem)?
- » How can we build up trust/social acceptance for new mobility concepts such as autonomous driving?
- » How will we balance risks and potential? How do we balance over-regulation and under-regulation?
- » How can we make sure everyone benefits from a data driven city (vs. Big Brother scenario)?
- » High interdependency with development of other factors such as AI, legal restrictions, regional policies...

ANALYTICS

- » The number of devices and machines that are interconnected will increase dramatically and with this the amount of data and the capability of algorithms.
- » Analytics enables high levels of data evaluation.
- » Use of data and algorithms for diagnosis and prognosis for endless use cases.

- » There will be a shift from diagnostic analytics to predictive analytics since the latter hold a promise of more valuable insights.⁶
- » Example (see Audi usecase): to predict a misconstruction and implement a warning system. Analytics [can support]avoidance of errors and hence enhance productivity than to analytically diagnose the reasons after having accomplished the misconstruction.

- » How will misuse be prevented?
- » How can we guarantee that citizens own ,their' personal data?



SOURCE:
¹OMDIA, ²PricewaterhouseCoopers (PwC), ³Cisco, ⁴TechRepublic, ⁵McKinsey Global Institute, ⁶International Business Machines Corporation (IBM)

NEW REALITY

Detailed description of top technological drivers

01 TOP TECHNOLOGICAL TOPICS

↓
EXTENDED REALITY

02 DETAILED DESCRIPTION

- ↓
- » Real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables.
 - » Multiple use cases in businesses (e.g. industrial engineering, new forms of product presentation) and for consumers (e.g. entertainment).

03 PROJECTED DEVELOPMENT

- ↓
- » Technology in XR will develop further so that XR applications will be more powerful and feel more real in the future.
 - » In 2026, the Global VR market size is predicted to be US\$ 120.5 Billion.²
 - » Many companies are investing (see Facebook, Microsoft) and increasing affordability of VR, devices will also push the market growth.²

04 UNCERTAINTIES

- ↓
- » What are beneficial use cases for XR and where is it felt to be superfluous?
 - » Should XR be used for everything it is able to be used for? Based on which regulations?

NEW ROBOTICS & TRANSHUMANISM

- » Robotics, Cognition, Intelligence: A value system permits a biological brain to increase the likelihood of neural responses to selected external phenomena.
- » Human-robot-collaboration industrial, health, caring settings: safety aspects, intuitive interfaces and applications in interaction.
- » Humanoid robots have sensors or cameras that aid them in sensing or seeing their environments.
- » Exoskeletons, Bionic Human Parts (protheses).

- » Easy-to-use collaborative robotics solutions, where human workers and robots share their skills, are entering the market, thus becoming the new frontier in industrial robotics. They allow to combine the advantages of robots, which enjoy high levels of accuracy, speed and repeatability, with the flexibility and cognitive skills of human workers.³
- » 67% of Chinese companies are expecting a reduction in the number of employees due to automation.⁴
- » Actuator, Sensor technology and AI-based interaction are the most important R&D fields.

- » Unemployment aspects: huge societal & economic implications
- » the strengths and limitations of current value systems for developmental cognitive robots
- » A safe interaction to avoid harming humans having a direct contact with the moving robot; intuitive usage: interfaces are properly designed, so that human operators can easily program and interact with them
- » The understanding of human-like information processing and the underlying mechanisms of the human brain in dealing with the real world

AMBIENTE EXPERIENCE

- » The interface between man and machine will be connected to an emotional dimension (Affective Computing). This brings a new level of authenticity, more personality, relevant storylines in communication as well as a new level of intuitive interaction.
- » This enables a consumer-centered design that takes into account the individual's mood and will change how we consume and communicate.
- » Digital experiences create new sphere for customer-focuses interaction.

- » Huge opportunities for businesses, but also potential threat to society such as Fake News. New forms of decision making due to ubiquity in digital media.
- » Our social skills and what we believe is influenced by what we experience online.⁵
- » The influence of media will increase further which fosters the challenge of how to identify and delete fake news. (Probability of Fake News being shared rather than the truth: 70%).¹

- » How is the validity of sources ensured?
- » How will our perception of reality as a society be changed by technology?
- » What to do if the real world and the digital reality contradict each other?
- » What to do if digital realities of social groups contradict each other (echo chambers)?

SOURCE: ¹Social Science, ²Intrado GlobeNewswire, ³Science Direct Elsevier, ⁴Statista, ⁵New York Behavioral Health

IMPACT-UNCERTAINTY MATRIX

Technology

Certainties

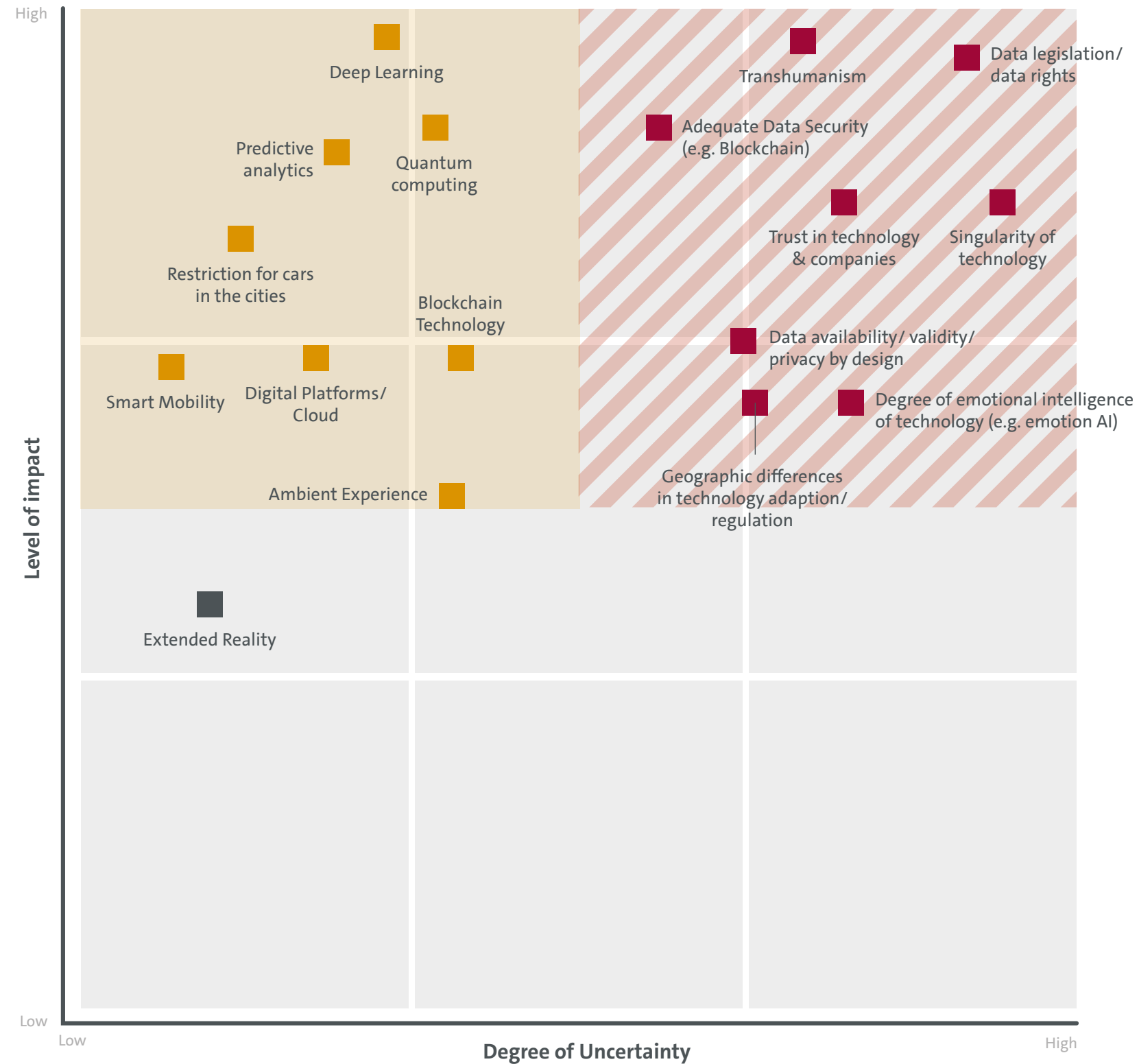
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Uncertainties

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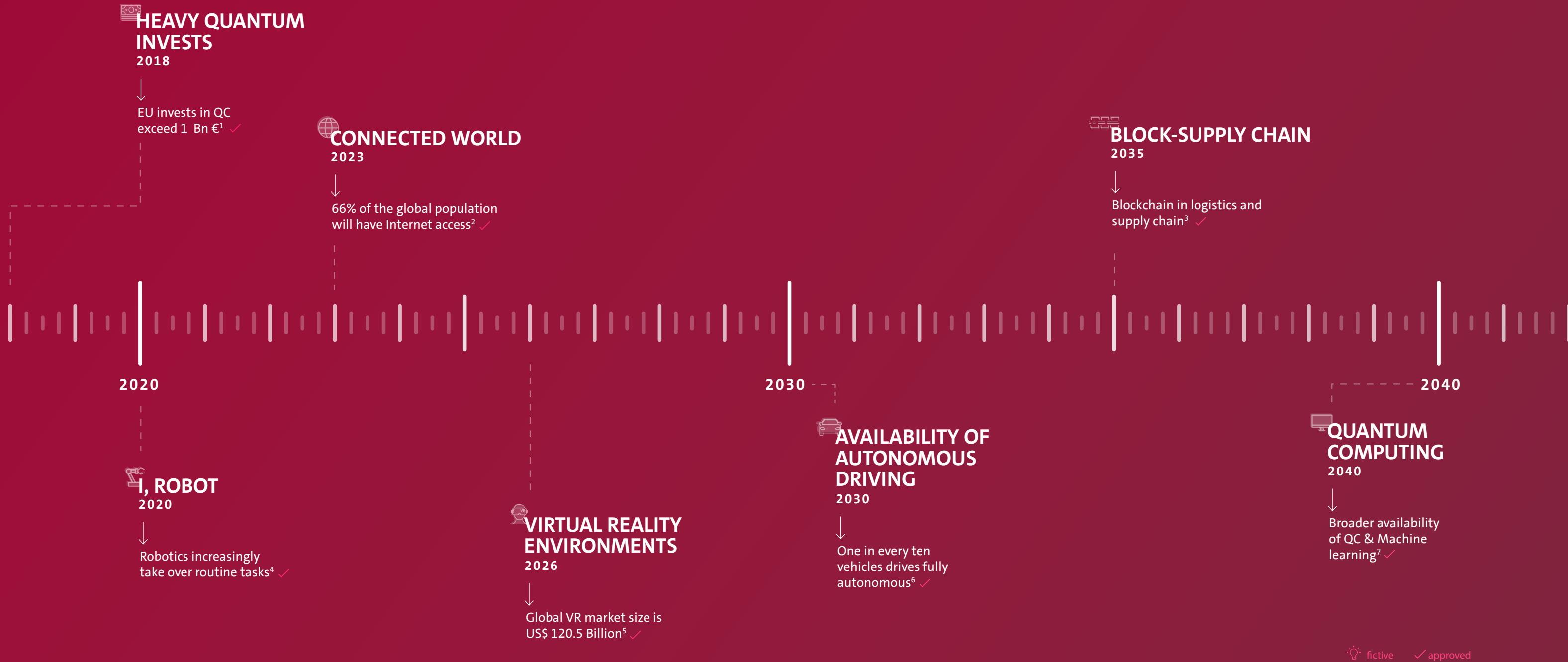
 Official future

 Scenarios



PLAUSIBLE FUTURE EVENTS

Technology



SOURCE: ¹Nature, ²UNESCO, ³Gartner, ⁴AUDI AG (Project P), ⁵Fortune Business Insights, ⁶Statista, ⁷Gartner

(DE-)GLOBALISATION

Detailed description of top economic drivers

01 TOP ECONOMIC TOPICS



A MULTIPOLAR WORLD

POWER SHIFT TO THE EAST

FROM OFF-SHORING TO NEAR-SHORING

02 DETAILED DESCRIPTION



- » Declining supremacy of the USA in the world economic order.
- » There is an increasing number of regional mergers & power centres that both cooperate and compete.

- » High growth dynamics in the Asia/Pacific region and China in particular are leading to a shift in the centre of economic gravity from the increasingly "discredited" West to the East.

- » The increased dependence and vulnerability with regard to international just-in-time networks leads to a return to resilience and systemic risk minimization (security of supply).

03 PROJECTED DEVELOPMENT



- » Number of regional trade groupings is increasing (WTO <=> EU, USMCA; RCEP, AfCTA etc.) & interregional trade is growing.¹
- » Development of credit ratings & technology standards, fragmentation of WorldWideWeb (+ regional than global).²

- » GDP shift (by 2030 Asia is expected to contribute 60% to global growth and will likely have a share of 35% of global GDP – more than the Euro area and US combined; 2/3 of the global middle class will live in this region).³

- » Value and retail chains (e.g. Apple vs. Adidas).⁴
- » Industrial policy debate (the role and investment of the state in critical sectors/products is increasing) <=> Interdependency / foreign influence.⁵

04 UNCERTAINTIES



- » Will regional alliances, e.g. like the European Union, remain or will national go-it-alones (Brexit) increasingly follow?
- » Who will be responsible for global solutions in crisis situations in the future? (New Leadership, Hegemonic Shift).

- » Revival of the West?
- » Crisis in the East: Shrinking growth, internal frictions and counter-reactions.

- » How will emerging & developing economies react (off-shoring / cheap production has been a central element of their growth strategies).



SOURCE:

¹World Trade Organisation, ²World Trade Organization, ³The World Bank, Center for Global Studies Bonn, ⁴United Nations Conference on Trade and Development, ⁵European Commission

DIGITAL ECONOMY

Detailed description of top economic drivers

01 TOP ECONOMIC TOPICS



DIGITAL PRODUCTS, SERVICES & CURRENCIES

02 DETAILED DESCRIPTION



- » Disruption of supply chains.
- » transfer of data across borders (3D-Printing & digital product services).
- » Blockchain technologies.
- » Growth of crypto-currencies.
- » Cashless societies.

03 PROJECTED DEVELOPMENT



- » Massive growth of digital economy and deeper penetration of all spheres of life (until 2030 est. 70% of new value created will be based on digital platforms).¹
- » Increasing market concentration of supremacy brands/ superstar firms (already, they account for 15% of global surplus / 25% of corporate earnings).²

04 UNCERTAINTIES



- » Resilience against cyber attacks.
- » Development of WorldWideWeb vs. Cyber sovereignty (fragmentation of the internet).
- » Competing, non-compatible technological standards.

DIGITAL SURVEILLANCE BY COMPANIES

- » Surveillance capitalism: customers as data generating machines.
- » Positive/negative implications of surveillance: Improved health tracking, social crediting, consumption habits.

- » Development of products/gadgets regarding digital surveillance will increase.³
- » Public debate on ethical issues becomes widespread.
- » Customers' willingness to use the corresponding technologies is on the rise.⁴

- » Digital enthusiasm vs. data protection.

DISTRIBUTION OF (DIGITAL) PROFITS

- » Productivity gains & profits by means of increased digitalization.
- » Distribution of profits to the owners of the technologies or distribution to several stakeholders, including employees & the wider society.

- » Gains of digitalization will increase at the top whereas others are left behind (since 1980s: labour compensation relative to aggregated output has been a downward trend in developed economies).⁵
- » Increasing intervention of states via regulation or civil society groups by means of protests.

- » Technological breakthroughs realistic?
- » Will profits really increase?
- » Redistribution of profits through unrest likely: Resolution or redistribution or revolution?



SOURCE:
¹World Economic Forum, United Nations Conference on Trade and Development, ²Harvard Business Review, McKinsey Global Institute, ³Project Syndicate, ⁴World Trade Organization, Project Syndicate, ⁵Harvard Business Review, McKinsey Global Institute

PUBLIC GOODS AS A RESOURCE

Detailed description of top economic drivers

01 TOP ECONOMIC TOPICS

↓
VALUE/COST/PRICE OF NATURE

VALUE/COST/PRICE OF HEALTH

VALUE/COST/PRICE OF FOOD

02 DETAILED DESCRIPTION

- ↓
- » Putting a price tag on nature & life.
 - » Internalization is necessary to show the impact of climate crisis on the economy.
 - » To calm citizens, companies and countries avoid destructive measures.

- » What is the value of human being?
- » Indicators for the influence of health on economic processes and production methods have so far been underrepresented, see e.g. the USA.

- » The awareness is slowly but surely rising, that our way of generating & consuming food is not only unhealthy for human beings but also unethical for animals & destructive for nature.
- » It is necessary to create more transparency & to reflect it in the price of food.

03 PROJECTED DEVELOPMENT

- ↓
- » Costs on environmental destruction are on the rise and constantly underrated (unprecedented event).¹
 - » Companies aspire to develop new KPIs.
 - » Negative social effects of climate measures (see e.g. yellow vest movement in France) and catastrophe-fatigue create counter-reactions.

- » As societies around the globe are aging, the demand for health products/services is rising (expenditures are projected to triple until 2035 to 24 trillion USD).²
- » The health sector plays an increasingly important systemic role (esp. after COVID-19) to keep the workforce happy & productive.

- » By 2030, half of the world's population will be overweight or obese.³
- » Proportion of vegetarians and vegans increases; a whole new economic sector is providing the necessary products/services.⁴
- » Extended mass farming, e.g. Brazil, has negative economic side effects (deforestation, bush fires & spread of pandemics).⁵

04 UNCERTAINTIES

- ↓
- » Activation of tipping points, that could make all calculations irrelevant.
 - » First mover advantages, e.g. companies implementing early measures could function as an avant-garde.
 - » Balancing social and environmental costs ("donut economics)."

- » Will inequality regarding health increase (methuselah vs. mayfly)?
- » Will bio-engineering free people from physical problems or create a kind of soulless cyborg?
- » Will bio-technology free people from physical work or make them completely redundant?

- » First comes the eating, then comes the moral: in matters of sheer survival people will eat what they can (dystopian scenario).
- » Vegan movement becomes a mass movement in order to save humankind & the planet (utopian scenario).



IMPACT-UNCERTAINTY MATRIX

Economy

Certainties

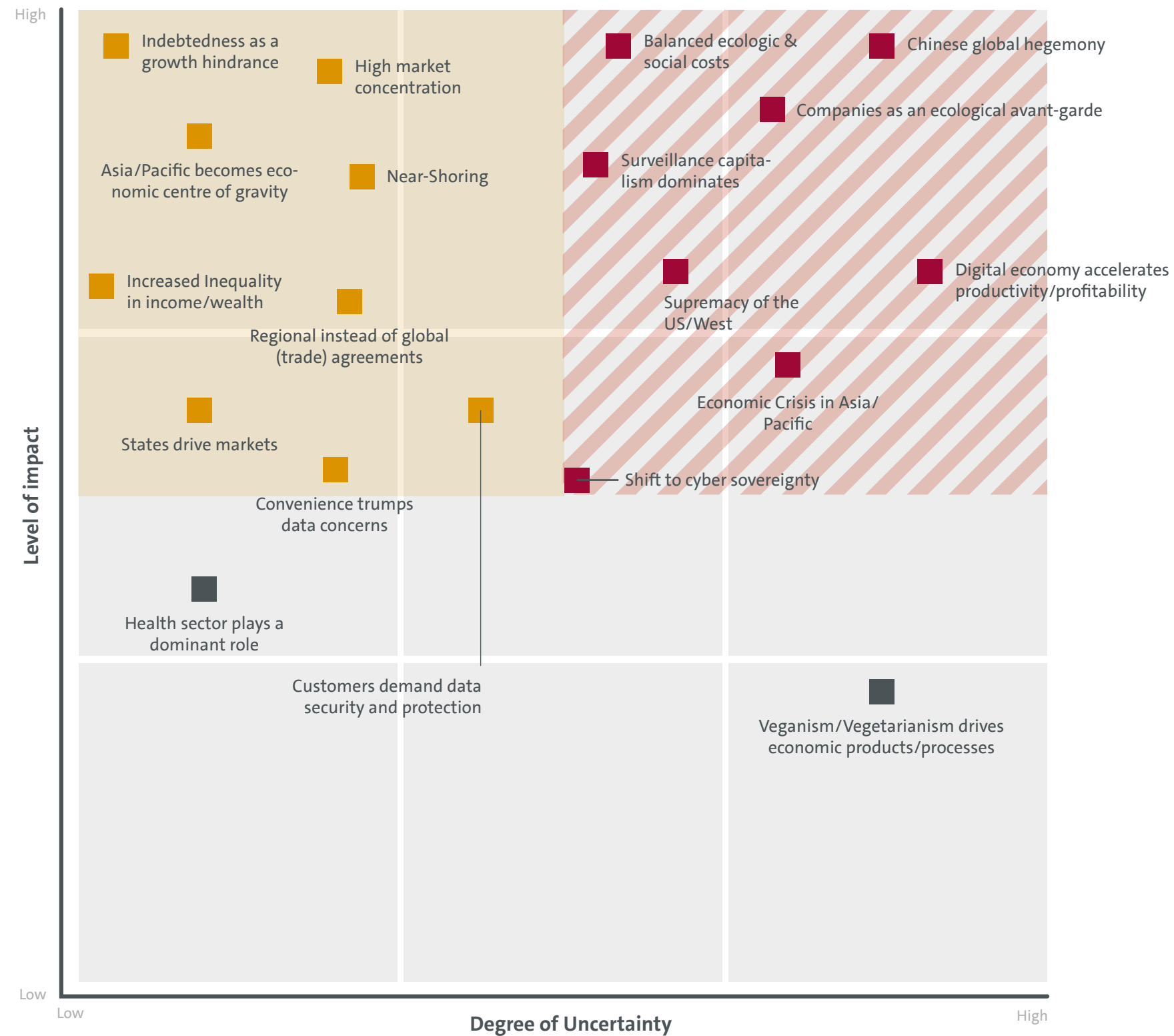
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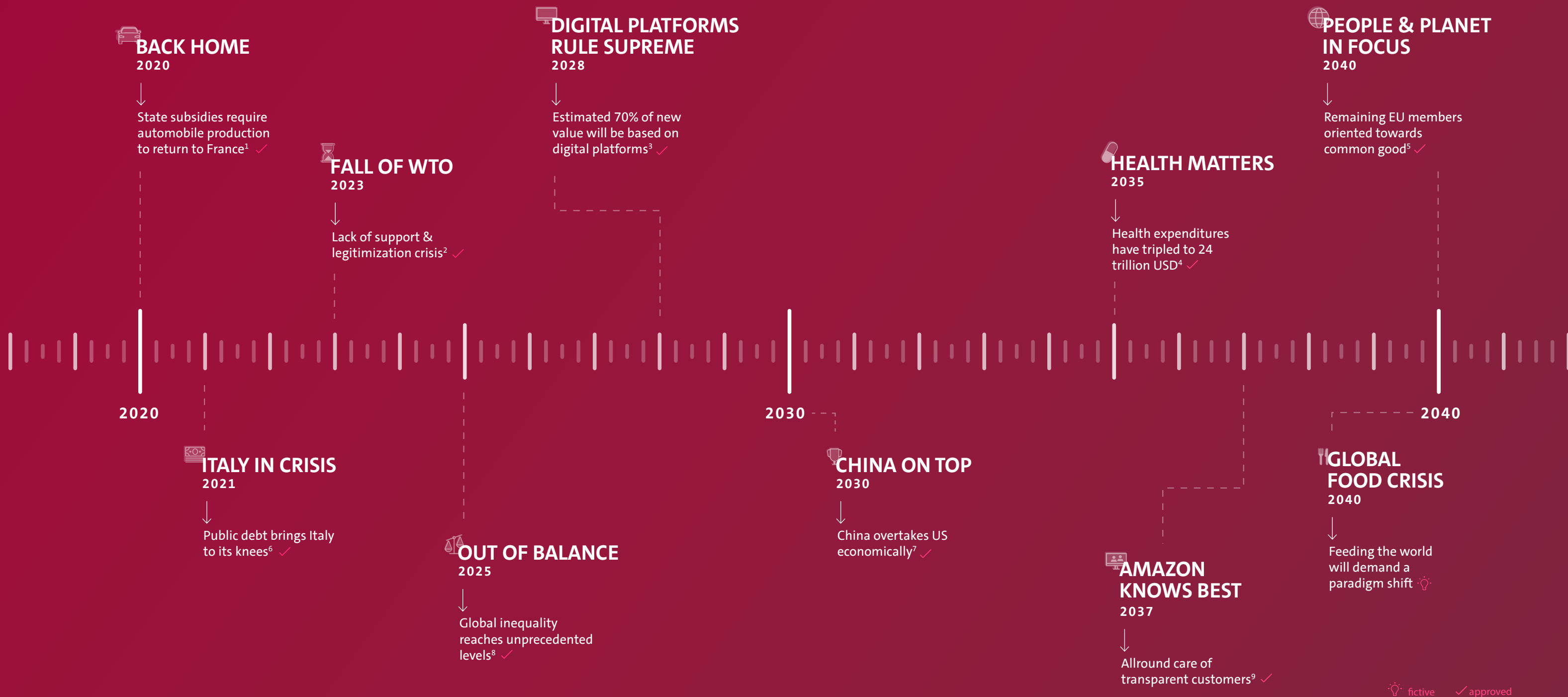
Official future

Scenarios



PLAUSIBLE FUTURE EVENTS

Economy



🌟 fictive ✓ approved



SOURCE:
¹Deutsche Welle, ²BertelsmannStiftung, Deutsche Gesellschaft für Auswärtige Politik e.V., Wirtschaftsdienst, ³World Economic Forum, ⁴Organisation for Economic Co-operation and Development, ⁵Volkswagen AG (Futures of Ethics), ⁶The Guardian, The Economist, ⁷OurWorldInData, The Guardian, ⁸GlobalData, ⁹Volkswagen AG (Futures of Ethics), ¹⁰World Economic Forum, McKinsey Global Institute, The Guardian



ECO. DRIVEN DECISION MAKING

Detailed description of top ecological drivers

01 TOP ECOLOGICAL TOPICS

↓
CIRCULAR ECONOMY & WASTE MANAGEMENT

02 DETAILED DESCRIPTION

- » Circular economy as an economic system aims at elimination of waste and the continuous use of resources.
- » Circular systems employ reuse, sharing, repair, refurbishment, remanufacturing and recycling to create a closed-loop system.

03 PROJECTED DEVELOPMENT

- » Action plan European Commission “halve the amount of (non-recycled) residual municipal waste by 2030 + double circular material use rate”.¹
- » “Make sustainable products the norm in the EU.”¹
- » “step up (...) enforcement of applicable sustainability requirements for products placed on the EU market.”¹

04 UNCERTAINTIES

- » Forced quote of waste reduction, recycling, resource use reduction as requirement could be adopted in many markets.
- » More extreme measures like full responsibility for 100% recycling for producers, resource taxation or the total stop of sold products and switch to full sharing (product-as-a-service) business models are possible.

POST GROWTH ECOLOGICAL INDICATORS

- » Economical Growth indicators beyond consume taking boundaries of the planet into account.
- » Guiding principle for what success means and what companies strive for in the post growth age.
- » Value Balancing Alliance (VBA): Uniting financial and ecological perspectives; global industry standard for comparability and transparency.

- » “Scaling up the circular economy (...) will make a decisive contribution to achieving climate neutrality by 2050 and decoupling economic growth from resource use (...)”¹
- » “[This plan] foresees the further development of a sound monitoring framework contributing to measuring well-being beyond GDP.”¹

- » A sudden switch to a new model or framework could shock the old economy - old business models come under enormous pressure by innovation (product-as-service models, mass customization, the sharing and collaborative economy).
- » Corporate Social Responsibility (CSR) or contribution to Sustainable Development Goals (SDG) could be included as indicator for company valuation.

CLIMATE JUSTICE

- » One of the biggest challenges of our time - climate change – combined with historically evolved concepts of environmental and social justice and equality.
- » It is about fair treatment and involvement of all people and communities.
- » Social versus ecological (e.g. deforestation for jobs versus climate protection).

- » While the poorest 50% of the world population are responsible for only about 10% of total lifestyle emissions, the richest 10% are responsible for 49%.²
- » With the European Green Deal, the European Commission wants to become the first climate-neutral continent by 2050.³

- » Ongoing injustice can lead to social unrest - ambitious targets could be missed like in the past.



