Herwig Buchholz, Tobias Weitzel, Ciarán McGinley

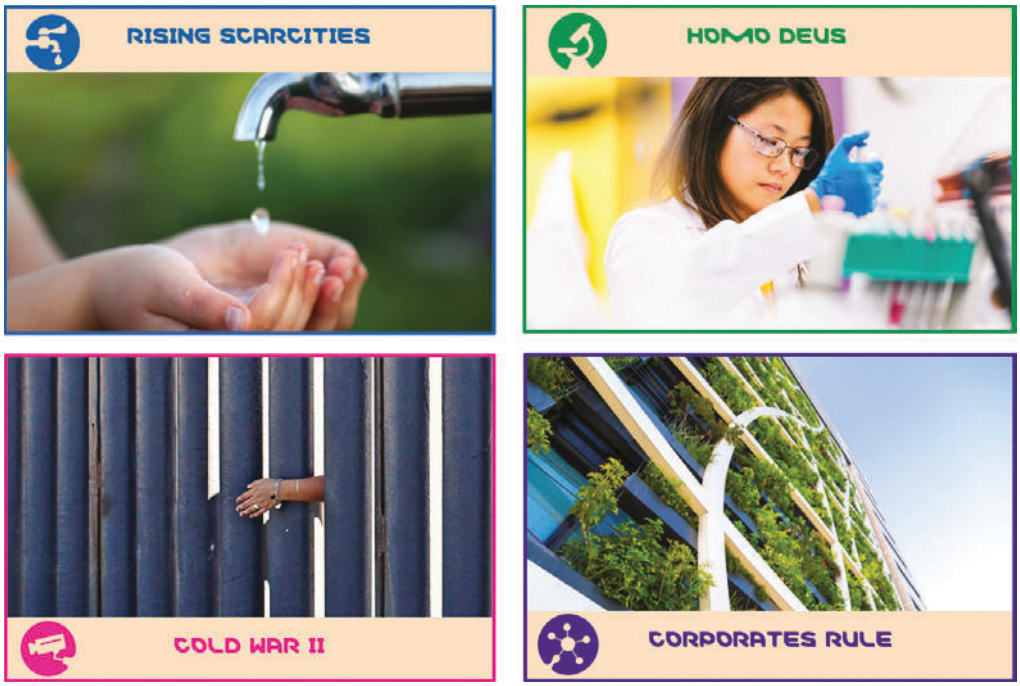
Scenario Thinking – Four Possible Futures of Sustainability

Sustainability has become a critical element of the business context. Political and societal agencies are increasing their demands across ESG (Environment, Social, Governance) factors, heightening stakeholder consciousness, including that of current and potential future employees. The overall investment landscape is evidently changing towards favoring companies that are positively contributing to global sustainable development. The 17 Sustainable Development Goals (SDGs) of the United Nations provide a blueprint for peace and prosperity for people and the planet – now and into the future. However, translating and tailoring those global challenges into concrete company targets has to be done in each company-specific context.

As a society we know that sustainability is a must. And yet, with so much turbulence and so much uncertainty, it is impossible to predict how the future of sustainability will unfold. There is no historical data upon which we can rely to extrapolate trends. The COVID-19 pandemic simply underlines this observable reality.

These were considerations that Merck, a global science and technology company, took strongly into account when developing its comprehensive approach to sustainability in 2020. A new sustainability strategy finally was announced in November, setting ambitious goals for the company and it has also become an integral part of Merck's overall Group strategy. In the process of strategy development, Merck attached great importance to looking at the future through the lens of plausibility and not predictability. And so, it was decided to make use of scenario planning to strengthen how it copes with uncertainty. The approach was pioneered in the corporate world in the early 1970's and then refined and practiced at the Oxford University, Saïd Business School, aims to reframe long-term strategies by developing sets of plausible, challenging and relevant scenarios.

Scenario planning is, by design, an iterative collaborative approach. Its underlying strength comes from, in the case of the Merck Sustainability Scenarios, more than 100 individuals across Merck and some 20 external experts who came together during the first 4 months of 2020. In doing so, they shared their collective understanding of the world of sustainability and how it might impact Merck's world of business. What are the environmental and contextual factors that may contribute to future change? Which values will dominate? How will society react to climate change? What relationship will innovation have with sustainability? Which futures are accelerating because of the pandemic?



Plausible answers to these questions were condensed by the Merck teams, with the help of NormannPartners AB, into a rich set of four scenarios for the future of sustainability in 2040. Four, very different worlds. Each plausible, internally consistent and coherent, but challenging – uncomfortably so.

Prof. Dr. Herwig Buchholz[1*], Tobias Weitzel[1], Ciarán McGinley[2]
[1] Merck KGaA, Darmstadt, Germany
[2] NormannPartners AB, Stockholm, Sweden
[*] Author to whom address correspondence:
herwig.buchholz@merckgroup.com

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FUTURE OF SUSTAINABILITY IN 2040 – THE SCENARIOS SET

Rising Scarcities is a world dominated by scarcity. Access to key resources such as water and food, drives existential conflicts. Protectionism prevails at all levels. Nation States and the global order are in decline and governance models are reconfigured around physical access to essential and scarce resources, which mere paper money can't buy.

