

Chapter 19

Epilogue



Thomas Wunder

The chapters in this book were intended to help business leaders, strategy practitioners, and all corporate decision makers as well as students of management to improve their level of *comprehension and concern* of why sustainable strategizing is important in the twenty-first-century business world. Human thriving, even at current population levels, depends on planetary thriving, which are both influenced by thriving business. It is my hope that the *actionable business knowledge* presented in this book encourages and supports current and future business leaders to contribute to this multifaceted notion of “thriving” through sustainable strategizing and positive impact. This way, prospering business activity will provide current and future generations the opportunity to thrive as well.

While this book was finalized, civilization was confronted with fresh evidence of human sustainability issues particularly with regard to our most pressing global concern, climate change. This confirming evidence is re-emphasizing the need for corporate strategists to take “sustainability” seriously in their strategic sense-making and ideation processes and to develop impactful strategic business responses and actions. The chapters in this book offer ideas, management methods, and strategy practice examples to help mastering this task. Below several developments are listed which seem even more important since the chapters of this book were completed.

- A landmark climate report published early October 2018 describes a strong risk of crises with serious consequences in the next decades if transformational global action is not taken soon to limit global warming to 1.5 °C above pre-industrial levels (IPCC, 2018). It paints a picture of the immediate consequences of climate change that is far more dire than previously thought (Davenport, 2018; Edenhofer

T. Wunder (✉)
Neu-Ulm University of Applied Sciences, Neu-Ulm, Germany
e-mail: Thomas.Wunder@hs-neu-ulm.de

& Rockström, 2018; Harvey, 2018; Stern, 2018).¹ Moreover, according to a recent analysis, the ocean has warmed 60% more than the worst predicted estimate of the IPCC (Resplandy et al., 2018). However, the recent IPCC special report on the impact of global warming was also received with hope as it shows that with immediate action staying below a threshold of 1.5 °C is still possible (Mooney & Dennis, 2018). Business leaders can play a crucial role in leading the way to tackle this issue.

- In summer 2018 weather experts reported the strongest Arctic sea ice break ever, which was caused by warm winds and a heatwave in the northern hemisphere. Scientists are concerned about massive destabilization of polar ice caps (Willis et al., 2018) and the risk of tipping the Earth towards hothouse state (Watts, 2018). Also, recent research shows that large ice sheets can move quickly into the ocean, which can cause significant Ocean level rising (Abraham, 2018). These findings make it more crucial for us to embrace sustainable strategizing as one way to ensure viability of socio-ecological systems, business ecosystems, and organizations (see Chaps. 4 and 5).²
- The Proceedings of the National Academy of Science in the United States published an article on possible trajectories of the Earth System (Steffen et al. 2018). If not halted in time, these pathways would cause serious danger for the entire ecosystem and subsequently for our societies and economies. The sixteen scientists warn of self-reinforcing bio-geophysical feedback dynamics through human-induced emissions of greenhouse gases. This would severely endanger the stabilization of the climate and create a “Hothouse Earth” that could change the conditions for life on Earth in an unprecedented way. The authors call for collective human action as the only chance to steer away from the danger towards stabilizing climate conditions (see Chap. 12).
- Recent analyses by J. Hansen and P. Kharecha (2018) have underscored the huge “carbon debt” to posterity that has been generated just since 1980 and the huge

¹Note that the “Risk Indicator” software from Global Challenges Foundation (2018) indicates that within just 15 years there is an 85% likelihood of reaching 1.5 °C global warming from (the expected) 450 ppm, and within the same time period, there is a 60% likelihood of reaching an “intolerable” 2 °C temperature increase and unpleasant tipping points. These calculations are based on the “average scenarios” from the IPCC’s AR4 (Assessment Report) and the AR5 (IPCC, 2015) was even more pessimistic. Vulnerability reports such as the Climate Change Performance Index (<https://www.climate-change-performance-index.org/>), Environmental Risk and Climate Change assessments from Maplecroft (<https://www.maplecroft.com/>), the Global Catastrophic Risk Reports from the Global Challenges Foundation (www.globalchallenges.org), and the Global Risks Reports by the World Economic Forum underscore that companies need to find ways to combat environmental risk, among others.

²For more information on issues of sustainable development and environmental protection in the Arctic such as unfolding permafrost thawing and big ice melting see www.arctic-council.org. More specifically, see www.thwaitesglacier.org and corresponding reports about recent heterogeneous retreat and ice melt (Milillo et al., 2019).

private, public, and personal investments required to prevent “hothouse effects” in most places around the globe.