SOURCE:
¹European Commission, ²OXFAM International, ³European Commission



AVAILABILITY OF RESOURCES

Detailed description of top ecological drivers

01 TOP ECOLOGICAL TOPICS



RACE FOR WATER, ENERGY & MINING

BIODIVERSITY LOSS

CLIMATE CAUSED SHIFT IN DEMAND & SUPPLY

02 DETAILED DESCRIPTION



- » According to United Nations' estimates, the earth will be home to nine billion people by 2040 instead of the current seven billion.
- » The growing global middle class and the switch to renewable energies demand for huge amounts of resources.

- » Gross domestic product (GDP), the primary performance indicator for economies, fails to account for "natural capital"—the stock of a country's ecosystem, natural resources and human capital.

- » The resources and products currently offered and demanded could shift dramatically caused by climate change.
- » In some areas production of certain goods won't be possible anymore, in other areas farming will become possible for the first time.

03 PROJECTED DEVELOPMENT



- » "33 countries threatened by water shortages by the year 2040 – including countries on every continent." ¹
- » "If mankind continues to live as before, we will need two planets by 2030 to meet our food and renewable resource needs. By 2050 there would be almost three." ²

- » "Biodiversity loss has also come to threaten the foundations of our economy: one attempt to put a monetary value on goods and services provided by ecosystems estimates the worth of biodiversity at US\$33 trillion per year—close to the GDP of the United States and China combined." ³
- » Degeneration of Biodiversity increases likelihood of pandemics ("The Shock has a system"). ⁷

- » "Greenland sells meltwater from climate change to companies." ⁴
- » "Large parts of Asian Russia could become habitable by the late 21st century." ⁵
- » "Africa, Southern Asia and Latin America are (...) affected - In some northern regions of Europe, Asia and America agricultural productivity could even rise." ⁶

04 UNCERTAINTIES



- » In some cases the resources would be exhausted before 2052 and affected regions would suffer a collapse, the scientists predict. (Club of Rome).
- » China already threatened Washington with a delivery stop for rare earths (control 90% of the easily available deposits).

- » Risks arising from biodiversity loss include food insecurity and health risks.

- » Unforeseeable changes by climate change to demand and supply of goods and services.
- » Uninhabitable areas and new inhabitable areas.
- » Potentially huge market for Geo-Engineering and Carbon Capture Tech.



SOURCE: ¹World Resources Institute, ²European Commission, United Nations, ³World Economic Forum, ⁴CSR News, ⁵ScienceDaily, ⁶World Agriculture Report, ⁷The Guardian



HUMAN POWERLESSNESS

Detailed description of top ecological drivers

01 TOP ECOLOGICAL TOPICS



ACTIVATION OF TIPPING POINTS

02 DETAILED DESCRIPTION



- » The point at which a series of small changes or incidents become significant enough to cause a larger, more important change.
- » The large-scale effects resulting from exceeding a tipping point become visible either abruptly or gradually and can endanger the livelihoods of millions of people.

03 PROJECTED DEVELOPMENT



- » UN warns action is very far from stopping global temperature rise, with the world currently on track for 3-4°C.¹
- » Nine tipping points may have been activated (remaining intervention time could already be reduced to zero, while response time to achieve net zero emissions is at best 30 years²).

04 UNCERTAINTIES



- » "If damaging tipping cascades can occur and a global tipping point cannot be ruled out, then this is an existential threat to civilization."¹⁰

SOCIO-ECOLOGICAL INTERDEPENDENCIES

- » The interplay between ecology and society demand a joint examination.
- » The direct social impacts of ecological disaster becomes undeniable.

FAILURE TO PREVENT HUMAN MADE DAMAGES & DISASTERS

- » Human failure in preventing major damage and disasters.
- » This includes environmental crime, causing harm to human lives and health, infrastructure, property, economic activity or the environment.

- » 200 million environmental migrants by 2050, moving either within their countries or across borders, on a permanent or temporary basis.³
- » Inaction (or insufficient action) could incur social costs exceeding USD 16 trillion worldwide. (additional to estimated USD 20 trillion economical losses).⁴

- » "Society will collapse in 2040 due to catastrophic food shortages if policies do not change."⁷
- » "Worst case scenario: 2 billion people live in the hottest parts of the world, upwards of 45 days per year, temperatures skyrocket to 60C (140F), the human body cannot be outside for longer than about six hours."⁸

- » "If we rely only on the current climate commitments of the Paris Agreement, temperatures can be expected to rise to 3.2°C this century."⁵
- » "Only eight of twenty-five parties analyzed are on track, with implemented policies, to achieve their Nationally Determined Contributions (NDCs)."⁶

- » "Withdrawal of the US will take final effect on November 4, 2020, one day after the next US presidential election."⁹
- » "Breakdown (Paris Agreement) happens if the failure of large economies to meet their targets causes rising acrimony and other countries make minimal pledges or slow-walk their own goals."⁹
- » Geo-Engineering at global scale.



SOURCE: ¹United Nations, ²Nature, ³Foresight, ⁴Friedrich Ebert Stiftung, ⁵ScienceDaily, ⁶ScienceDirect (Elsevier), ⁷Independent, ⁸The Guardian, ⁹VOXMEDIA, ¹⁰Nature

IMPACT-UNCERTAINTY MATRIX

Ecology

Certainties

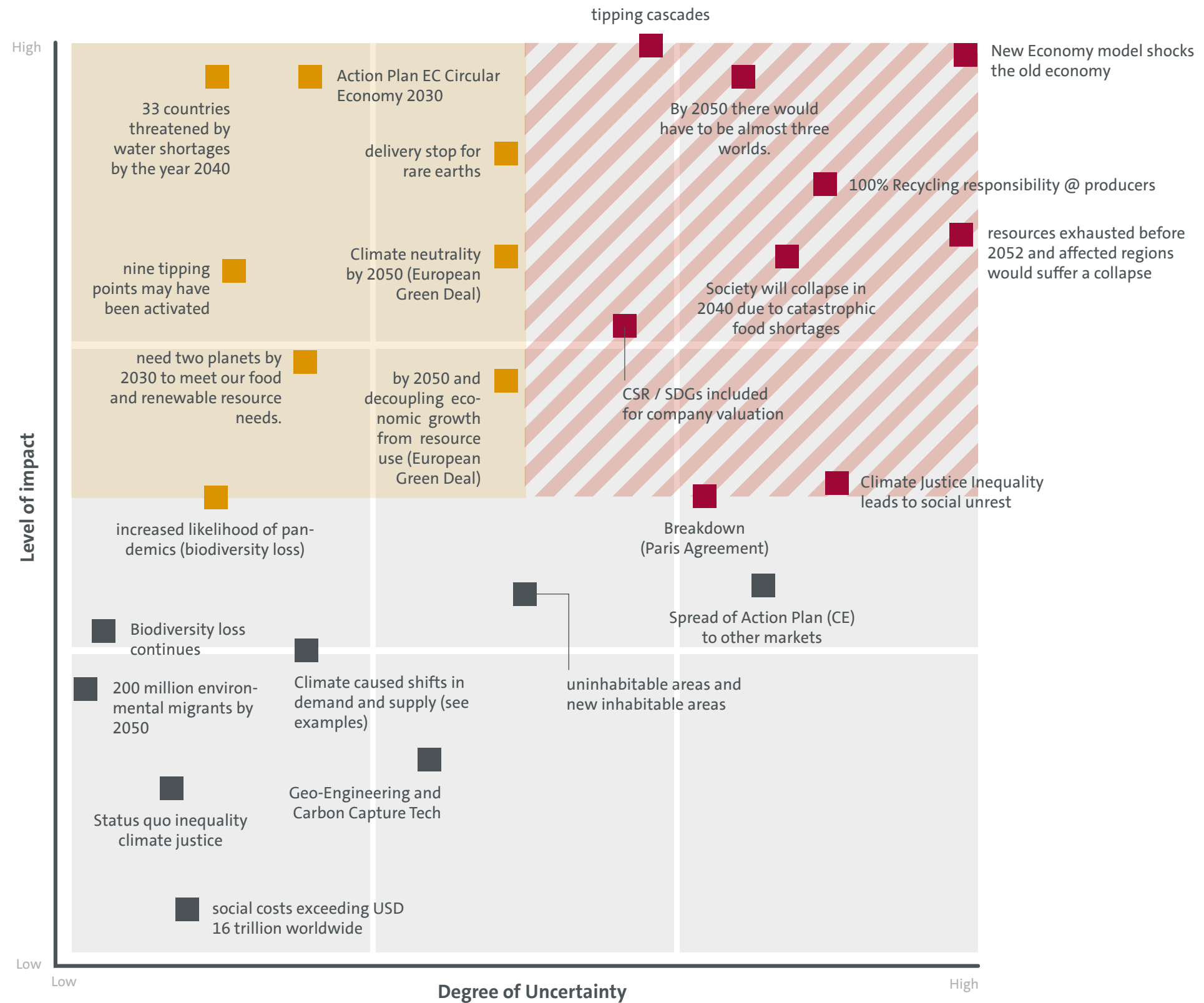
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Official future

Scenarios





PLAUSIBLE FUTURE EVENTS

Ecology

NEXT PANDEMIC 2020+

increases likelihood of pandemics (biodiversity loss)¹ ✓

CIRCULARITY 2030

Action Plan EC Circular Economy 2030³ ✓

AMBITIOUS EU TARGETS 2050

Climate neutrality by 2050 (European Green Deal)⁷ ✓

THE CURRENT TRACK TO CHAOS 2100

action is far from stopping global temperature rise, world currently on track for 3-4°C (2100)⁹ ✓

RESOURCE WARS 2020+

delivery stop for rare earths or other resources as political pressure instrument² ✓

PLANETARY IMBALANCE 2030

Need two planets by 2030 to meet our food and renewable resource needs.⁴ ✓

THE NEW GOLD 2040

33 countries threatened by water shortages by 2040⁵ ✓

REGIONAL COLLAPSES 2052

resources exhausted before 2052 and affected regions would suffer a collapse⁸ ✓

MIGRATION FLOWS 2050

200 million environmental migrants by 2050⁶ ✓



SOURCE:

¹The Guardian, ²ntv, ³European Commission, ⁴World Wide Fund For Nature (WWF), ⁵World Resource Institute, ⁶International Organization for Migration (IOM), ⁷European Commission, ⁸The Club of Rome, ⁹The Guardian, Intergovernmental Panel on Climate Change (IPCC)

GLOBAL CITIZENSHIP

Detailed description of top political drivers

01 TOP POLITICAL TOPICS

↓
MANAGEMENT OF GLOBAL PUBLIC GOODS

02 DETAILED DESCRIPTION

- ↓
- » Climate, health, and similar goods are recognized as Global Public Goods.
 - » Governance of Global Public Goods is changing, driven by societal movements:
 - US withdraw from agreements (Paris agreement, Iran deal), threaten to withdraw money (NATO, WHO)
 - Global Public Movements form, often within generations and linked to debates on equality (e.g. climate justice)
 - Multinational Corporations (MNCs) like the Volkswagen Group are assigned/take on new roles

03 PROJECTED DEVELOPMENT

- ↓
- » Political frameworks for decarbonization until 2050 (Paris Agreement, EU Green Deal).¹
 - » Since 2000, the Gates Foundation has given more than \$2.4 billion to the WHO, making it the second biggest donor over the past decade.²
 - » Generation born before 2000 are experienced in dealing with crises and are able to cope better with COVID-19.³
 - » 74% (+9 pt since 2018) of respondents say that CEOs should take the lead on change rather than waiting for government to impose it (COVID-19 pushes this trend).⁴

04 UNCERTAINTIES

- ↓
- » Future of international organizations (crisis or renewal).
 - » Figures like Gates (designing global public health systems) or Thiel (buying New Zealand for apocalyptic scenarios) win US presidential election.
 - » Political decisions to lower the voting age in developing countries to include Fridays For Future generation.

SECURING OR HACKING POLITIES

- » Digitalization drives participation in democratic systems; simultaneously, social cohesion is under pressure as disinformation spreads.
- » The state duty to prepare for pandemics (COVID-19) or protect against human rights abuses (UN principles) provides a reason to develop/use public surveillance technologies; creating a dilemma (also for corporations' relation with employees).

- » Blueprints for digital democracies: Taiwan (vTaiwan, Presidential Hackathon since 2018; 2019: 100 local entries and 23 international teams) or Estonia (e-Estonia: 44% of Estonians use e-voting, 99% of public services are online 24/7, vision of a "seamless government").⁵
- » Social media and the internet are magnifying the impact of "information warfare" by authoritarian governments, but findings are still qualitative.⁶
- » Social Credit System in China.
- » Surveillance and COVID-19: Israel accesses citizens' mobile data for tracking⁷; German virologist advocates an app for tracking contacts.⁸
- » Laborlink application lets factory workers report workplace abuses, was piloted with 100 factory workers in Peru and has reached over 1 million workers in 16 countries and wants to grow.⁹

- » Cornell University [or similar Ivy League university with blockchain competencies] develops a blockchain voting tool.
- » A massive data leak at an EU public authority undermines trust in tech and government.
- » Cyber-security turns into a major concern, companies and states struggle to keep up.

BALANCING URBAN-RURAL RELATIONS

- » Cities have become major political actors – addressing issues that have an impact beyond urban constituencies (e.g. climate, mobility).
- » Cities need the countryside to sustain resource-intensive way of living (energy, food, data, logistics).
- » The story of urban-rural interdependence is currently being rewritten (Rem Koolhaas, AMO).

- » C40 Cities Climate Leadership Group pledge to fulfil Paris Agreement after US withdrew.
- » 60% of the world's population will live in cities by 2030.¹⁰
- » University of Nairobi students vote 60/40 for a future life in the new countryside.¹¹
- » Buildings in the countryside are increasingly built for things and machines (e.g. storehouses for mail order companies, greenhouses, power plants).¹¹

- » Shenzhen (Shenzhen AI guidelines) declares itself independent from China to be able to set stricter rules for AI development and use; setting of a trend of "balkanization".
- » Rural turn intensifies, challenging urbanization.
- » Natural disasters/ecological tipping points make the countryside/the cities uninhabitable; oceans become the new countryside.

SOURCE:
¹European Commission, United Nations Climate Change (UNFCCC), ²Politico, ³Business Insider, ⁴Edelman Trust Barometer, ⁵The New York Times, e-estonia, ⁶William & Flora Hewlett Foundation, ⁷Handelsblatt, ⁸Norddeutscher Rundfunk (NDR), ⁹World Business Council for Sustainable Development, ¹⁰United Nations, ¹¹The Guardian



REDEFINITION OF POWER

Detailed description of top political drivers

01 TOP POLITICAL TOPICS

ASIAN ASCENDANCY

21ST CENTURY WARFARE

REGIONAL INNOVATION SYSTEMS

02 DETAILED DESCRIPTION

- » Until 1750, Asia was the dominant region; it is now on its way to reestablish that position.
- » As Asian countries gain economic strength and political reputation, culture follows suit: elites pick up an Asian-centric worldview; pan-Asian identity gains traction and confidence.
- » EU identifies China as “systemic rival”; US engages in a hegemonic competition.

- » NATO has been called “brain dead” by Macron.
- » New regimes and terror groups threaten to gain control over 20th century weapons of mass destruction (nuclear/bio-chemical; North Korea, Iran, Syria).
- » Technological warfare (drones, hacker attacks) is available, also for conflicts in inhospitable environments (oceans, space).

- » Focus on regions: NAR (not USA) or EU (not nation states), when it comes to innovation ecosystems (see patents); competition for innovation leadership (public investments, regulation).
- » Innovation policies, value creation in Western societies (esp. US tech companies) differs from value creation strategies in China (political steering of investments).

03 PROJECTED DEVELOPMENT

- » Triumph of effective and inclusive Asian technocracies.¹
- » Growth of regional Asian institutions for e.g. monetary system, military, or human rights emerge; “return of Afroasia”, “Eurasia” and “new pacific partnership”.
- » Three decades of growth in military spending in Asia and Oceania: The tensions between countries in Asia as well as between China and the USA are major drivers for the continuing growth of military spending in the region.²
- » AI will have a destabilizing effect on nuclear strategy, deterrence and stability.³
- » Russia spends billions of dollars on building/upgrading seven military bases along the arctic route (advanced radar/missile defense systems.⁴
- » “SPACECOM will protect US vital interests in space, the next warfighting domain.”⁵

- » Of top 100 companies by market capitalization, 18 from China and 13 from US were founded in the past 30 years; no new EU company made the list.⁶
- » China launched MIC2025 to become a leading global technological superpower by 2049, mobilizing regions and private companies to make it a success.⁷
- » EU will stimulate B2G data sharing as part of data strategy.⁸
- » EU digital taxation to be proposed by 2021.⁹

04 UNCERTAINTIES

- » Asian cosmopolites reject their Asian identities.
- » Political cohesion/conflict within the Asian region.
- » Will migration movements change direction? E.g. South-European and Sub-Saharan African migrants move East, putting Asian politics under pressure.
- » North Korean rockets reach South Korea or Japan; Asian countries renegotiate nuclear deal with Iran; China sets up military bases in Levant/Africa.
- » Focus shifting to cyber-space/to space/to arctic/to deep sea because of new discoveries.
- » Google offers public access to all its data to win innovation leadership by open innovation.
- » African migrants returning to home countries spark a new innovation culture/join global race.
- » Success or failure of German cloud project GAIA-X.
- » Regulation as revenue source for nation states.
- » Ivy League academia moving to Asia.
- » Demand for state surveillance tech.



SOURCE: ¹Parag Khanna, ²SIPRI for the media, ³SIPRI for the media, ⁴Financial Times, ⁵Munich Security Conference, ⁶Mercator Institute for China Studies, ⁷Mercator Institute for China Studies (MERICS), ⁸European Commission, ⁹European Commission

UPDATED INVESTMENT SCHEMES

Detailed description of top political drivers

01 TOP POLITICAL TOPICS

↓
**SYSTEMICALLY
RELEVANT
INVESTMENTS**

**CORPORATE
STATECRAFT**

**ADAPTING TAXATION
MODELS**

02 DETAILED DESCRIPTION

- ↓
- » Governments invest in economy and technological and social infrastructures to overcome the COVID-19 crisis; public-private funds accessible for start-ups, SMEs, and MNCs are being set up.
 - » EU discusses so-called COVID-19 Bonds, which would allow it to face financial markets united, creating equal opportunities.

- » Demand for corporate statecraft (business speaking out and acting on socio-political issues) has grown stronger over the last years as global public lacks trust in the competence of other elite institutions (politics, media, NGOs).⁶

- » Discussions regarding corporate taxes, a financial transaction tax, or a wealth tax (all to tackle inequality) are prevalent, but not concluded.
- » Decarbonization and digitalization call for new taxation schemes (e.g. CO₂ pricing, taxing US tech companies) and redistribution models.

03 PROJECTED DEVELOPMENT

- ↓
- » Back to “sustainable growth, integrating for example the green transition and the digital transformation, (...) This will require a coordinated exit strategy, a comprehensive recovery plan and unprecedented investment.”¹
 - » “necessary increase in the public debt ratio will have been sizable, but interest rates and aggregate demand are likely to remain low in the recovery phase.”²
 - » IfW recommends partial state ownership for Lufthansa.³
 - » CEO of Volkswagen Group speaks out in favour of COVID-19 Bonds.⁴

- » WEF, Government of France, and Microsoft partner to develop a governance framework for facial recognition technologies.⁵
- » 92% say it is important that my employer’s CEO speaks out on one or more of these issues: training for jobs of the future (84%), automation’s impact on jobs (81%), ethical use of tech (81%), income inequality (78%), diversity (77%), climate change (73%), immigration (62%).⁶
- » Business has a negative ethical score.⁶
- » Volkswagen Group postpones decision on \$1.4 billion Turkey car plant.⁷

- » Discussions will continue, but no general/widespread conclusions in sight; models proposed:
 - CO₂ pricing models presented by Potsdam-Institut für Klimafolgenforschung (PIK) & Mercator Research Institute on Global Commons and Climate Change (MCC) (2018)
 - EU’s Vestager says one EU digital tax might be easier for firms (2020)
- » COVID-19 can accelerate both developments: Back “to sustainable growth, integrating for example the green transition and the digital transformation, (...) This will require a coordinated exit strategy, a comprehensive recovery plan and unprecedented investment.”⁸

04 UNCERTAINTIES

- ↓
- » Public debt is abated.
 - » Psychological pressure affects business leaders and politicians.
 - » Duration of COVID-19 “dance” phase.
 - » COVID-19 funds turn into basic income.
 - » German trajectory after Merkel’s last term.

- » Business collaborating with authoritarian regimes
- » Business reacting to social/natural disasters
- » New forms of ownership models

- » Widespread voluntary giving scheme by the well-off (e.g. no bonuses during post-COVID-19 phase); riots by the disadvantaged.
- » Technocrat/expert governments after the crisis putting blueprints in place.



SOURCE:
¹European Council, ²International Monetary Fund, ³ntv, ⁴Financial Times, ⁵World Economic Forum, ⁶Edelman Trust Barometer 2020, ⁷Bloomberg, ⁸European Council

IMPACT-UNCERTAINTY MATRIX

Politics

Certainties

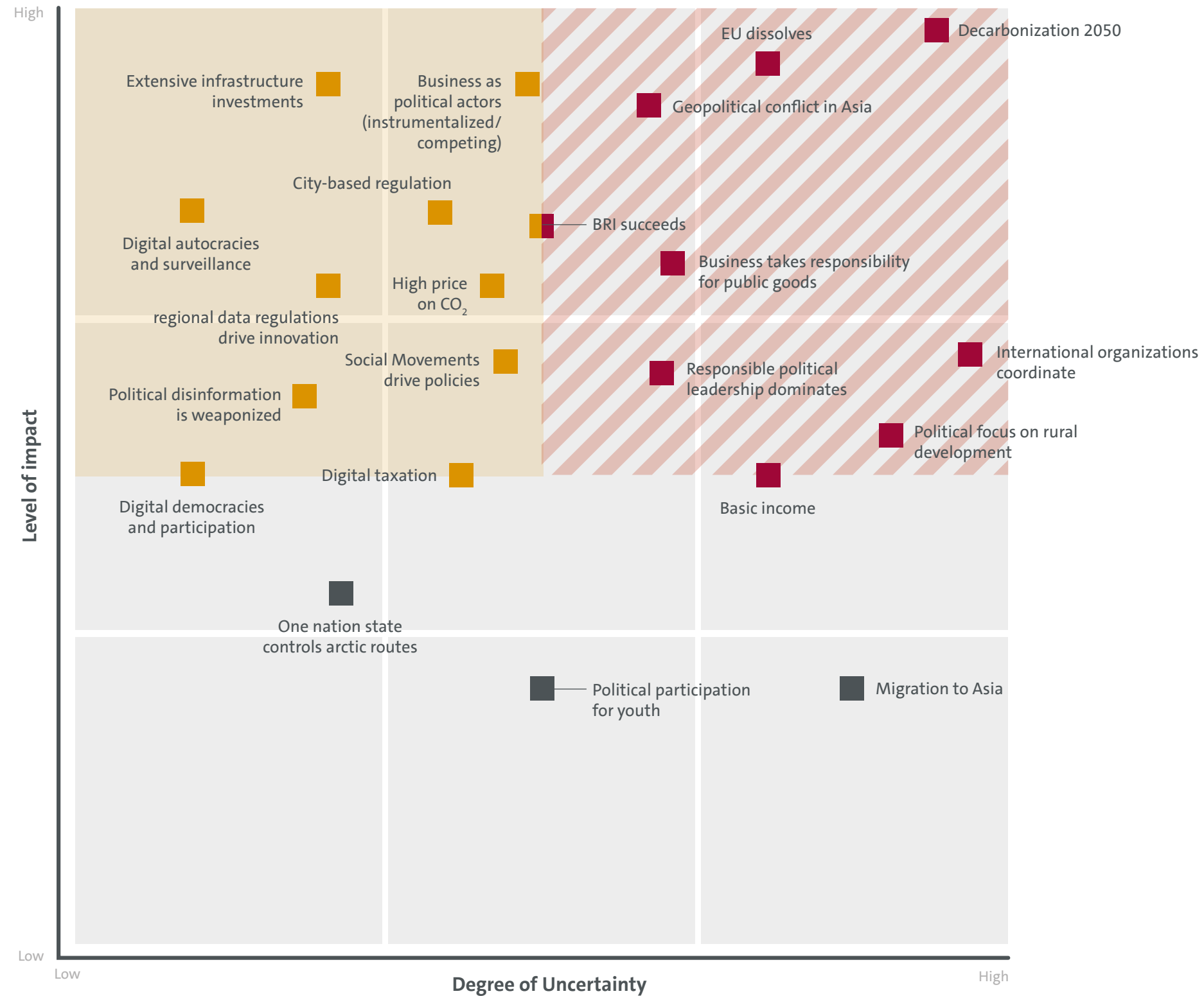
Developments trends that occur, when there are no discontinuous changes to current trends, no crisis, and continued stable growth.

Uncertainties

Developments, trends and events that might occur (e.g. projected developments).

