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Corporate sustainability has failed: Digitizing regeneration may still save us

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Corporate Sustainability Has Failed:
Digitizing Regeneration May Still Save Us

by Simon J.D. Schillebeeckx

Companies active in the making, moving, and mining of things are typically held responsible for climate change. When we consider the environmental footprint linked to their activities, this interpretation is fairly accurate. However, as I argue in this article, this perspective is not very helpful. For this attribution of responsibility to be beneficial in the face of crisis, it needs to instill a sense of agency, responsibility, and urgency. Yet, it appears that the way in which we have come to define sustainability over the last three decades has created apathy, resignation, and blame-shifting.

> *We need a new sustainability target that does not limit our collective responsibility to the boundaries of our organizations, as carbon footprinting does, but considers the boundaries of employee consumption.*

To successfully tackle climate and biodiversity crises, companies should revisit their understanding of their environmental responsibility and focus on the consumption they enable in their employees. Eventually, that end consumption drives the environmental impact on society. This is especially salient for those companies outside the making, moving, and mining of things. For them, reducing their Scope 1 (internal operations) footprint does not make much of a difference, and they often lack power to meaningfully influence their Scope 2 (electricity) and Scope 3 (supply chain, use phase, and end-of-life treatment) footprints.

Thus, in the absence of a global hierarchical power, we need to rely on the global collective action among companies, governments, and individuals. If companies start setting a different goal for environmental responsibility, we need to empower them to do so in a meaningful way that creates value. This is where digitization plays an important role. With every person connecting to the Internet, and with every piece of the natural world digitized and tokenized, protecting it becomes possible because the value of doing so increases with rising stakeholder demands for action. This new strategy for differentiation is called *regeneration*.

A New Definition of Environmental Responsibility

The old "reduce, reuse, recycle" adage, developed by Dutch politician Ad Lansink in 1979 as a hierarchy of waste treatment, has dominated our understanding of sustainability.[1] But by equating sustainability with the reduction of the negative externalities of our industrial processes, ultimately we are assigning environmental responsibility based on a company's processes. This is meaningful if you are working in the making, moving, or mining of things, but less so if you operate outside of those industries.

Thus, we need a new sustainability target that does not limit our collective responsibility to the boundaries of our organizations, as carbon footprinting does, but considers the boundaries of employee consumption. Think about the carbon footprint of a hedge fund that rents a small office, owns a few computers, and stores its data in the cloud. Getting to carbon neutrality for such a firm is very easy. Buy a few carbon credits in the open market, and you have done your duty. However, if we acknowledge the wealth such firms create for their employees and the consumption patterns this wealth enables, the picture changes drastically. This holds true for most of the service industry.

If the goal is neutrality and our responsibility is determined by carbon footprinting, what is the role of pharma, biotech, law firms, governments, marketing agencies, tech companies, digital nomads, consultancies, healthcare, PR agencies, educational institutions, banks, fintechs, the insurance industry,

brokers, unions, the arts, retailers, and political parties? These sectors (which I loosely refer to as the "service industry") face much less scrutiny from environmentalists, have a low footprint, and have very little ability to meaningfully reduce that footprint.

Alternatively, by defining environmental responsibility in terms of the consumption patterns a company enables, we increase the responsibility of the vast majority of companies in the developed world. Currently, the US GDP from services is about 77%,[2] with employment in the service sector close to 79% of the working population.[3] While some of these service companies can influence their supply chains through sustainable procurement, their ability to do so is contingent on market power.

I thus propose that companies redefine their environmental responsibility as either their production footprint (including Scopes 1, 2, and 3 emissions over which they have real power) or their employees' consumption footprint, whichever is bigger.

Sustainability Beyond the Footprint

If the service industry starts defining its environmental responsibility in terms of its consumption footprint, "reduce, reuse, recycle" can no longer limit the scope of its actions. Even if the service industry somehow succeeds in reducing its production footprint to zero and achieves carbon neutrality, its environmental responsibility would be significantly higher. I suggest the service industry focus on regeneration.