- Military organizations take climate-related sustainability issues as a threat multiplier very seriously, as reflected in the climate-related risk survey results issued by the U.S. Department of Defense in 2018 and other reports (U.S. Department of Defense, 2014, 2018). Military experts see climate change as a risk to global stability that may lead to more wars and refugees (Abel, Brottrager, Crespo Cuaresma, & Mutarak, 2019; Banerjee, 2019; Tirone, 2019). Furthermore, geopolitical tensions are growing in the Arctic as melting ice reopens natural borders (Watts, 2019). Do corporate strategists apply the same level of concern (see Chap. 3)?
- Among the first major private sector participants to invest heavily in “the economics of unsustainability” were re-insurance firms such as MunichRe or SwissRe trying to protect the customers from catastrophic losses arising from climate change and associated natural disasters, e.g., hurricanes, crop failures, floods, and wildfires (McDuff, 2018). Accounting for risk factors related to sustainability issues has become mainstream also in the financial asset management market (see Chap. 6).
- According to the Edelman Trust Barometer (2018: 5), only 53% of the general population in 28 countries trust their governments whereas 64% have trust in business. Despite some agnostics about business and sustainability (Dauvergne, 2018), this emphasizes the importance of business leaders to lead the way to a sustainable future (see Chap. 1) as governments or civil society alone may not provide sufficient leadership for various reasons.
- Recent findings demonstrate how increased market power of “superstar companies” has boosted their profitability whereas their labor take-of-share has fallen (Fleming & Brook, 2018). CEOs of the top 350 companies in the United States earn 312 times more than their workers on average last year (Rushe, 2018). This shows how an increased corporate “winner-take-all” mentality fosters shortfalls in our social foundations and emphasizes the need for more “inequality aware” organizations (see Chap. 10).
- In 2018 the Earth Overshoot Day fell on the 1st of August. This is the day when all of humanity has used more from nature than the planet can renew in the entire year. Today, we are using 1.7 Earths for our consumption and waste absorption and it is expected that we will need 2 planets by 2030 (Earth Overshoot Day, 2018; The World Counts, 2018). Moreover, the World Wildlife Fund reported in its Living Planet Report 2018 a 60% decline in wildlife populations in just over 40 years between 1970 and 2014 (WWF, 2018). All this re-emphasizes the need to move business imperatives from reducing unsustainability to creating sustainability (see Chaps. 1 and 2).

In 2018 we also witnessed many encouraging and impactful initiatives that have the potential to trigger positive changes. They underscore the relevance of new business concepts for sustainable strategizing and the importance of collaboration and open strategy:

- One of the most influential investor firms in the world, BlackRock, informed business leaders in 2018 that their companies need to have a social purpose if they

want to receive the support of BlackRock (Sorkin, 2018). “Society is demanding that companies, both public and private, serve a social purpose. To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society” (Fink, 2018). In his 2019 letter to CEOs, Larry Fink underscores this message by calling business to lead with purpose and not just live with high-minded mission statements (Fink, 2019). This was the fourth annual letter from the BlackRock CEO in a row conveying a strong message related to environmental and social issues.³ This requires a rethinking of value and impact (see Chap. 7) and emphasizes the need for purpose-driven strategizing and mindsets (see Chaps. 1, 14, 15, 16, and 17). BlackRock is not an isolated example as State Street (2018) and Vanguard (McNabb III, 2017) are putting similar emphasis on long-term sustainability orientation.

- The new business imperative for private and public companies to combine economic aspirations with social purpose is reflected in the increasing number of B Corps⁴ and its legal reflection as Benefit Corporations. B Lab (2018a) currently lists 2619 Certified B Corporations in 60 countries covering 150 industries. In the meantime, also major companies such as Brazil’s Natura have joined this movement (B Lab, 2018b). In 2018 food giant Danone’s North American operation became a Certified B corporation (B Lab, 2018c). These companies apply business concepts for sustainable strategizing that consider the social and environmental impact of business activity (see Chaps. 7, 8, and 9). The “B-Impact Assessment” tool is used by more than 50,000 organizations world-wide (B Lab, 2018d).
- The We Mean Business (2018) coalition is currently listing 812 major companies with \$16.9 Trillion in market cap that are leading the way toward a sustainable future through 1321 “commitments to bold action.” The importance of purpose-driven-leadership with regard to social and environmental value creation is also emphasized in a recent CEO study conducted by Leaders on Purpose (Gyori et al., 2018). There are many examples of CEOs who can be characterized as being “Future Smart” (see Chap. 18).
- TWI2050—The World in 2050 (2018) is a recent report of an international initiative by researchers and practitioners that explores science-based transformational and feasible pathways towards sustainable development. TWI2050 is a massive global research initiative that works on providing the much needed guidance for policy makers responsible to implement the Sustainable Development Goals (SDGs) as articulated in the United Nations’ 2030 Agenda. This is another example of potentially impactful international collaboration which is required at all levels of the global society (see Chap. 12).

³Although many stakeholders applaud this new era of institutional activism, Blackrock, which has \$6.4 trillion assets under management, has also been criticized for not putting enough pressure on companies to tackle climate issues (Holder, 2019; Jolly, 2019). Note that there was also a fake CEO letter reported early this year (Jolly, 2019).

⁴“Certified B Corporations are a new kind of business that balances purpose and profit. They are legally required to consider the impact of their decisions on their workers, customers, suppliers, community, and the environment. This is a community of leaders, driving a global movement of people using business as a force for good” (B Lab, 2018a).

- The importance of cross-sectoral multi-stakeholder collaboration to develop and maintain positive momentum has been highlighted in various chapters of this book (see Chaps. 12 and 15). A recent initiative of a collaborative approach to sustainability is Drawdown Europe (www.drawdowneurope.eu) which has been launched in 2018 as part of the global “Project Drawdown” coalition (www.drawdown.org).⁵
- In fall 2018, the Global Commission on Adaptation led by Bill Gates, former United Nations Secretary General Ban Ki-moon, and World Bank CEO Kristalina Georgieva has been launched. Co-hosted by Global Center on Adaptation (www.gca.org) and World Resources Institute (www.wri.org), the commission facilitates a global multi-stakeholder movement to improve resilience to climate-related threats by bringing scale and speed to climate adaptation solutions (Carrington, 2018). One of the focus areas is related to the question of how businesses can incorporate climate change risks into their investments as well as their social and economic development plans (Global Center on Adaptation, 2018).
- The Club of Rome issued its first “Climate Emergency Plan” (2018) in December urging all stakeholders, including business, to adopt a high-impact transformational action program that will reduce greenhouse gas emissions and improve community resilience. It explicitly calls for reframing business models in high-carbon industries, which will require new concepts and frameworks for sustainable strategizing as provided in Part II of this book.
- The Network of Business Sustainability (www.nbs.net) is as an initiative fostering dialogue and collaboration in and between academic research and the business community to shape a more sustainable future. With currently more than 6000 researchers and managers involved, it fosters open strategizing (see Chap. 5) and drives public-private co-creation and collaboration (see Chap. 12) focusing on a systems perspective (see Chap. 17). It draws on both real-time practitioner knowledge and contemporary research.⁶