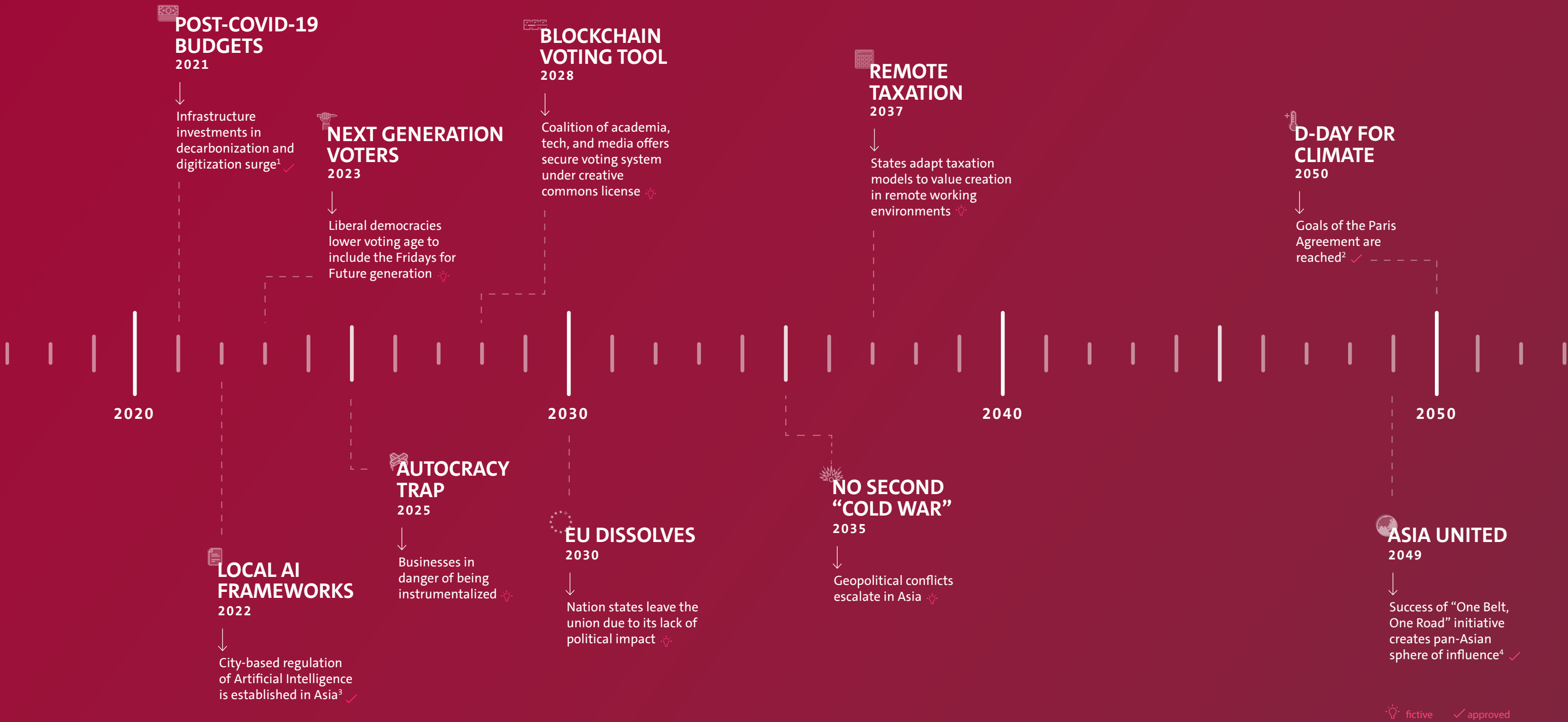
Official future

Scenarios



PLAUSIBLE FUTURE EVENTS

Politics

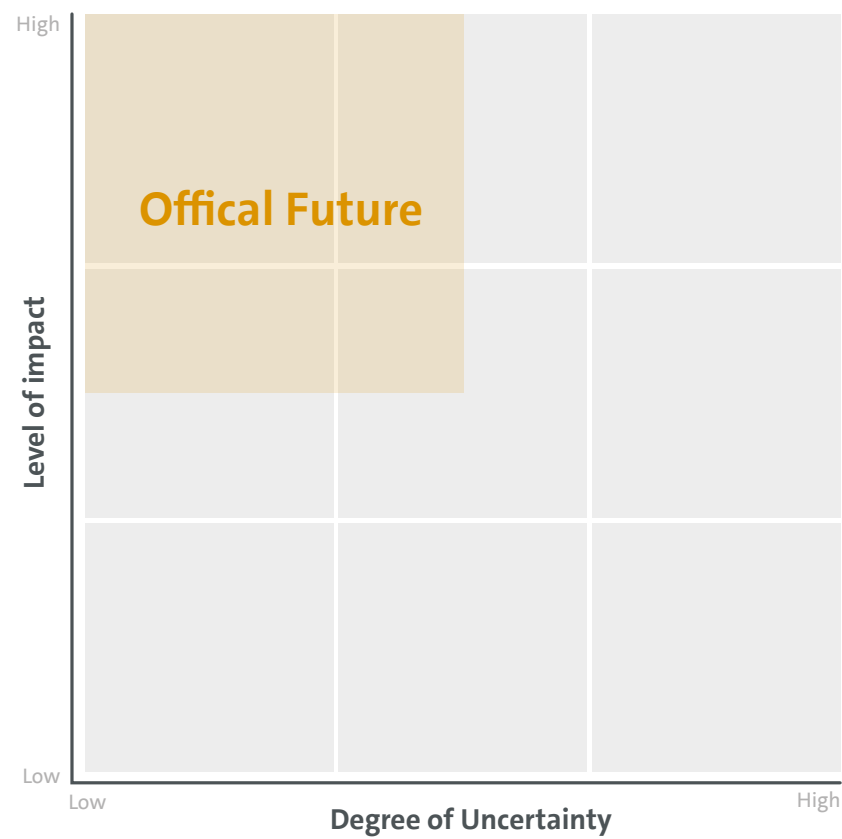


SOURCE:
¹European Commission, ²UNFCCC, ³Deloitte, ⁴Parag Khanna

“CERTAINTIES” UNDERLYING THE OFFICIAL FUTURE



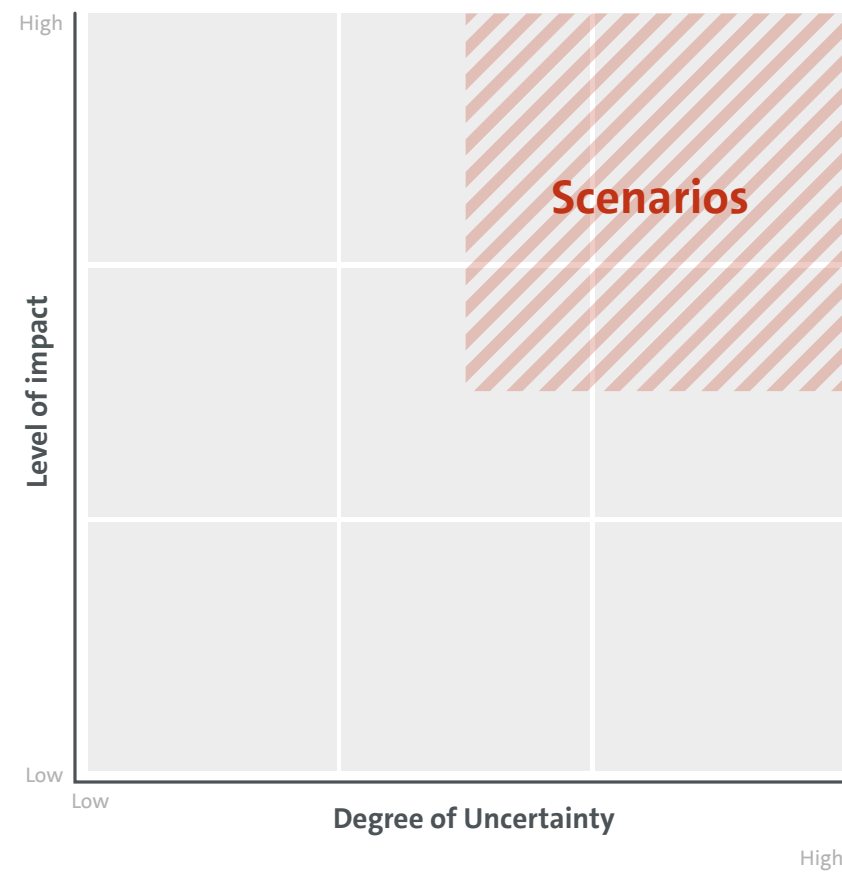
Based on the mapping into the matrix several certainties were derived. They build the fundament for the baseline scenario “Puzzled World”:



- » De-globalization, but enhancement of digital value chains
- » Ongoing difficulties to find supranational solutions
- » Technological advancements in robotics and AI
- » Nation states left with debt, rising role of (digital) companies as policy actors
- » Worsening climate change and resource inequality

ALTERNATIVE SCENARIOS WERE BUILT BY USING ALTERNATIVE PROJECTIONS OF IDENTIFIED UNCERTAINTIES

↓
 During the STEEP analysis phase, several uncertainties were identified, underlying the respective future developments of the scouted trends. These uncertainties were prioritized by effect and ethical implications. Thereby, they form the basis of the uncertainty analysis and scenario development phase. For each STEEP factor three uncertainties were identified (see figure below).



FIELD OF IMPACT	UNCERTAINTIES
Society	<ul style="list-style-type: none"> » Workforce Transformation (automation) » Definition of Well-being » Purpose-driven Activism and Movements
Technology	<ul style="list-style-type: none"> » Development of Artificial Intelligence » Future Data Security & Regulation » Trust in Technology
Economy	<ul style="list-style-type: none"> » Role of China » Surveillance Capitalism » Power of Digital Super-Star Companies
Ecology	<ul style="list-style-type: none"> » Climate Change Action » Development of Circular Economy » Climate Injustice leading to Social Unrest
Politics	<ul style="list-style-type: none"> » Stability of the European Union » Role of International Organizations for Global Governance » Authoritarian States

SOURCE:
 Future Heads Network, K-GAD, K-FIGE/I, Volkswagen Consulting, K-IG5

WORKFORCE TRANSFORMATION (AUTOMATION)

DIRECTIONS OF WORKFORCE TRANSFORMATION 2040

Hypothesis

MASS UNEMPLOYMENT

Mass unemployment caused by automation leads to a major disruption in an extent unknown before. Robotics and AI technology emerge to everyday companions converging jointly.



Hypothesis

NEW MEANING OF WORK

Majority of tasks is taken over by automated and mechanical solutions. However, societies deny the robotic application in personal, social and caring professions due to the need for interpersonal relations.



Hypothesis

SYMBIOSIS

An increasing automation is not a substitute but symbiosis of automation and current work approaches. Repetitive elements of jobs are carried out via programs and robotics promoting a 3-day-week for employees.



Hypothesis

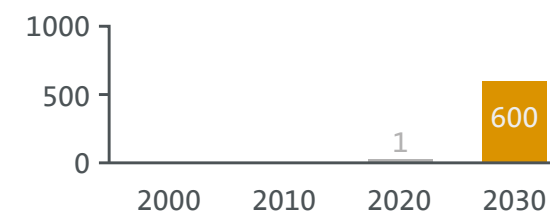
RETENTION OF CRITICAL JOBS

New jobs are created through new technologies in the same pace as other are automated. The importance of system critical professions reject a full translation into automation and remain in the human area of responsibility.



INDICATORS (SELECTION)

1 Individuals replaced by automation worldwide [in mm]



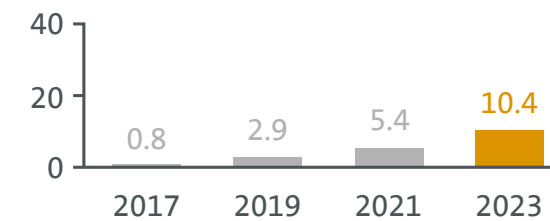
¹McKinsey Global Institute

2 Global shortage of skilled workers [2030, in mm]



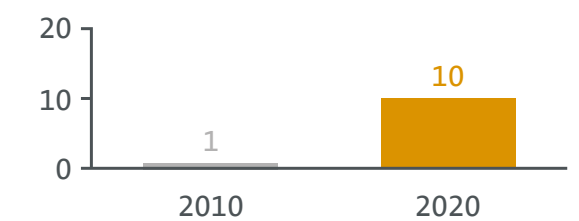
²Korn Ferry

3 Robotic process Automation market revenue worldwide [bn US\$]



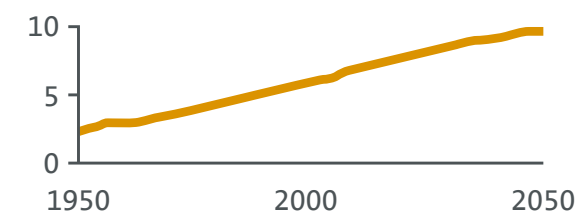
³Statista

4 Software code extent in automotive development [2010 indexed = 1]



⁴Stern Online

5 Worldwide population [bn]



⁵United States Census Bureau

6 System relevant professions

“Indispensable for the community”

⁶ntv

DEFINITION OF WELL-BEING

DIRECTIONS OF DEFINITION OF WELL-BEING 2040

Hypothesis

PURPOSE IMPORTANT FOR WELL-BEING

A meaningful purpose developed to be the major contributor for individuals' well-being. It decoupled from former conservative values such as income and money.



Hypothesis

BACKLASH OF MODERN VALUES

Increasing disturbances of the global economy in the past caused uncertainties and fear of their continuation. Averting from idealistic topics towards traditional economic intentions include the shift back to previously pursued motives.



Hypothesis

REASSESSING JOB CRITICALITY

Crises lead to an increasing valuing of system critical professions. The societal image of indispensable services required to enable a proper functioning of a nation gain tremendously in reputation.



Hypothesis

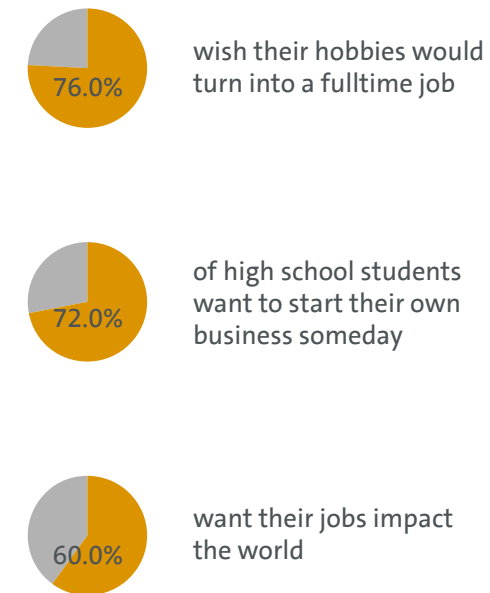
INCREASING INEQUALITY

In order to be able to pursue a life with a well-being as defined by the western world costly technologies are essential to reach this. The global inequality is not only fostered but increased as the definition of wellbeing becomes more diverse around the globe.



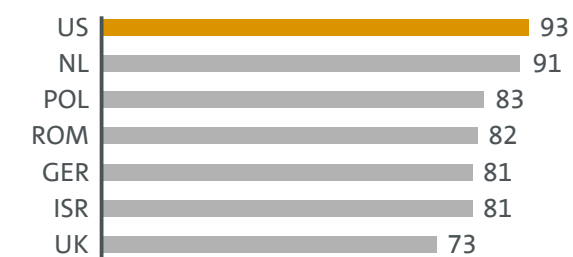
INDICATORS (SELECTION)

1 Values pursued by Gen Z [2019]



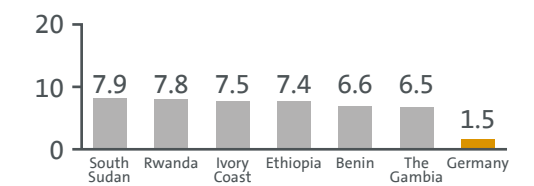
¹Deloitte

3 Job satisfaction of employees internationally [in %]



³Trading Economics

2 African countries with highest GDP growth compared to Germany [2019, in %]



²Statista

4 System relevant professions

“Indispensable for the community”

⁴ntv

PURPOSE-DRIVEN ACTIVISM AND MOVEMENTS

DIRECTIONS ACTIVISM & MOVEMENTS 2040

Hypothesis

PARALYZED PROTESTING

Protests yield no meaningful outcomes and governments widely ignore opinions articulated openly. Effectively, fundamental rights are acted out, yet only pro-forma.

Hypothesis

SOCIAL ACTIVISM AS MAJOR DRIVING FORCE

Social Activism constitutes a major driving force for communicating and enforcing societal desires. The future form of political participation for coming generations is characterized by this drastic format.



Hypothesis

ACTIVISTS & POLITICAL PARTIES TEAM UP

Social Synergies emerge from movements & political parties teaming up to enforce interests jointly. Social movements stay but connect to political parties to create an impact.

Hypothesis

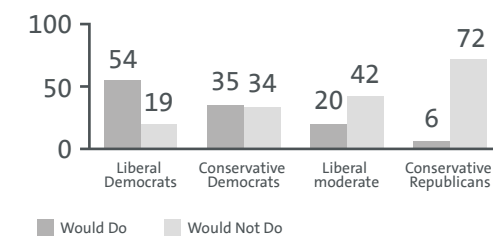
CONFORMITY TO AUTHORITY

The revival of a nation state includes a collective conformity of societal elements. Standing behind the state activism as it is presently known does not exist and a broad acceptance of the form of government is given.



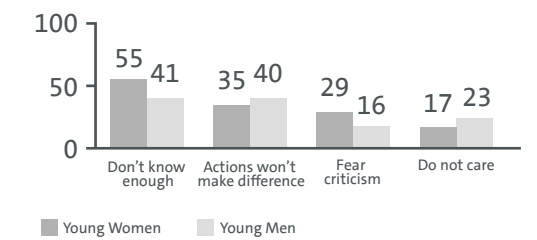
INDICATORS (SELECTION)

1 Willingness to join campaigns to reduce global warming [US, 2016]



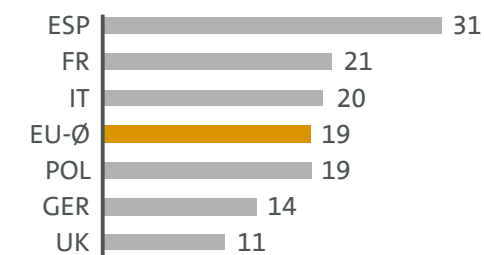
¹Statista

2 Reasons young people do not politically involve [US, 2017, in %]



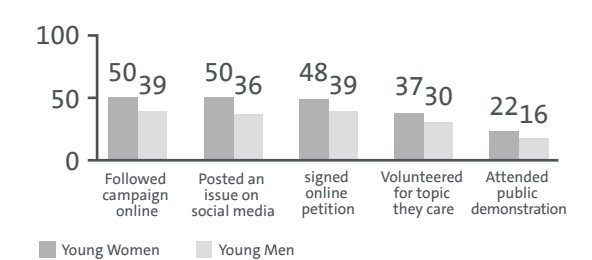
²Statista

3 Share of citizens likely to join demonstrations [2017, in %]



³Statista

4 Share of 15- to 24- year old being politically active [US, 2017, in %]



⁴Statista

5 Fridays for Future

“With masks and distance against climate change”

From Australia to India, from Hamburg to Cologne: For the first time in months, thousands demonstrated for climate protection under the motto Fridays for Future.

⁵Zeit Campus

6 Social distancing is critical in reducing the spread of COVID-19, according to recent analyses.

“According to a study published online May 14 in Health Affairs, the daily rate of new COVID-19 cases in the United States dropped by 9.1% after 16 to 20 days of four government-imposed interventions”

⁶HealthAffairs

DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

DIRECTIONS OF DEVELOPMENT OF AI 2040

Hypothesis

LIMITED INTELLIGENCE

Currently projected features of Artificial Intelligence turn out to be not achievable. Technical capabilities prove the development to be limited and the radical changes prophesized fail to appear. Smart solutions are obtainable but no intelligence.

Hypothesis

BILLION DOLLAR PRICE-TAG

A limited usability of AI is connected to exploding costs of development. Not technical but financial resources required constitute a red flag. Nations capable of high financial engagements might succeed its development, worsening the development gap.



Hypothesis

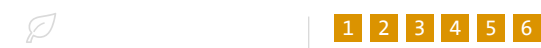
UNITE HUMAN & ARTIFICIAL INTELLIGENCE

The emancipating AI does not place a threat that categorically replaces human capabilities. Primarily cognitive capabilities are placed within the responsibility of AI while creative and social subjects remain within humans.

Hypothesis

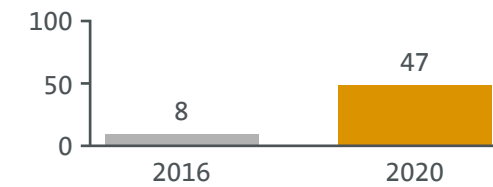
SINGULARITY

Multiple new problems arise by reaching a singularity. An opportunistic or malicious behavior with characteristics such as cyber attacks are possible. Furthermore, the threat of unethical behavior caused by AI demand innovative solutions.



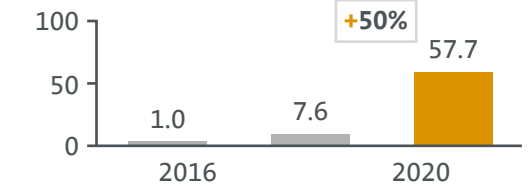
INDICATORS (SELECTION)

1 Market size of AI [in bn US\$]



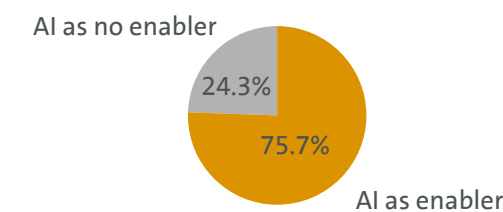
¹Forbes

2 Annual AI-related publications [2016=1 (indexed)]



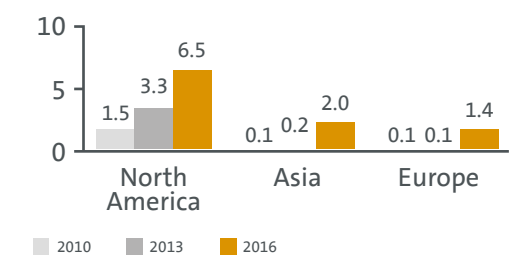
²OECDLibrary,

3 Social Development Goals enabled by AI



³United Nations Development Programme

4 External AI investment (VC, PE, and M&A) per continent [in bn US\$]



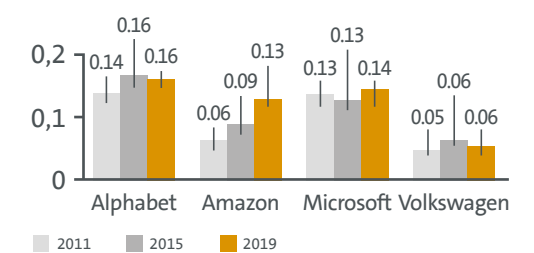
⁴European Commission

5 Amazon Helps World Health Organization Launch COVID-19 App 12 Months Early

The World Health Organization (WHO) and Amazon Web Services (AWS) have exclusively told me how they have teamed up to create an app that helps health workers respond to the COVID-19 pandemic.

⁵Forbes

6 External AI investment (VC, PE, and M&A) per continent [in bn US\$]



⁶Statista, ^{7,8,9}macro trends

FUTURE DATA SECURITY & REGULATION

DIRECTIONS OF DATA SECURITY 2040

Hypothesis

GLOBALY CONSISTENT REGULATION

After tough negotiations a globally present regulation provides a strong antithesis to corporations handling data. An unified protection of personal data crosses out loopholes and significantly improves effective enforcement.

Hypothesis

FRAGMENTATION OF REGULATION

National sovereignties determine own regulations according to their knowledge and beliefs. Superior legislations might serve as best practice templates. Disputes between corporations and individuals are carried out to national law.



Hypothesis

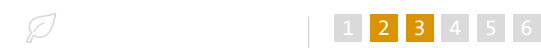
SELF-REGULATION

Instead of proposing laws and a governmental enforcement, a self-regulating approach is assessed to yield the best results in terms of data security. A transparent society makes data theft redundant, solving and introducing problems.

Hypothesis

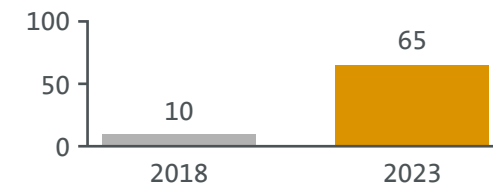
NO REGULATION

Broad acceptance is drawn from the philosophy that no regulation regarding data security can be sufficient to incorporate all required aspects.



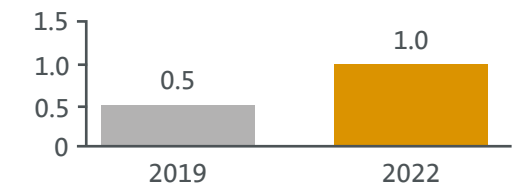
INDICATORS (SELECTION)

1 Share of worldwide population relish modern privacy regulations [in %]



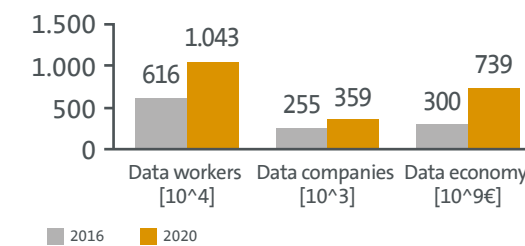
¹European Commission

2 Companies employing a chief privacy officer [in mm]



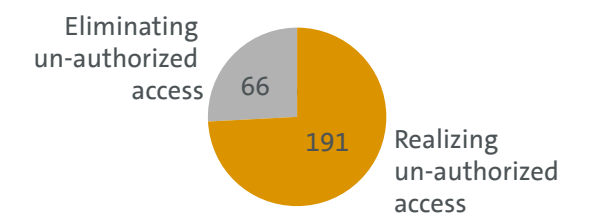
²Gartner

3 European data market



³European Commission

4 Days required to eliminate data protection breaches [in d]



⁴TÜV Rheinland (ICT & Business Solutions)

5 Quote European data security

“More than 90% of Europeans say they want the same data protection rights across the EU and regardless of where their data is processed.”

⁵European Commission

6 Quote US-American data security

“Cyber attacks from foreign governments (...) along with non-state terrorist actors and organized criminal groups constitute one of our most critical national security concerns.”

⁶The New York Times

TRUST IN TECHNOLOGY

DIRECTIONS OF TRUST IN TECHNOLOGY 2040

Hypothesis WAR ON TECH

Anxiety of technological in-controllability fosters within the worldwide population. Previously heavily pursued technological developments are abolished for securing human sovereignty.



Hypothesis TECHNOLOGICAL SAFE-SPACES

Sophisticated and futuristic applications are enabling radically new treatments in certain applications. However, the trust laid upon tech-intensive solutions is limited and thus only applied in vital situations.



Hypothesis TECH WITH / FOR SOCIETY

Technology becomes a widely accepted and used companion in everyday life. The benefits are widely accepted yet personal data are restrained or only revealed reluctantly.



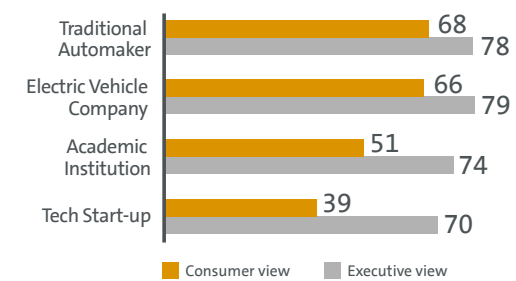
Hypothesis TECH AS SAVIOR

A life without technological presence has become inevitable. Societal dependence of tech is not questioned any longer and understood as natural heavily altering humanity.



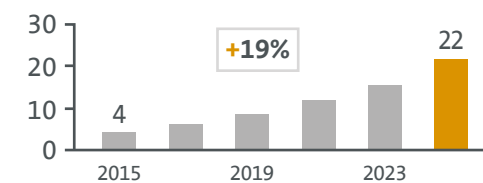
INDICATORS (SELECTION)

1 Level of trust for producing a self-driving car [2019, in %]



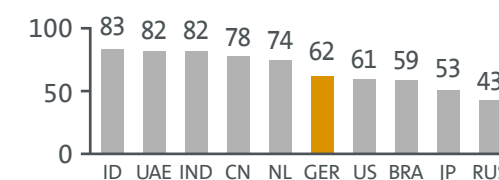
¹Cappgemini Research Institute

3 IoT device connections installed worldwide [in bn]



³Statista

5 Share of population placing trust in health-care system [2019, in %]



⁵Statista

2 Self-driving cars still won't prevent the most common car accidents, according to a new study

"For self-driving vehicles to live up to their promise of eliminating most crashes," the study says, "they will have to be designed to focus on safety rather than rider preference when those two are at odds."

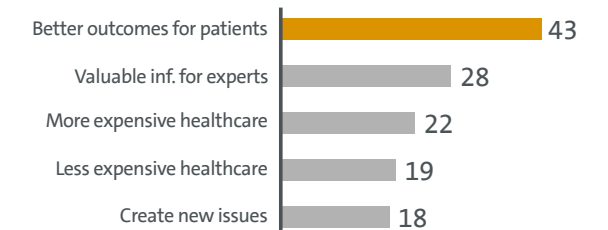
²Business Insider

4 Driverless cars must prioritise children's lives over anything else, says AA survey

The majority of people would want driverless cars to prioritise saving the lives of children over themselves in a crash, according to a new survey.

⁴Engineering and Technology

6 Opinions on the impact of technology to healthcare [2019, in %]



⁶Statista

ROLE OF CHINA

DIRECTIONS OF CHINA'S DEVELOPMENT 2040

Hypothesis

ULTIMATE CENTER OF THE WORLD

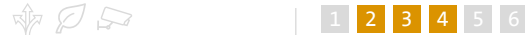
China as economic superpower takes the lead in international trade relations. The introductions of new standards and norms makes the entire world dependent of China's innovative lead.



Hypothesis

INDISPENSABLE TRADE PARTNER

Aggravation of the status quo with China in a central position. Governmentally steered economy with mass-market solution with moderate innovative improvements.



Hypothesis

MIDDLE KINGDOM 2.0

Constituting the central power in the Asian hemisphere earns China a title already used in the past. Close collaborations with surrounding countries form a strong trade alliance.



Hypothesis

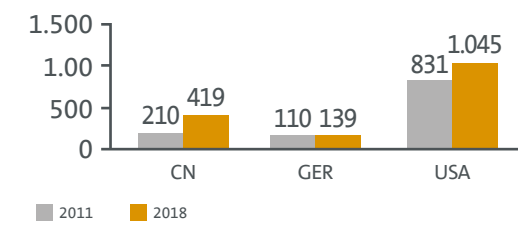
ISOLATED FORTRESS

Self-isolation relies on the domestic economy with reducing trade relations. National orientation happens without considerations of international conventions and projects pursuing protectionism through standards.