According to a report from Wunderman Thompson, "Regeneration goes beyond sustainability and mitigating harm, to actively restoring and nurturing, creating conditions where ecosystems, economies, and people can flourish."[4] This view is championed by leading authorities across the world. The High Ambition Coalition for Nature and People, a group of geopolitical leaders that includes the European Commission, the UK, France, Japan, and many African and South American countries, promotes the 30x30 goal, which aims to expand the quantum of natural reserves to 30% of the world by 2030.[5]

Meeting this goal will require substantial private sector investment. Indeed, in the lead-up to the *Climate Change Conference of the Parties* (*COP26*) in Glasgow, Scotland, United Nations (UN) Secretary-General António Guterres stated that we are on track to see 2.7 degrees Celsius of warming by the end of the century.[6] The effects would be disastrous.

The "State of Finance for Nature" report from the UN Environment Programme (UNEP) concluded that we need to triple our investment in nature by 2030 and quadruple it by 2050. Currently, the private and public sectors invest respectively US $18 billion and $133 billion per year.[7] Principles for Responsible Investment (PRI) predicts that the market for forestry solutions alone will grow to $800 billion per year by 2050.[8] This may seem like a lot of money but likened to an annual investment of about $1.5 trillion in digital transformation,[9] it seems manageable, especially if doing so can create value for companies joining the regenerative economy.

According to recent research, increasing our natural reserves from the current 11% to 30% would not only benefit natural ecosystems tremendously but also lead to more economic growth.[10] The task is to restore natural ecosystems that have been deteriorating for decades, rewild them, and eventually remove human intervention. So, if companies redefine their environmental responsibility beyond their production footprint, taking action must go beyond "reduce, reuse, recycle." It requires contributing to regeneration.

Lessons from Michael Porter

While environmentalists like me may hope companies will simply heed this message and start financing regeneration, it will not happen without a compelling business logic. Does regeneration make strategic sense? I believe so.

Our approach to sustainability so far has been a one-sided implementation of our most important strategy lessons. Consider Harvard Business School Professor and founding father of strategic management Michael Porter's position on the two generic strategies that lead to competitive advantage: cost leadership and differentiation.[11] Companies have treated sustainability almost exclusively as a cost leadership strategy; by reducing energy consumption, waste, and resource use, companies can cut costs and gain a competitive advantage. As the policy and technological environments evolve, decarbonization becomes even more cost-efficient. Many companies have also tried to use their reductions as a differentiation strategy; however, the sustainability and environment, social, and governance (ESG) accolades companies currently espouse are weak differentiators at best and very rarely merit applause. Yet we applaud companies that do exactly that. Successful differentiation cannot be built on doing "less bad" — it requires "doing good." The strategic

challenge of the next few decades, therefore, will be to turn regeneration into a differentiation strategy, and thus a value appropriation strategy.

Companies that embrace this new vision stand to benefit through improved government and investor relations; higher employee satisfaction, retention, and talent acquisition; and increased customer loyalty and willingness to pay.[12] And, it's important to consider that Millennials and Gen Z are more environmentally aware than previous generations. They want to align their career paths with their values.

Thus, the opportunities to create regenerative strategies that embed positive impacts into products and services are becoming more appealing.[13] This is the area where emerging digital technologies play a crucial role. To understand why and how, we need to revisit the Tragedy of the Commons.[14]

The role of digitization goes beyond enabling the creation of benefit claims.

From Property Rights to Benefit Claims

Garrett Hardin, who coined the term "Tragedy of the Commons," explains that the lack of investment in common pool resources, like nature, happens because individual actors reap the rewards of overexploiting the commons (e.g., allowing one extra cow to graze on the pasture), while only bearing a fraction of the cost in additional environmental damage (i.e., the increased risk of turning the pasture into a desolate, arid desert). The underlying problem is the inability to assign property rights to the commons. Collectively owned resources (e.g., forests or lakes) or unowned resources (e.g., the atmosphere and the oceans) are thus overexploited.

Digital technologies in the convergence ecosystem, however, like blockchain, artificial intelligence, 5G, and the Internet of Things (IoT)[15] enable a bifurcation of property rights and benefit claims. Property rights refer to the legal ownership (or lack thereof) of a specific asset. Benefit claims capture the right to lay claim to the benefits an asset creates, irrespective of the property rights.

