SUSTAINABILITY: POST-PANDEMIC CORPORATE ACCOUNTABILITY

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ABSTRACT: Corporate accountability refers to company performance in "non-financial areas" especially sustainability." Post Pandemic corporate accountability requires actions, decisions, policies which operate "outside the box." The revolutionary Covid19 mRNA vaccines are a clear and timely call to corporate boards to challenge "traditional" approaches to sustainability in the way Moderna and other vaccine manufacturers arrived at their new vaccine sustainability.

Major corporations are already recognizing the potential for reduced commuter activity and trying to take a life-cycle costing approach to changes that may be made as their present contracts for commercial space and office "overhead" are coming up for renewal. Software technology for expanding work at home and integrating with cloud-based scalable video conferencing and remote access systems to engage your customers in your business processes is developing at speed.

This paper is about post pandemic sustainability thinking. We discuss how the capacity to recover from difficulties may be improved in several areas. Indoors, with examples, we consider the impact of inner space as the next corporate frontier – the impact of contagious disease prevention and the culture of office plant propagation. We find the potential for florafelt pocket systems, vertical hydroponic gardens, biowalls, living rooves, and garden treasuries of plants and products from revolutionary science already underway. Socio-ecological system elasticity is considered and the examination of insights on creating sustainability in a warming world.

Focus is on social rearrangement and activity that enhance responses to post-pandemic ecosystem change, that challenge conventional responses to unusual weather events, and the consequences of some socio-ecological changes already undertaken around the world. Examples include changes adopted by the City of Miami to change its tree canopy, the adoption of hardy sedum plants on an 8-acre living roof in Chichester and the future potential from the European eLTER project.

The harvest from post pandemic thinking provides valuable insight for the socio-ecological thinker and many ways to guarantee sustainability in our warming world.

KEYWORDS: *Corporate accountability, social responsibility, sustainability, inner space revolution, socio-ecological thinker*

INTRODUCTION

COVID-19 changed the focus of corporate accountability. Companies are meeting the challenge of still-remote employees, adhering to pandemic guidelines and regulations, weathering critical media issues and "shifting priorities toward equality and justice" (Burns, 2020). The public at large "sees a world with daunting problems—that governments aren't solving" (Economist, 2019). Then quite unexpectedly the mRNA (messenger ribonucleic acid) 'miracle' vaccine appears under the title Moderna (Dyer, 2020) and provides a quite unexpected innovation that can overcome difficulties once considered insoluble and promises . Suddenly miracles are possible, and the public is turning to corporations and expecting corporate accountability. The new technique "beckons a new era for the application of mRNA" and revolutionizes the treatment of disease" (Kwon, 2020).

Corporate accountability refers to company performance in "non-financial areas such as social responsibility and sustainability" (Chen, 2020). Post Pandemic corporate accountability requires actions, decisions, policies which operate "outside the box." The revolutionary Covid19 mRNA vaccines are a clear and timely call to corporate boards to challenge "traditional" approaches to social responsibility and sustainability in the way Moderna and AstraZeneca have presented social responsibility and sustainability.

Major corporations are already recognizing the potential for reduced commuter activity and trying to take a life-cycle costing approach accepting that "**overall, demand for office space will decline"** (Economist, 2020) and noting that surveys by *Deloitte, Barclays, Microsoft* all confirm the impact of remote working on the demand for office space. "A common thread would be 3-2: Monday, Tuesday and Thursday in the office, and Wednesday and Friday at home" (Bloom, 2021). The developing hybrid workplace (WWT, 2021) will take on a broad range of environments. Post Zoom software, cloud-based scalable video conferencing, and remote access systems are developing reports Harvard Business School "as companies that prize innovation" an recognize gains from employees working at home "keep employees out of soul-crushing transit" (Wu, 2021).

PURPOSE OF THIS PAPER

This paper is about post pandemic sustainability thinking. We reflect on the 'miracle' of mRNA, the revolution in vaccine, how "new thinking" offers an existential opportunity, a new capacity, to recognize the many opportunities in our environment that will capture a new social responsibility focused on sustainability led by corporate accountability. This paper shows the huge impact of new thinking on markets. While innovation has a long history "in the digital age this (new thinking) is happening faster than ever before" (Bjorling, 2021).

NEW THINKING: EMERGING TECHNOLOGY

Synthetic mRNA, "the ingenious technology" has powered "the two fastest vaccine trials in the history of science" (Thompson, 2021). Such emerging technologies find new markets, generate innovation, and enhance our human capabilities.

