CHAPTER 2: INNOVATION FOR SUSTAINABILITY: SCEPTICAL, PRAGMATIC, AND IDEALIST PERSPECTIVES ON THE ROLE OF BUSINESS AS A DRIVER FOR CHANGE

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Abstract: Business-originated innovation activities are increasingly seen as a driver for resolving global challenges in environmental and social issues. At best, innovation for sustainability—or sustainability-oriented innovation—is a way for firms to improve their competitiveness while also facilitating the greater good. Research and practice have shown that both facilitating and constraining forces are at play for businesses to actually adopt such a role. This chapter adopts the systems view to examine the issue through three perspectives: sceptical, pragmatic, and idealist. The system-level dynamics of innovation for sustainability are discussed by reflecting on these perspectives, their merits, their shortcomings, and possible ways forward.

Introduction

There is a strong promise and potential of innovation for sustainability. It includes themes such as sustainable business models (Boons & Lüdeke-Freund 2013; Bocken et al., 2014), sustainability-oriented innovation (Adams et al., 2016), sustainability transitions (Markard et al., 2012), and shared value (Porter and Kramer, 2011). The common thread in many of these discussions is the hope that the private sector, together with other organizations and institutions, can develop solutions that resolve the grand challenges, such as climate change, social inequality, and environmental degradation. As firms control most of the productive resources globally available (Porter and Kramer, 2011), it makes sense to look for answers to sustainability problems from the innovative pursuits and new technologies pushed forward by companies.

However, there are many criticisms of corporate sustainability and related innovation. For instance, Shevchenko et al. (2016) critically examine the discrepancy between what the academic literature says about sustainability and how sustainability is actually practiced. They find that firms tend to

incrementally offset negative environmental and societal impacts, rather than eliminate them. This is especially true for large firms, which face structural constraints and major challenges in transitioning to new sustainable business models (see also Hockerts and Wüstenhagen, 2010; Schaltegger et al., 2016; Ritala et al., 2018). These arguments are further supported by powerful criticisms of corporate social responsibility and shared value initiatives in that they miss the inherent tension between corporate profit-seeking and social and environmental issues (Banerjee, 2008, 2010; Devinney, 2009; O'Toole and Vogel, 2011; Crane et al., 2014).

I argue that we need to take a step back and take a broader view on how firms can (or cannot) contribute to sustainable innovation. If innovations are examined only in their local context (e.g., whether a new technology improves energy efficiency), we are not able to understand whether they lead to actual improvements in the global context. Some literature incorporates this view. For instance, Adams et al. (2016) examine sustainability-oriented innovation (SOI) with a framework that distinguishes between "operational optimization", "organizational transformation", and "systems building". Of these types of innovation, the first one reduces harm, the second one creates shared value, and the last one creates net positive impact, and reaches beyond the firm to enable institutional change. It is quite obvious that we need all these types of innovation, but only the last can be recognized as "truly sustainable" (see also Shevchenko et al., 2016). Relatedly, Markard et al. (2012) review the literature on sustainability transitions. This literature recognizes that technological and social developments are embedded in complex relationships, which develop over time in national and global contexts.

Therefore, in analyzing "innovation for sustainability", it is essential to look at the big picture, given the highly interconnected nature of technological development and social progress in socio-technical transitions (Geels, 2010; Markard et al., 2012; Schaltegger et al., 2016). For instance, in analyzing individual innovations that have sustainability-related motivations, they still might end up having negative system-level outcomes (for instance, the "rebound effect" of sharing economy business models, see Acquier et al., 2017). Although companies might have the best intentions, when we look at the economy as an interconnected and evolving system, we realize that is difficult and sometimes impossible for individual economic actors to assess the outcomes of their activities within the system.

Here, I critically reflect the emerging paradigm of "innovation for sustainability" via *complex adaptive systems* lenses. Complex adaptive systems involve components (e.g., individuals or organizations) that interact with each other, adapt or learn through these interactions, and self-organize without being controlled or managed by any singular entity (Holland, 1995). Although sustainable innovation has been viewed from complex adaptive systems lenses within a firm-level analysis (see Iñigo and Albareda,

2016), I adopt here the broader perspective of "complexity economics" (Beinhocker, 2006). Analysis of this level views the global economy as a complex adaptive system, following similar evolutionary patterns as biological ecosystems (see also Mittleton-Kelly, 2003). Economic, social, and ecological systems are fundamentally interconnected, and changes are one component of any of these systems that have effects on other parts of the system, as well as other systems, creating *coevolutionary* development trajectories (see e.g. Schaltegger and Lüdeke-Freund, 2016). From the innovation perspective, this means that improvements in one part of the system might create benefits in other parts as well, but these interdependencies might also be negative. Complex systems often involve feedback mechanisms, such as rebound effects (e.g., seemingly sustainable innovation creates more demand, and total consumption rises), positive and negative externalities, and unpredictable non-linear developments.