For example, digitization enables us to credibly attribute the benefits of a tree to a company without owning that tree. If you wonder about the benefits of a tree, consider the following design assignment: "Design something that makes oxygen, sequesters carbon, fixes nitrogen, distills water, accrues solar energy as fuel, makes complex sugars and food, creates microclimates, changes colors with the season, and self-replicates."[16] How many man-made products can you think of with such impressive features? Benefit claims accrue to the financier of the tree. A digital token proves that Company X paid for its conservation and hence can lay claim to the ecosystem benefits it creates, without being the sole beneficiary of those benefits.

Economies of Information, Value Exchange & Collective Action

The role of digitization goes beyond enabling the creation of benefit claims. Benefit claims can exist on paper. Carbon credits are a well-known form of benefit claims. What is new is the scale and speed with which these new assets can be created and the level of precision they have in terms of the ecosystem benefits they represent. Moreover, they can be layered on top of existing processes. E-commerce platforms are familiar with plug-ins that display contributions toward a positive impact at the moment of checkout. Aviation companies have often given customers the option to buy carbon credits to offset a flight's emissions. But these approaches are not very appealing because they are de facto donations to a company.

With digitization, we can change the attribution of the benefit claim. It can be co-owned by the company and the customer, hence establishing a feeling of "we are in this together." This impact integration can happen in any kind of digital transaction. Digitizing regeneration can thus underpin a powerful differentiation strategy.[17] Next, we examine three types of economies facilitated by digitization and how they are turning benefit claims into a compelling business case.

Let's assume we are indeed going to turn 30% of the earth into natural reserves. How do we make this happen? It will require a lot of data to monitor, report, and verify — what is known as MRV. Add to that a layer of visualization of the impact and you get digital MRV. This will rely on the IoT, remote sensing, machine learning, citizen science, tech platforms, and so on. As the costs of data collection, storage, and analysis have

plummeted, the *economies of information* are making it possible to truly know the state of the natural world.

Yet MRV is not enough. Governments cannot finance the needed investments alone so corporations and individuals will need to step in. This is where benefit claims play a crucial role because if companies can credibly claim they are to thank for an ecosystem benefit, their reputational and brand value increases. Suddenly the economic problems around common pool resources are not that problematic anymore. The proof is in the voluntary market for carbon credits.

Blockchain is beginning to alter the *economics of value exchange*. While the Internet is great at multiplying information, blockchain enables unique, original documentation and the exchange of unique digital assets without the intermediation of a third party, creating efficiencies in many aspects of international trade. Many blockchain projects are emerging in the climate action and biodiversity space thanks to the power of tokenization of benefit claims and the ability to exchange them in a trusted and validated way, so the problems of double selling are all but eliminated, which in turn massively reduces transaction, verification, and contracting costs. Trees, plots of land, ocean segments, and even individual animals can be tagged, tokenized, and "bought" on the blockchain. This purchase does not assign property rights. It assigns benefit claims: you buy the right to claim you are to thank for the ecosystem benefits created by your financial sponsorship.

Once we have accurate and credible data, and a way to exchange benefit claims seamlessly without risk of double selling or government expropriation, an entire market for positive impact can emerge. This market is spurred by *economies of collective action*. Digitization has lowered the coordination costs of collaboration and has increased the ability to have influence beyond the resources one controls. People like Greta Thunberg wield massive influence while controlling virtually no resources. Tech giants build advantages through superior deployment of third-party resources (e.g., cars for Uber, rooms for Airbnb) and maintain their advantages through network effects, not resource ownership.

We do not need a single actor to take responsibility for every natural asset. Companies start weaving regenerative actions into their business transactions, from e-commerce and international trade to digital ads and contracting, from hiring a new person, to adding a new lead in a customer relationship management system. Every digital process can be linked to a micro-sustainability action, every transaction can be imbued with positive impact. Doing so creates micro-fundraising for positive impact, always involving at least two parties and leading to exponential involvement. It is through using these technologies that companies, especially those in the service industry with a limited production footprint, can take environmental responsibility in a way that leads to differentiation and thus superior value appropriation.