Take a look at 5G, the fifth-generation technology standard for broadband cellular networks, a market that is expected to exceed $1 trillion annually" (Fujitsu, 2021). 5G is supercharging AI (Artificial Intelligence) application providing huge opportunities for customizing intense environments "such as an emergency worker responding to a disaster" (Taulli, 2020) and, when carefully managed, will

"help reduce the impact your company has on the environment" (Gow, 2020).

AI aids corporations to reduce their carbon footprint. The race to "Net Zero" emissions is on. BP's ambition is "to be a net zero company by 2050 or sooner" (BP, 2021). ExxonMobil focuses on "meaningful near-term emission reductions," (Exxon, 2021) and they lead the field of corporate accountability with metrics and targets continuing research on developing, deploying and progressing greenhouse gas reductions on the way to welcoming the "Net Zero" future.

NEW THINKING: INDOORS

Indoors, consider the impact of inner space as the next corporate accountability frontier. The Pandemic has increased the number of workers working remotely and executives confirm "needing less office space in the next three years' (Petrusky, 2020). As most companies develop their hybrid workspace "where a large number of office employees rotate in and out of offices configured for shared spaces" (PwC, 2021), the change in office use will change big city centers, reduce commuter traffic, `constrict growth in urban retail markets, impact city income tax revenues. The "biggest winners" will be the emerging Zoomtowns and Zoomburbs "which are located in low-tax states" (Fulton, 2021).

The new 'indoors' has already commercialized innovation in contagious disease prevention (Wolf et al, 2018), new ideas for healthy office plant propagation (Jen, 2020), and green walls which have been found "to reduce stress and mend mental fatigue" (Mustonen, 2017). Pleated pocket systems, one elegant solution for growing lush living walls, are made from 100% recycled plastic water bottles, are incredibly tough and by recycling plastic waste promote sustainability (Florafelt, 2020). Tower gardens, vertical hydroponic gardens, are already an emerging market for home growing fruit and vegetables.

Tower gardens employ aeroponics, "the process of growing plants in an air or mist environment without the use of soil" (Turner, 2019). NASA's research aboard the spaceship Mir "contributed to rapid growth systems now used on earth" (NASA 2007) For those without 'green fingers' you are using clean technology and you are facilitating the rapid growing of plants using only nutrients and water, and get ready for this – without all that dirty dirt! Plus, modern research has found that aeroponic systems can grow plants three times as fast and can produce up to 30% more harvested food (Turner, 2019). Persuasive visions of these emerging technologies (which will be shown when this paper is presented) are rapidly founding new markets, generating innovation, and enhancing our human capabilities.

NEW THINKING: OUTDOORS

Outdoors new thinking and innovation is hastening markets for "living rooves" as found at the Rolls Royce Factory Chichester England (RR, 2020). Here an 8-acre factory roof is a garden treasury of sedum plants which improves the building insulation and reduces water runoff. The nature of sedum means the plants flowering through the summer "provide a safe habitat for ground-nesting birds away from predators like cats and foxes" and provide "a wonderful environment for nesting skylarks, which were on the decline because of predation" (NYT, 2008). Mention should also be made of the value of this habitat for bees and their pollination for surrounding orchards. Here an example of corporate accountability that meets the target of sustainability.

Digital technology has transformed many a business supply chain and many a

business process. For the horticulture industry the pace quickens, we have left the era of manual inventory management. Inventory control systems, the online ordering processes, has meant the business has evolved and is thriving (Smallman, 2018), digital technology offers businesses a chance to evolve and thrive. It offers all businesses an opportunity to improve accuracy and streamline their internal process much like the tractor did in the production process. This has enhanced, even ordered, tree and bush production.

A OKP K7 Robot vacuum cleans your floors, HOBOT 388 cleans your windows, while the Worx Landroid M 20V mows the lawn (yes including edges), all have GPS and Wi-Fi technology. Farmbot2 is on the way. Farmbot2 will automatically seed, water, weed and harvest plants from a distance. The present Farmbot is a raised-bed garden with a robotic tender, innovative technology is being developed, and the technology "promises to achieve a level of efficiency in food production that a human could never reach" (Marston, 2018).

Powerful visions of these outdoor emerging technologies (which will be shown when this paper is presented) provide new markets, generate innovation, and enhance our human capabilities.