In this chapter, I critically reflect *when and if private-sector driven sustainable innovation is actually "sustainable" from a systems perspective*. Given the complexity of the topic, I do not aim to propose simple solutions. Instead, I briefly discuss the issue from sceptical, pragmatic, and idealist perspectives, portraying the viewpoints reflected in the current sustainability and innovation literature. This categorization is my own, and does not necessarily reflect the worldview of the cited authors and works, nor represents the state-of-the art in its entirety. In any case, this categorization helps to explicate the different potential stances toward innovation for sustainability. It purposefully contrasts scepticism and idealism as the extreme positions, while the "middle road" of pragmatism adopts less normative stances and focuses on the contextual heterogeneity and diversity of the topic as it appears in the empirical reality (on pragmatism, see e.g. Almeder, 2007). Table 2.1 summarizes them up-front, and more detailed discussions ensue in the following sections.

Table 2.1 Sceptical, pragmatic, and idealist perspectives on innovation for sustainability

	Sceptical perspective	**Pragmatic perspective**	**Idealist perspective**
Key tenets	Innovation for sustainability is ultimately constrained by the systemic constraints of a capitalist society Vicious cycles of social and ecological degradation and inequality are likely Representative studies: Vogel (2005); Frynas, (2005); Shevchenko et al. (2016)	Innovation for sustainability can create progress and synergy, but is highly varied Overall progress takes place, while this is highly heterogeneous across geographic, institutional, and organizational contexts Representative studies: (Boons and Lüdeke-Freund, 2013; Bocken et al., 2014)	Innovation for sustainability resolves global problems, and is inevitable Virtuous, net-positive cycles across economic, environmental, and social domains are assumed Representative studies: Hart and Christensen, (2002); Falk and Ryan (2007); Porter and Kramer (2011)
Innovation outcome	Gradual improvements in environmental and social aspects, with the main focus on economic performance	Innovations that are socially and/or environmentally more sustainable, including varying levels of synergies with economic performance	Triple-bottom-line innovation (simultaneous improvement in economic, social, and environmental dimensions)
System-level dynamics in the economic domain	Innovation creates more demand and subsequent supply, even if the number of sustainable solutions increases	Sustainable innovation gains in market share; economic losses ensue for some unsustainable market actors	Sustainable innovation outpaces other alternatives; reduction in total consumption; degrowth in some areas
System-level dynamics in the environmental domain	Increase in total consumption creates continuing demand for non-renewable resources; overall environmental degradation continues	Slowing pace of environmental degradation; deviation of local improvements	The usage of non-renewable raw materials drops considerably; environmental ecosystems regenerate
System-level dynamics in the social domain	Increasing inequality across the value chains; rapid polarization of global and local wealth	Local improvements in stakeholder conditions; polarization between regions and economies continues gradually	Overall improvement of stakeholder conditions; social equality improves globally

The sceptical perspective

The sceptical perspective on innovation for sustainability departs from the assumption that gradual improvements in environmental and social aspects are possible, but the majority of private-sector innovation activity focuses on economic performance and growth. Thus, this perspective involves scepticism toward whether "environmental and social sustainability" can actually be a goal that the current economic order can support. Therefore, this perspective ultimately recognizes the classical economist worldview of *homo economicus*: individuals as profit-maximizers, and similarly, firms and their owners largely following profit-maximizing goals and putting those ahead of any other goals. Vogel (2005) summarizes this view by stating that "unfortunately there is no evidence that behaving more virtuously makes firms more profitable … the market for virtue is not sufficiently important to make it in the interest of all firms to behave more responsibly".

There are many good reasons to believe that this view is at least partially accurate (for discussions, see e.g. Husted and Salazar, 2006; Hawn et al., 2018). If we look at near-term history, economic profit has been the leading force of innovation, for small and large firms. From this perspective, sustainable innovation of any kind needs to be viewed very critically, as the implications tend to be incremental and prioritize economic growth (see also Shevchenko et al., 2016). In addition, several authors suggest that many initiatives designed to integrate economic, social, and environmental aspects might end up skewed toward the first one. For instance, Morrison-Saunders and Fischer (2010) criticize the tendency of contemporary, integrated sustainability assessments by companies to ultimately favor tradeoffs toward socio-economic benefits at the expense of the environment (see also Fonseca et al., 2016). Furthermore, some authors warn about relying too much on "technological fatalism" (see Arias-Maldonado, 2016), given that the sustainability challenges are unlikely to be resolved merely via isolated technological solutions. Finally, Frynas (2005) points out that despite local improvements, companies' sustainability initiatives often remain local and fail to address macro-level effects and contexts.