⁵In addition to Drawdown and other initiatives, active environmental and sustainability programs and NGOs seeking market-based or transitional sustainability solutions and thus are potential collaborators with business include B Lab (www.bcorporation.net), Breakthrough Institute (www.thebreakthrough.org), BSR (www.bsr.org), CDP—formerly known as Carbon Disclosure Project (www.cdp.net), Ceres (www.ceres.org), Circular Economy Club (www.circulareconomyclub.com), Conservation International (www.conservation.org), Environmental Defense Fund (www.edf.org), International Cooperative Alliance (www.ica.coop/en), Natural Resources Defense Council (www.nrdc.org), Network of Business Sustainability (www.nbs.net), OECD Innovation Strategy (www.oecd.org/site/innovationstrategy/), Rocky Mountain Institute (www.rmi.org), Tellus Institute for a Great Transition (www.tellus.org) and Great Transition Network (www.greattransition.org), The B Team (www.bteam.org), The Climate Group (www.theclimategroup.org), The Prince of Wales’s Corporate Leaders’ Group (www.corporateleadersgroup.com), United Nations Environment Programme (www.unenvironment.org), We Mean Business Coalition (www.wemeanbusinesscoalition.org), World Business Council on Sustainable Development (www.wbcsd.org), World Resources Institute (www.wri.org), and World Wildlife Fund (www.worldwildlife.org).

⁶Other knowledge hubs providing case studies and best/good practice examples related to business sustainability include The Case Centre (www.thecasecentre.org) with currently almost 2,000 cases related to sustainability, SustainAbility (www.sustainability.com), and “B the change” (www.thechange.com).

- The generative potential of values-based stakeholder management (see Chap. 11) is assuming new relevance with the integration of refugees in Europe, but also with combating causes for refugees to escape their homes. The “Lab of Tomorrow” (GIZ, 2018) facilitates multi-stakeholder co-creation of new business models (see Chaps. 7, 8, and 9) in developing and emerging societies (Breuer, Lüdeke-Freund, & Brick, 2018).
- After mid-year 2018, China and the European Union agreed to cooperate on policies that support the transition to a circular economy (see Chap. 15). This will not only provide companies new opportunities for sustainable strategies but is expected to accelerate the adoption of circular economy practices at a global scale and thus the transformation to an economic system balancing business, people, and the environment (Ellen MacArthur Foundation, 2018). Furthermore, China plans to dominate the \$550 billion market for electric car battery reuse and recycling, which could be a clean and circular energy game changer (Romm, 2018).
- The Natural Step Chemical Coalition was created in 2018 to improve sustainable life cycle management of chemicals and materials which is key for the transition to a circular economy (The Natural Step, 2018). For almost 30 years, The Natural Step has helped organizations to better understand sustainability challenges and to make meaningful progress (see Chap. 17).
- In the world of legitimate finance, G20 countries are increasingly recognizing that massive sums of investment are needed for “green finance,” so strategies can be viable in the longer term. The Green Loan Principles (GLP) of the International Capital Market Association (ICMA) are becoming ever more significant elements with the Global Green Finance Council (GGFC) (Loan Market Association, 2018). Aggressive sustainable investments (see Chap. 6) can slow the rates of negative change to permit orderly adjustments in most parts of the globe. Industry leaders take actions to further sustainable strategies products such as green bonds. Issuance reached USD167.3 billion in 2018, which shows strong market growth (Climate Bonds Initiative, 2019).⁷
- At the Global Climate Action Summit 2018, the then Governor of California, Jerry Brown, announced that California will launch its own satellite to track greenhouse gases causing climate change (Holden & Milman, 2018). An example of why this tracking is so important is provided by recent discoveries of Arctic lakes releasing large volumes of greenhouse gases (Mooney, 2018). Jerry Brown also signed both a bill establishing a legal target of zero emissions for the state’s electricity system by 2045 as well as an executive order setting a goal of zero emissions by 2045 for the entire California economy affecting transportation, agriculture and every other industry that puts emissions in the air (Gillis &

⁷Investors and lenders are increasingly realizing that assets can become “stranded” just as quickly from a change in corporate or product reputation as they can from an industrial accident, hurricane, or land surface subsidence from aquifer declines or earthquake tremors from hydraulic fracturing (“fracking”) for natural gas or oil.

Harvey, 2018). This is an example of strong political leadership toward a sustainable future which will also strongly impact the business world.

- For nearly 20 years, the Global Reporting Initiative (GRI) has been gathering, standardizing, and distributing thousands of organizational performance reports from around the globe. Its supporters and readers control USD trillions in assets. In the USA, the Sustainability Accounting Standards Board (SASB) is advancing many similar criteria, but their framework begins with a different set of assumptions and perspectives (see Chap. 13). New initiatives for “advanced” economies such as the Reporting 3.0 Platform are being rolled out with the goal to spur the emergence of a regenerative and inclusive global economy (Reporting 3.0, 2018).
- Building roads from recycled plastic waste (Boffey, 2018), advancements in Carbon Capture and Storage (CCS) or Carbon Capture, Utilization, and Sequestration (CCUS) technologies,⁸ space-based emission detection devices such as MethaneSAT or TROPOMI (EDF, 2018), and the transformation of waste carbon to jet fuel and other products (LanzaTech, 2018) are promising examples of how new technologies can help advance ecological sustainability progress. Unfortunately, new technologies such as artificial intelligence (AI) or geoengineering may not only have the potential to solve issues but also pose a significant threat to sustainability (Harari, 2017; Ó hÉigearthaigh, 2017).⁹ For companies, sustainability and singularity or technology acceleration are two interdependent developments that need to be carefully managed (see Chaps. 17 and 18).
- The One Planet Summit held during September 2018 in New York City is another reminder that there are many active private and public players including Google, World Bank, United Nations, European Union, and Bloomberg Philanthropies collaborating for creating positive impact with regard to sustainability (One Planet Summit, 2018).