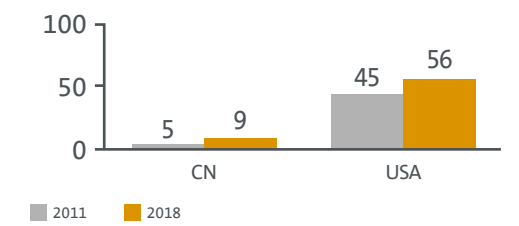
INDICATORS (SELECTION)

1 Annual Education spend [in bn€]



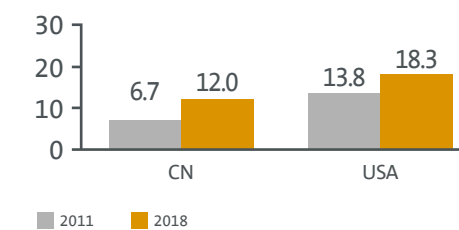
¹OECD Data

2 GDP per capita [in k€]



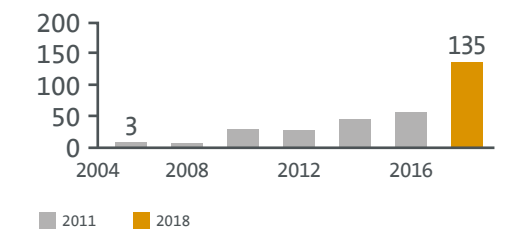
²The World Bank

3 GDP [in tr€]



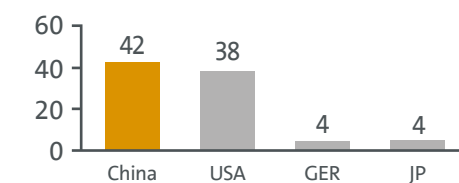
³The World Bank

4 China's outward M&A via FDIs [in bn US\$]



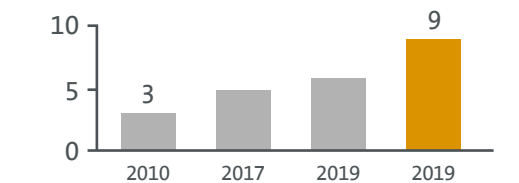
⁴Statista

5 Number of pending IoT patents [in k, Mar. 2019]



⁵Statista

6 Chinese universities in FT top 100 global MBA ranking



⁶Financial Times

SURVEILLANCE CAPITALISM

DIRECTIONS OF SURVEILLANCE CAPITALISM 2040

Hypothesis

BIG FATHER IS WATCHING YOU

A rigid surveillance approach of citizen evolves from the extensive data collection of nations worldwide. China's social credit system serves as role model and guiding light for all other nations.

Hypothesis

GLOBAL PATCHWORK

National approaches concerning surveillance and public safety are pursued. International agreements like pursued in the EU with the "DSGVO" represent exceptional cases.



Hypothesis

RIGID REGULATIONS

Internationally agreed standards value the freedom of citizens and their personal data protection as most crucial issue. Governmental collaborations to prevent data abuse heralds a new era of international cooperation.

Hypothesis

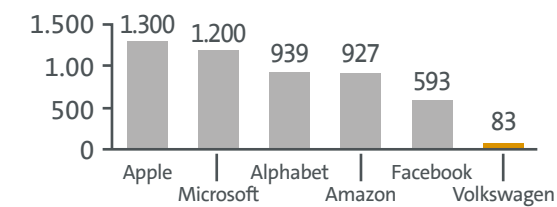
CORPORATES ARE WATCHING YOU

The heterogenic data regulation worldwide opens up loopholes with chaotic extent. Cyber-attacks are part of the daily life and it cannot be differentiated between manipulated and clean data. Corporates possess all their users' data.



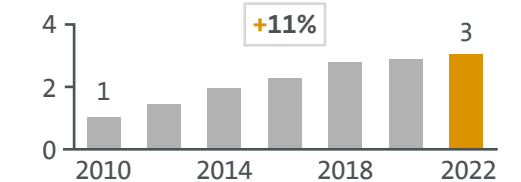
INDICATORS (SELECTION)

1 Market cap of tech companies [Feb. 2020, in bn\$]



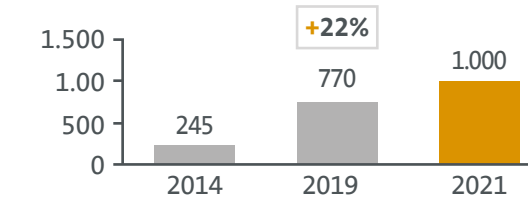
¹Capital

2 Global social network users [in bn]



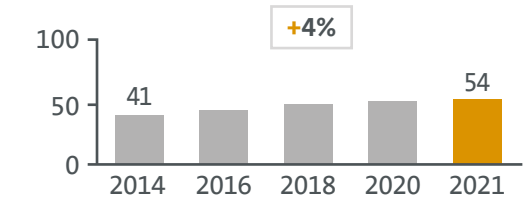
²Statista

3 Surveillance cameras worldwide [in bn]



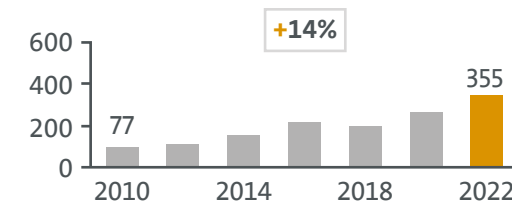
³CNBC

4 Global internet user penetration [in % of population]



⁴Statista

5 Size of the public cloud computing services market [in bn US\$]



⁵Statista

6 Debate: Corporate Data Collection Poses a Threat to Personal Freedom

There are lots of reasons to be concerned about government snooping, but how should we feel when private companies do it?

⁶reason

ECONOMIC POWER

DIRECTIONS OF ECONOMIC POWER 2040

Hypothesis

DUALISM USA VS. CHINA

The USA and China develop to constitute the two undisputed powers in the world. This corresponds to a separation of the world into two patterns strictly coherent to the respective lead culture and nation.



1 2 3 4 5

Hypothesis

REDEFINITION OF ECONOMIC POWER

An understanding of economic power as measured by a GDP is a thing of the past. New performance indicators shift to include measures such as workforce satisfaction and resource conservation.



1 2 3 4 5

Hypothesis

HOT WAR

Measures undertaken in an actively fought war include economic and military aspects. Aiming for securing the own system and values radical actions are not backed off from.



1 2 3 4 5

Hypothesis

REGIONAL ALLIANCES

Altering international trade relations lead to a focus on directly neighboring nations. Reduced long-distance international trade remains but the bargaining power between the parties is shifted.



1 2 3 4 5

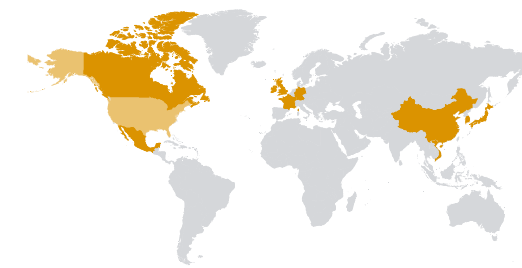
INDICATORS (SELECTION)

1 7 of the 10 most China-dependent countries are located in Asia-Pacific



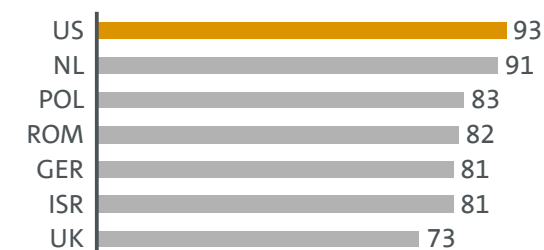
¹Forbes

3 Most USA dependent countries as of export value [2019]



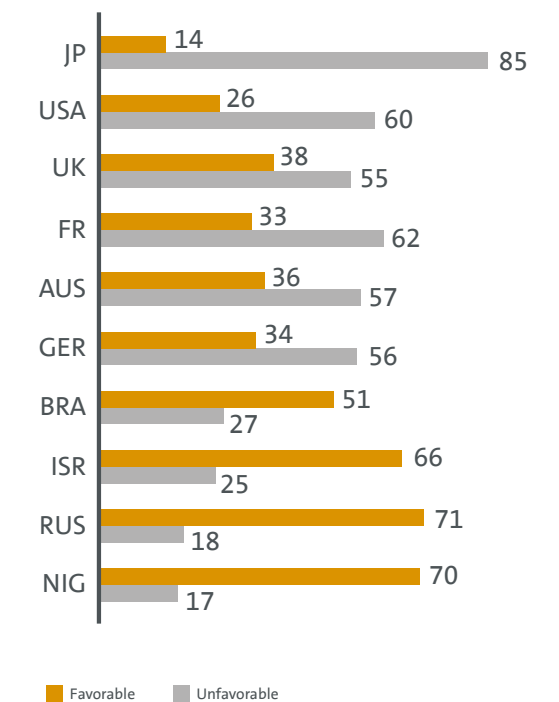
³The Balance Small Business

4 Job satisfaction of employees internationally [in %]



⁴European Commission

2 Opinion on China of selected countries [2019, in %]



²Statista

5 GDP is outdated, here are the alternatives

Economists increasingly believe it is important to do more to measure the economic well-being of the families who make up the economy and to deemphasize Gross Domestic Product growth, the one-number-fits-all measure of economic progress that currently dominates popular discourse.

⁵World Economic Forum

CLIMATE CHANGE ACTION

DIRECTIONS OF CLIMATE CHANGE 2040

Hypothesis

CLIMATE APOCALYPSE

The environmental chain reaction of climate tipping points is worse than predicted. Un-stopped climate chain reaction leads to devastating climate crisis (incl. food and water shortages, loss of habitable land and daily natural disasters).



1 2 3 4 5 6

Hypothesis

3°C TEMPERATURE INCREASE

The governmental and corporate actions fail to achieve the Paris Agreement and the global temperature is rising by +3°C. The situation remains a fragile balancing act to avoid climate tipping points triggering a climate collapse.



1 2 3 4 5 6

Hypothesis

WORLD CLIMATE ORGANIZATION

Global community thinking achieves 2040 climate targets and limits the most severe effects of climate change. There is an international collaboration across all sectors and states for low carbon innovation and de-carbonization efforts.



1 2 3 4 5 6

Hypothesis

EXTREME INTERVENTION

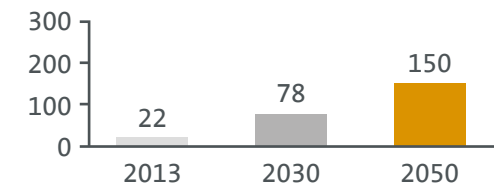
A failure of joint limitation efforts fosters a negative climate chain reaction. Radical measures are taken to reduce Greenhouse Gases (GHGs) and prevent the climate apocalypse causing massive negative side effects not legitimized by the global population.



1 2 3 4 5 6

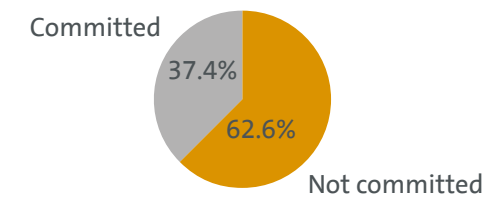
INDICATORS (SELECTION)

1 Projected refugees due to climatic influences [mn]



¹Bundeszentrale für politische Bildung

3 Countries committed to net zero CO₂ emissions by 2050



³International Institute for Sustainable Development

5 Carbon capture: Expensive, risky – and indispensable?

New research suggests that unless we rapidly cut greenhouse gas emissions we will have to extract far more CO₂ from the atmosphere than we are technically prepared for.

⁵Deutsche Welle

2 World Hunger

820 million do not have enough to eat, 60% of the world's hungry are women, 98% of the world's undernourished live in developing countries, hunger kills more than AIDS, Malaria, & Tuberculosis combined

²World Food Programme

4 Climate tipping points – too risky to bet against

The growing threat of abrupt and irreversible climate changes must compel political and economic action on emissions.

⁴Nature

6 The Effects of Climate Change

Effects that scientists had predicted in the past would result from global climate change are now occurring: loss of sea ice, accelerated sea level rise and longer, more intense heat waves.

⁶NASA

DEVELOPMENT OF CIRCULAR ECONOMY

DIRECTIONS OF CIRCULAR ECONOMY 2040

Hypothesis

DOMINANCE OF CIRCULARITY

Circularity is a mainstream profitable business model boosted by advanced recycling technologies. Customers demand 100% take-back responsibility of producers. New jobs outnumber the job loss in supply chains.

Hypothesis

GREEN CHOICE

Companies sell circular products to a growing customer segment demanding sustainable goods. Circularity will become an USP and differentiation criterium. Other parts of the society are still living the throw-away culture of today.



Hypothesis

TRASH WAR POWERED CHANGE

The EC Circular Economy Action Plan failed and resulted in continuing shipping trash to overseas. "Waste-receiving" countries send trash back to originating countries leading to massive investments in circular economy there.

Hypothesis

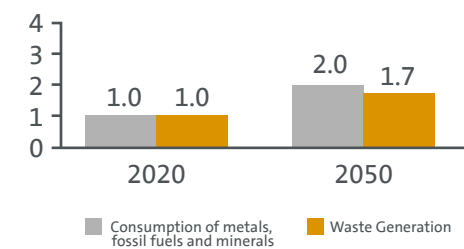
POLITICAL BATTLEFIELD SLOWDOWN

Rising recycling rates endanger existing supply chains. The expected job loss in early supply chain stages causes worldwide social & political tensions. The circular economy movement is limited to protect jobs along existing supply chains.



INDICATORS (SELECTION)

1 Resource usage worldwide and waste production [2020 = indexed]



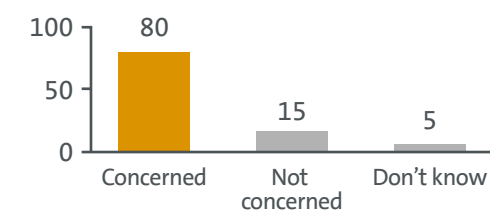
¹European Commission

3 Plastic recycling: an underperforming sector ready for a remake

While there is no silver-bullet solution to the toxic tide of plastic surging into our oceans, recycling must form part of the answer. The problem, many experts say, is that current processes are not fit for purpose.

³United Nations Environment Programme

5 Concern using non-recyclable products [Germany, 2019, in%]



⁵Statista

2 China gears up to use rare earths as a weapon in trade war as summit approaches

Beijing is readying to use its dominance of rare earths to hit back in its deepening trade war with Washington.

²Los Angeles Times

4 Malaysia returns waste to Europe, says it won't be 'rubbish dump of the world'

Malaysia has sent back 150 containers of plastic waste to 13 mainly rich countries in Europe and North America since the third quarter last year, with the environment minister warning on Monday that those who want to make the country a rubbish bin of the world can "dream on."

⁴euronews

6 Impact of shift to circular economy

Circular economy can bring a positive net effect on job creation, provided that workers acquire the skills required by the green transition. By moving towards a more circular economy, GDP in the EU could increase by almost 0.5% by 2030 compared to the baseline case.

⁶European Commission

DEVELOPMENT OF CLIMATE JUSTICE

DIRECTIONS OF CLIMATE JUSTICE 2040

Hypothesis

GLOBAL MIGRATION

Enormous migration flows due to climate change create great challenges for social, economic and political systems around the world. The resulting social unrest endangers stability of nations worldwide.



Hypothesis

CLIMATE JUSTICE COURT

Uprising social unrest caused by increasing injustice enables the formation of a climate division in the International Court of Justice. The court is able to force global equalization payments for climate misdeeds of states & corporations.



Hypothesis

SECURED IMBALANCE

Rich and privileged population groups are able to maintain status quo leading to total injustice. The rich do not hesitate to use most radical approaches to protect their wealth. Climate refugees live in the slums of growing inland cities.



Hypothesis

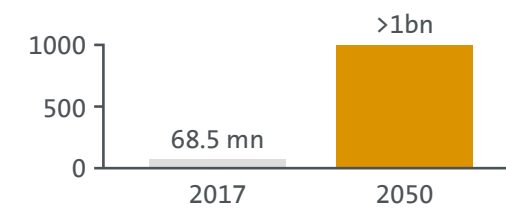
FRAGMENTED RESPONSE

Imbalance of climate burdens force an international coalition of the most affected nations & climate frontrunners. The involved partners enact broad treaties to enable technology transfer, joint crisis response and best practice sharing.



INDICATORS (SELECTION)

1 Projected refugees due to climatic influences [mn]



¹EcoWatch

2 Judging climate change obligations: Can the World Court rise to the occasion?

With less than ten years until the IPCC's (Intergovernmental Panel on Climate Change) estimated deadline of 2030 for emissions to peak and decline rapidly, and with the scientific consensus on the human origins of climate change virtually uniform, there can no longer be any reasonable doubt that climate change is an urgent issue of justice and human rights, both within and between States

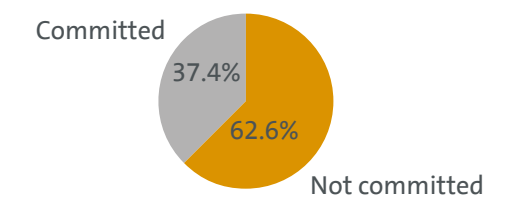
²Völkerrechtsblog

3 Climate change impacts the poorest more than the wealthy

The wealthy have funds or insurance to cover a quick retreat to safety, temporary accommodation, and rebuilding or relocation costs. But the poor may not be able to evacuate, may not have reliable access to food, water, housing or energy, and insurance may be unavailable or unaffordable.

³Greenpeace

4 Countries committed to net zero CO₂ emissions by 2050



⁴International Institute for Sustainable Development

5 A commitment to philanthropy

The Giving Pledge is a commitment by the world's wealthiest individuals and families to dedicate the majority of their wealth to giving back.

⁵The Giving Pledge

6 Green Climate Fund (GCF) is the largest global fund dedicated to help fight climate change.

GCF has a crucial role in serving the Paris Agreement, supporting the goal of keeping average global temperature rise well below 2 degrees C.

⁶The Green Climate Fund

STABILITY OF THE EUROPEAN UNION

DIRECTIONS OF THE EU 2040

Hypothesis

STRONG VOICE OF A UNIFORM EU

The European Union sets aside inner conflicts to form a strong trade union in the worldwide economy. It aspires to become a competitive power and position on one level with the US and China, at least in an economic sense.



Hypothesis

TOOTHLESS TIGER

No internal rethinking can successfully set aside ongoing tensions within the EU. Relationships remain in their status-quo neither improved nor worsened and trade relations with worldwide nations persist.



Hypothesis

INTERNAL FOCUS

Rethinking limits the trade relations to non-EU member countries substantially, accompanied by a strong focus on the internal market. Economic drawbacks are put up with to create a strong but selective orientation.



Hypothesis

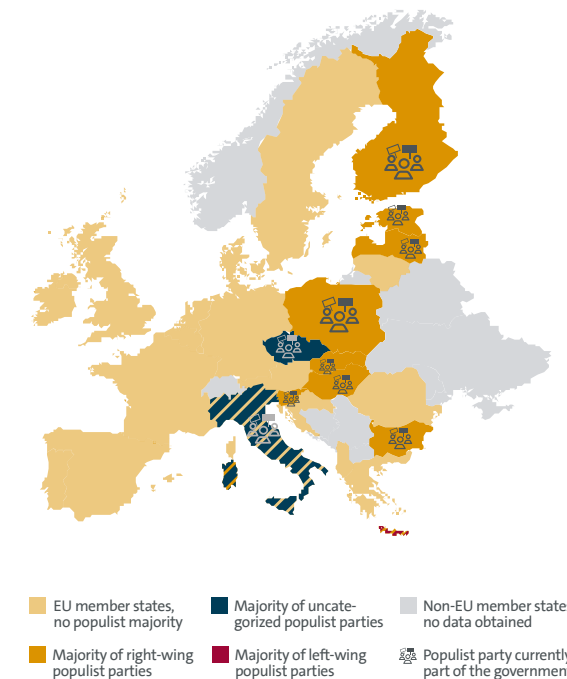
DECAY OF THE EU

Ongoing inequality and populist governments lead the EU rethinking its purpose. Nation states focus on their domestic markets and policy making. While the institution EU might still persist, its regulatory role is undermined.



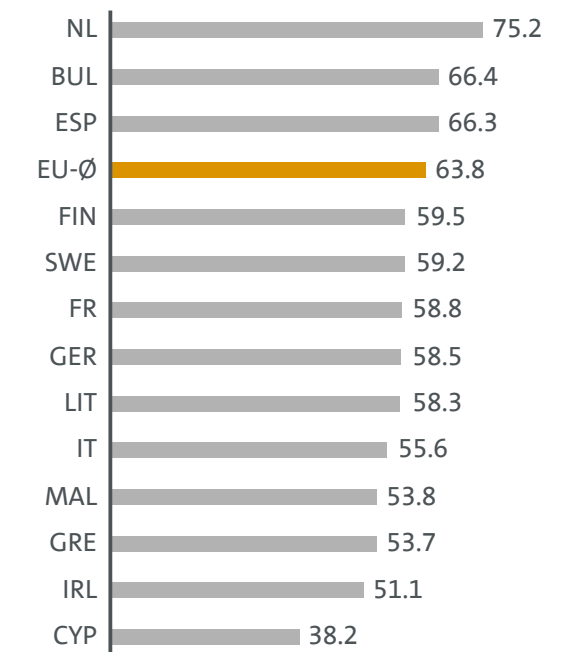
INDICATORS (SELECTION)

1 Popularity of populist parties in Europe [2019]



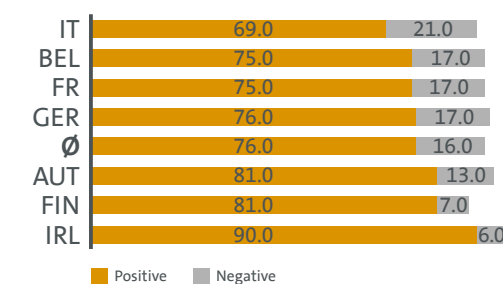
¹The Progressive Post

2 Fraction of Exports into other EU member countries [2017, in %]



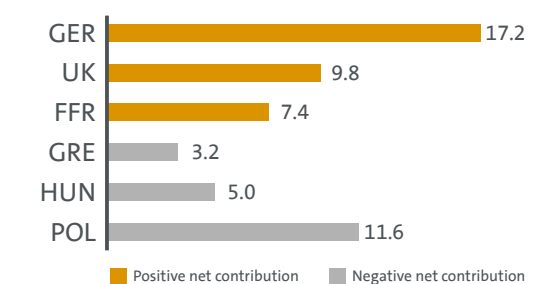
²Bundeszentrale für politische Bildung

3 Attitude towards the Euro as currency [2019, in %]



³Statista

4 Biggest EU Contributors and Beneficiaries [2018, in bn€]



⁴Statista

ROLE FOR GLOBAL GOVERNANCE

DIRECTIONS OF GLOBAL GOVERNANCE 2040

Hypothesis STRONG UNITED NATIONS

A strong international cohesion in form of the UN fosters the development towards a brighter future. Topics unmanageable on a national level receive better prospects and are jointly pursued with a universal scope.

Hypothesis CORPORATE CONGLOMERATES

Instead of NGOs, big corporations step forward and take the predominant role in international collaborations, as no NGO is capable of this task. Especially economic issues are of primary interest due to intrinsically motivated stakeholders.



Hypothesis DIRECT VOTE OF WORLD POPULATION

Switzerland's role model of direct elections is scaled towards the entire world. Despite enormous logistical and financial efforts required this solution is assessed to deliver the best result in tackling global issues.

Hypothesis SCATTERED WORLD

The term of global governance is buried in oblivion. The understanding of humankind as a whole with interests spreading across national borders is not present and leaves behind a scattered world.



INDICATORS (SELECTION)

1 Volkswagen Group strives to become net CO₂-neutral by 2050

By 2030, the carmaker aims to reduce the CO₂ emissions of its new passenger car fleet to 74g CO₂/km, with its newcar fleet consisting of about 40% EVs.

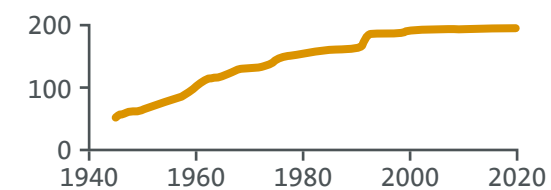
¹Autovista Group

3 Foundations are making climate change a bigger priority

Twenty-nine mostly U.S.-based philanthropic institutions, including the John D. and Catherine T. MacArthur Foundation, the David and Lucile Packard Foundation and the William and Flora Hewlett Foundation plan to spend an unprecedented total of US\$4 billion over the next five years addressing climate change.

³The Conversation

5 UN member countries [1946-present]



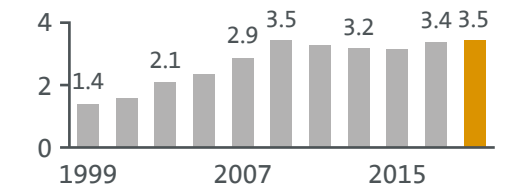
⁵Statista

2 Leading international organizations commit to climate action

15 international organizations jointly announced a commitment to make their operations climate neutral. The organizations will measure their greenhouse gas emissions, reduce them as much as possible and compensate the currently unavoidable ones with credible carbon credits.

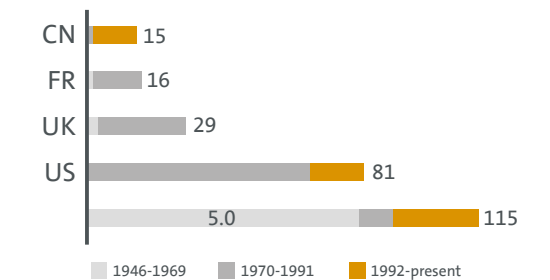
²United Nations Environment Programme

4 Lobbying spending in the US [in bn US\$]



⁴Statista

6 Vetoes UN Resolutions [1946-present]



⁶Wikipedia

DEVELOPMENT OF CURRENT AUTHORITARIAN STATES

DIRECTIONS OF CURRENT AUTHORITARIAN STATES 2040

Hypothesis SELF-ISOLATION

Authoritarian states are forced to situate themselves into isolation to keep their regimes upright. Opening up borders to allow free travels would result in their collapse.



Hypothesis LEGITIMATE AUTHORITARIANISM

Stable and accepted authoritarian regimes are secured by governments by utilizing a trusting mentality with their citizens. They gain legitimacy via ideologies surrounding religions and nations' past.



Hypothesis IMPERFECT DEMOCRACIES

Despite being democracies on the paper increasing governmental efforts to secure their power undermine the constitutionality.



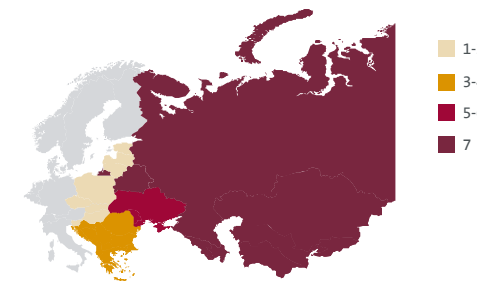
Hypothesis TECHNOCRACIES

Open-minded yet controlled government is the face of the authoritarian form of government. Following the role model of Singapore, scientists and other experts shape the nation significantly.



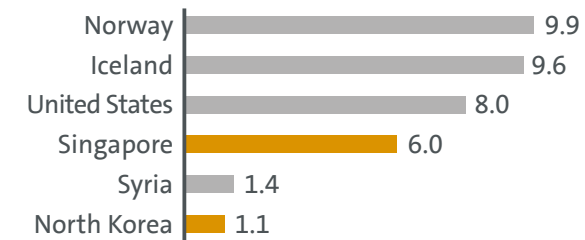
INDICATORS (SELECTION)

1 Populism harming democracies in Europe [2018, 1-7, 1= highest democracy]



¹Statista

3 Democracy Index Score [2019, 0-10, 10 = full democracy]



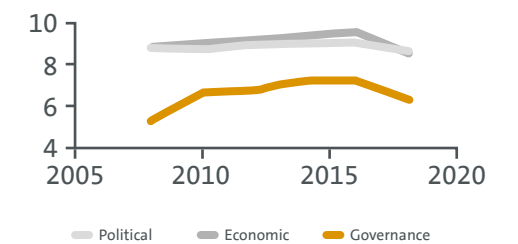
³Statista

4 KIM'S PLOT Kim Jong-un faked his own death to expose traitors in his inner circle and see who tried to seize power, expert claims

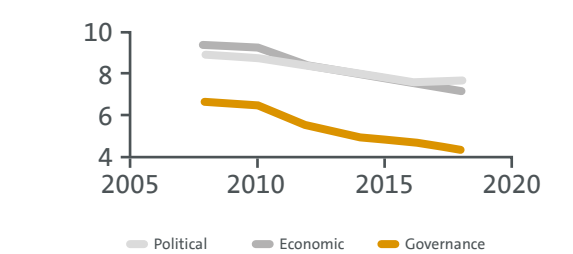
North Korean tyrant Kim Jong-un may have gone AWOL to flush out "traitors" who secretly hope to snatch power, a report claims.