In the *economic* domain, a sceptical perspective views sustainable innovation potentially as a double-edged sword at the system level. For instance, Acquier et al. (2017) refer to the "rebound effect" that creates a paradoxical context for sharing economy business models. As new innovations emerge that pursue sharing resources more efficiently, this sharing might lead to overindulgence of those resources, and even end up increasing the total demand. Similar dynamics is easy to expect with other categories of sustainable innovation. Innovation, in general, creates more demand for new products and services, as

witnessed in technology-push literature (Dosi, 1988). Even if much of the innovation space is intangible today, it might be unavoidable that new products, services, and interaction are introduced in the markets. Coupled with the rising purchasing power of the increasing number of new consumers across the world, the overall effect of increasingly sustainable production might still result in a rapid increase in supply and demand.

From the *environmental* viewpoint, this type of development is a particularly bad scenario. From the systems perspective, the overall rise in consumption might well lead to continuing demand for non-renewable resources, as well as environmental degradation. This demand is certainly being witnessed at the moment, despite the good attempts made by national and supra-national policy initiatives. Several sources argue that environmental sustainability is unlikely to be attained with growing production (Hueting, 2010; Jackson and Senker, 2011). Therefore, from a sceptical perspective, innovation (even if "sustainable") might lead to the vicious circle of growing production and related environmental harm.

On the *social* side, the sceptical perspective expects rising inequality across value chains, as well as rapid polarization of global and local wealth. Stiglitz (2012) provides a thorough critique of the market economy in this regard. According to him, even when markets are stable, they tend to lead to increasing levels of inequality. Although this has long a problem in developing economies, Stiglitz notes that it is increasingly a problem in Europe and the United States. Piketty (2014) further argues that as investment profits are growing at a faster pace than wages, the increasing trend of inequality is built in the current system, and typically corrected only through major crisis events, such as world wars. Innovations and related growth might do little to resolve inequality and other social problems.

The pragmatic perspective

The pragmatic perspective adopts a middle ground between the sceptical outlook on institutional and organizational constraints for sustainability and the optimism surrounding new initiatives, innovations, and technologies. Thus, the pragmatic perspective recognizes that innovation and technological development in general can solve environmental and social issues, and that there might be synergies among ecological and social development and economic performance (e.g., Tang et al., 2012). For instance, the emerging literature of sustainable business models provides a host of examples where firms adopt competitive strategies that rely—at least partly—on environmental and social innovation (Boons and Lüdeke-Freund, 2013; Bocken et al., 2014; Ritala et al., 2018).

From the *economic* point of view, a pragmatic approach recognizes that there will be major contextual and local differences in the success of sustainable innovation. In many fields, sustainable innovations will achieve market share and gain competitive advantages (Bocken et al., 2014), which ends up generating economic losses to "unsustainable actors". This transformation process will reconfigure the global economy, but major differences will remain across industries and countries. In addition, the recognition of the economic merits of sustainable innovation is likely to be slow and gradually develop prominence among business owners and investors (see e.g. Hawn et al., 2018).

Similarly, for *environmental* issues, innovations can significantly slow the pace of environmental degradation, but there will still be regions where the institutional forces or mere population growth curves support less favorable development. In addition, as there are major differences in cultural and institutional support for environmental issues across contexts (Gelissen, 2007), this is likely to also reflect on the types of innovation adopted and seemed (il)legitimate. In practice, we are currently witnessing major deviations between different environmental policies and consumption habits within developed and emerging markets, as well as the development of business-originated "eco-innovations".

For *social* progress, it is pragmatic to assume that there will still be increasing polarization between different regions, even if innovation might enable some previously neglected regions to flourish (Anderson and Billou, 2007; Prahalad, 2012). Overall, the developments in economic, social, and ecological systems will lead to a world where some regions will benefit, some societies will grow more equal and prosperous, while some will spiral further into a worse outlook. Innovation for sustainability has the potential to either accelerate this development (given that its adoption varies) or to increase global equality in terms of, for example, working conditions and fair pay (see e.g. Porter and Kramer, 2011).