Global trade is in sharp decline with Sovereign debt crises in every major region. Barter deals have re-emerged as the main basis for what trade remains. Black markets, corruption, migration and inequalities are increasingly widespread with minorities, of all types, being heavily persecuted. And yet, evidence of the resilience and adaptability of humankind is everywhere. For billions, this is not an apocalypse, it is a new beginning.

In countless communities, making do with what is locally available has become a way of life. There is a shift away from processes that require 24/7 energy and synthetic materials are replacing their more valuable natural counterparts. Innovation is resource light and adapted to specific local conditions and the availability of scarce resources. What trading does exist is often based on exchange, or promise of return, to enforce re-use of materials. Reverse engineering is everywhere, and local production is booming. Healthcare, however, is a function of local needs and emerging health problems.

Sustainability means survival.

Homo Deus is a world where biotech and digital have merged. Science & Technology are seen both as a solution for humanity's problems and a means to enhance the human species. Historical regulations and ethical considerations clash with the desire to win the singularity race. The world is increasingly fragmented across ethical beliefs.

Global trade has expanded in the wake of this unshackled competition. Funded by military interests, some of the initial breakthrough innovations occurred behind closed doors far away from civilian oversight. The unfolding realm of possibilities fueled a global technological and economic race. Many governments decided to '*do first, think later*', thereby dismissing underlying concerns such as ethics, privacy and risks. This empowered scientists and technologists to develop applications across every area of society and the environment, backed by traditional IP rights.

Humans, food and animals have been re-engineered to adapt to a new climate. Astonishing scientific progress and technological success has been achieved, at least for those with access such as the young, bio-compatible, educated and relatively wealthy. Society at large might want a re-focus, but the global Biotel elite are well prepared for a different future and are now moving on.

Sustainability means an optimal tech solution for every problem, but not for every person.

Cold War II is a multi-polar world with little co-operation which has given up on climate change collaboration. The rule-based and financial institutions, created by the West, weaken. China maintains strong social cohesion and a centralized State model more able to cope with turbulence. Non-aligned enclaves such as the EU and India struggle to remain neutral.

A diminished global trade is dominated by US and Chinese regulatory frameworks, both with extra-territorial impact. Non-aligned Nations have a local/regional approach. A multiplicity of regional reserve currencies operate. Severe climate events and military tensions are frequent, contributing to protectionism and a strong role for the Nation State and its institutions. Governments are thereby emboldened to ruthlessly create sustainable, peaceful, communities with access to education and decent work.

Social and organisational innovations are as important as technological ones. The Internet of Things is exploited to carefully monitor both devices and humans to ensure ecosystem resilience, but also social cohesion. Location impacts access, favouring those inside the two blocs and penalizing those in climate-challenged hotspots and polluted areas. The subsequent reduction in travel & trade lowers spread of disease.

Sustainability means delivering a quality of life to your own bloc.

Corporates Rule is a world where society and its ineffective governments entrust business to deliver solutions needed for sustainable human life. The economic and innovative success of global corporations encourages a false confidence leading to a power grab from weakened Nation States.

Backed-up by significant capital investments, global trade is steered by major business ecosystems and an ESG-based global financial system. The principles of cradle-to-cradle circularity and sustainability are defined by each of these business ecosystems. Industry standards, innovation and market access are driven within these boundaries by diverging ESG platforms. These ESG platforms, with their sophisticated compliance and data sharing demands, impose hurdles that are usually too high to allow for business across multiple platforms.

Industrial processes and the global energy system are either CO_2 neutral, or negative. Renewables dominate. True sustainability across all product lines and processes is a must. Individual lifestyle is optimized to ESG standards, ignoring privacy concerns, and impacting individual behaviours. Local accountability and democracy are severely lacking. There is a positive environmental outlook for with climate, fauna and flora recovering.

Sustainability is defined by a host of competing ESG platforms.

These four sustainability scenarios work as a set. It is in the process of looking within and across the set that new insights are gained. Each individual scenario describes a plausible, relevant and challenging alternative future world, with its own winners and losers, opportunities and challenges. Each of these scenarios is in effect a wind-tunnel against which the Merck Sustainability Strategy can be tested, and for this reason they have been pushed as far as possible to the very edge of plausibility. By comparing how these future worlds might plausibly unfold, Merck is able to use the scenario set to understand the extent to which current strategies are viable in the light of what might happen, what new options might be worth considering and how best to take appropriate decisions.

The current pandemic is a crisis of historic proportions. It is sometimes said that the future is already here, just not evenly distributed. The pandemic has revealed, and accelerated, signals of the four scenarios already unfolding. The competition for scarce medical resources points to Rising Scarcities. The use of AI in medical developments suggests Homo Deus. Does the increased tension between China and the US foreshadow Cold War II? Or is the accelerated introduction and spread of ESG decision making heralding the Corporates Rule scenario? We still don't know what the future will hold.