Based on the current state of the planet and the information presented in this epilogue, business leaders need to make decisions about which scenario of the future may unfold and how they may choose to engage in leading the way to shape their desired future. Will there be a brighter future for humankind created through market forces, unprecedented technologies provided by the “ingenuity of man” such as geoengineering or negative emission technologies, and policy reform? Or will there be a grimmer future with sanctuaries of prosperity surrounded by environmental degradation, social chaos, conflict and violence? Or a transformed world in which fundamental economic, social, and political changes enable businesses, the natural environment and humans to thrive? (Raskin, 2016) Nobody knows the answer but the choices we make today will determine which world we will ultimately get in the

⁸For more information on CCS see <http://www.ccsassociation.org/> as well as on CCUS (e.g. Hybrid Na-CO₂ system) see <http://news.unist.ac.kr/scientists-turn-carbon-emissions-into-usable-energy/>.

⁹For more information see Centre for the Study of Existential Risks (CSER) at the University of Cambridge, UK (www.cser.ac.uk). Furthermore, new technologies will have a significant first-order impact on energy use, water consumption, and the use of critical resource (e.g. metal) as well as chemical elements causing new recycling issues (von Weizsäcker & Wijkman, 2018: 44–49).

future. It is my hope that this book helps managers to make business sense of “sustainability” and lead the way toward a thriving future through sustainable strategizing and positive impact.

The majority of approaches and ideas presented in this book fit change into our current economic models of free and social market economies although they challenge dominant neoclassical management paradigms and models. I believe this connectivity is required for triggering corporate action as all-encompassing “solutions” and some great ideas proposed in the world of sustainability may simply be not acceptable to people in charge of strategic decisions or policies and such are not feasible. However, looking at the magnitude of issues we face it can only be a first incremental step to ensure that our social and natural systems are thriving in the future. The goal of most parts in this book was not to challenge the underlying economic system and thus the roots of the problem may have not been fully addressed. Instead of trying to embed sustainability within the existing economic system dominated by short-termism and shareholder interest, it might perhaps be more appropriate to drive transformation of the economy towards sustainability and run it in service to life as suggested by various authors (Felber, 2015; Hoffman, & Ehrenfeld, 2015; Jackson, 2016; Maxton & Randers, 2016; Sukhdev, 2012; von Weizsäcker, & Wijkman, 2018).¹⁰ With a Special Topic Forum on “New Theoretical Perspectives on Market-Based Economic Systems” (Barney & Rangan, 2019) as well as a Special Research Forum on “Understanding and Tackling Societal Grand Challenges Through Management Research” (George, Howard-Grenville, Joshi, & Tihanyi, 2016), the Academy of Management has recently addressed portions of the “disconnect” between the pressures on the Planet’s biosphere as well as other socio-ecological issues and the conceptual frameworks used in much of our research and teaching. Nevertheless, research on business and sustainability tends to remain unnecessarily separated from the advances in knowledge in the natural and physical sciences. Lack of engagement with the wider sustainability agenda has been compounded by the scarcity of trans-disciplinary teaching and research programs in our universities.¹¹ The world economy could grow on a massive scale in this century putting enormous pressure on Earth’s resources of which we are already overusing at 170%. If technology will not significantly help to solve our ecological and social problems or will even worsen them, the planet cannot sustain 11 billion people and a much larger economy by the year 2100 (Ehrlich & Ehrlich, 2008; The World Counts, 2018). To put this in the words of Kate Raworth (2017: 30): “Today we have

¹⁰See also the Sustainable Strategizing 2.0 mindset illustrated in Chap. 1.

¹¹See also Chaps. 1 and 4. The disconnect between socio-ecological issues and conceptual frameworks and paradigms used in management research and teaching was recognized about a quarter of a century ago by a variety of scholars including Stuart Hart, Paul Shrivastava, Jean, and Ed Stead as well as many others. At this time, questions of the legitimacy of business institutions and their responsibilities in society were regarded as exotic, abstract, and somewhat peripheral to mainstream research on the firm. In the 1990s, these questions were discussed primarily in the SIM Division (Social Issues in Management) and the ONE Division (Organization and the Natural Environment) of the Academy of Management.

economies that need to grow, whether or not they make us thrive: what we need are economies that make us thrive, whether or not they grow.”

Obviously, it is hard to imagine a sustainable business in an unsustainable world, people may not be motivated to act for various reasons (Graef, 2017; Markman, 2018; Marshall, 2013) and, perhaps, we may need some kind of crisis or catastrophe to trigger action (Samuelson, 2018). However, there are also new and evolving business mindsets and some kind of “Green Swans” (Elkington, 2019) that strive for positive impact. Given the many examples provided in this epilogue, I am optimistic that this can be one of various transformational drivers urgently needed to provide current and future generations the opportunity to thrive. The focus of this book was business as business leaders are best positioned to lead the way knowing that they alone will not be able to master this challenging task. In addition to the private sector (i.e. privately-held and publicly-owned companies), important contributions to sustainable development need to come from the public (e.g. governments) and particularly the plural sectors as Henry Mintzberg (2015) noted a few years ago.¹² Dialogue and collaboration within and particularly between these sectors are crucial to create the urgently needed solutions for a sustainable future (Mintzberg, Etzion, & Mantere, 2018).