⁵The Sun

2 Transformation index development of Poland [1-10, 1= lowest]



²Statista



⁴Stern

5 An honest man's word's as good as his bond

The technocrat as the last chance for democracy.

⁶Welt

ALTERNATIVE DIRECTIONS AND INTERPLAY

UNCERTAINTY

DERIVED ALTERNATIVE DIRECTIONS

Workforce transformation	Mass unemployment		New Meaning of Work		Symbiosis		Retention of Critical Jobs	
Definition of well-being	Purpose (...) for well-being		Backlash of Modern Values		Reassessing job Criticality		Increasing Inequality	
Purpose driven activism (...)	Paralyzed Protesting		Social Activism as (...) Force		Activists & Parties Team up		Conformity to Authority	
Development of AI	Limited Intelligence		Billion Dollar Price tag		Unite (...) Intelligence		Singularity	
Future Data Security (...)	Globally consist. regulation		Fragmentation of Regulation		Self-regulation		No Regulation	
Trust in Technology	War on Tech		Technological Safe-spaces		Tech With/for Society		Tech as Savior	
Role of China	Ultimate Center (...) World		Indispensable Trade Partner		Middle Kingdom 2.0		Isolated Fortress	
Surveillance Capitalism	Big Father is Watching you		Global Patchwork		Rigid Regulations		Corporates are Watching	
Economic Power Structure	Dualism USA/China		Redefine Economic Power		Hot war (econ/milit)		Regional Alliances	
Climate Change Action	Climate apocalypse		3°C Temperature Increase		World Climate Organization		Extreme Intervention	
Development of Circular Economy	Dominance of Circularity		Green Choice		Trash war Powered Change		Political Battlefield (...)	
Climate Justice	Global Migration		Climate Justice Court		Secured Imbalance		Fragmented Response	
Stability of the European Union	Strong Voice of (...) EU		Toothless Tiger		Internal Focus		Decay of the EU	
Int. Organizations for Governance	Strong UN		Corporate Conglomerate		Direct Vote of (...) Population		Scattered World	
Current Authoritarian States	Self-isolation		Imperfect Democracies		Legitimate Authoritarianism		"Technocracies"	

SOURCE: Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

SCENARIOS
 Puzzled World
 Green Evolution (cc)
 Trauma Control
 InnovAsia
 Structural Decay

OVERVIEW

of the five considered scenarios

PUZZLED WORLD

Official Future

- » Return of the nation state and domestic markets
- » Great Decoupling – USA / China
- » Domination by some digital “super-star” firms
- » Significant robo-human interaction
- » World still operates well beyond its sustainable limits



Baseline Scenario

GREEN EVOLUTION

- » Paradigm shift towards sustainable value creation
- » Social activism leads to World Climate Organization
- » Humanity-centered design and AI for good
- » Policies and state aid in line with environmental targets
- » Automation empowers societal engagement and less work



Alternative Scenarios →

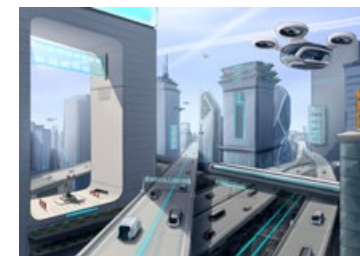
TRAUMA CONTROL

- » Focus towards risk-averse policies
- » Publically supported supervision
- » Societal scoring drives behavior and demand
- » Supranational custodian enacts rigid standards
- » Companies operate within the limits of the new system



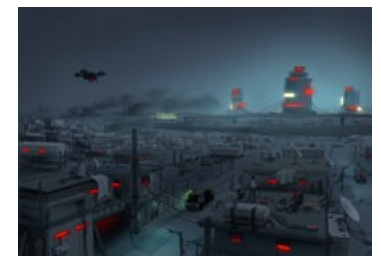
INNOVASIA

- » EU and USA retreat from global stage
- » Asian companies dominate technological advancement
- » Climate action conditional to economic growth interests
- » Regional focus instead of international cooperation
- » Multinational corporations enact InnovAsian standards



STRUCTURAL DECAY

- » Renunciation of national and global institutions
- » Focus on own survival leads to scattered world
- » Decay of European Union & isolation of China
- » People escape into technological simulations
- » Multinational corporations gain in responsibility





VIEW FROM THE FUTURE

What could the world look like in 2040

THE OFFICIAL FUTURE: PUZZLED WORLD



After mastering the COVID-19 pandemic, the biggest economic crisis of the century in the early 2020s followed. The western world's already high level of debt skyrocketed. This has created a colossal burden for the millennials, and together with significant tech investments of countries, governments are left with few choices for measures, social securitization being under pressure. Additionally, a decoupling development between the Eastern and Western world is obtainable, increasing the gap between both hemispheres. Overcoming their existential crisis, nation states have returned to the stage and have put much effort to reinstall domestic and regional markets and push the retreat from the global integration of physical value chains. However, they are limited in answering urgent questions to the future of digitalization and find global solutions for continuously rising global warming and resource scarcity. The motto is "here - not there". This is why policies are made on regional or even national basis, granting companies still sufficient potential to diminish resources regionally and unsustainably for costs of society. While the flow of physical goods had still dominated the 2020s, the value creation of digital products and services has taken the leading role in value creation. Where governments fail to give directions and only regional digital policies are established, big tech-driven "super star" firms dominate the market. Firms and countries failing to adapt lose. The growth in digitalization and availability of highly advanced robotics accelerate automation and has led to lay-offs and increased inequality. Companies have to deal with a rising number of ethical questions regarding technological solutions, but do not yet face widespread public protests against more advanced artificial intelligence applications both in their products and their internal operations.



SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting



SUMMARY

Puzzled World

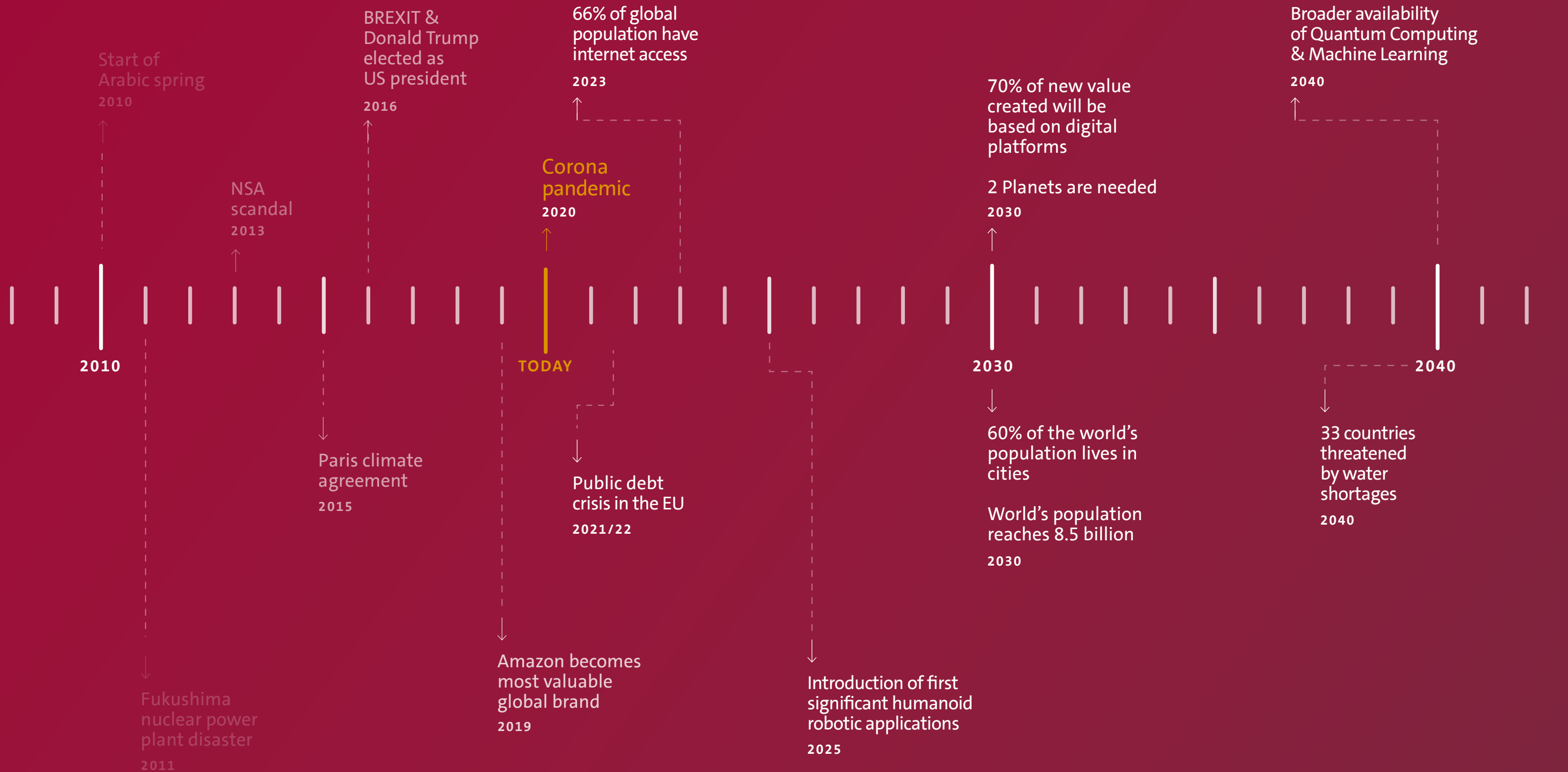


- » **Return of the nation state and domestic markets**
- » **Great Decoupling – USA / China**
- » **Domination by few digital "super-star" firms**
- » **Significant robo-human interaction**
- » **World still operates well beyond its sustainable limits**



OFFICIAL FUTURE

What we know from the past and can imagine to see in the future












































































































































































































































































































PUZZLED WORLD

Scenario Baseline

UNCERTAINTY

DERIVED ALTERNATIVE DIRECTIONS

Workforce transformation	Mass unemployment     	New Meaning of Work     	Symbiosis     	Retention of Critical Jobs     
Definition of well-being	Purpose (...) for well-being     	Backlash of Modern Values     	Reassessing job Criticality     	Increasing Inequality     
Purpose driven activism (...)	Paralyzed Protesting     	Social Activism as (...) Force     	Activists & Parties Team up     	Conformity to Authority     
Development of AI	Limited Intelligence     	Billion Dollar Price tag     	Unite (...) Intelligence     	Singularity     
Future Data Security (...)	Globally consist. regulation     	Fragmentation of Regulation     	Self-regulation     	No Regulation     
Trust in Technology	War on Tech     	Technological Safe-spaces     	Tech With/for Society     	Tech as Savior     
Role of China	Ultimate Center (...) World     	Indispensable Trade Partner     	Middle Kingdom 2.0     	Isolated Fortress     
Surveillance Capitalism	Big Father is Watching you     	Global Patchwork     	Rigid Regulations     	Corporates are Watching     
Economic Power Structure	Dualism USA/China     	Redefine Economic Power     	Hot war (econ/milit)     	Regional Alliances     
Climate Change Action	Climate apocalypse     	3°C Temperature Increase     	World Climate Organization     	Extreme Intervention     
Development of Circular Economy	Dominance of Circularity     	Green Choice     	Trash war Powered Change     	Political Battlefield (...)     
Climate Justice	Global Migration     	Climate Justice Court     	Secured Imbalance     	Fragmented Response     
Stability of the European Union	Strong Voice of (...) EU     	Toothless Tiger     	Internal Focus     	Decay of the EU     
Int. Organizations for Governance	Strong UN     	Corporate Conglomerate     	Direct Vote of (...) Population     	Scattered World     
Current Authoritarian States	Self-isolation     	Imperfect Democracies     	Legitimate Authoritarianism     	"Technocracies"     

SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

IMPLICATIONS PUZZLED WORLD

CATEGORIES

ETHICAL CHALLENGES FOR CORPORATIONS

OPPORTUNITIES FOR CORPORATIONS

SOCIETY

- ↓
- » Ongoing automatization of workflows vs. layoffs
 - » Worsening social discrepancies vs. inclusion
 - » Role of corporations: pure business vs. corporate activism

↓

Internalization of social impacts in decision-making processes; Business as an integrative factor: Trust-building measures to strengthen social credibility (job opportunities, products, and services fostering inclusion)

TECHNOLOGY

- » AI: keeping a competitive edge vs. sticking to ethical standards
- » Exploitation of fragmented regulation (e.g. Data Security)
- » Social costs of new technology with extensive human-tech interaction

Trusted Technology as USP¹: foster trust in technology by owning standards and providing transparency as well as legal regulations, socially sustainable humantech interaction

ECONOMY

- » Stick to Asian standards & mindset vs. doing it “our way”
- » Profits before privacy
- » Being everybody’s darling vs. clear standpoint
- » Near-shoring vs. development (in emerging & developing countries)

Be transparent regarding trade-offs in decisionmaking processes, responsible business development within digital fields and with new partners (e.g.Africa)

ECOLOGY

- » Moving ahead vs. follow the mass
- » Role of corporations: pure business vs. corporate activism
- » Profits before planet

Become a climate ambassador for the respective industry, define ecological KPIs and integrate roadmaps in long-term business planning/new (digital) business models (e.g. green IT)

POLITICS

- » Corporate political strategy guided by interests vs. values
- » Referring to authoritarian states as systemic rivals vs. role-models
- » Danger of being instrumentalized or forced to pick sides

Proactively foster European solidarity in all fields of action and across all stakeholder groups; publicly support democratic principles and rule of law

SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

¹ Unique Selling Point

VIEW FROM THE FUTURE

What could the world look like in 2040

GREEN EVOLUTION (CC)

↓

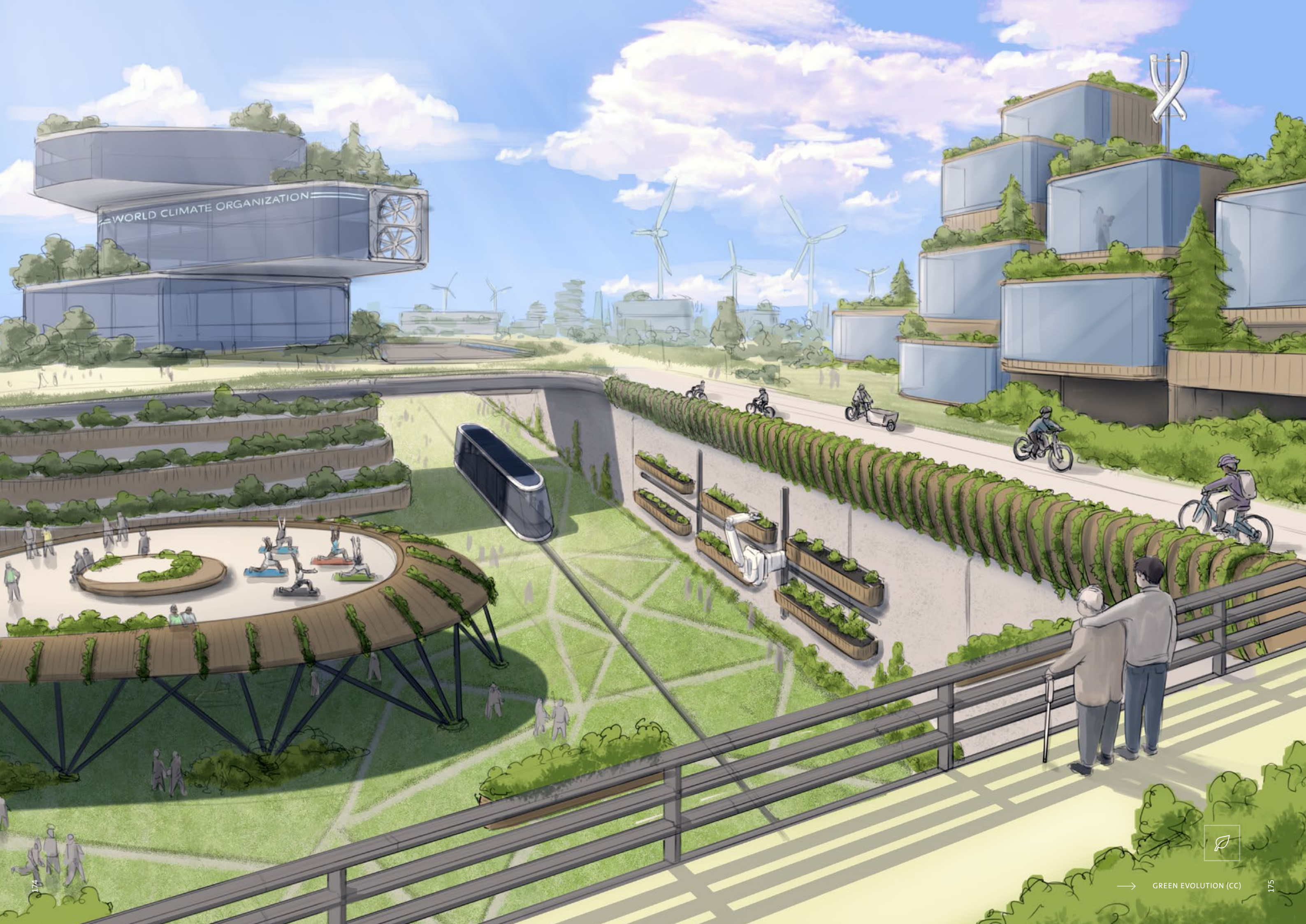
Showing both the risks of unsustainable growth for public health and the positive impact of limiting polluting activities on nature, COVID-19 has led to a paradigm shift within society. A need for change was acknowledged and brought up by geographically accumulated social activism that demands policy-makers to refocus towards sustainable value creation and preservation of limited natural resources. The European Green Deal is one of many consequently executed regulations. Decisions on climate have been delegated to a supranational World Climate Organization with publicly elected directors which depicts the international desire towards change and climate justice. It leads the way towards a regenerative energy generation superseding conventional fossil fuels through supranational guidance. Significant and achievable technological advancements, resulting in smart, green and affordable products and services that directly address societal needs and incorporate sustainability-by-design, enable a fast shift towards these targets. This is supported by nation states, which have gained financial freedom of action by a taxation model on digital value creation and automation, as well as an increased carbon pricing approach. Circularity has been established as a mainstream profitable but also necessary business model for corporations that benefit from circularity as competitive advantage. Further, government aid is tied to the company's sustainability concept that needs to create employment and green innovation. Stakeholders of corporations are encouraged to critically accompany increasingly transparent production and value creation processes as well as a clearly defined social contribution (license to operate/ transform). Unethical and unsustainable behavior is punished and highly sanctioned on both, a national and international level. People value well-being higher than ever and establish a new meaning of work where impact is more important than pure hours worked. As automation and human-centered Artificial Intelligence applications reduce the need for human work, people are free to increase their societal engagement in local communities.

SUMMARY

Green Evolution (cc)

- » Paradigm shift towards sustainable value creation
- » Social activism leads to World Climate Organization
- » Humanity-centered design and AI for good
- » Policies and state aid in line with environmental targets
- » Automation empowers societal engagement and less work

SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting



WORLD CLIMATE ORGANIZATION



GREEN EVOLUTION (CC)

What we know from the past and can imagine to see in the future












































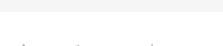
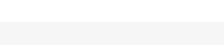
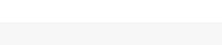
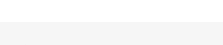
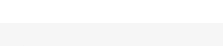
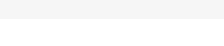
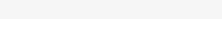
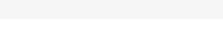
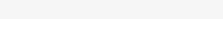




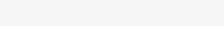
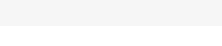
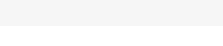
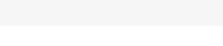


GREEN EVOLUTION (CC)

Scenario Derivation

UNCERTAINTY

DERIVED ALTERNATIVE DIRECTIONS

Workforce transformation	Mass unemployment 	New Meaning of Work 	Symbiosis 	Retention of Critical Jobs 
Definition of well-being	Purpose (...) for well-being 	Backlash of Modern Values 	Reassessing job Criticality 	Increasing Inequality 
Purpose driven activism (...)	Paralyzed Protesting 	Social Activism as (...) Force 	Activists & Parties Team up 	Conformity to Authority 
Development of AI	Limited Intelligence 	Billion Dollar Price tag 	Unite (...) Intelligence 	Singularity 
Future Data Security (...)	Globally consist. regulation 	Fragmentation of Regulation 	Self-regulation 	No Regulation 
Trust in Technology	War on Tech 	Technological Safe-spaces 	Tech With/for Society 	Tech as Savior 
Role of China	Ultimate Center (...) World 	Indispensable Trade Partner 	Middle Kingdom 2.0 	Isolated Fortress 
Surveillance Capitalism	Big Father is Watching you 	Global Patchwork 	Rigid Regulations 	Corporates are Watching 
Economic Power Structure	Dualism USA/China 	Redefine Economic Power 	Hot war (econ/milit) 	Regional Alliances 
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Stability of the European Union	Strong Voice of (...) EU 	Toothless Tiger 	Internal Focus 	Decay of the EU 
Int. Organizations for Governance	Strong UN 	Corporate Conglomerate 	Direct Vote of (...) Population 	Scattered World 
Current Authoritarian States	Self-isolation 	Imperfect Democracies 	Legitimate Authoritarianism 	"Technocracies" 

SOURCE: Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

SCENARIOS
 Puzzled World  Green Evolution (cc)  Trauma Control  InnovAsia  Structural Decay

IMPLICATIONS GREEN EVOLUTION (CC)

CATEGORIES

ETHICAL CHALLENGES FOR CORPORATIONS

OPPORTUNITIES FOR CORPORATIONS



SOCIETY

- » Rushing into green vs. getting everyone on board
- » Worsening social discrepancies vs. inclusion Purpose as a luxury good vs. basic needs
- » Hijacking vs. authentic support
- » Determination of which societal elements to automate

Pacemaker in balance with democratization of green solutions, facilitator for societal discourse regarding automation, trusted partner for movements

TECHNOLOGY

- » First mover advantage vs. scaling running business
- » Accountability AI
- » Tech driving ecologic improvement instead of own behavior
- » Consideration of total cost of ownership of tech as decisive criteria

Join forces with social movements to promote green innovation; Gain trust by forcing the "good" in technology

ECONOMY

- » Stick to Asian standards & mindset vs. doing it "our way"
- » Data use without consideration of losses vs. ethically motivated balance
- » Understanding new performance indicators as a burden vs. true action maxim

Be transparent regarding trade-offs in data usage under data protection principles, establish KPIs for sustainability, stakeholder trust and health on eyelevel with business indicators

ECOLOGY

- » Uniting circular economy with a profitable business model
- » Point in time and speed of shift to fully sustainable approach
- » Compensating emissions from the past within future business practices

Transforming the corporate footprint into a competitive advantage, circularity as efficient business advantage, leading the industry, trust of society and especially politics

POLITICS

- » Balancing regional disparities within the European Union
- » Responsibility to support an informed public, to develop secure tools for democratic participation
- » Balancing cooperation and confrontation with authoritarian states

Competitive advantage due to high standards of EU regulation (legitimized standards applicable worldwide); advocate for change in authoritarian states

SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

VIEW FROM THE FUTURE

What could the world look like in 2040

TRAUMA CONTROL



COVID-19 and the years that followed have traumatized both, populations and policy makers. Danger to life and limb of global populations appeared more likely than ever before. Still suffering a post-crisis trauma from the COVID-19 experience, nation states and their citizens treated COVID-19 as trigger of following crises. Nation states had agreed to pursue common efforts for averting future crises. Establishing transparency is a major aspect of international cooperation. As consequence, supranational organizations with extended abilities to shape legislations internationally are installed, setting frameworks and regulations as well as being equipped with extended authority to monitor nation states' administrations. The goal is to prevent events and developments that will threaten the future of humanity. This in turn leads to strict regulations for technology and data, whenever the impact on humanity appears unpredictable – innovation processes are slowed down. Nation states have become regional custodians, being equipped with extensive surveillance technology. Further, citizens recognizing the health and safety benefits for themselves provide their personal data willingly. The feeling of safety is prioritized over individual freedom. The willingness to use more drastic measures marks a shift back from modern liberal values and translates into rigid regulations of the majority of everyday-life. A societal scoring model assesses the behavior of the population with regard to each individual's social and environmental footprint to an extent previously unimaginable. This in turn fosters effective accomplishments of policy goals such as public health, sustainability and climate neutrality. The alignment of global and regional legislation let companies enjoy equal governing environments around the global, simplifying operations compared to the time before. However, they are highly restricted in their actions, surveilled and need to adhere to imposed regulations, leading to tremendous penalties for any misconduct. A globally leading company that failed to adhere to these regulations was shut down.