The idealist perspective

The idealist perspective assumes that innovations in technologies, business models, and consumption habits can overturn the current negative effects and ignite the economy-ecology-society link in a virtuous cycle. In essence, such "triple-bottom-line" innovation is the ideal form of innovation, given its benefits for all domains. Some authors suggest that such *systems transformation* is the most advanced level of sustainability-oriented innovation, and at the same time, the most challenging (Adams et al., 2016). An idealist perspective departs from the notion that such systems transformations are not only possible but also are effectively adopted globally in different industries and contexts.

From an *economic* viewpoint, the idealist perspective includes the idea that sustainable innovation and sustainable business models will outpace other alternatives given the superior value propositions to multiple different stakeholders (Schaltegger et al., 2012; Boons and Lüdeke-Freund, 2013). This, in turn, leads to system-wide improvements in different facets of global sustainability. In the idealist perspective, even the idea of *degrowth* might be possible in some segments of the economy. Degrowth refers to "equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term" (Schneider et al., 2010, p. 511). For instance, Hueting (2010) points out that there is no fundamental conflict between employment and the environment, as "the production and consumption of the same amount of goods require more labour with safeguarding the environment than is required without" (p. 529). Further, it is obvious that less material production is beneficial to ecological systems. However, degrowth in itself is a highly contested issue, and stands against many of the mainstream economic practices that rely on rising production and overall gross domestic product (GDP) growth (for discussion, see e.g. Jackson and Senker, 2011; Van den Borgh, 2011). Therefore, alternatively, policies and practices could be directed toward growth that is non-resource-consuming (e.g., intangible services and knowledge-based value creation) and therefore, would not contest mainstream economic ideas of the importance of growth. However, in an ideal world, both types of economic development (degrowth and sustainable growth) could take place in different contexts.

In *environmental* terms, the idealist perspective offers the promise of innovation and technological development as a solution to ecological challenges. For instance, Falk and Ryan (2007) argued that moving toward more innovations driven by information and communication technology (ICT) will create more possibilities for smarter production and consumption, and more intangible value creation in general. Other authors expect that the progress in solar and other renewable energy technologies will accelerate to such a pace that these technologies could rapidly replace non-sustainable alternatives, resolving the current energy and environmental crises (see Meneguzzo et al., 2015). The most radical voices expect that technological innovation can even reverse climate change, for example, through carbon dioxide capture technologies (see e.g. Tokarska and Zickfeld, 2015).

Several authors have also advocated the power of business-originating innovation in resolving *social* issues. The concept of "shared value" in particular has been used in arguments that businesses can create economic value by resolving different social problems, including the argument that such models could very well be scalable (see Porter and Kramer, 2011). Further, innovation has been seen as a way to reduce global inequality. Famously, Hart and Christensen (2002) advocate "the great leap" and argue that

multinational corporations could roll out disruptive innovation in emerging markets that could be sustainable from the outset and empower local populations. Similar suggestions have been discussed with various types of innovation, including microfinance, distributed energy production, and local food production, among others. Finally, the most radical voices expect technological progress to be able to replace human labor, and simultaneously, guarantee wealth for everyone, given the right political choices (Brynjolfsson and McAfee, 2014).

Conclusion

Viewing the global economy as a complex adaptive system (Beinhocker, 2006) allows a reflective, system-level examination of innovation for sustainability. In this chapter, I discussed the sceptical, pragmatic, and idealist perspectives on how sustainable innovation has been viewed, and what types of system-level implications are involved. The *sceptical perspective* relates to pessimism about businesses and the overall capitalist system to provide enough incentives for sustainability-oriented innovation. Here, firms' actions follow profits, and often, the tradeoffs among economic, environmental, and social issues tend to tilt to the advantage of the first one. The *pragmatic perspective* avoids the normative stances and embraces heterogeneity among the broader system or actors, technologies, and institutions. Local differences in sustainability aspirations and capabilities are huge to begin with, and in a co-evolutionary manner, these differences might easily continue increasing. The pragmatic stance assumes that the progress of sustainable innovation will continue, but the road will be heterogeneous, non-linear, and unpredictable. Finally, the *idealist perspective* leans on the promise of synergetic forces among economic, environmental, and social domains. Mutually reinforcing dynamics of business success of sustainable innovation coupled with supportive policy regimes might enable a "virtuous cycle", and allow to resolve major global challenges.