There is much at stake today as humanity seems to be on a suicidal trajectory. More than ever, we need business leaders, corporate managers, and scholars that push the limits to prevent their children and grandchildren from facing a devastated world. Climate related natural disasters, scarcity of water, and fertile soils, massive species extinction, social conflicts as well as artificial intelligence deciding what is right and what is wrong are just a few elements of such a scenario. This is not “science fiction” but very real in the life span of most people reading these lines or at least their children and grandchildren. As far as business is concerned, this ultimately comes down to strategic choices made by individual executives who understand the seriousness of the issue, are convinced that sustainable development is possible, and recognize the various new management concepts and ideas available to tackle the issue and create viability for their very own organizations and society. These individual choices greatly determine which future we will get. Ray Anderson (2009), the former CEO of Interface, emphasized this point almost a decade ago at the very end of his passionate TED talk: “(. . .) we have a choice to make during our brief, brief visit to this beautiful blue and green living planet. To hurt it or to help it. For you, it is your call.”

References

- Abel, G. J., Brottrager, M., Crespo Cuaresma, J., & Muttarak, R. (2019). Climate, conflict and forced migration. *Global Environmental Change*, 54(January), 239–249. <https://doi.org/10.1016/j.gloenvcha.2018.12.003>
- Abraham, J. (2018, September 26). New research shows the world’s ice is doing something not seen before. *The Guardian*. Retrieved September 29, 2018, from <https://www.theguardian.com/>

¹²See also Chap. 2.

- environment/climate-consensus-97-per-cent/2018/sep/26/new-research-shows-the-worlds-ice-is-doing-something-not-seen-before
- Anderson, R. (2009). The business logic of sustainability. *TED talk*, May 18, 2009. Retrieved September 5, 2018, from https://www.youtube.com/watch?v=iP9QF_IBOyA
- B Lab. (2018a). *A global community of leaders*. Retrieved September 16, 2018, from <https://bcorporation.net/>
- B Lab. (2018b). *B Impact Report*. Danone North America. Retrieved September 28, 2018, from <https://bcorporation.net/directory/danone-north-america>
- B Lab. (2018c). *B Impact Report*. Natura Cosméticos SA. Retrieved September 28, 2018 from <https://bcorporation.net/directory/natura-cosmeticos-sa>
- B Lab. (2018d). *The B Impact Assessment. The most credible tool a company can use to measure its impact on its workers, community, and environment, and customers*. Retrieved October 13, 2018, from <https://bimpactassessment.net/>
- Banerjee, N. (2019, January 30). *U.S. intelligence officials warn climate change is a worldwide threat*. Retrieved February 6, 2019, from https://insideclimatenews.org/news/30012019/world-wide-threat-assessment-climate-change-intelligence-agencies-national-security?utm_source=InsideClimate+News&utm_campaign=7b39b5430e-&utm_medium=email&utm_term=0_29c928ffb5-7b39b5430e-327899757
- Barney, J. B., & Rangan, S. (2019). Editors' comments: Why do we need a special issue on new theoretical perspectives on market-based economic systems? *Academy of Management Review*, 44(1), 1–5.
- Boffey, D. (2018, September 13). A road full of bottlenecks: Dutch cycle path is made of plastic waste. *The Guardian*. Retrieved September 16, 2018, from <https://www.theguardian.com/environment/2018/sep/13/a-road-full-of-bottlenecks-dutch-cycle-path-is-made-of-plastic-waste>
- Breuer, H., Lüdeke-Freund, F., & Brick, C. (2018). Business model innovation in the era of sustainable development goals. In: *The proceedings of XXIX ISPIM conference, Stockholm*. Retrieved September 3, 2018, from https://www.researchgate.net/publication/325904721_Business_Model_Innovation_in_the_Era_of_Sustainable_Development_Goals
- Carrington, D. (2018, October 16). Leaders move past Trump to protect world from climate change. *The Guardian*. Retrieved October 28, 2018, from <https://www.theguardian.com/environment/2018/oct/16/leaders-move-past-trump-to-protect-world-from-climate-change>
- Climate Bonds Initiative. (2019). *Explaining green bonds*. Retrieved March 25, 2019, from <https://www.climatebonds.net/market/explaining-green-bonds>
- Dauvergne, P. (2018). *Will big business destroy our planet?* Cambridge: Polity Press.
- Davenport, C. (2018, October 7). Major climate report describes a strong risk of crisis as early as 2040. *The New York Times*. Retrieved October 13, 2018, from <https://www.nytimes.com/2018/10/07/climate/ipcc-climate-report-2040.html>
- Earth Overshoot Day. (2018). Retrieved September 7, 2018, from <https://www.overshootday.org/>
- Edelman Trust Barometer. (2018). *Global report*. Retrieved September 28, 2018, from http://cms.edelman.com/sites/default/files/2018-02/2018_Edelman_Trust_Barometer_Global_Report_FEB.pdf
- Edenhofer, O., & Rockström, J. (2018, October 5). Charge €30 a tonne for CO2 to avoid catastrophic 4C warming. *The Guardian*. Retrieved October 13, 2018, from <https://www.theguardian.com/environment/2018/oct/05/charge-30-a-tonne-for-co2-to-avoid-catastrophic-4c-warming>
- EDF. (2018, September 13). At global climate action summit, EDF President Fred Krupp to describe constellation of space-based climate solutions. *Environmental Defense Fund*. Retrieved September 16, 2018, from <https://www.edf.org/media/global-climate-action-summit-edf-president-fred-krupp-describe-constellation-space-based>
- Ehrlich, P. R., & Ehrlich, A. H. (2008). *The dominant animal. Human evolution and the environment*. Washington, DC: Shearwater Books.
- Elkington, J. (2019, April 3). On the trail of the Green Swan. The Elkington Report. *GreenBiz*. Retrieved May 26, 2019, from <https://www.greenbiz.com/article/trail-green-swan>
- Ellen MacArthur Foundation. (2018, July 16). *China-EU agreement paves way for global adoption of circular economy*. Retrieved September 10, 2018, from <https://www.ellenmacarthurfoundation.org/news/china-eu-agreement-paves-way-for-global-adoption-of-circular-economy>