Conclusion

Most business leaders are aware of the catastrophic consequences that climate change is about to bring to bear on humanity. Yet we all excel at inaction. Why is that? Most people do not work in sectors that make, move, or mine physical objects. And most who do are not in positions of power. Therefore, our ability to combat climate change appears minimal. We lack both agency (can we act?) and responsibility (who is to blame?), so we have developed apathy to erase the nagging sense of urgency we just cannot shake. What we need is a new definition of environmental responsibility that goes beyond the production footprint and is based on the consumption patterns companies enable because, eventually, end consumption drives the economy. By shifting our understanding of corporate environmental responsibility, we empower millions of organizations to go beyond "reduce, reuse, and recycle" and start thinking seriously about regeneration.

Thus far, we have approached sustainability one-sidedly. Our focus has been on evaluating and reducing our carbon footprint, thus engaging in a cost leadership strategy focused on efficiencies. This approach has disempowered, in my estimation, about 75% of organizations in the developed world. However, companies can also excel through differentiation. Support for regeneration will be a key differentiator for the coming decades. Once we widen our understanding of corporate environmental responsibility to include the consumption patterns we enable in our employees, we will empower a whole new approach to sustainability. We have less than a decade left to prevent our children and grandchildren from growing up in a world that is a lot less livable than the one we inherited. We owe it to ourselves and our offspring to turn apathy into action. Digital regeneration shows the way.

References

[1]"Ad Lansink." Be Waste Wise, accessed October 2021.

[2]"Distribution of Gross Domestic Product (GDP) Across Economic Sectors in the United States from 2000 to 2018." Statista, accessed October 2021.

[3]"Distribution of the Workforce Across Economic Sectors in the United States from 2009 to 2019." Statista, accessed October 2021.

[4]"Regeneration Rising." Wunderman Thompson, 21 April 2021.

[5]"Why 30x30?" High Ambition Coalition for Nature and People, accessed October 2021.

[6]"Paris Climate Deal Could Go Up in Smoke Without Action: Guterres." United Nations (UN), UN News, 17 September 2021.

[7]Mulder, Ivo, et al. "State of Finance for Nature." United Nations Environment Programme (UNEP), 27 May 2021.

[8]"An Investor Guide to Negative Emission Technologies and the Importance of Land Use." Principles for Responsible Investment (PRI), 26 October 2020.

[9]Ozcan, Pinar, and Basak Yakis-Douglas. "Digitalization and Its Strategic Implications for the Multinational Enterprise: The Changing Landscape of Competition and How to Cope with It." In *The Oxford Handbook of International Business Strategy*, edited by Kamel Mellahi et al. Oxford University Press, 2020.

[10]Waldron, Anthony, et al. "Protecting 30% of the Planet for Nature: Costs, Benefits, and Economic Implications." Press release, Campaign for Nature, 8 July 2020.

[11]Porter, Michael E. *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, 1998.

[12]Stafford, Marie, Sarah Tilley, and Ella Britton. "The New Sustainability: Regeneration." Innovation Group/J. Walter Thompson Intelligence, 2018.

[13]Schillebeeckx, Simon J.D., Teemu Kautonen, and Henri Hakala. "To Buy Green or Not to Buy Green: Do Structural Dependencies Block Ecological Responsiveness?" *Journal of Management*, 17 December 2020.

[14]Hardin, Garrett. "The Tragedy of the Commons: The Population Problem Has No Technical Solution; It Requires a Fundamental Extension in Morality." *Science*, Vol. 162, No. 3,859, 13 December 1968.

[15]Lundy-Bryan, Lawrence. "The Convergence Ecosystem." Outlier Ventures, 2018.

[16]McDonough, William. "Cradle to Cradle Design." TED, February 2005.

[17]George, Gerard, Ryan K. Merrill, and Simon J.D. Schillebeeckx. "Digital Sustainability and Entrepreneurship: How Digital Innovations Are Helping Tackle Climate Change and Sustainable Development." *Entrepreneurship Theory and Practice*, Vol. 45, No. 5, 2021.

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