SOURCE:
Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting



SUMMARY

Trauma Control

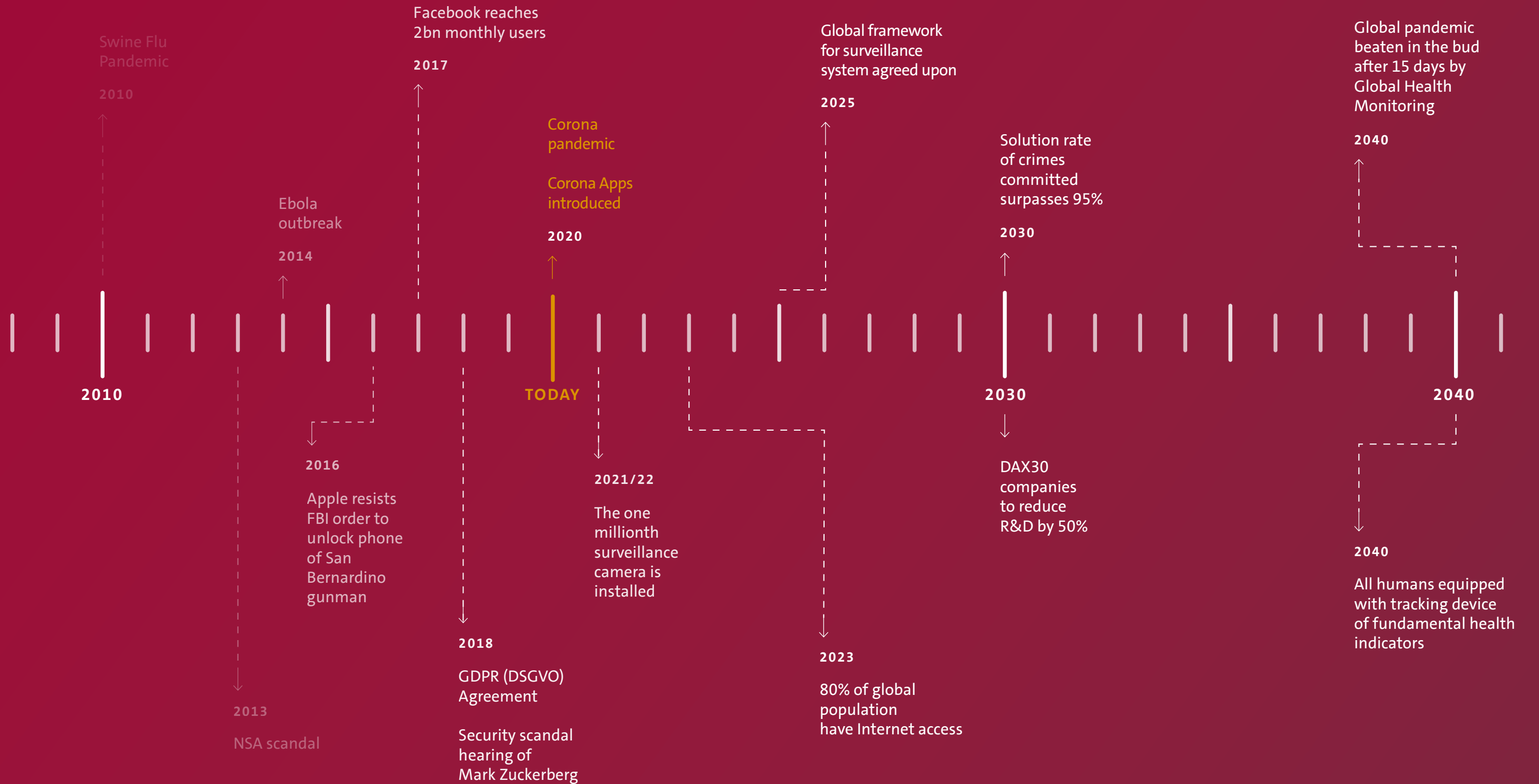


- » Focus towards risk-averse policies
- » Publically supported supervision
- » Societal scoring drives behavior and demand
- » Supranational custodian enacts rigid standards
- » Companies operate within the limits of the new system



TRAUMA CONTROL

What we know from the past and can imagine to see in the future













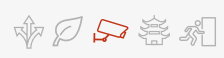

































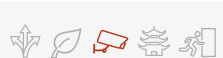















TRAUMA CONTROL

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SCENARIOS     

IMPLICATIONS TRAUMA CONTROL

CATEGORIES

ETHICAL CHALLENGES FOR CORPORATIONS

OPPORTUNITIES FOR CORPORATIONS

SOCIETY

- ↓
- » Strict internal supervision vs. allowing a margin of freedom
 - » Adjusted remuneration due to automation
 - » Allowance of extensive customer data analysis vs. individualistic freedom

↓

Pursuing most liberal working environment possible within legal barriers; utilizing the corporate voice to strengthen human rights

TECHNOLOGY

- » Innovation leader vs. public savor
- » Business opportunities vs. stability
- » Thought of responsibility placed with humanity vs. tech
- » Autonomy vs. full surveillance and business access

**Being able to continue innovations by introducing strict safety policies
Proactive cooperation with governmental authorities**

ECONOMY

- » Intellectual property protection
- » Safeguarding supply vs. global market exchange
- » Complete data transparency vs. selective data transfer
- » Collective Immunization vs. individualistic selfinsurance

Be transparent regarding trade-offs in decisionmaking processes, responsible business development within digital fields and with new partners (e.g. Africa)

ECOLOGY

- » Balance in investments into possible dynamic in regulation (risk averse!)
- » Imposed artificial scarcity of resources available
- » Chosen vs. superimposed ecologic actions

Anticipation of dynamic and quick sustainability shift, proactive shift to circularity as risk management for scarcity of resources, deciding for own path before imposed on us

POLITICS

- » Fight EU protectionism: access to single market; movements against non-EU states
- » Transparency for stakeholders on what corporation shares with global custodian
- » Remain credible regarding stated corporate values under “imperfect” democratic circumstances

Foster an inclusive European identity within work force; clear worldwide compliance requirements regarding standards



VIEW FROM THE FUTURE

What could the world look like in 2040

INNOVASIA 



Suffering from a deep recession following the COVID-19 crisis, the western world has lost its predominant position in the global economy and political impact. While the EU and the USA need to find their own way to deal with this new economic and political order, China has mastered the crisis well and is even stronger and more autonomous than ever before. Former investments in the belt-and-road initiative (BRI) have reached its target and made China become the spearhead of the newly formed hemisphere of influence, not only including the Asian continent but also parts of Africa and the Middle East. Together, these countries now constitute the biggest and most growing innovative and economic center of the world, known as InnovAsia. To manifest the coherence of the involved states and prevent social unrest, health and safety politics as well as the decrease of inequality dominate over climate and environmental acts. International collaboration is limited to topics of interest for China and its satellite states, tailoring global climate protection measures to their economic roadmaps. Due to significant public spending and political influence by China, InnovAsia now sets worldwide technological standards in many aspects, all subject to strict governmental surveillance initiated by China, including artificial intelligence applications and autonomous driving. In many business areas, Asian super star firms emerged, taking over the leading positions of former Western giants, particularly in the digital economy. This has enabled the InnovAsian market becoming largely independent from Western technology transfers and have gained independence as supplier for Western corporations in many cases. Contrariwise, still aiming to participate from enormous innovative and business potential in InnovAsia, Western firms need to strictly comply with and show transparency towards Asian regulators as well as dealing with an increasingly Asian-stamped business culture.



SUMMARY

InnovAsia



- » **EU and USA retreat from global stage**
- » **Asian companies dominate technological advancement**
- » **Climate action conditional to economic growth interests**
- » **Regional focus instead of international cooperation**
- » **Multinational corporations enact InnovAsian standards**



SOURCE:
Future Heads Network, K-GAD, K-FIGE/I, Volkswagen Consulting, K-IGS

中华人民共和国教育部
新闻发布会

宜家家居

阿里巴巴

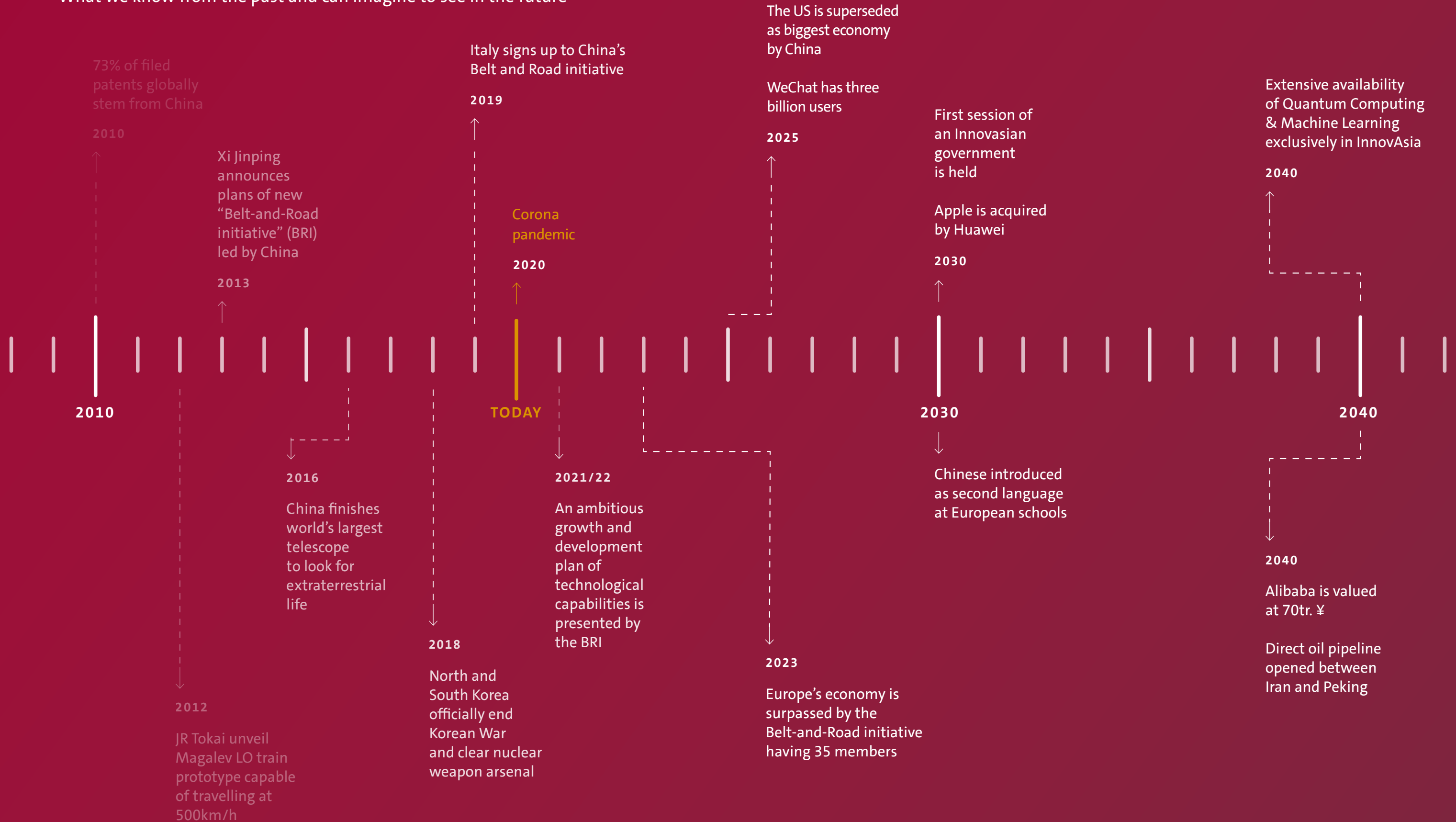
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请勿翻越 请勿翻越



INNOVASIA

What we know from the past and can imagine to see in the future



INNOVASIA

Scenario Derivation

UNCERTAINTY

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SCENARIOS
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Structural Decay

IMPLICATIONS INNOVASIA

CATEGORIES

ETHICAL CHALLENGES FOR CORPORATIONS

OPPORTUNITIES FOR CORPORATIONS

SOCIETY

- ↓
- » Counteracting gap between rich and poor within vs. outside of company
 - » Adjust payment of occupations according to societal impact
 - » Definition & assessment of critical jobs

↓

Representatives of European values in a world increasingly dominated by Asia; Understanding of foreign cultures enables a specified production approach (Align best of two worlds)

TECHNOLOGY

- » Own technological standards vs. Asian innovation regulations
- » Surveillance and coherence vs. exclusion from Asian market
- » Data privacy vs. data as competitive advantage
- » Accountability AI

**Holding strong standards and transparency becomes a competitive advantage, even in new markets;
Include voice of the customer in innovation processes**

ECONOMY

- » Necessity to pick sides vs. being a bridge builder
- » Technological omnipotence vs. humancentered technology
- » Balance of economic success vs. doing the morally correct thing

Strengthen network for regional cooperation to connect economic interests with corporate values, choose risk-based approach to create auditable standards for technologies, establish sustainable and efficient best practice models

ECOLOGY

- » Sustainability as opportunity vs. opportunistic behavior
- » Exceed Paris climate agreement goals vs. meeting minimum requirements
- » Adherence to regional regulations vs. consequent companywide behavior

Green Innovation even when green is not mandatory; find green solutions within the Asian sets of standards, set own pace of sustainability

POLITICS

- » Making use of power void in EU, esp. in the face of competition with non-EU corporations
- » Being forced to pick sides (Asian markets vs. European home)
- » Focus on speed and innovation pushing back civil rights/freedoms

Foster culturally based/diverse European spirit within work force; join forces with like-minded companies; innovate for society/public goods

VIEW FROM THE FUTURE

What could the world look like in 2040

STRUCTURAL DECAY



Displaying the difficulties of governments in many countries to handle apparent domestic conflicts and cleavages, the COVID-19 pandemic works as facilitator of broader social unrest and protests against existing political and economic structures. This is further intensified by mass unemployment caused by a high speed in digitalization and robotics together with a deep COVID-19 induced recession. At the same time populist parties take over a major role, leading to a significant trend towards self isolation, marking the end of supra- & international organizations, such as the EU and UN. Further, the strong self-focus of nation states prevent them from coping with ongoing regulatory needs, also reducing national institutions' impact. On an international level, no global consensus is found in regard to intensified climate and environmental problems, which have led to mass migration putting further pressure on the social systems of highly developed countries. Digital companies have formed cartels and enjoy broad freedom in both experimenting and launching new technologies. Distraction from global chaos and oppressive reality is achieved through seeking refuge in heavy usage of technological applications. Although artificial intelligence and augmented reality have eased the life of the majority of the world's population, they have led to huge amounts of personal data being accessible to cyber crime and digital realities making it hard for individuals to decide among real and fictional reality. This is not only used by states to legitimate themselves by fake news as re-occurring incidents of global hacking and cybercrime dominated the daily life without a prospect towards change for the better. Within these fast changing and uncertain environments, companies have to actively speak up and self regulate by standards and business codes in their respective segments as far as possible. In times of ongoing problems with security and fast evolvement of new technologies, trust building to customers forms a major competitive advantage.



SUMMARY

Structural Decay



- » Renunciation of national and global institutions
- » Focus on own survival leads to scattered world
- » Decay of European Union & isolation of China
- » People escape into technological simulations
- » Multinational corporations gain in responsibility

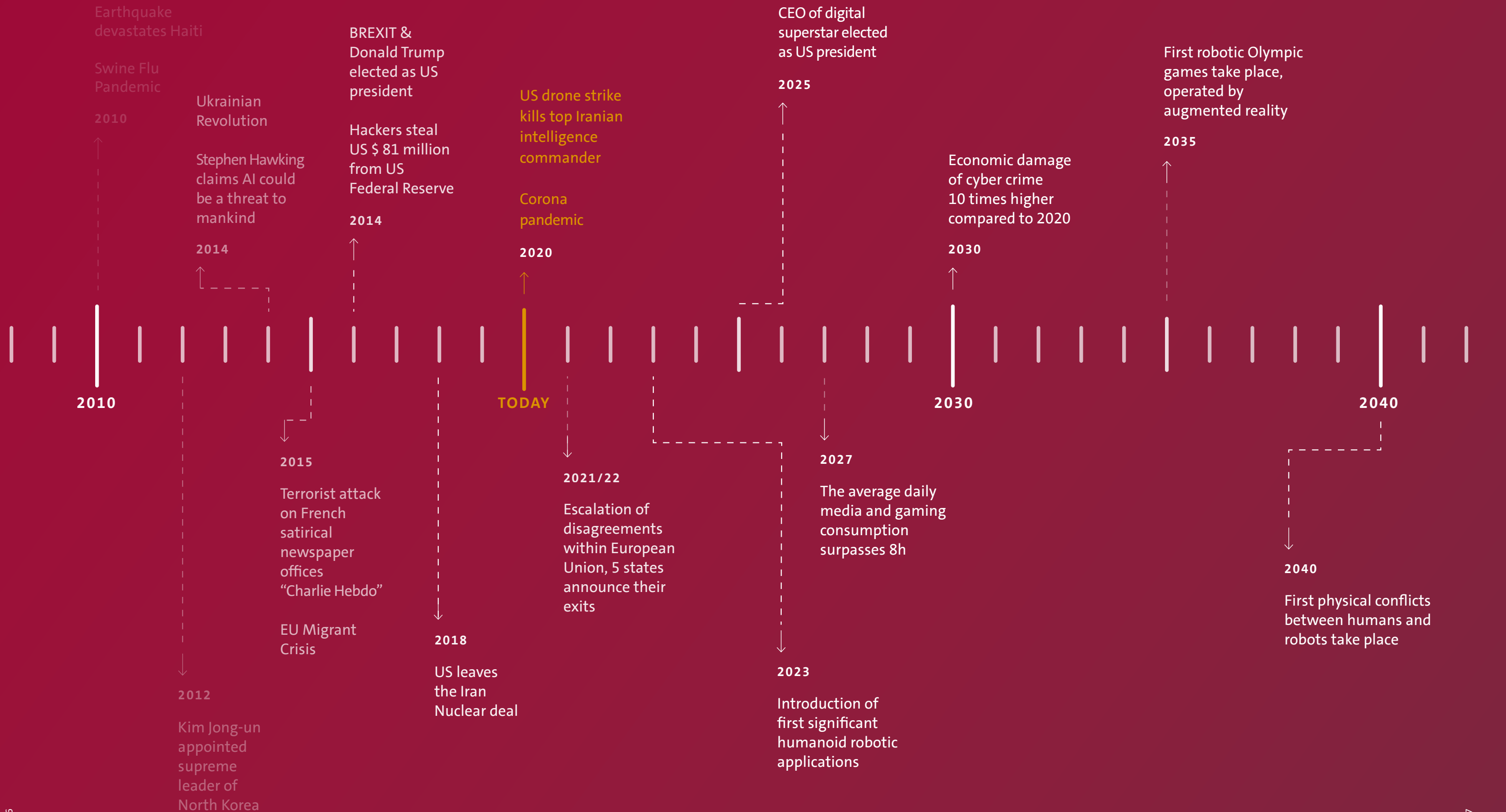


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STRUCTURAL DECAY

What we know from the past and can imagine to see in the future





































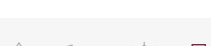
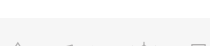
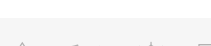
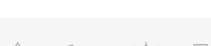




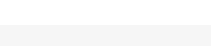
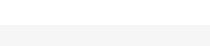
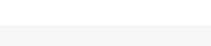
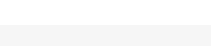
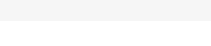
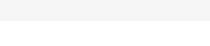
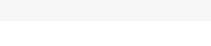
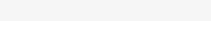




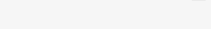
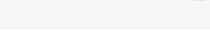
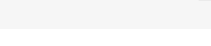
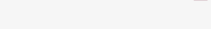


STRUCTURAL DECAY

Scenario Derivation

UNCERTAINTY

DERIVED ALTERNATIVE DIRECTIONS

Workforce transformation	Mass unemployment 	New Meaning of Work 	Symbiosis 	Retention of Critical Jobs 
Definition of well-being	Purpose (...) for well-being 	Backlash of Modern Values 	Reassessing job Criticality 	Increasing Inequality 
Purpose driven activism (...)	Paralyzed Protesting 	Social Activism as (...) Force 	Activists & Parties Team up 	Conformity to Authority 
Development of AI	Limited Intelligence 	Billion Dollar Price tag 	Unite (...) Intelligence 	Singularity 
Future Data Security (...)	Globally consist. regulation 	Fragmentation of Regulation 	Self-regulation 	No Regulation 
Trust in Technology	War on Tech 	Technological Safe-spaces 	Tech With/for Society 	Tech as Savior 
Role of China	Ultimate Center (...) World 	Indispensable Trade Partner 	Middle Kingdom 2.0 	Isolated Fortress 
Surveillance Capitalism	Big Father is Watching you 	Global Patchwork 	Rigid Regulations 	Corporates are Watching 
Economic Power Structure	Dualism USA/China 	Redefine Economic Power 	Hot war (econ/milit) 	Regional Alliances 
Climate Change Action	Climate apocalypse 	3°C Temperature Increase 	World Climate Organization 	Extreme Intervention 
Development of Circular Economy	Dominance of Circularity 	Green Choice 	Trash war Powered Change 	Political Battlefield (...) 
Climate Justice	Global Migration 	Climate Justice Court 	Secured Imbalance 	Fragmented Response 
Stability of the European Union	Strong Voice of (...) EU 	Toothless Tiger 	Internal Focus 	Decay of the EU 
Int. Organizations for Governance	Strong UN 	Corporate Conglomerate 	Direct Vote of (...) Population 	Scattered World 
Current Authoritarian States	Self-isolation 	Imperfect Democracies 	Legitimate Authoritarianism 	"Technocracies" 

SOURCE: Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting

SCENARIOS  Puzzled World  Green Evolution (cc)  Trauma Control  InnovAsia  Structural Decay

IMPLICATIONS STRUCTURAL DECAY

CATEGORIES

ETHICAL CHALLENGES FOR CORPORATIONS

OPPORTUNITIES FOR CORPORATIONS

SOCIETY

- ↓
- » Workforce performance measurement against machines vs. humans
 - » Scoped vs. broad layoff of obsolete workforce
 - » Corporate support in areas hit hard by climate catastrophes

↓

Support legislators by preserving a functioning social system ensuring a baseline protection of employees; Gain social legitimacy by customers as social contributor and responsible actor

TECHNOLOGY

- » Cooperate with superstars vs. stand alone position
- » Exploitation of fragmented regulation (e.g. Data Security)
- » Unregulated automation vs. job losses
- » Transhumanism vs. control

Define global minimum requirements for Volkswagen Group, Show continuity and make trust and transparency become competitive advantage in uncertain times

ECONOMY

- » Own economic advantage vs. global solidarity based on multilateralism
- » Defining individual standards vs. seeking for overarching regulations
- » Egocentric behavior vs. solidarity in dealing with public goods

Show stability by acting as a corporate citizen, seek for overarching regulations to reduce complexity in regulatory environment, focus on equal distribution of public goods to gain trust

ECOLOGY

- » Measured response to chaos vs. fatalistic approach
- » Proceeding produced wastages internally vs. reliance on subcontractors
- » Regulator vs. own CSR determining corporate ecologic role

Use inflow of migrants as resource to invest in, circularity out of necessity regarding trash (not purpose), trusted partner in unstable times for societies especially in hard hit countries

POLITICS

- » Choosing sides: violent conflicts between countries that are all "home" to Group entities
- » Making use of global regulatory voids
- » Global responsibility vs. national sovereignty when being present in/ entering isolated markets

Form a union of values with like-minded corporations; fight isolation of regimes: publicly support civil rights movements in authoritarian states

THE CHARACTERISTICS

of the respective scenarios differ widely

CHARACTERISTICS (BUSINESS ENVIRONMENT)

SOCIETY

Workforce Transformation

Retention of Critical Jobs



Mass Unemployment

Social Activism

Conformity to Authority



Paralyzed Protesting

TECHNOLOGY

Artificial Intelligence

Limited Intelligence



Singularity

Data Security

Globally Consistent



No Regulation

ECONOMY

Role of China

Ultimate Center of the World



Isolated Fortress

Surveillance Capitalism

Big Father is Watching



Corporations are Watching

ECOLOGY

Climate Change Action

Extreme Intervention



Climate Apocalypse

Circular Economy

Dominance of Circularity



Political Battlefield

POLITICS

Stability of the EU

Strong Voice of an Uniform EU



Decay of EU

Role of int. org. for Global Governance

Strong UN



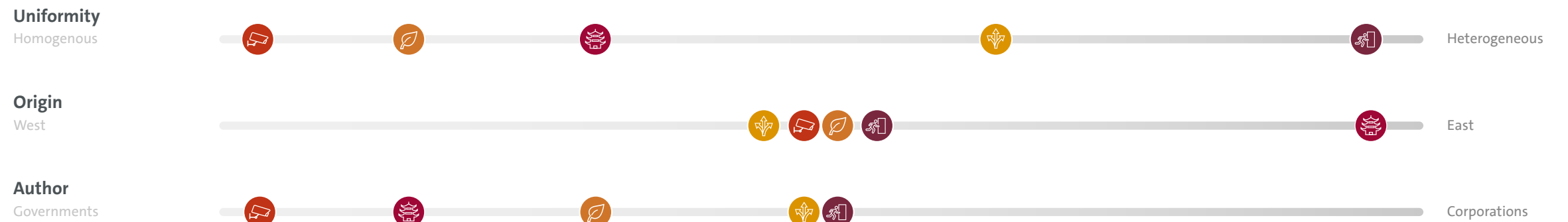
Scattered World

DIFFERENTIATING

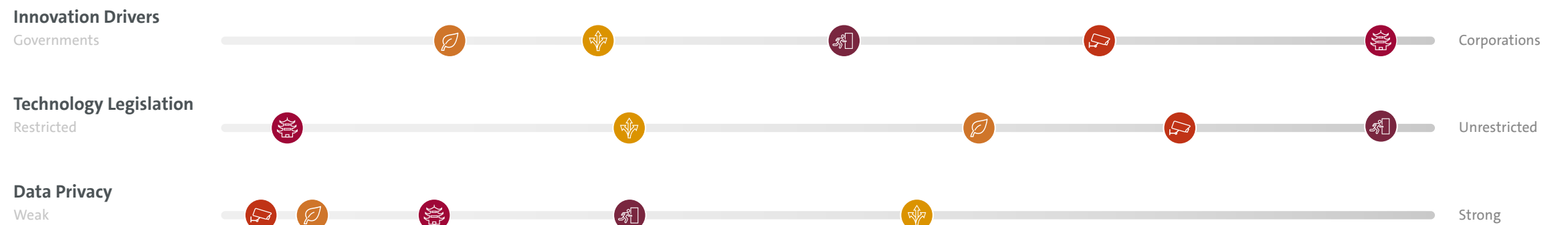
the alternative scenarios opens up distinct implications for the respective futures concerning Integrity & Legal Affairs department

CHARACTERISTICS (CORPORATE ROLE & REGULATIONS)

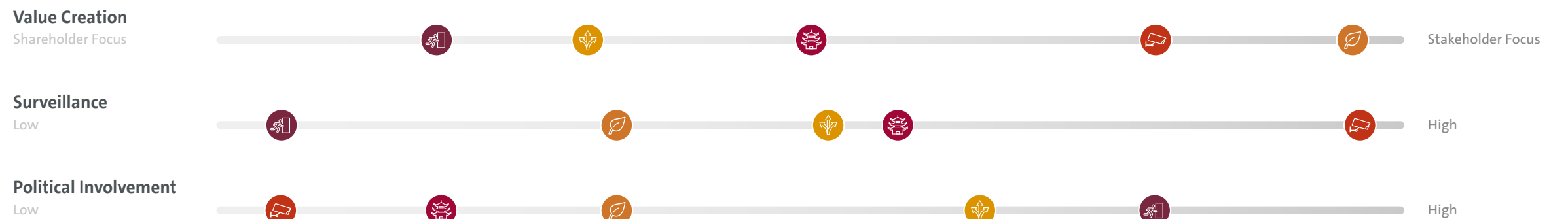
REGULATORY ENVIRONMENT



INNOVATION & TECHNOLOGY

































ROLE OF CORPORATIONS



FUTURE VOLKSWAGEN GROUP STAKEHOLDERS

with needs and expectations

<p> Miriam Schneider Student Customers</p>	<p> Marcus Schmidt Shop Owner Customers</p>	<p> Esteban Martinez Investment Banker Customers</p>	<p> Hans Hieler Assembly Line Worker Employees</p>	<p> Hans Hieler Assembly Line Worker Employees</p>
<p> Cecilia Wang Freelance Coder Employees</p>	<p> Sam Acosta Logistic Networks Expert Employees</p>	<p> Maria Rodriguez Head of Digital Law Employees</p>	<p> Edith Palmer, PhD Materials Researcher Employees</p>	<p> Manu Lehnfeld Production Logistics Worker Employees</p>
<p> Luca Jessen Assembly Line Worker Employees</p>	<p> Dr. Leonie Porsche Owner Supervisory Board</p>	<p> Dr. Frank Walther Politician Supervisory Board</p>	<p> Thomas Münch Retired Journalist Media</p>	<p> Ana Nguyen Social Stock Market Influencer Media</p>
<p> Tom Steffen Associate Lab Director Academia</p>	<p> Deepika Mehta, PhD Chief Mobility Officer Competitors</p>	<p> Dr. Moritz Treppe CEO at Automotive Competitors</p>	<p> James Mayfield Founder and CEO Business Partners</p>	<p> Terese Lund Oland Creative Director Business Partners</p>
<p> Dr. Manfred Dahlheimer CEO at Supplier Suppliers</p>	<p> Carlo Ferrari Key Account Innovation Management Suppliers</p>	<p> Zhang Li Chinese Minister of Transport Politics</p>	<p> Chris Martin, PhD WHO Program Lead Politics</p>	<p> Lena Dupont SRI Analyst Analysts</p>
<p> May Nagame Okanjo African Investment Bank Representative Investors</p>	<p> Emma Schmidt Sustainability Manager Greenpeace NGOs</p>	<p> Ben Friedman Chair of Jewish Heritage Organization Charit. Associations</p>	<p> Aljoscha Kovak Supply Chain Expert NGOs</p>	<p> Fenna Berkenbosch Mayor of Amsterdam Local Authorities</p>

CONTACTS IN 1ST LINE

with Demands for Support by Integrity & Legal Affairs department & Others


 **Sophie Bright**
Manager Digital Customer Relations

 **Sandra Lange**
Recruiter

 **Francesco Verde**
Works Council

 **Jana Segedi**
Trend Communication Communications


 **Fee-Maresa Schultz**
Employee Procurement

 **Jack Newman**
Investor Relations Manager Finance


 **Jenny Vogel**
Regional Manager Sales

 **Juan Carlos**
Recruiter for South American Region


 **Marie Mair**
Chief of Staff to the Chairperson of Supervisory Board

 **Carola Schmitz**
Board Member VWG Information Services AG


 **Philine Müller**
Innovation Manager Procurement


 **James Wang**
Sustainability Manager

 **Tobias Wolff**
Director Communications


 **Jacob Traoré, PhD**
Analyst Risk Management

 **Marie Mair**
Chief of Staff to the Chairperson of Supervisory Board

 **Artemiz Katki**
Head of Development

 **Patrick Darmstätter**
CEO Volkswagen PC in China

 **Jesse Drucker**
Spokesperson for Corporate Responsibility

 **Mario Kramer**
Head Assembly Line


 **Susanne Loon-Leyli**
Patent Specialist Legal Affairs


 **Sebastian Gathmann**
Spokesperson Communications


 **Christian Brückner**
Innovation Scout Group Innovation

 **Dr. Peter Blank**
Head of Environmental Production

 **Jette Nießen**
Sustainable Supply Chain Management Procurement

 **Elena Zaunkönig**
Specialist AI and I4.0 Transformation

 **Brigitte Bauer**
Halle 50 Works Council

 **Tatjana Kovrigina**
Social Media Manager Communications

 **Piotr Adams**
Key Account Manager Marketing

 **Matthias Birkel**
Investor Relations Manager Finance

 **Anuk Wu**
Smart City Functions

THREE LAYERS

from Stakeholder Groups to Insights for Integrity & Legal Affairs department Strategy Development



Our focus on people allows us to think of the “Futures of Ethics” initiative as a model of three people who are positioned, maybe even embedded, in three different layers in- and outside of the Volkswagen Group.