- Felber, C. (2015). *Change everything: Creating an economy for the common good*. London: Zed Books.
- Fink, L. (2018). *A sense of purpose, Larry Fink's annual letter to CEOs*. Retrieved May 26, 2019, from <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>
- Fink, L. (2019). *Purpose and profit, Larry Fink's annual letter to CEOs*. Retrieved May 26, 2019, from <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>
- Fleming, S., & Brook, F. (2018, August 15). Swelling clout of US corporate giants is depressing pay, analysts say. *Financial Times*. Retrieved September 11, 2018, from <https://www.ft.com/content/7f88226e-9f0b-11e8-85da-eeb7a9ce36e4>
- George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880–1895.
- Gillis, J., & Harvey, H. (2018, September 14). China should match California's effort to slow climate change. *The New York Times*. Retrieved September 16, 2018, from <https://www.nytimes.com/2018/09/14/opinion/china-california-climate-change.html>
- GIZ. (2018). *Lab of tomorrow*. Retrieved September 3, 2018, from <https://www.lab-of-tomorrow.com/>
- Global Center on Adaptation. (2018, October 16). *Global leaders call for urgent acceleration of climate adaptation solutions*. Retrieved October 28, 2018, from <https://gca.org/global-commission-on-adaptation/commission-news/global-leaders-call-for-urgent-acceleration-of-climate-adaptation-solutions>
- Global Challenges Foundation. (2018). *Risk indicator*. Retrieved September 9, 2018, from <https://globalchallenges.org/en/our-work/risk-indicator>
- Graef, R. (2017). *Ignorance. Everything you need to know about not knowing*. Amherst, NY: Prometheus Books.
- Gyori, C., Sharp, L., Busch, C., Brahmam, M., Kazakova, T., & Gyori, B. (2018). *North Star: Purpose-driven leadership for the 21st century. 2017–2018 Global CEO survey*. Washington, DC: Leaders On Purpose.
- Hansen, J., & Kharecha, P. (2018). Cost of carbon capture: Can young people bear the Burden? *Joule* (2): 8, 15 August 2018, 1405–1407.
- Harari, Y. N. (2017). *Homo dues. A brief history of tomorrow*. New York, NY: Harper Collins.
- Harvey, F. (2018, October 9). 'Tipping points' could exacerbate climate crisis, scientists fear. *The Guardian*. Retrieved October 13, 2018, from <https://www.theguardian.com/environment/2018/oct/09/tipping-points-could-exacerbate-climate-crisis-scientists-fear>
- Hoffman, A., & Ehrenfeld, J. (2015). The fourth wave: Business management and business education in the age of the anthropocene. In E. Lawler, S. Mohrman, & J. O'Toole (Eds.), *Corporate stewardship: Organizing for sustainable effectiveness* (pp. 228–246). Sheffield: Greenleaf Publishing.
- Holden, E., & Milman, O. (2018, September 14). California to launch its 'own damn satellite' to track greenhouse gases. *The Guardian*. Retrieved September 16, 2018, from <https://www.theguardian.com/environment/2018/sep/14/john-kerry-climate-change-california-summit>
- Holder, M. (2019, January 22). *New research finds that ESG screening boosts stock market performance*. Retrieved February 6, 2019, from <https://www.greenbiz.com/article/new-research-finds-esg-screening-boosts-stock-market-performance>
- IPCC. (2015). *Climate change 2014: Synthesis report*. Contribution of Working Groups I, II and III to the fifth assessment report of the intergovernmental panel on climate change [Core Writing Team, R. K. Pachauri & L. A. Meyer (Eds.)], Geneva, Switzerland: IPCC. 151 pp.
- IPCC. (2018). *Global warming of 1.5°C: An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. In V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, C. P. Moufouma-Okia, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, M. T. Maycock, & T. Waterfield (Eds.), Geneva, Switzerland: World Meteorological Organization. 32 pp. Retrieved October 13, 2018, from <http://www.ipcc.ch/report/sr15/>