NEW THINKING: HABITAT

We know that "water is life" for some 60% of our body is made of freshwater. National Geographic magazine reminds us that the amount of freshwater on earth "is the same amount as there always has been" but the world's population "has exploded ....leaving the world's water resources in crisis" (Postel, 2020).. People are placing unsupportable stress on freshwater supplies in many areas. California is in severe drought, and climate change threatens the quantity and reliability of rainwater (Meza 2019). Population dynamics, especially growth and migration, contribute to the problem in ways only recently under intense study. There are available solutions and implementing some of those solutions will avert much human suffering (Ganter, 2020). The solutions demand research and development and the innovations come from the collection of knowledge which provides better understanding of the problems. Corporate leadership and "advances in membrane pretreatment systems, energy recovery devices, materials of construction, and hybrid process configurations" show the way to economically competitive treatment options and the promise for a not too distant end to the present freshwater crisis (Pankratz, 2005).

Research on our habitat is full of promise. The good news needs to be shared by corporations and better funded by them. There are splendid opportunities for corporate accountability boasting of gains promoting sustainability. Here are just five examples:

- Japanese researchers have found ways to make plant leaves absorb more carbon dioxide. Still at the experimental stage, a Kyoto University team have found that soaking germinated seeds in a protein solution "raised the number of stomas" and therefore more intake windows inhaling Co2 (Staff, 2009).
- Over the next 20 years, the City of Miami Beach "aims to plant more than 1,300 new shade trees per year" (Vassalo, 2009).. New shade trees (the royal poinciana and gumbo limbo, for example) are intended to reduce heat, uptake carbon and rainwater, and improve air quality. The shade trees, added around existing palms, will make the city more walkable and pleasant. While this is an advance – the choice of trees might be more focused on reducing carbon emissions.

- Restoration of tree forests "remains among the most effective strategies for climate change mitigation" (Bastin et al, 2019). Global tree restoration is seen as the most effective carbon drawdown solution to date. The opportunity for climate change mitigation through global tree restoration exists, but this may not prove attractive to countries who have already cut down forests.
- There are plants, many considered weeds, that can also be included in every corporate strategy to achieve sustainability. "The Bushy variety of cotoneaster works best in areas of heavy traffic" the Guardian newspaper reported and there are many other plants which help to cool buildings and reduce flooding (Guardian, 2021). Millions of acres or roadside across the US National Parks provide one example of global roadside resources which "could be managed as valuable "banks" for carbon sequestration" (Lavelle, 2014). Then there is Spekboom a wonder plant "known as pork bush or elephant's food" (Kirsten, 2019) a plant indigenous to South Africa, until recently ignored for its extraordinary capacity as a "weapon in the fight against climate change.", is our own indigenous wonder plant. Spekboom, a carbon sponge can sequester more than 4 tonnes of carbon dioxide per year per hectare planted, what an opportunity for "green" corporations to work together to seed Spekboom in everyone's garden.

Post pandemic corporations should look for new ideas in "waste." There are so many possibilities which have yet to be marketed and developed. Take coffee pulp, the waste that presently accompanies the making of every cup of coffee. A study by the British Ecological Society (BES, 2021) found that coffee pulp isn't just a nuisance to be discarded, but a natural byproduct that "can be used to speed up tropical forest recovery on post agricultural land." Millions of tons of coffee grounds each year get buried in landfills when they could "like a jolt of caffeine, invigorate biological activity." (Perry, 2021). What an opportunity for Starbucks!

CONCLUSION: THE SOCIO-ECOLOGICAL THINKER

Post Pandemic corporations are expected to show their contribution to sustainability in our warming world. Socio-ecological thinking focuses is on work-life social rearrangement and engagement with the need for responses to post-pandemic ecosystem change. Conventional responses are not enough. Opportunities for corporate accountability demonstrating active contribution surround us. Already mentioned, for example, is the coffee pulp so many of us generate without attention to where it goes. That is changing. This paper has illustrated the recent research and focus on contributions to sustainability. The Entrepreneur advises corporations to "build sustainability around your people, not just your office" (Wagner, 2021) so that any corporation can not only be seen to be contributing to sustainability but rewarding its people who lend a hand. While this is not a new concept, the pandemic has made us more aware of work-life relationships as going to work replace the commute with switching on Zoom.

History tells us how The London Smog of 1952 triggered the 1956 UK Clean Air Act, how the 1969 burning of the Cuyahoga river in Cleveland, Ohio fueled the formation of the EPA (US Environment Protect Agency) and the 1972 US Clean Air Act. The harvest from post pandemic new thinking provides valuable insight for the socio-ecological thinker and so many ways which together guarantee sustainability in our warming world.

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