In times of crisis, society seeks out both resilience and creativity. Throughout its 350-year history, Merck has long recognized that a myopic focus on financial efficiency is the enemy of sustainability. Merck is therefore using this moment to take a fresh look at how it operates with regard to sustainability; how it faces the sustainability challenge; and how it can continue to make a positive contribution to society as a whole.

Prof. Dr. Herwig Buchholz
Global Head of Group Corporate Sustainability

In his current role Herwig is heading Corporate Sustainability for the Merck Group. This includes the Corporate Sustainability Strategy, Corporate Sustainability Reporting, and Sustainability and Science & Technology Relations.

Herwig joined Merck in 1996 and has held various positions with rising responsibility within several businesses of the Merck Group. Starting in Business Development Fine Chemicals, followed by heading R&D in Life Science Businesses, in the Pigments and Cosmetics Business, Herwig then successfully embarked in 2006 on the exciting journey of advancing OLED technology from its early developments to the current OLED Business. Today, Merck OLED is among the top innovators and suppliers to the OLED industry. Herwig is also experienced in taking innovations from the academic and start-up level to fully developed businesses.

Prior to his appointments in Merck Herwig worked from 1991 for the University of Southern California, Los Angeles, where he is a Fellow still today. Herwig holds a PhD in Chemistry from University of Hamburg, Germany, and studied chemistry in University of Oldenburg, Germany, University of Hamburg, Germany, University of Oslo, Norway, and University of Southern California, Los Angeles.

Furthermore, Herwig is voluntarily involved in several academic and nonprofit institutions in the US and Germany, and thus contributes also externally to Merck's reputation as a leading science and technology company. This includes also a Professorship at the University of Oldenburg, Germany, his service on the Board of the GDCh, the German Chemical Society, and on advisory boards of several academic and private institutions including Fraunhofer Society.

Tobias Weitzel
Associate Director, Group Strategy & Transformation, Merck KGaA

Working for Merck since 2016, Tobias is currently managing strategic projects of group-wide relevance including for instance the development of an enterprise sustainability strategy. Additionally his work focuses on innovation management and the establishment of next generation businesses through the Merck Innovation Ecosystem. Across his projects he is constantly sourcing and piloting new methodologies and approaches such as the scenario planning approach, which can elevate final project outcomes.

Prior to working at Merck, Tobias gained experience in the consulting industry with strong focus on corporate finance, mostly in the financial services markets. Tobias holds a Master in International Management with focus on Innovation Management & Entrepreneurship from NOVA School of Business and Economics (Lisbon, Portugal) and a Bachelor in Business Administration with focus on Finance & Accounting from Goethe University in Frankfurt, Germany.

Ciarán John McGinley
Senior Associate, Normann-Partners

Ciarán has extensive experience in scenario thinking and strategic renewal dating back more than two decades. Prior to joining NormannPartners in 2016, for 35 years Ciarán had focused on Intellectual Property and worked under and directly with every President of the European Patent Office (EPO) where he held a wide range of senior Board positions as well as being in charge of major operational units.

During his time at the EPO, he created the Chief Economist function, initiated the OECD working relationship and worked on various assignments with the European Commission. He was responsible for the EPO's contribution to the first summit of the Heads of the world's five major IP offices (US, China, Japan, South Korea, Europe) in 2007.

More recently, Ciarán has supported both institutional and corporate clients in their strategic development and use of scenario planning in the areas of sustainability, procurement, aerospace, AI, water and land use, renewable energy, city travel, autonomous vehicles, education, food safety, IP, mining and construction. In doing so he has worked with clients such as the London Transport Authority, UK Government, Anglo-American, Luxembourg Government, Merck KGaA, LafargeHolcim, and Ametic (Spain).

Ciarán holds a (bi-lingual) Master of Business Administration from HEC-Paris and a Bachelor of Science (Hons) in Aeronautical Engineering from the University of Bristol. Ciarán has lived and worked in five European countries. His mother tongue is English with very good French, German and Dutch.

Stimmen aus der Wissenschaft

„Nie wurde mehr Wasser verbraucht als heute, obwohl immer weniger sauberes Wasser zur Verfügung steht." [1] Die weltweite Entwicklung der Wasserstände der letzten Jahre [2] macht eines deutlich: Die Probleme stehen bereits vor unserer Haustür. Wenn wir so weitermachen, könnten wir 2050 sogar in der dystopischen Welt von „Mad Max" aufwachen. Dem steigenden Wasserverbrauch aufgrund des bis 2050 um 50-70% wachsenden Lebensmittelkonsums [3] müssen wir mit einer effizienteren Wassernutzung begegnen. Wir sind der Ansicht, dass dahingehend vielversprechende Konzepte wie das „Vertical Farming" oder „In-vitro-Fleisch" an Bedeutung gewinnen müssen. Wir selbst sind herausgefordert, solche Ansätze weiterzuentwickeln und neue zu entdecken, um unseren Beitrag für die Zukunft zu leisten. Es liegt an uns allen.

Noah Al-Shamery (o.l.), Florian Heppner (o.r.), Timon Bald (u.l.), Dario Baum (u.r.)
Studierende des 5. Semesters der Universität Bonn

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