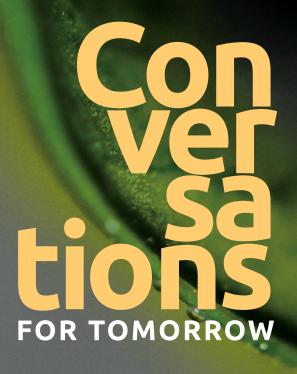
climate tech for a Sustainable Planet

Quarterly review N°7 — 2023



Sustainability and climate tech are no longer an option, they are a business imperative. The seventh edition of the Capgemini Research Institute's quarterly review, **"Conversations for Tomorrow,"** looks at the issue through the eyes of Scientists, CSOs, climate leaders, and young activists.

THE TIME TO ACCELERATE ON SUSTAINABILITY INITIATIVES WAS YESTERDAY

As of April 2022, humanity had already crossed six of the nine planetary boundaries, dramatically increasing the risk of large-scale irreversible environmental changes.



"We currently emit around 40 billion tons of CO2 per year. With every passing day, the need for technology for CO2 removal becomes more urgent"

Johan Rockström, Director, Potsdam Institute for Climate Impact Research



"We are in a race against time to limit global warming not to exceed 1.5 degrees Celsius in order to protect, prevent and preserve our natural resources, livelihoods, and lives in all parts of the world."

Ovais Sarmad,

Deputy Executive Secretary United Nations Framework Convention on Climate Change (UNFCCC)



Today, there is a growing acceptance of the role of technology in accelerating our collective efforts to make the planet sustainable.



"By using key technologies, we have already achieved a certified level of efficiencies. Technology is a big driver for the increase in efficiency that we anticipate in the years to come."

Eliano Russo, The Head of 3SUN Gigafactory, Enel

"Technology and data are central to everything we do. Being able to analyze data and take in data and to have our vehicles connected is a very important prerequisite in everything we do."

> Karin Svensson, Chief Sustainability Officer, Volvo



ESS Competition of the second "I'm fascinated with the overlap between technology and sustainability. The real-life data helps us with compliance and making interventions when needed immediately."

Virginie Helias, Chief Sustainability Officer at P&G

GETTING CLIMATE TECH RIGHT

REQUIRES US TO UNDERSTAND IT

Effective use of technology will also require a change in leadership behaviors



"Effective solutions will also require business leaders to understand the construct of technology – for today, every business is a technology business – and they must be aware of how digital innovation can help their organization achieve its sustainability targets."

Pascal Brier, Capgemini Group Chief Innovation Officer

DIRECTED EVOLUTION – USING NATURE TO RESCUE ITSELF

Nature has in her power the means to undo some of the damage that we have done to her.



"Sustainability and evolution can be empowered by artificial intelligence and machine learning. I predict in the next 10 years, AI going to be a powerful force in being able to recode life."

Dr Frances Arnold, Nobel Laureate and Professor of Chemical Engineering, Bioengineering and Biochemistry at the California Institute of Technology

HARNESSING THE POWER OF THE SUN TO DELIVER SUSTAINABLE ENERGY

Renewable energy should be our next big focus



"Solar energy will play a key role in meeting the growing demand for sustainable energy. Currently, we

are at 1TW of installed solar capacity globally, but this is expected to increase sevenfold by 2040."

Eliano Russo, Head of Enel Green Power's 3Sun

SHIFTING TO LOW-CARBON ENERGY SOLUTIONS WILLBEKEY

Our research found that energy and utilities (E&U) organizations expect low-carbon hydrogen to meet up to 18 percent of energy demand by 2050.

"Low-carbon electricity, that can be generated through both renewable and nuclear sources will play a key role in the energy transition. This will be a principal contributor to our line of lowcarbon-content products, as well as shrinking our customers' carbon footprints."

François Jackow, CEO of Air Liquide



"I'm very excited about the idea of a technology that can use hydrogen as a clean fuel and carbon as a durable good that does not go fugitive in the atmosphere or require sequestering in the geosphere."

William McDonough, Designer, Architect, Innovator, Author, Cradle to Cradle



"The success of the shift to a low-carbon economy will depend heavily on technological innovations such as green hydrogen and CCUS, as well as the evolution of batteries."

Aiman Ezzat, CEO of Capgemini





To slow climate change, companies have to dramatically shrink their carbon footprints by at least 90 percent before 2050.



"The market for carbon dioxide removal has basically had an exponential development over the past two, two and a half years."

Nathalie Casas, Head R&D at Climeworks



Should organizations relay on encouraging changes in consumer behavior or the acceleration of innovation?



"We are innovating our products while nudging the consumer to drive behavioral change. I could develop the best products out there but, if I cannot get our consumers to use it, there will be no impact. So, it needs to be both"

Virginie Helias, Chief Sustainability Officer, P&G

CLIMATE TECH STARTUPS - THE KEY TO OUR FIGHT AGAINST CLIMATE CHANGE

Over the past two decades, startups have become a critical source of innovation, from carbon capture to nuclear fission.



"Climate Tech startups offer the perfect blend of technology, talent, and capital – not to mention attracting unprecedented levels of investment. Startups are now training their sights on the biggest battle – and opportunity – facing humanity: that against climate change."

Lucia Sinapi, EVP and MD, Capgemini Ventures



"We need to extract billions of tons of CO₂ between now and 2050, a task so gargantuan that we will need all known carbon-removal solutions to work together, uniting nature and technology in urgent symbiosis"

Nathalie Casas, Head of R&D at Climeworks

WE ARE ALL IN IT TOGETHER

Gone are the days when an organization could take sustainability initiatives in isolation and at its own pace.



"We need to understand the climate crisis we are in and align our targets and ambitions together. We must take necessary decisions now, individually and collectively."

Alexandra Palt, Chief Corporate Responsibility Officer at L'Oreal

"Unlike in the past, there is now a strong need to work with competitors, suppliers, and governments to ensure the transformation of our products. The time now is about winning together and not winning alone."

Karin Svensson, Chief Sustainability Officer at Volvo





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