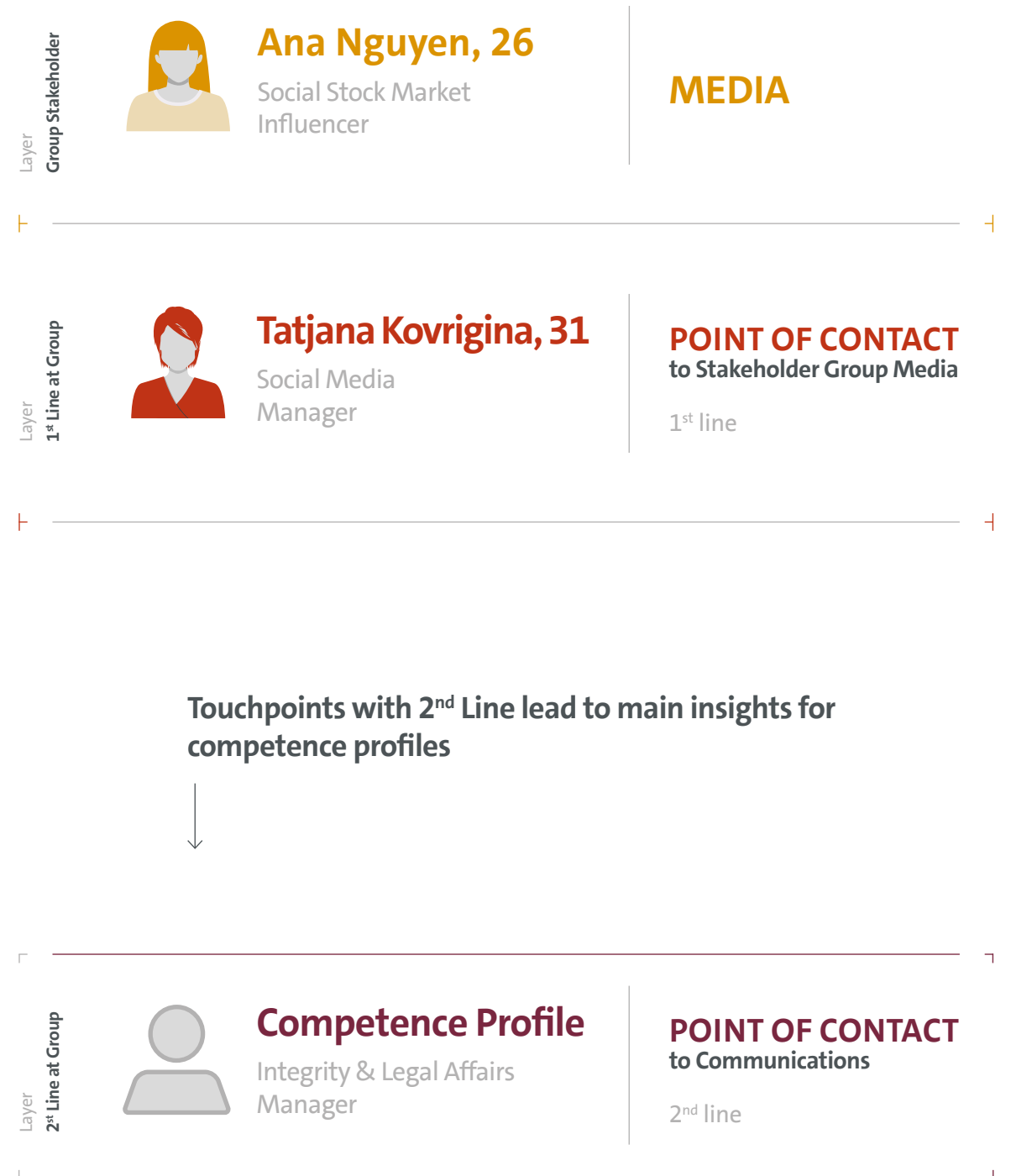
On the first layer, in the organization’s environment, there are our stakeholders. We have described them in detail and sent them on a journey through different futures. On these journeys, they would meet with their counterparts, i.e. representatives of the Volkswagen Group: a student’s mobility needs are taken up by a digital customer relations manager, an assembly line worker’s trust needs to be gained by a transformation specialist, a freelance coder has to be won over by a recruiter, a materials researcher expects to be advised by a patent specialist, a production logistics employee looks for support from a works council member, a supervisory board member receives information from the chairperson’s chief of staff, an influencer talks to a social media manager, a competitor wants to strike a deal with management, a founder bargains with an innovation scout, a supplier tries to convince his counterpart in procurement, a public official counts on an expert to advocate for his cause, an investor may outsmart an investor relations manager, or an activist will put pressure on sustainability managers.

On the second layer are the representatives who discover “opportunities for innovation” and “touchpoints” with colleagues. They are, from the company’s point of view, governed by the 1st line, i.e. their actions are informed by operational rules of procedure and management controls. The so-called “Three Lines” model positions for example compliance or risk management within the 2nd line, supporting and controlling the 1st line, with internal audit departments in the 3rd line.¹

On the third layer, we can identify 2nd line of defense profiles. They are linked to the 1st line representatives by the touchpoints identified within the future journeys. There can be a number of third layer profiles connected to one representative of the 1st line: profiles derived from different steps within one journey, or profiles derived from different adaptations of a journey in alternative scenarios.

These 2nd line profiles are the ones we have ultimately been developing our use cases for, among them are governance architects, risk managers, compliance officers, lawyers, or integrity advisors.

EXAMPLE



SOURCE:
¹European Confederation of Institutes of Internal Auditing (ECIIA)

STAKEHOLDER JOURNEYS

in Future Scenarios and Insights Derived

STAKEHOLDERS & 1ST LINE OF DEFENSE



Marcus Schmidt
Shop Owner
Customers



Jenny Vogel
Regional Manager
Sales



Fenna Berkenbosch
Mayor of Amsterdam
Local Authorities



Anuk Wu
Smart City Functions



Ana Nguyen
Social Stock Market
Influencer
Media



Tatjana Kovrigina
Social Media
Manager Communications



Dr. Manfred Dahlheimer
CEO at Supplier
Suppliers



Fee-Maresa Schultz
Employee
Procurement



Manu Lehnfeld
Production Logistics Worker
Employees



Brigitte Bauer
Halle 50
Works Council

STAKEHOLDER JOURNEYS



Puzzled World ✨

Marcus receives support by a regional sales manager to digitally operate the e-fleet for his online delivery service.

Green Evolution (cc) 🌿

Fenna is interested in scaling up a tech cooperation between her city and the Volkswagen Group.

Trauma Control 📺

Ana tries to verify rumors regarding a divestment by the Group via smart and provocative interactions on social media.

InnovAsia 🏢

Manfred needs to solve a problem regarding serial parts supply, keeping his customer Volkswagen Group satisfied.

Structural Decay 🧑🏻🔧

Manu resumes specialist training after having worked "as "performance impaired" supported by the works council.

MAIN INSIGHTS



Puzzled World ✨

Data intelligence interface (sales, dealerships); SME¹ fleet program; white label point of contact for customers; co-innovation process with customers; consultancy services as relevant new business opportunity

Green Evolution (cc) 🌿

Communication of city solution portfolios; legal center of competence for city/local community co-operations; committee fast track model for new partnerships/portfolios; sustainable urban-rural solutions portfolio

Trauma Control 📺

Monitoring of online conversations; guidance for the company on social media platforms; documentation of online interactions; handle open source intelligence; support free press/journalistic work

InnovAsia 🏢

Automation of supply chain monitoring; corporate responsibility assessments for trade-offs between circular economy and existing suppliers; flexible contract management; IT and data/AI standards; innovation-focused interface for procurement, logistics, and production

Structural Decay 🧑🏻🔧

Communities/fora for specific interest groups; share LGBTQI² expertise; innovate life-phase-oriented flexible work models; balance visibility and credibility (vs "rainbow-washing") when communicating solutions

PUZZLED WORLD

Stakeholder Journey: Marcus Schmidt & Jenny Vogel



Marcus Schmidt, 48

Shop Owner

Stakeholder Group(s)

Represented and Connections to other Stakeholder Groups

STAKEHOLDER GROUP REPRESENTED

- » Customers

CONNECTIONS TO OTHERS

- » Residents & local authorities, Media, Employees

GENERAL ATTITUDE TOWARDS VOLKSWAGEN GROUP

- » as father & self-entrepreneur, Marcus has specific needs & demands towards mobility: owning a safe, reliable & practical car offering him the best value for money. Marcus has high trust & sympathy for brands of the Volkswagen Group due to their "German-made quality"

PERSONALITY

- » Married with 3 children, family is of great importance for Marcus. A big goal in his life is to make sure that his children have a happy & secure life in the future. He attaches great value to their good education & teaches them how to become honest, caring & respectable people
- » Trust, empathy & respect for each other are the base of his stable family relationship

PERSONAL SURROUNDINGS

- » He spends most of his time with his children & taking care of the household with his wife

CAREER OR PROFESSIONAL BACKGROUND

- » German mother tongue
- » Speaks good Spanish & English
- » Self-entrepreneur & shop manager: has opened his own electronic store and has been running it for 25 years

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Marcus needs a safe, spacious, versatile & reliable transport mode, with which he can bring his children to school/hobby activities and go to work
- » A significant customer group for the Volkswagen Group are families in need of a spacious affordable, reliable & practical vehicle, maybe reluctant to choose e-mobility due to price & maturity of tech
- » May look for mobility options for his shop (delivery). Pays attention to price & TCO of the vehicle to optimize the invested budget in the best way
- » Potential new customer groups for Group fleet management: SMEs that go digital (post-COVID-19)



Jenny Vogel, 35

Regional Sales Manager Germany

Point of Contact to Stakeholder (Group)

1st line of defence

1ST LINE AT GROUP

- » Sales region – Germany Volkswagen Brand

CAREER OR PROFESSIONAL BACKGROUND

- » 8 years within Volkswagen Group:
 - 3 years as product manager in product marketing
 - 5 years in sales region – Germany department (thereof 2 years as product / price planner & since 1 year as regional manager for Northern region)
- » Master in international business & management
- » 4-year degree in international economics
- » 1 ERASMUS year in New York, United States
- » Speaks German & English fluently

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Customers at the center of sales activities:
 - identify current & future needs/ demands of different customer groups in terms of mobility
 - understand market specialties & competitors
 - define customer-centric product & service portfolio
 - high brand awareness & positive brand image
 - positive customer satisfaction & loyalty
- » Trade-off with other key corporate KPIs:
 - sales
 - market share
 - product / line complexity
 - profitability

PUZZLED WORLD

Stakeholder Journey: Marcus Schmidt & Jenny Vogel



Marcus Schmidt, 48
Shop Owner

GOALS

- » Digital operations of e-fleet, to enable online delivery (WeDeliver + fleet management software)

STAKEHOLDER ACTIONS

PHASE 1 →

1. Need for set-up of digital infrastructure
2. Research & comparison of services
3. Active contact to Marcus to understand his needs & consult him in suitable services

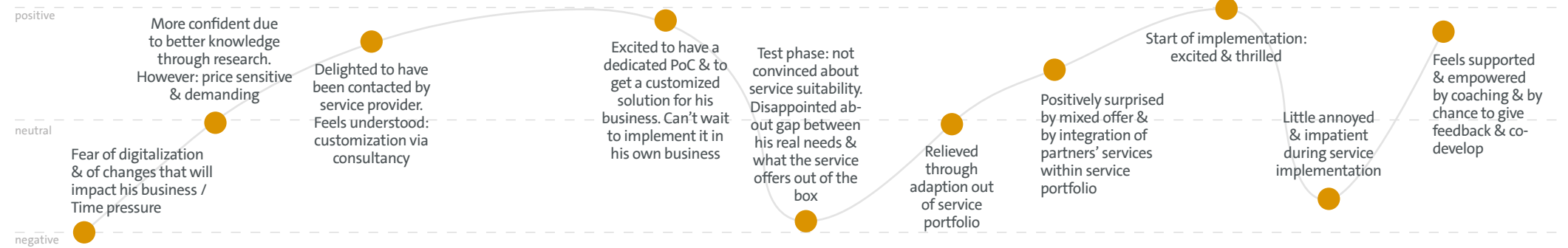
PHASE 2 →

4. Customized service offering (incl. Group white label solutions > one PoC)
5. Test phase to assess suitability
6. Adaption of service portfolio out of test phase

PHASE 3 →

7. Service implementation (incl. involvement of ecosystem partners)
8. Customer coaching / training for own operation
9. Customer feedback & co-development

THOUGHTS & EMOTIONS



OPPORTUNITIES FOR INNOVATION

- » Strong communication of new Group Strategy 2025+: leading software car company [Group]
- » Pro-active marketing & customer contact based on customer specific needs > data intelligence [Group]
- » Consultancy to help customer find suitable services [Group]
- » Digital process enables quick offering usage & flexibility [Group]

- » Customer relations & service: short interaction cycles & close multichannel contact to customer during testing phase [Brands]
- » Strong customer involvement in service adaption [Brands]
- » Earlier involvement of other Group brands' services & of partners to provide further details to ensure better suitability of service [Group, Group Brands, Partners]

- » Set-up of service incl. services of ecosystem's partners done by one PoC from beginning to end and taking responsibility [Group]
- » Customer coaching & training to be led early in the implementation process to optimize customer time [Group]
- » Co-developments as standards within product & service design to ensure maximum customer suitability [Group & Brands]



Jenny Vogel, 35
Regional Sales Manager GER
Volkswagen Brand

FOCUS

- » Customers at the centre of sales activities

TOUCHPOINTS WITH 2ND LINE

- » Dealerships for product support
- » Fleet management departments for customer contact

- » Car Software Organization for software support/ User Machine Interface (UMI)

- » Volkswagen Financial Services for payment & management solutions

PUZZLED WORLD

Stakeholder Journey: Marcus Schmidt & Jenny Vogel

GOALS

- » Digital operations of e-fleet, to enable online delivery (WeDeliver + fleet management software)



PHASE 1

- ☆ Need for set-up of digital infrastructure
- ☆ Research & comparison of services
- ☆ Active contact to Marcus to understand his needs & consult him in suitable services



PHASE 2

- ☆ Customized service offering (incl. Group white label solutions > one PoC)
- ☆ Test phase to assess suitability
- ☆ Adaption of service portfolio out of test phase



PHASE 3

- ☆ Service implementation (incl. involvement of ecosystem partners)
- ☆ Customer coaching / training for own operation
- ☆ Customer feedback & co-development



PUZZLED WORLD

Insight map

REGIONAL SALES MANAGER



Puzzled World

- » Strong communication of Group's digital strategy
- » Pro-active marketing & customer contact based on customer specific needs > data intelligence
- » Consultancy to help customer find suitable services
- » Digital process for quick offering, usage & flexibility
- » Early involvement of other Group brands' services & of partners in offering definition to ensure better suitability of service
- » Short interaction cycles & close multichannel contact to customer in test phase
- » Strong customer involvement in service adaption
- » Set-up of service incl. services of ecosystem's partners by one PoC responsible from beginning to end
- » Customer coaching & training early in implementation process to optimize time
- » Co-developments within product & service design to ensure maximum customer suitability

VOLKSWAGEN GROUP CONTEXT



Puzzled World

- » Contact to dealerships for product support > contracts with dealerships for cooperation in new fields of action / new product areas > legal
- » Interface with fleet management departments for shared customer contacts & for knowledge transfer on fleet management > data protection
- » Information regarding fleet management requirements for emissions and other sustainability criteria, also in SME fleets plus reporting obligations
- » Interface for one PoC within ecosystem > data protection & security, competition & antitrust law
- » Support by Car Software Org. / new mobility entities / Group-IT for software / digital solutions
- » Support by Volkswagen Financial Services for payment & fleet management solutions
- » Support by Group functions to develop pro-active digital communication, coaching & training
- » Contact to Group / brand Innovation and Procurement for co-innovation processes



MAIN INSIGHTS



- » Set up a compliant and reputation oriented (automated) Data intelligence interface between sales and dealerships for proactive marketing & customer contact
- » SME fleet program at interface of marketing, sales, dealerships and coaching / training
- » White label point of contact for customers, offering mobility services from the Group's ecosystem
- » Co-innovation process with customers & external partners [see also co-innovation journey]
- » Consultancy services as relevant new business opportunity for Volkswagen Group

STRENGTH

- » One single point of contact for customers (reducing complexity)
- » Customer-centred white label approach via bundled Group portfolio & involvement of external partners (when necessary)
- » Consultancy services as relevant new business opportunity
- » Mobility needs of SME in times of digitization & delivery models

RISK

- » Risks related to co-innovation with business partners
- » Compliance with all data-related legislation

GREEN EVOLUTION (CC)

Stakeholder Journey: Fenna Berkenbosch & Anuk Wu



Fenna Berkenbosch, 47

Mayor of Amsterdam

Stakeholder Group(s)

Represented and Connections to other Stakeholder Groups

STAKEHOLDER GROUP REPRESENTED

- » Residents and Local Authorities

CONNECTIONS TO OTHERS

- » Employees, Politics & Associations

GENERAL ATTITUDE TOWARDS VOLKSWAGEN GROUP

- » Sustainability is one of Amsterdam's top priorities. A healthy environment and the highest quality of life is Fenna's mission. Fenna is pushing data-based, modern and sustainable transport systems. She is looking for industry partners, but the city wants to retain control over the overall transport system and its data.

PERSONALITY

- » two daughters

PERSONAL SURROUNDINGS

- » lives in Amsterdam with her two children and her partner

CAREER OR PROFESSIONAL BACKGROUND

- » Member of the green party
- » Attended Waldorf school and studied documentary film making
- » Was active in filmmaking and singing before being appointed Mayor of Amsterdam

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Sustainability is one of Amsterdam's top priorities. A healthy environment and the highest quality of life is Fenna's mission.
- » Fenna is pushing data-based, modern and sustainable transport systems.
- » She is looking for industry partners, but the city wants to retain control over the overall transport system and its data.



Anuk Wu, 38

Smart City Functions

Point of Contact to Stakeholder (Group)

1st line of defence

1ST LINE AT GROUP

- » Audi Electronics Venture GmbH

CAREER OR PROFESSIONAL BACKGROUND

- » Since 3 years in charge for pre-development smart city functions at Audi Electronics Venture GmbH
- » Before she was in charge for the roll out of "traffic light connect" at Volkswagen of America, a program which connects cars with the traffic lights of major cities in the US
- » Anuk was born in Beijing and came to Germany when she was 5
- » She studied electrical engineering at the Technical University of Munich, with a term abroad at George Tech

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Anuk is super smart and it's important for her that her work is meaningful
- » With her excellent education and her ability to speak Mandarin, German and English she is better qualified than the rest of her colleagues and is approached by job hunters on a regular basis
- » What keeps her at Audi is her affinity to the brand. But only as long as she sees that Audi wants to adapt to the mega trends and understands that cooperation (e.g. with cities) is required to become part of the solution to urban traffic instead of remaining the problem.

GREEN EVOLUTION (CC)

Stakeholder Journey: Fenna Berkenbosch & Anuk Wu



Fenna Berkenbosch, 47
Mayor
of Amsterdam

GOALS

» A healthy environment and the highest quality of life in Amsterdam

STAKEHOLDER ACTIONS

PHASE 1 →

1. Meeting at conference + agreement to follow up
2. Coordination via LinkedIn
3. Customized service offering (incl. Group white label solutions > one PoC)

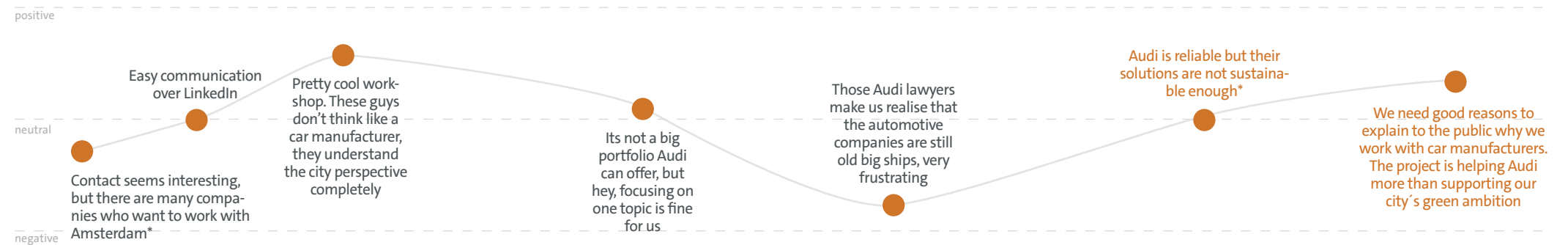
PHASE 2 →

4. Focus on one major topic and detailing of planned project
5. Negotiation of contract and legal requirements
6. Signing of contract and agreement to collaborate

PHASE 3 →

7. Go-Live of Pilot Project
8. Review of Pilot Phase
9. The project does not need the city's requirements. Audi-solutions have to become more sustainable

THOUGHTS & EMOTIONS



OPPORTUNITIES FOR INNOVATION

» Own presentation of solution portfolio, presence at relevant (digital) events, etc.; build reputation as leading city solution provider

» Live Showcase "LivingLab" of solutions
» Flexible, modern and service-orientated and specialised legal staff (understand cities as customers)

» A clear commitment to offering sustainable solutions throughout the value chain
» Ability to scale sustainable solutions



Anuk Wu, 38
Smart City Functions

FOCUS

» Scaling up a meaningful tech cooperation with Amsterdam

TOUCHPOINTS WITH 2ND LINE

» Good that I went to this conference. COVID-19 will change the way I connect with potential clients

» Working together with the legal department is really a pain (no capacity, no tech competence)

» To really deliver on time and stay relevant for Amsterdam we really have to make our services and products more sustainable and accelerate our processes. Too little commitment for sustainability and too many committees I have to run through to get the required approvals

*Black Font = official future
Orange Font = adaptation to alternative scenario

GREEN EVOLUTION (CC)

Stakeholder Journey: Fenna Berkenbosch & Anuk Wu

GOALS

- » A healthy environment and the highest quality of life in Amsterdam



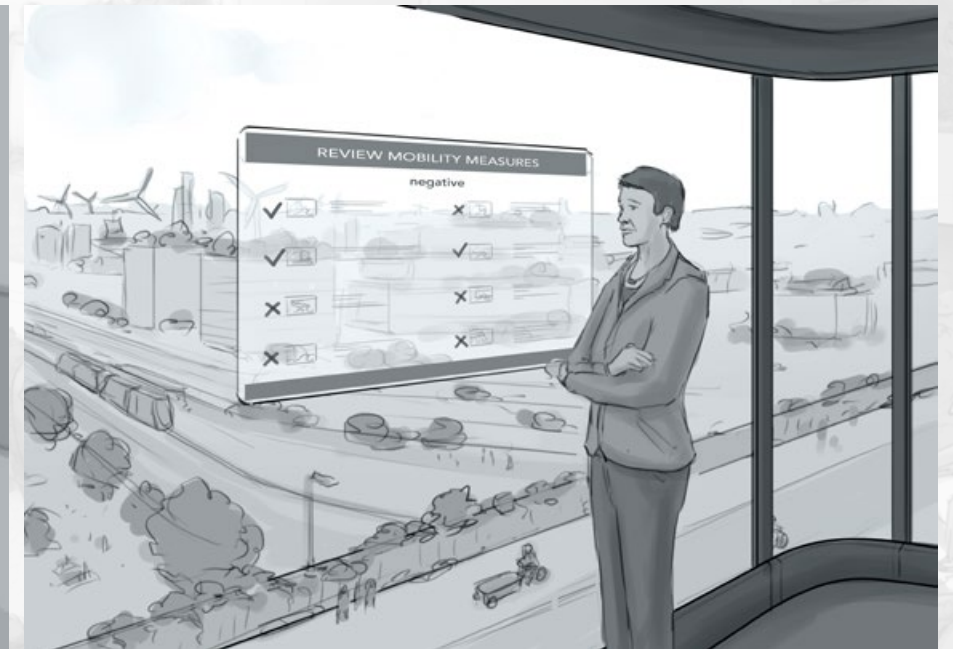
PHASE 1

- ★ Meeting at conference + agreement to follow up
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PHASE 2

- ★ Focus on one major topic & detailing of planned project
- ★ Negotiation of contract and legal requirements
- ★ Signing of contract and agreement to collaborate



PHASE 3

- ★ Go-Live of Pilot Project
- ★ Review of Pilot Phase
- ★ The project does not need the city's requirements. Audi's solutions have to become more sustainable



GREEN EVOLUTION (CC)

Insight map

SMART CITY FUNCTIONS



Puzzled World

- » Communication of city solutions portfolio to build reputation: presence at relevant (digital) events
- » Live showcase “LivingLab” of solutions
- » Prepare local authorities/stakeholders for corporate interfaces/cultures
- » Build ability to scale pilot solutions (internationally)

Green Evolution (cc)

- » A clear commitment on offering sustainable solutions throughout the value chain
- » Ability to scale sustainable solutions

Trauma Control

- » Offer cities guidance on regulation/procedures

InnovAsia

- » Reach out to (twin) cities for learning & scaling
- » Ability to cooperate with Asian counterparts
- » Be faster than competitors with contract & services

Structural Decay

- » Secure communication with potential partners
- » Innovative finance/leasing models for cities
- » Find/check donors

VOLKSWAGEN GROUP CONTEXT



Puzzled World

- » Recommendations for “pandemic-safe” interactions with stakeholders
- » Build legal support (capacity, competencies) for city cooperations – more flexibility, more service-oriented towards partner
- » Fast tracks for committee decisions related to city projects/projects with new stakeholders/new portfolios

Green Evolution (cc)

- » Make our services and products more sustainable and accelerate our processes
- » Fast tracks for committee decisions on sustainability

Trauma Control

- » Overview of relevant regulations from city perspective to help the partner
- » Ensure data security/integrity of data in the project

InnovAsia

- » Better (Asian) competitor analysis for city solutions
- » Legal framework early on in talks

Structural Decay

- » Expertise on finance/leasing models
- » Integrity & risk assessments for third-party donors

MAIN INSIGHTS



- » Secure communication of (potential) solution portfolios in the early phase incl. liability & IP awareness
- » Legal center of competence for city/community projects – worldwide (incl. Asia)
- » Committee fast track model (for early phase of completely new portfolios; for decisions on sustainability issues)
- » Offer financing models and/or integrity check for third-party investments to cities
- » Sustainable urban-rural solutions portfolio (for cities thinking beyond their borders)

STRENGTH

- » Building flexibility to be attractive to new customer type (municipalities)
- » Design solution portfolios from the city's perspective (e.g. incl. Asian twin cities or rural surroundings)

RISK

- » Promise too much, deliver too little
- » Complexity of finance models & lack of expertise in city authorities

TRAUMA CONTROL

Stakeholder Journey: Ana Nguyen & Tatjana Kovrigina



Ana Nguyen, 26

Social Stock Market Influencer

Stakeholder Group(s)

Represented and Connections to other Stakeholder Groups

MEDIA

- » self-employed with managing assistant; occasionally does stories for legacy media outlets on social media channels or comments in talk shows

ACADEMIA

- » studies global economy with a focus on financial markets at the National University of Singapore

GENERAL ATTITUDE TOWARDS VOLKSWAGEN GROUP

- » Interested - criticizes both the company's push for higher share prices and the partial ownership by the state of Lower Saxony

PERSONALITY

- » Gen Y on the brink of Gen Z with a strong feeling for justice & global responsibility
- » Does not like being called a feminist or drawn into diversity campaigns – rejects identity politics
- » Intelligent, hard-working, outspoken about it
- » Polite
- » Likes to “know the system” in order to break it
- » Respects the elderly but not the boomers

