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### Special Report

# **No Time to Waste:** Achieving the UN's Sustainability Goals

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# INTRODUCTION

### No Time to Waste: Achieving the UN's Sustainability Goals

Wharton's Initiative for Global Environmental Leadership (IGEL) focused its 12th annual conference, "Setting Goals for a Flourishing World," on the United Nations Sustainable Development Goals (SDGs). As leaders from both the public and private sectors shared strategies for accomplishing the 17 crucial objectives, a way forward began to take shape. Although progress toward the goals has been slow, a sustainable future is possible if business, government and nonprofits work together to devise scalable solutions that fully engage the power of the global marketplace.

Three themes dominated the discussion:

Innovative Solutions to Unprecedented Sustainability Challenges

The UN goals can seem daunting. But speakers at the IGEL conference, co-sponsored by agricultural sciences firm FMC Corporation, demonstrated how their organizations are rising to the challenge. The projects they described included scientific breakthroughs and innovative uses of existing technologies, nontraditional business models and nonprofit support for entrepreneurial solutions. And all are designed to achieve what IGEL director and Wharton legal studies and business ethics professor Eric Orts called "sustainable scale."

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SDG 17 calls for collaboration among governments, the private sector and civil society. Several of the presenters at the IGEL-FMC conference showed what such ongoing collaborations look like and detailed what it takes for them to succeed. When each partner respects the needs and capacities of the others, public-private partnerships (P3s) can accomplish what none of the players on their own could hope to achieve.

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Marc Benioff, one of the world's most successful entrepreneurs, began a recent opinion piece in *The New York Times* by announcing, "Capitalism, as we know it, is dead." To ensure a sustainable future, he said, the business community has to move beyond its current obsession with maximizing shareholder wealth. Several business leaders and investment strategists at the IGEL-FMC conference detailed how companies can embrace their responsibility to stakeholders as well as shareholders and "do well by doing good."

This special report is co-sponsored by the Initiative for Global Environmental Leadership and Innovyze.







### Innovative Solutions to Unprecedented Sustainability Challenges

ANDREAS GRUSON, CHIEF SUSTAINABILITY OFFICER

**AT COMPOLOGY**, has been finding entrepreneurial opportunities in unlikely situations since he was a teenager profiting from the scrap metal he collected as he was cleaning out warehouses. Speaking at the recent Wharton conference, co-sponsored by the school's Initiative for Global Environmental Leadership (IGEL) and FMC Corporation, Gruson said he saw great opportunities for entrepreneurship in today's sustainability challenges.

"Where something isn't working and there's a problem in the status quo," he suggested, "there's often an opportunity to make a business out of it and do something good at the same time."

The IGEL-FMC conference, "Setting Goals for a Flourishing World," focused on the promise embodied in the United Nations Sustainable Development Goals (SDGs) and the significant challenges blocking the way forward. During his morning keynote address, Gruson mentioned several obstacles that demand innovative solutions, starting with Asia's refusal to continue accepting U.S. waste for recycling. According to Gruson, "Much of what we sent was really just garbage in the truest sense, material that's contaminated and not fit for recycling in the U.S." Now, that material—carbon, plastic, metals—has to be dealt with domestically. "I think it's a tremendous opportunity for someone to figure out," he said. "No one has."

Others at the conference provided concrete examples of how innovative thinking is already helping to overcome some of the obstacles blocking progress towards the SDGs. The projects included scientific breakthroughs and innovative uses of existing technologies, nontraditional business models and nonprofit support for entrepreneurial solutions.



TARGET 2.4 – By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production...

In her position as director of innovation startups at the World Wildlife Fund (WWF), Julia Kurnik is looking to use what she calls "the power of the panda" to assemble teams of local players and create new sustainable efforts in agriculture. "We're exploring different ways of modeling business that can disrupt the status quo and be both financially profitable and environmentally sustainable," she said.

"We're exploring different ways of modeling business that can disrupt the status quo and be both financially profitable and environmentally sustainable."

Julia Kurnik, director of innovation startups, the World Wildlife Fund

According to Kurnik, California now grows two-thirds of the nation's fruits and nuts and a little over half its vegetables. As a result of climate change, she said, the state's production of these specialty crops is increasingly threatened by climate-exacerbated water scarcity and wildfires. To accelerate the transition to new, more sustainable sources, WWF is exploring the possibility of introducing some of the crops into the water-rich Mississippi Delta. If successful, the effort could not only

help ensure the availability of fruits and vegetables, it could also enhance the economic welfare of farmers in that economically depressed region who now grow low-margin commodity crops. And because the Delta region is already being farmed, the effort would not have to expand agricultural land use, which is often a major source of greenhouse gas emissions.