- Jackson, T. (2016). *Prosperity without growth: Foundations for the economy of tomorrow* (2nd ed.). Abingdon: Routledge.
- Jolly, J. (2019, May 21). World's biggest investor accused of dragging feet on climate crisis. *The Guardian*. Retrieved May 26, 2019, from <https://www.theguardian.com/business/2019/may/21/blackrock-investor-climate-crisis-blackrock-assets>
- LanzaTech. (2018, July 4). *UK Government Grant to Develop World First Waste Carbon to Jet Fuel Project*. Retrieved October 13, 2018, from <http://www.lanzatech.com/lanzatech-virgin-atlantic-secure-uk-government-grant-develop-world-first-waste-carbon-jet-fuel-project-uk/>
- Loan Market Association. (2018, March 21). *The LMA publishes Green Loan Principles. Press release*. Retrieved September 10, 2018, from <https://www.lma.eu.com/news-publications/press-releases?id=146>
- Markman, A. (2018, October 11). Why people aren't motivated to address climate change. *Harvard Business Review*. Retrieved October 13, 2018, from <https://hbr.org/2018/10/why-people-arent-motivated-to-address-climate-change>
- Marshall, G. (2013). *Don't even think about it. Why our brains are wired to ignore climate change*. New York: Bloomsbury.
- Maxton, G., & Randers, J. (2016). *Reinventing prosperity. Managing economic growth to reduce unemployment, inequality, and climate change*. Vancouver/Berkeley: Greystone Books.
- McDuff, P. (2018, July 31). Climate change denial won't even benefit oil companies soon. *The Guardian*. Retrieved September 9, 2018, from <https://www.theguardian.com/commentisfree/2018/jul/31/climate-change-denial-oil-companies-fossil-fuels>
- McNabb III, F.W. (2017, August 31). *An open letter to directors of public companies worldwide*. Retrieved September 28, 2018, from <https://about.vanguard.com/investment-stewardship/governance-letter-to-companies.pdf>
- Milillo, P., Rignot, E., Rizzoli, P., Scheuchl, B., Mouginot, J., Bueso-Bello, J., & Prats-Iraola, P. (2019). Heterogeneous retreat and ice melt of Thwaites Glacier, West Antarctica. *Science Advances*, 5(1), eaau3433. Retrieved February 2, 2019, from <http://advances.sciencemag.org/content/5/1/eaau3433>
- Mintzberg, H. (2015). *Rebalancing society. Radical renewal beyond left, right, and center*. Oakland, CA: Berrett-Koehler.
- Mintzberg, H., Etzion, D., & Mantere, S. (2018, Fall). Worldly Strategy for the Global Climate. *Stanford Social Innovation Review*, 16(4), 42–47.
- Mooney, C. (2018, September 22). Arctic Cauldron. Across the Arctic, lakes are leaking dangerous greenhouse gases. And one lake is behaving very strangely. *The Washington Post*. Retrieved September 29, 2018, from https://www.washingtonpost.com/graphics/2018/national/arctic-lakes-are-bubbling-and-hissing-with-dangerous-greenhouse-gases/?noredirect=on&utm_term=.572140e61f83
- Mooney, C., & Dennis, B. (2018, October 7). The world has just over a decade to get climate change under control, U.N. scientists say. *The Washington Post*. Retrieved October 13, 2018, from https://www.washingtonpost.com/energy-environment/2018/10/08/world-has-only-years-get-climate-change-under-control-un-scientists-say/?noredirect=on&utm_term=.3d3338a80d40
- Ó hÉigeartaigh, S. (2017). *Technological wild cards: Existential risk and a changing humanity*. The Next Step: Exponential Life, BBVA OpenMind Foundation.
- One Planet Summit. (2018). *We can make it happen now!* Retrieved October 13, 2018, from <https://www.oneplanetsummit.fr/en>
- Raskin, P. (2016). *Journey to Earthland. The great transition to planetary civilization*. Boston, MA: Tellus Institute.
- Raworth, K. (2017). *Doughnut economics. Seven ways to think like a 21st-century economist*. London: Random House.
- Reporting 3.0. (2018). *Projects overview*. Retrieved September 10, 2018, from <https://reporting3.org/projects/>
- Resplandy, L., Keeling, R. F., Eddebbar, Y., Brooks, M. K., Wang, R., Bopp, L., Long, M. C., Dunne, J. P., Koeve, W., & Oschlies, A. (2018). Quantification of ocean heat uptake from changes in atmospheric O₂ and CO₂ composition. *Nature*, 563, 105–108.