My own take on this matter is that we need all these perspectives to move forward with innovation for sustainability. Without criticism and scepticism, we lack reflexivity on what is truly sustainable. Without realism, we might end up going overboard with our own assumptions—positive or negative. And without idealism, we might lack entrepreneurial drive and innovative initiatives that lead to progress in the first place. In practice, the future is likely to be increasingly complex, with major regional differences. Ultimately, it is up to business and policy, as well as scholarly inquiry, to combine these perspectives in unlocking the system-level potential of sustainability.

References

Adams, Richard, Sally Jeanrenaud, John Bessant, David Denyer, and Patrick Overy. "Sustainability-oriented innovation: a systematic review." *International Journal of Management Reviews* 18, no. 2 (2016): 180-205.

Acquier, Aurélien, Thibault Daudigeos, and Jonatan Pinkse. "Promises and paradoxes of the sharing economy: An organizing framework." *Technological Forecasting and Social Change* 125 (2017): 1-10.

Anderson, Jamie, and Niels Billou. "Serving the world's poor: innovation at the base of the economic pyramid." *Journal of Business Strategy* 28, no. 2 (2007): 14-21.

Almeder, Robert. "Pragmatism and philosophy of science: A critical survey." *International Studies in the Philosophy of Science* 21, no. 2 (2007): 171-195.

Arias-Maldonado, Manuel. Nature and the Anthropocene: The sense of an ending?. In Pattberg, P. & Zelli, F. (Eds.) *Environmental Politics and Governance in the Anthropocene* (pp. 45-60). London: Routledge. 2016.

Banerjee, Subhabrata Bobby. "Corporate social responsibility: The good, the bad and the ugly." *Critical Sociology* 34, no. 1 (2008): 51-79.

Banerjee, Subhabrata Bobby. "Governing the global corporation: A critical perspective." *Business Ethics Quarterly* 20, no. 2 (2010): 265-274.

Beinhocker, Eric D. *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*. Harvard Business Press, 2006.

Bocken, Nancy MP, Samuel W. Short, P. Rana, and Steve Evans. "A literature and practice review to develop sustainable business model archetypes." *Journal of Cleaner Production* 65 (2014): 42-56.

Boons, Frank, and Florian Lüdeke-Freund. "Business models for sustainable innovation: state-of-the-art and steps towards a research agenda." *Journal of Cleaner Production* 45 (2013): 9-19.

Brynjolfsson, Eric, and Andrew McAfee. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. WW Norton & Company, 2014.

Crane, Andrew, Guido Palazzo, Laura J. Spence, and Dirk Matten. "Contesting the value of "creating shared value"." *California management review* 56, no. 2 (2014): 130-153.

Devinney, Timothy M. "Is the socially responsible corporation a myth? The good, the bad, and the ugly of corporate social responsibility." *The Academy of Management Perspectives* 23, no. 2 (2009): 44-56.

Dosi, Giovanni. The Nature of the innovative process. In. Dosi, Giovanni. et al. (Eds.) *Technical change and Economic Theory*, pp 221–235. Pinter, London, 1988.

Falk, Jim, and Chris Ryan. "Inventing a sustainable future: Australia and the challenge of eco-innovation." *Futures* 39, no. 2-3 (2007): 215-229.

Fonseca, Alberto, Mary Louise McAllister, and Patricia Fitzpatrick. "Sustainability reporting among mining corporations: a constructive critique of the GRI approach." *Journal of Cleaner Production* 84 (2014): 70-83.

Frynas, Jedrzej George. "The false developmental promise of corporate social responsibility: Evidence from multinational oil companies." *International affairs* 81, No. 3 (2005): 581-598.

Geels, Frank W. "Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective." *Research Policy* 39, no. 4 (2010): 495-510.

Gelissen, John. "Explaining popular support for environmental protection: A multilevel analysis of 50 nations." *Environment and Behavior* 39, no. 3 (2007): 392-415.

Hart, Stuart L., and Clayton M. Christensen. "The great leap: Driving innovation from the base of the pyramid." *MIT Sloan Management Review* 44, no. 1 (2002): 51.

Hawn, Olga, Aaron K. Chatterji, and Will Mitchell. "Do investors actually value sustainability? New evidence from investor reactions to the Dow Jones Sustainability Index (DJSI)." *Strategic Management Journal* 39, no. 4 (2018): 949-976.

Hockerts, Kai, and Rolf Wüstenhagen. "Greening Goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship." *Journal of Business Venturing* 25, no. 5 (2010): 481-492.

Holland, John. H. *Hidden Order: How Adaption Builds Complexity*. Reading MA: Addison-Wesley, 1995.