"So far, I've been spending a lot of time with people on the farms so I can understand the opportunities and hurdles," Kurnik explained. If the project gets additional funding, she will move on to phase two, creating a business model designed specifically to help Delta farmers reduce the risk involved in making the transition to specialty crops.

Also focused on the agricultural sector is Ashwin Madgavkar, who launched his company, Ceres Imaging, to help farmers who remain in California make the most of their increasingly precious resources. Others have tried to use aerial imaging to spot problems in crops, but according to Madgavkar, they tended to focus on the drones or satellites carrying the sensors rather than the specific imaging technology.

Ceres also started as a drone company, but it quickly shifted from complicated and expensive drones to simple single-engine aircraft such as Cessnas. Flown in some cases by former crop-dusting pilots hungry for work, the planes carry sensors that scan the fields below in various wavelengths of the electromagnetic spectrum. The images are analyzed using carefully calibrated software and artificial intelligence to produce actionable information for the farmer.

"We translate those spectral signatures, using machine learning, into the plants' physiology to show farmers where they're over watering or under watering, or where they have a nutrient deficiency," said Madgavkar. Armed with the information, farmers can quickly identify and correct glitches in their irrigation systems or take care of incipient pest infestations. Ceres has also developed modeling tools that estimate crop yields, so farmers can decide which problems are worth fixing.



#### TARGET 3.8 – Achieve universal health coverage, including financial risk protection [and] access to quality essential health-care services...

When Dr. Shreya Kangovi, an

associate professor at the University of Pennsylvania's Perelman School of Medicine, decided to tackle the health disparities she was seeing firsthand in Philadelphia, she turned to the concept of community health care workers (CHWs). As with aerial imaging, the concept itself was not new. Trained people had been working in underserved neighborhoods for decades to address the psychological and social root causes of poor health. But most of these experiments failed or were struggling to survive. Dr. Kangovi wanted to know why.

The research she conducted led her to an innovative approach, now embodied in the IMPaCT program at the Penn Center for Community Health Workers. According to Scott Tornek, the organization's chief strategy officer, "Dr. Kangovi interviewed more than a hundred patients in southwest Philadelphia to find out what was keeping them from staying healthy. And she looked at existing CHW programs both locally and around the world to see what was keeping them from being successful."

One of her key findings was that many programs were hiring the wrong people for the job. Today, IMPaCT has a hiring toolkit, refined over the years, that enables the organization to find and hire people with the right traits. "We look for CHWs in nontraditional places," said Tornek. "And we screen in very specific, nontraditional ways to find people the patients in the community can relate to. They are naturally empathetic. They're good listeners. They are the kind of people who will bring a neighbor soup when they're sick, just because that's who they are."

These new hires are trained and supported by managers who themselves are carefully selected and trained for the demanding work. And both patients and workers are thriving. The average churn rate for CHW programs is about 50% to 70%, according to Tornek. But IMPaCT has a turnover of only 1.7%. And health outcomes in IMPaCT neighborhoods have improved dramatically, saving providers \$2 for every \$1 they invest in the program, said Tornek.



### TARGET 6.1 – By 2030, achieve universal and equitable access to safe and affordable drinking water for all...

The U.S. has 1.2 million miles of water supply mains. That's 26 miles for

every mile of interstate highway. Much of this critical infrastructure is so old and decrepit that the American Society of Civil Engineers has given the system D or D-minus grades for over a decade.

The problem is twofold. Communities don't have the funds they need to maintain their aging pipes. And, because the pipes are buried underground, cities have no way of knowing what work is needed—until a main ruptures and a street collapses.

According to Colby Manwaring, CEO of Innovyze, the software company made a strategic decision several years ago to focus all its efforts on water, covered by SDGs 6 and 9, which document the enormous need and market for clean water and sustainable infrastructure.

One of the company's latest efforts uses software, physics, sensor data and machine learning to create "digital twins" of the pipes hidden beneath city streets and suburban neighborhoods. These virtual systems simulate what is happening underground, so Innovyze customers can explore different approaches to existing problems and identify impending troubles before they become catastrophic—all without the expense and disruption of digging up pipes.

"Often there are leaks in the system people don't know about," explained Manwaring. "By creating a digital twin and feeding real-world data into it, we can tell our customers where to look for the unseen leak." Sometimes those customers are dubious, until they actually dig up the pipe and look for themselves.

These digital twins can also identify where leaks and other problems are likely to emerge in the future. And they can help communities make the best use of their limited resources. "We can compute the likelihood of failure and the consequences of failure," Manwaring said. "And then overlay lifecycle costs to help our customers prioritize spending and investment to meet service-level goals and regulatory requirements."