- Romm, J. (2018, September 21). Electric car batteries' 'second life' could be a clean energy game-changer. *ThinkProgress*. Retrieved September 29, 2018, from <https://thinkprogress.org/how-used-electric-car-batteries-will-turbocharge-the-renewables-revolution-4baf33d4b15f/>
- Rushe, D. (2018, August 16). US bosses now earn 312 times the average worker's wage, figures show. *The Guardian*. Retrieved September 11, 2018, from <https://www.theguardian.com/business/2018/aug/16/ceo-versus-worker-wage-american-companies-pay-gap-study-2018>
- Samuelson, R.J. (2018, September 9). Why we don't prepare for the future. *The Washington Post*. Retrieved on September 10, 2018 from https://www.washingtonpost.com/opinions/why-we-dont-prepare-for-the-future/2018/09/09/cb91cc34-b2c3-11e8-aed9-001309990777_story.html?noredirect=on&utm_term=.de6272243d4c
- Sorkin, A.R. (2018, January 15). BlackRock's Message: Contribute to society, or risk losing our support. *The New York Times*. Retrieved September 11, 2018, from <https://www.nytimes.com/2018/01/15/business/dealbook/blackrock-laurence-fink-letter.html>
- State Street. (2018). *Environmental sustainability*. Retrieved September 28, 2018, from <http://www.statestreet.com/values/environmental-sustainability.html>
- Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., Folke, C., Liverman, D., et al. (2018, August). Trajectories of the Earth System in the Anthropocene. *Proceedings of the National Academy of Sciences*, 115(33), 8252–8259. <https://doi.org/10.1073/pnas.1810141115>. Retrieved September 5, 2018, from <http://www.pnas.org/content/115/33/8252>
- Stern, N. (2018, October 8). We must reduce greenhouse gas emissions to net zero or face more floods. *The Guardian*. Retrieved October 13, 2018, from <https://www.theguardian.com/environment/2018/oct/08/we-must-reduce-greenhouse-gas-emissions-to-net-zero-or-face-more-floods>
- Sukhdev, P. (2012). *Corporation 2020. Transforming business for tomorrow's world*. Washington, DC: Island Press.
- The Club of Rome. (2018). *The club of Rome climate emergency plan: A collaborative call for climate action*. By members of the club of Rome: Sandrine Dixon-Declève, Ian Dunlop, Anders Wijkman with support from Martin Hedberg & Till Kellerhoff, Winterthur, Switzerland. Retrieved February 6, 2019, from https://www.clubofrome.org/wp-content/uploads/2018/12/COR_Climate_Emergency_Plan.pdf
- The Natural Step. (2018, May 8). *The natural step chemical coalition*. Retrieved September 16, 2018, from <https://thenaturalstep.org/blog/2018/05/08/the-natural-step-chemical-coalition/>
- The World Counts. (2018). *World facts*. Retrieved September 7, 2018, from http://www.theworldcounts.com/themes/our_environment
- Tirone, J. (2019, January 23). *Pentagon fears confirmed: Climate change leads to more wars and refugees*. Bloomberg. Retrieved January 29, 2019, from <https://www.bloomberg.com/news/articles/2019-01-23/pentagon-fears-confirmed-climate-change-leads-to-war-refugees>
- TWI2050—The World in 2050. (2018). *Transformations to achieve the sustainable development goals*. Report prepared by The World in 2050 initiative. International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. www.twi2050.org. Retrieved October 28, 2018, from <http://pure.iiasa.ac.at/id/eprint/15347/>
- U.S. Department of Defense. (2014). *Climate change adaption roadmap*, June 2014. Retrieved September 9, 2018, from https://www.acq.osd.mil/eie/downloads/CCARprint_wForward_e.pdf
- U.S. Department of Defense. (2018). *Climate-related risk to DoD Infrastructure Initial Vulnerability Assessment Survey (SLVAS) report*, January 2018. Retrieved September 9, 2018, from <https://climateandsecurity.files.wordpress.com/2018/01/tab-b-slvas-report-1-24-2018.pdf>
- von Weizsäcker, E. U., & Wijkman, A. (2018). *Come on! Capitalism, short-termism, population and the destruction of the planet – A report to the Club of Rome*. New York, NY: Springer.
- Watts, J. (2018, August 21). Arctic's strongest sea ice breaks up for first time on record. *The Guardian*. Retrieved on September 9, 2018, from <https://www.theguardian.com/world/2018/aug/21/arctics-strongest-sea-ice-breaks-up-for-first-time-on-record>
- Watts, J. (2019, January 24). Military buildup in Arctic as melting ice reopens northern borders. *The Guardian*. Retrieved January 29, 2019 from <https://www.theguardian.com/world/2019/jan/24/military-buildup-in-arctic-as-melting-ice-reopens-northern-borders>

- We Mean Business. (2018). *Leading companies are committing to bold climate action through the coalition partners' initiatives*. Retrieved September 16, 2018, from <https://www.wemeanbusinesscoalition.org/>
- Willis, M. J., Zheng, W., Durkin, W. J., IV, Pritchard, M. E., Ramage, J. M., Dowdeswell, J. A., et al. (2018, November 15). Massive destabilization of an Arctic ice cap. *Earth and Planetary Science Letters*, 502, 146–155.
- WWF. (2018). *Living planet report – 2018: Aiming higher*. M. Grooten & R. E. A. Almond (Eds.), Gland, Switzerland: WWF. Retrieved February 6, 2019, from https://www.panda.org/knowledge_hub/all_publications/living_planet_report_2018/

Thomas Wunder spent more than a decade of his career as a strategy consultant and business leader for Horváth & Partners Management Consultants in both the EU and USA where he was in charge of operations for 6 years. He was associated with the Balanced Scorecard Collaborative (BSCol) in Boston and its thought leaders, Harvard Business School professor Robert S. Kaplan and David P. Norton. Later he became an affiliate of the North Highland Company in Atlanta, where he helped to build Cordence Worldwide, a large-scale global alliance of local consulting firms with over 2800 experts in more than 65 offices today. In all these years, Thomas supported executive leadership teams of MNCs improving their strategy processes at various organizational levels to drive top and bottom line performance.

In 2010, Thomas transitioned to academia as a full professor of Strategic Management at the Neu-Ulm University of Applied Sciences in Bavaria, Germany, where he is leading the Master of Advanced Management program. Since then he has dedicated his research, writing, and teaching to the integration of corporate strategy with sustainability, which is summarized in his book *Essentials of Strategic Management. Effective Formulation and Execution of Strategy* (2016). He also edited the practitioner-oriented German book *CSR und Strategisches Management* (2017) for Springer and has published a number of articles and book chapters. Thomas seeks to provide current and future business leaders with practically actionable and impactful science-based knowledge for strategizing toward a thriving future for both business and society. Knowing that a great portion of strategies fail due to poor execution, he puts special emphasis on the translation of strategies into action, both in regional and international cross-organizational settings.

Thomas has taught strategy at various globally recognized universities. He has spoken at international academic conferences, including *Strategic Management Society (SMS)*, *Academy of Management (AOM)*, and *Sustainability, Ethics and Entrepreneurship (SEE)* as well as a number of practitioner-oriented symposia. Thomas received his doctorate in the field of Strategic Management from the European Business School (EBS) in Germany. He earned a master's degree in Business Management and Industrial Engineering (Dipl.-Wirtsch.-Ing.) studying at the University of Kaiserslautern (Germany) and the University of Birmingham (England). Thomas lives with his wife and two children in the Alpine foothills of Southern Germany.