PERSONAL SURROUNDINGS

- » Privileged childhood in Germany (third generation immigrant), but close ties to less well-off relatives in Vietnam; moved to Singapore for studies
- » Always online (neither time differences nor lockdown have much impact on her social contacts)

CAREER OR PROFESSIONAL BACKGROUND

- » Graduated from grammar school in Germany (top)
- » Joined climate justice movement as social media campaigner in 2025; enrolled in university studies (undergraduate studies of law in Austin, Texas/USA, graduate studies of global economy in Singapore)

WHAT IS “AT STAKE”? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Needs to stay informed/be the first to know, i.e. needs constant flow of information on stock market developments, corporate strategies, and political decisions
- » Wants politics and business to see her channel/platform she uses as relevant media outlet
- » Wants to ensure her independence and her personal safety by reaching large audiences/being visible
- » Expects to be discredited as “the Asian influencer” by non-Asian politics/corporations & to be watched by Chinese surveillance technology



Tatjana Kovrigina, 31

Social Media Manager

Point of Contact to Stakeholder (Group)

1st line of defence

1ST LINE AT GROUP

- » Employed at platform's social media agency, working as integral team member at Volkswagen Group Communications

CAREER OR PROFESSIONAL BACKGROUND

- » Born, raised and educated in Russia (school & undergraduate studies)
- » Moved to Germany for graduate studies in IT, fluent in Russian, English & German
- » Speaks German & English fluently
- » Three internships in corporate communications departments, but no openings for long-term positions, so she started to work at a social media agency in Berlin, mainly focussed on Eastern European clients, works for platform since two years
- » Fairly new on the VWG team, where she manages the company's accounts (incl. accounts on platforms recently bought by the main platform like LinkedIn and Instagram)

WHAT IS “AT STAKE”? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Expects disinformation/trolls to dictate most of her working day routines
- » Would like to be employed by Volkswagen Group
- » Needs support beyond simple corporate statements for more complex issues discussed on social media
- » Expects to be monitored by her current employer
- » Needs to report social media KPIs every night to VWG communications team and to platform

TRAUMA CONTROL

Stakeholder Journey: Ana Nguyen & Tatjana Kovrigina



Ana Nguyen, 26
Social Stock Market
Influencer

GOALS

- » Be the first to verify rumors re a divestment
- » Publish highly shareable content
- » Hopes for resonance with financial analysts

STAKEHOLDER ACTIONS

PHASE 1 →

1. Picks up rumor in online forum
2. Checks sources
3. Analyses impact of potential news

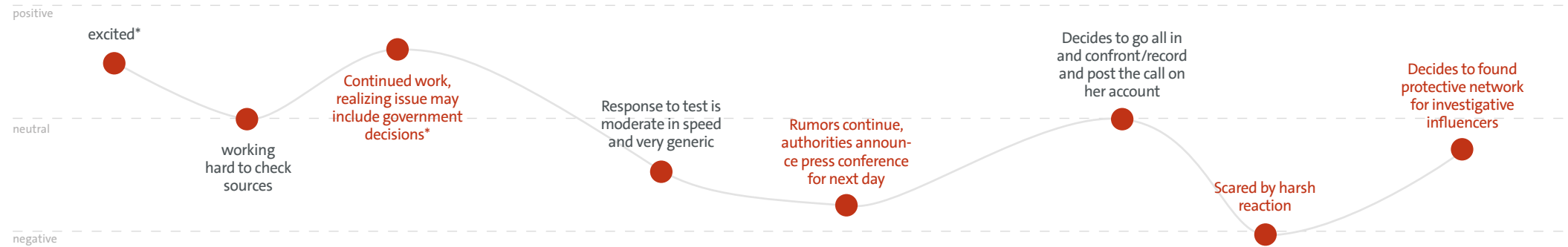
PHASE 2 →

4. Tests official account with first comment/question re divestment
5. Put under pressure by **government officials who have been surveilling her**

PHASE 3 →

6. Video-calls Group account and records the conversation
7. **Blacklisted by authorities, excluded from press conference attendance**

THOUGHTS & EMOTIONS



OPPORTUNITIES FOR INNOVATION

- » Monitor online conversations [comms]
- » Offer background talks **aligned with official position** [comms]
- » **Automated reputation risk warning** [comms]

- » Interface between social media managers and experts [comms]
- » **Strong interface Comms|Public Affairs**

- » Train social media managers for live formats/calls [comms]
- » Clarify roles (social media manager/contracted vs. spokesperson) [HR, comms]
- » **CoC for protecting journalists while complying with authorities**
- » Document interaction for knowledge management [IT, comms]



Tatjana Kovrigina, 31
Social Media Manager

FOCUS


- » **Keep social media activity around Group channels/hashtags moderate and positive**

TOUCHPOINTS WITH 2ND LINE

- » Compliance with data security & digital integrity during monitoring of online conversations
- » Compliant use of Open Source Intelligence on sources

- » Adequate legal check for social media statements (fast, concrete, protecting company and employees)

- » Rights and duties when being made an ad-hoc spokesperson
- » **Legal advice for journalists**

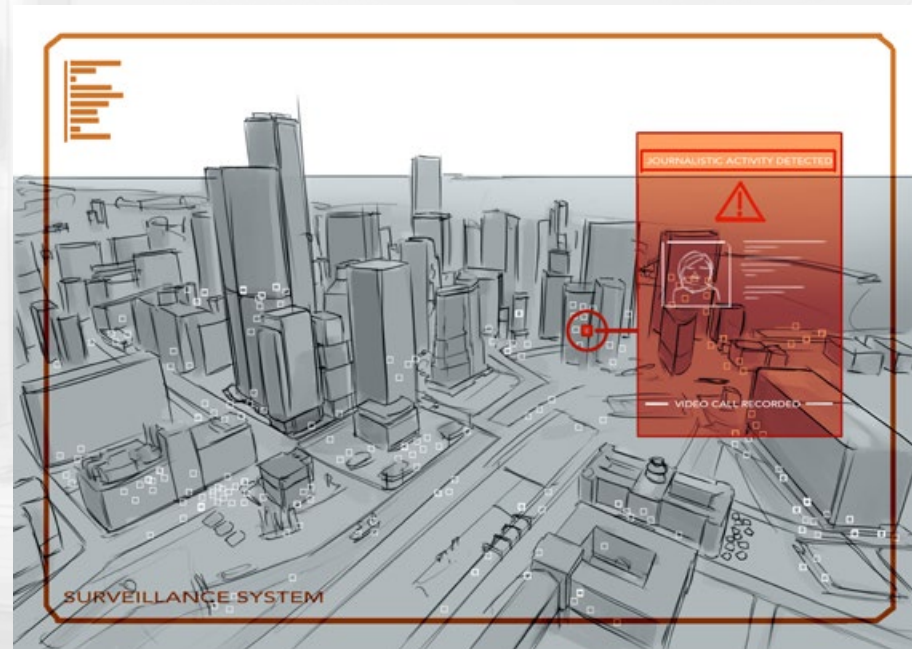
 *Black Font = official future
Red Font = adaptation to alternative scenario

TRAUMA CONTROL

Stakeholder Journey: Ana Nguyen & Tatjana Kovrigina

GOALS

- » Be the first to verify rumors re a divestment
 - » Publish highly shareable content
 - » Hopes for resonance with financial analysts
-



PHASE 1

- ✦ Picks up rumor in online forum
 - ✦ Checks sources
 - ✦ Analyses impact of potential news
-

PHASE 2

- ✦ Tests official account with first comment/question re divestment
 - ✦ Put under pressure by government officials who have been surveilling her
-

PHASE 3

- ✦ Video-calls Group account and records the conversation
 - ✦ Blacklisted by authorities, excluded from press conference attendance
- ×



TRAUMA CONTROL

Insight map

SOCIAL MEDIA MANAGER



Puzzled World

- » Monitor online conversations
- » Offer background talks
- » Interface for social media managers and experts
- » Train social media managers for live formats/calls
- » Clarify roles (contracted vs. spokesperson)
- » VIP interface with platforms
- » Document interaction for knowledge management

Green Evolution (cc)

- » Strong Communications & Public Affairs interface
- » Engage in dialogue on open platforms

Trauma Control

- » Background talks aligned with authorities' position
- » Automated reputation risk warning
- » Strong Communications & Public Affairs interface
- » CoC for protecting journalists, compliant with law

InnovAsia

- » Rules for cooperation with Asian social media platforms
- » Offer encrypted storage for journalists

Structural Decay

- » Continued monitoring of inquiries

VOLKSWAGEN GROUP CONTEXT



Puzzled World

- » Compliance with data security & digital integrity during monitoring of online conversations
- » Compliant use of Open Source Intelligence on sources
- » Adequate legal check for social media statements
- » Rights and duties when made an ad-hoc spokesperson
- » Legal leverage against Tiktok News Account
- » Conflict of interests for contractor

Green Evolution (cc)

- » Legal guidance on open platforms

Trauma Control

- » Legal advice for journalists

InnovAsia

- » Adequate legal check, focus Asia, for statements
- » Compliance/CoC for Asian social media platforms
- » Legal guidance: handling Tiktok, safe infrastructures

Structural Decay

- » Legal guidance on maintaining contact to influencers/journalists (data protection etc.)

MAIN INSIGHTS



- » Set up a compliant and reputation-oriented (automated) monitoring of online conversations incl. warnings
- » Give guidance for speaking on behalf of the company on social media platforms
- » Compliant and reputation-oriented documentation of online interactions for knowledge-management
- » Build capacities to handle open source intelligence and engage in dialogue on open platforms
- » Support free press/journalistic work (CoC and encryption technologies)

STRENGTH

- » Build an agile communication environment
- » Build knowledge management
- » Define your contribution to a free press

RISK

- » Make monitorings etc. comply with data protection regulations
- » Empower dialogue while protecting employees
- » Conflicts of interest for KPI-driven contracted employees of platforms



INNOVASIA

Stakeholder Journey: Dr. Manfred Dahlheimer & Fee-Maresa Schultz



Dr. Manfred Dahlheimer, 58

CEO at Supplier

Stakeholder Group(s)

Represented and Connections to other Stakeholder Groups

MR. DAHLHEIMER'S COMPANY

- » has supplied parts and components to Volkswagen for several years. He wants to establish a common innovation and technology collaboration.

CONNECTIONS TO OTHERS

- » Mainly other high level business partners, politics, governments, media and investors, works council

GENERAL ATTITUDE TOWARDS VOLKSWAGEN GROUP

- » dependency, wants partnership on eye level

PERSONALITY

- » Ambitious and strong-minded, has a deep sense of moral and lessons learned from the past
- » "Oldschool" leadership style
- » Very respected person, tends to work himself up sometimes though, when mistakes appear

PERSONAL SURROUNDINGS

- » A family father with two children and a wife, who is involved in volunteering activities

CAREER OR PROFESSIONAL BACKGROUND

- » Holds a university degree
- » Has been traveling abroad a lot

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » For him: Selling as many parts and ZSBs as possible to Group so value creation rises and Group is dependent
- » For Group: constant parts supply and a strategic partnership on eye level (supplier participates in the development of vehicles)
- » Best case: new systems, platforms and shared car IT to gain synergies
- » Worst case: strategic partnership with another OEM would lead to NDA making exchange with Group impossible



Fee-Maresa Schultz, 22

Employee Purchasing Department

Point of Contact to Stakeholder (Group)

1st line of defence

1ST LINE AT GROUP

- » Not so many internal relations, as she is new in the job; close contact to several suppliers

CAREER OR PROFESSIONAL BACKGROUND

- » Studied in Kiel
- » Job is her passion
- » Wants to be coached and mentored
- » Empathic, friendly, open and curious to learn more
- » Single, divorced parents
- » Digital native with a high social media affinity

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Tries to build her own business network
- » Her own goals are more important than the company's, so she makes use of leisure time and engages in self-development
- » Wants the Group to be a better, ethical and sustainable company
- » Wants to have a modern and "new leadership"-style mentor/boss
- » Wants to be engaged and developed personally, has high goals

INNOVASIA

Stakeholder Journey: Dr. Manfred Dahlheimer & Fee-Maresa Schultz



Dr. Manfred Dahlheimer, 58
CEO
at supplier of Group

GOALS

- » Maintain good relationship with Group management, profit before sustainability
- » Be a reliable serial supplier with EU standards
- » Support and escalation during emergencies

STAKEHOLDER ACTIONS

PHASE 1 →

1. Being informed by employees
2. Group emergency call: no parts
3. Escalation internally, all sub-suppliers are in China

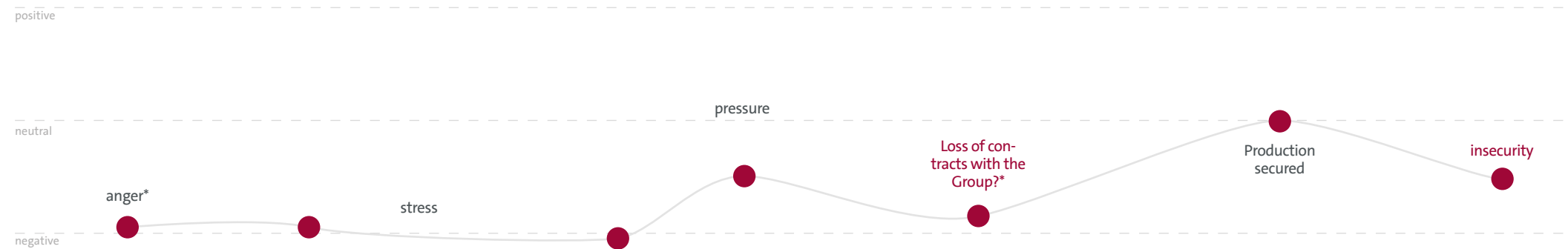
PHASE 2 →

4. Discussions about procedure with Group
5. Bottleneck management involved
6. New sub-suppliers are found, alternatives are endless in Asia

PHASE 3 →

7. Group is also looking for new suppliers
8. Technical standards can be fulfilled
9. The Chinese suppliers are ready to deliver, but not only for the Group, also for other OEMs

THOUGHTS & EMOTIONS



OPPORTUNITIES FOR INNOVATION

- » Earlier warning detection for a bottleneck
- » Automatic overview of parts supply

- » Self-ordered parts with AI, tech and algorithms come from China
- » XAI = understandable, explainable AI

- » USP for European companies? Maybe data security and prevention against hacking



Fee-Maresa Schultz, 22
Employee
Purchasing Department

FOCUS


- » Robust serial supply of parts

TOUCHPOINTS WITH 2ND LINE

- » Communication with all supply chain members

- » Force the Chinese companies to open their books regarding their codes

- » New contracts with new suppliers

 *Black Font = official future
Red Font = adaptation to alternative scenario

INNOVASIA

Stakeholder Journey: Dr. Manfred Dahlheimer & Fee-Maresa Schultz

GOALS

- » Maintain good relationship with Group management, profit before sustainability
- » Be a reliable serial supplier with EU standards
- » Support and escalation during emergencies



PHASE 1

- ✦ Being informed by employees
- ✦ Group emergency call: no parts
- ✦ Escalation internally, all sub-suppliers are in China



PHASE 2

- ✦ Discussions about procedure with Group
- ✦ Bottleneck management involved
- ✦ New sub-suppliers are found, alternatives are endless in Asia



PHASE 3

- ✦ Group is also looking for new suppliers
- ✦ Technical standards can be fulfilled
- ✦ The Chinese suppliers are ready to deliver, but not only for the Group, also for other OEMs



INNOVASIA

Insight map

EMPLOYEE PURCHASING DEPARTMENT



Puzzled World

- » Early detection & warning systems (shortage of parts)
- » Automated monitoring of parts supply & IT interfaces
- » Self-ordering system for parts (AI)
- » solution-oriented communication and collaboration
- » Innovations in logistics: fast, end-to-end
- » Innovations in production: 3d printing

Green Evolution (cc)

- » Process standard for sustainable transportation
- » High transparency & IT requirements in supply chains
- » 3d printing with sustainable materials
- » Circular Economy and recycling concepts

Trauma Control

- » IT interface between company and supplier
- » Just-in-time and sequence production for all parts
- » KPI check: higher quantity of cars produced

InnovAsia

- » Self-ordering system with Chinese AI
- » XAI = understandable, explainable AI
- » USP for European suppliers (data & IT security)

Structural Decay

- » Corporate ethical standards for AI
- » Prioritize cybersecurity incl. encryption along supply chains
- » Invest in corporate responsibility measures

VOLKSWAGEN GROUP CONTEXT



Puzzled World

- » Compliance check: early intervention options and hindrances
- » Legal support for competition law and contracts for alternative/additional suppliers
- » Addressing non-compliance with supply contracts in communication with supplier
- » Compliance consulting alongside supply chain

Green Evolution (cc)

- » Addressing dissolution of supply contracts due to circular economy solutions
- » Business cases and legal issues, sustainability first

Trauma Control

- » Expertise & standards for data governance & security
- » Legal support: contracts for data-driven supply chain
- » HR and procurement exchange on future-ready job profiles for purchasing department

InnovAsia

- » Interface for communication with Chinese suppliers
- » Force Chinese suppliers to open their AI-related IP
- » Legal support for contracts with additional suppliers

Structural Decay

- » Support re integrity/ethical standards
- » Improve IT security, legal etc. to prevent repetition
- » Coder recruitment & onboarding: focus on corporate ethical standards, humanity and integrity skillsets

MAIN INSIGHTS



- » Secure and compliant automation of supply chain monitoring incl. retraining of employees
- » Corporate responsibility assessments for trade-offs between circular economy and existing suppliers
- » Flexible contract management (pool) for additional suppliers in emergency situations incl. China
- » IT and data/AI standards based on transparency between partners, integrity of employees, and ethical use in supply chain
- » Innovation-focused interface between procurement, logistics, and production for alternative solutions

STRENGTH

- » Increasing exchange between internal and external stakeholders before emergency hits
- » Responsible handling of AI tech in supply chains
- » Rise of technology leads to automation and profit maximization
- » People's brains and education are the resource of the future

RISK

- » Conflicts of interest: KPIs driving automation (efficiency, cost reduction) vs. work place safety & ethical standards (human machine interaction)
- » Solving quantity issues (shortage of parts), but not necessarily quality issues (new suppliers), production automation and 2nd line overhead with personnel



STRUCTURAL DECAY

Stakeholder Journey: Manu Lehnfeld & Brigitte Bauer



Manu Lehnfeld, 37

Employee in Production
Logistics

Stakeholder Group(s)

Represented and Connections
to other Stakeholder Groups

- » Vertrauensleute, diversity management, LGBTQI+* activists

GENERAL ATTITUDE TOWARDS VOLKSWAGEN GROUP

- » Thankful for a safe/adaptable job during personally instable and challenging times, sometimes wonders whether she really fits in though

PERSONALITY

- » Easy-going and easy to like
- » Fought depression in her mid-twenties

PERSONAL SURROUNDINGS

- » Born as Manuel Lehnfeld
- » Spent a lot of energy, time and money for male-to-female gender reassignment (medical and legal)
- » Supportive circle of family and friends

CAREER OR PROFESSIONAL BACKGROUND

- » Apprenticeship as logistics expert, afterwards continued specialist training but did not finish it
- » Has been working performance-impaired due to her medical history of depression for the past years

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » Wants to be addressed and recognized as a woman
- » Needs to find a way to change her current status and a superior to support her ambitions
- » Wants to resume her specialist training



Brigitte Bauer, 48

Works Council Member
Volkswagen Group

Point of Contact to Stakeholder (Group)

1st line of defence

1ST LINE AT GROUP

- » Management, "Vertrauensleute", employees, IG Metall

CAREER OR PROFESSIONAL BACKGROUND

- » Working at Volkswagen AG has been tradition in her family from the region
- » Has been working in the production for 30 years, a member of IG Metall ever since
- » Elected into the Works Council eight years ago, now taking care of "Halle 50"

WHAT IS "AT STAKE"? NEEDS, EXPECTATIONS, DESIRES, GOALS

- » For her it is important that the management takes care of the workers, informs regularly and finds solutions for the ones who are not able to work fully anymore ("performance-impaired employees")
- » She is frustrated however about the high demands of efficiency, productivity and automation – she would expect a more people-oriented management approach
- » Expectation towards management to take care of profitability and job security equally
- » And she is worried how much job loss will come due to industry 4.0 and digitalization
- » For her it is important that management and works council work together in partnership



*Lesbian, Gay, Bi, Trans, Queer and Intersex

STRUCTURAL DECAY

Stakeholder Journey: Manu Lehnfeld & Brigitte Bauer



Manu Lehnfeld, 37
Employee
in Production Logistics

GOALS

- » Resume specialist training after having worked “performance-impaired”

STAKEHOLDER ACTIONS

PHASE 1 →

1. Checks intranet for information on trainings as “performance-impaired”, also BR website – no information
2. Asks superior, who says he “never had a case like this before”

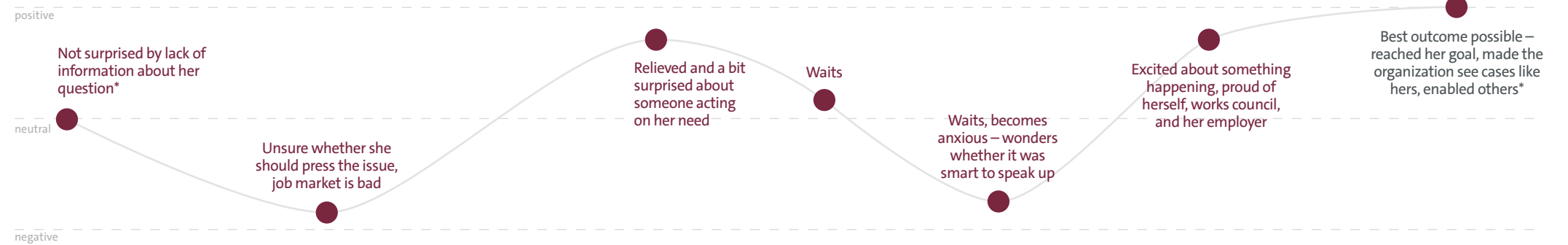
PHASE 2 →

3. Does not give up – asks Brigitte for help. They talk
4. **Brigitte** sends emails to HR, CCs superior, diversity management, pushes for status change for Manu and training
5. Brigitte gathers info, as this is first case of “returning”

PHASE 3 →

6. Meeting of all parties to draft a solution that will enable others to change status, too
7. Manu proudly resumes training

THOUGHTS & EMOTIONS



OPPORTUNITIES FOR INNOVATION

- » Up-to-date information online [Comms, HR, WC]
- » **Support speak-up culture**

- » Diversity & intersectionality trainings [HR, WC]
- » Conceptualize all working models as “phases” incl. changes between them [HR, WC]
- » **Intensify internal comms/feedback**

- » Share successful cases with like-minded companies [HR, WC]
- » **Impact assessment of solutions [HR, WC]**



Brigitte Bauer, 48
Works Council Member
Volkswagen Group

FOCUS


- » **Advocate for the rights and requirements of “performance-impaired employees”, also to training**

TOUCHPOINTS WITH 2ND LINE

- » **Highest** data protection and security for IT
- » Check shared solutions with company

- » Legal support on diversity related questions
- » Legal support for flexible HR models

- » Integrity and reputation assessments re “poster-person” / window-dressing
- » **Human-centred (i.e. highly secure) exchange of best practices with other companies**

 *Black Font = official future
Red Font = adaptation to alternative scenario

STRUCTURAL DECAY

Stakeholder Journey: Manu Lehnfeld & Brigitte Bauer

GOALS

» Resume specialist training after having worked “performance-impaired”



PHASE 1

- ✦ Checks intranet for information on trainings as “performance-impaired”, also BR website – no information
- ✦ Asks superior, who says he “never had a case like this before”



PHASE 2

- ✦ Does not give up – asks Brigitte for help. They talk
- ✦ Brigitte sends emails to HR, CCs superior, diversity management, pushes for status change for Manu and training
- ✦ Brigitte gathers info, as this is first case of “returning”



PHASE 3

- ✦ Meeting of all parties to draft a solution that will enable others to change status, too
- ✦ Manu proudly resumes training



STRUCTURAL DECAY

Insight map

WORKS COUNCIL MEMBER VOLKSWAGEN GROUP



Puzzled World

- » Be informative: Up-to-date information online
- » Be approachable: interactive channels
- » Build expertise: diversity & intersectionality trainings
- » Adapt: advocate for “phase” models of working profiles incl. changes between phases
- » Make successful cases known, support ambassadors
- » Impact assessment of solutions

Green Evolution (cc)

- » Build diversity community in cooperation with HR & WC
- » Regular events, diversity as important part of company culture
- » Positive impact of community on work

Trauma Control

- » Get feedback on existing coaching program and use it to develop the standardized offers

InnovAsia

- » Programs must be fitted to local circumstances (HR)

Structural Decay

- » Support speak-up culture
- » Intensify internal communications/feedback
- » Share successful cases with like-minded companies

VOLKSWAGEN GROUP CONTEXT



Puzzled World

- » Data protection and security for IT solutions
- » Check shared solutions (works council & company)
- » Legal support on diversity related questions
- » Legal support for flexible HR models
- » Integrity and reputation risk assessments regarding “poster-person”/window-dressing/rainbow-washing

Green Evolution (cc)

- » Integrity and reputation risk assessments regarding “poster-person”/window-dressing/rainbow-washing

Trauma Control

- » Make sure feedback is collected under high privacy standards

InnovAsia

- » Responsibility for local workers vs. international standards

Structural Decay

- » Highest data protection and IT security measures
- » Human-centred (i.e. highly secure) exchange of best practices with other companies



MAIN INSIGHTS



- » Offer (online) communities/fora for specific interest groups, both passive (information) and active (exchange) here: LGBTIQ*
- » Share LGBTIQ* expertise between Diversity Management, HR & Works Council | with other companies
- » Innovate phase-oriented flexible work models [HR, Works Council, with legal support] that can be adapted locally
- » Balance visibility (best practice) and credibility (vs “rainbow-washing”) when communicating solutions
- » Human-centred interactions call for highest possible standards of data protection and IT security

STRENGTH

- » Diversity recognized as asset
- » Flexible work models other groups will benefit from as well
- » Attractiveness as employee beyond LGBTIQ* community

RISK

- » Diversity seen as marketing tool
- » Highly sensitive issues need highest data protection standards

SOURCE: Future Heads Network, K-FIGE/I, K-GAD, K-IGS, Volkswagen Consulting, *Lesbian, Gay, Bi, Trans, Queer and Intersex

*Lesbian, Gay, Bi, Trans, Queer and Intersex



A LONG WAY TO RIDE

Systematic preparation for the future requires a methodically stringent analysis. The interdisciplinary project team spent six months on this task - from trend scouting and scenario development to the development of use cases.

The result is impressive - and yet it is only the beginning. It requires continuous examination of one's own role, impact and significance - both within and outside the company. Especially in dynamic times. Even the best future analysis can only selectively illuminate the scope of all plausible and probable developments. That's why continuous tracking with clear, objective indicators is the only way to keep an eye on future drivers as well as to recognize surprising events such as the COVID-19 crisis early on and to prepare for them.

Sharing findings of futures studies not only as internal knowledge, but translating them into strategies, concrete projects, measures and activities: This ability offers companies the opportunity to reduce risks at an early stage and to take advantage of new opportunities by building up the necessary competencies. They are put in a position to prepare themselves resiliently for the future.

At this point, the Volkswagen Group undoubtedly has a lot of potential. It is a long way to go, but the beginning has been made. Not least thanks to the "Futures of Ethics" initiative.



ROADMAP

to Integrity & Legal Affairs department Strategy 2030

ILA FUTURE

2020

↓
Normative Future developed by ILA Direct Reports, fields of action derived from analysis results

KPIS & CROSSBRAND INITIATIVES

2020

↓
KPIs & Critical Success Factors derived from strategic goals, strategic initiatives drafted

STRATEGY 2030

↓
Launch of Integrity & Legal Affairs Strategy

STRATEGIC GOALS

2020

↓
Purpose for Integrity & Legal Affairs Department validated, strategic goals defined

PROJECT ROADMAP

2020

↓
Purpose, goals, KPIs & strategic initiatives approved by ILA Strategy Forum (brands), Initiative Leads & timeline defined

August

September

October

November

December



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