Hollender, Jeffrey. (2015). Net positive: The future of sustainable business. *Stanford Social Innovation Review* 29, April 2015.

Hueting, Roefie. "Why environmental sustainability can most probably not be attained with growing production." *Journal of Cleaner Production* 18, no. 6 (2010): 525-530.

Husted, Bryan W., and José de Jesus Salazar. "Taking Friedman seriously: Maximizing profits and social performance." *Journal of Management Studies* 43, no. 1 (2006): 75-91.

Jackson, Tim, and Peter Senker. "Prosperity without growth: Economics for a finite planet". *Energy & Environment*, 22 no. 7 (2011): 1013-1016.

Iñigo, Edurne A., and Laura Albareda. "Understanding sustainable innovation as a complex adaptive system: a systemic approach to the firm." *Journal of Cleaner Production* 126 (2016): 1-20.

Markard, Jochen, Rob Raven, and Bernhard Truffer. "Sustainability transitions: An emerging field of research and its prospects." *Research policy* 41, no. 6 (2012): 955-967.

Meneguzzo, Francesco, Rosaria Ciriminna, Lorenzo Albanese, and Mario Pagliaro. "The great solar boom: a global perspective into the far reaching impact of an unexpected energy revolution." *Energy Science & Engineering* 3, no. 6 (2015): 499-509.

Mitleton-Kelly, Eve. *Complex Systems and Evolutionary Perspectives on Organisations: The Application of Complexity Theory to Organisations*. Elsevier Science, 2003.

Morrison-Saunders, Angus, and Thomas B. Fischer. "What is wrong with EIA and SEA anyway? A sceptic's perspective on sustainability assessment." In *Tools, Techniques and Approaches for Sustainability: Collected Writings in Environmental Assessment Policy and Management*, 221-241, 2010.

O'Toole, James, and David Vogel. "Two and a half cheers for conscious capitalism." *California Management Review* 53, no. 3 (2011): 60-76.

Porter, Michael E., and Mark R. Kramer. Creating shared value. *Harvard Business Review* 89, no. 1/2, (2011): 62-77.

Piketty, Thomas. *Capital in the Twenty-First Century*. Harvard University Press, 2014.

Prahalad, Coimbatore Krishna. "Bottom of the Pyramid as a Source of Breakthrough Innovations." *Journal of Product Innovation Management* 29, no. 1 (2012): 6-12.

Ritala, Paavo, Pontus Huotari, Nancy Bocken, Laura Albareda, and Kaisu Puumalainen. "Sustainable business model adoption among S&P 500 firms: A longitudinal content analysis study." *Journal of Cleaner Production* 170 (2018): 216-226.

Schaltegger, Stefan, Florian Lüdeke-Freund, and Erik G. Hansen. "Business cases for sustainability: the role of business model innovation for corporate sustainability." *International Journal of Innovation and Sustainable Development* 6, no. 2 (2012): 95-119.

Schaltegger, Stefan, Florian Lüdeke-Freund, and Erik G. Hansen. "Business models for sustainability: A co-evolutionary analysis of sustainable entrepreneurship, innovation, and transformation." *Organization & Environment* 29, no. 3 (2016): 264-289.

Schneider, François, Giorgos Kallis, and Joan Martinez-Alier. "Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue." *Journal of Cleaner Production* 18, no. 6 (2010): 511-518.

Shevchenko, Anton, Moren Lévesque, and Mark Pagell. "Why firms delay reaching true sustainability." *Journal of Management Studies* 53, no. 5 (2016): 911-935.

Stiglitz, Joseph E. *The price of inequality: How today's divided society endangers our future*. WW Norton & Company, 2012.

Tang, Zhi, Clyde Eiríkur Hull, and Sandra Rothenberg. "How corporate social responsibility engagement strategy moderates the CSR–financial performance relationship." *Journal of Management Studies* 49, no. 7 (2012): 1274-1303.

Tokarska, Katarzyna B., and Kirsten Zickfeld. "The effectiveness of net negative carbon dioxide emissions in reversing anthropogenic climate change." *Environmental Research Letters* 10, no. 9 (2015): 094013.

Van den Bergh, Jeroen CJM. "Environment versus growth—A criticism of “degrowth” and a plea for “a-growth”." *Ecological Economics* 70, no. 5 (2011): 881-890.

Vogel, David J. "Is there a market for virtue?: The business case for corporate social responsibility." *California management review* 47, no. 4 (2005): 19-45.