TARGET 9.4 – By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and

#### environmentally sound technologies...

Rubicon Global started out looking to reduce the amount of waste going to landfills by bringing waste collection into the 21st century. As the company has grown, its mission has expanded. Today, Rubicon is working to end waste in all its forms, including wasted tax dollars and wasted time.

The company's latest venture, Rubicon SmartCity, is using garbage trucks, street sweepers and snow plows to do for urban infrastructure what Ceres' planes do for farmers' fields. "As these big, hulking, expensive vehicles go about their fixed daily routes, they can simultaneously be looking for potholes and cracks in the pavement before they become hazards," explained Michael Allegretti, Rubicon's chief public strategy officer. They can even help identify quality-of-life issues such as graffiti.

The system uses three pieces of technology. The first is a telematics device that keeps track of where the vehicle is at all times. "The second piece of technology we call the driver interface," said Allegretti. "It's based on a phone or a tablet, and provides things like turnby-turn directions, route optimization and confirmation that the garbage has been collected or the street swept, whatever the core service of that vehicle is." The driver can also use the device to note items of concern by simply touching pre-programmed notes.

The third component is an outward-facing camera that is programmed to look for and photograph specific problems without the driver having to take action. It might note the same service-related issues the driver would, but it can also spot potholes, abandoned houses or an encampment of homeless people in need of services.

"All three of these pieces of technology—the pod, the driver interface and the outward facing camera—are gathering different types of data and then pushing them back to a portal, where supervisors and others can use the information to establish priorities and take corrective action," said Allegretti.



#### TARGET 12.5 — By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse...

Fashion is big business. The McKinsey Global Fashion Index estimates that

the industry is currently worth \$2.4 trillion. But there is an environmental cost as well. According to the UN, the production of clothing produces more greenhouse gas emissions than the aviation and shipping industries combined. And the Environmental Protection Agency estimates that rubber, leather and textiles make up more than 9% of municipal solid waste in the U.S.

The Fashion Institute of Technology (FIT) in New York is fostering innovations designed to tackle these issues head on. "We have a faculty member who is working on a project tagging fiber at the source, so you can actually track it back to the plant it came from," said Jacqueline Jenkins, FIT's acting executive *director* of strategic planning and innovation. And a team of FIT students won the first Biodesign Challenge in 2016 by developing AlgiKnit, a compostable yarn made from kelp that can be knitted into zero-waste, fully fashioned garments or transformed into a textile for applications in footwear.

FIT faculty and students are also helping develop a digital solution to one of the major challenges facing sustainable fashion: design samples produced to try out new styles. According to Grist.com, 15% to 20% of the fabric used in clothing design ends up as trash. "Clothing samples may go from the runway straight to the dumpster once their usefulness has run its course," Grist said.

The new approach being explored at FIT uses sophisticated software to model the real-life conditions that affect garments, including how the material and cut are affected by wind and gravity. "With this 3D technology, designers create lifelike samples without actually having to waste the materials," said Jenkins. "It's a game changer."

## THE ULTIMATE CHALLENGE: SCALING UP SUCCESSFUL NEW IDEAS

Innovation almost always starts small. But to make real progress towards the SDGs, projects like the ones just described have to be scalable. And they are. The IMPaCT program has expanded not only to serve more than 10,000 patients in Philadelphia, it is also bringing its proven model to communities throughout the U.S. "We have well over 30 customers all over the country—in California, the Midwest, Northeast and mid-Atlantic— who are implementing the plans we developed with them," said Tornek.

Rubicon has already rolled out SmartCity to more than 45 locations across North America, even as it continues developing and refining the system. And WWF aims to have all the pieces in place to run a full-fledged pilot in the Mississippi Delta during the 2021-22 growing season. Ceres and FIT, too, have their sights set on expansion plans. Even Innovyze, which is already providing software tools to about 4,000 communities worldwide (impacting approximately 1 billion people), is not resting on its laurels.

"We've got a ways to go if we say we're going to help provide clean water to everybody," said Manwaring. "One billion is great. But it's still a minority."



### Public-private Partnerships: Putting Sustainability on the Fast Track

#### WHEN THE UNITED NATIONS ADOPTED ITS 17 SUSTAINABLE DEVELOPMENT GOALS (SDGS) IN 2015,

it included as part of Goal 9, "Industry, Innovation and Infrastructure," the embrace of technological progress, scientific research and innovative thinking to provide new jobs, foster entrepreneurship, promote energy efficiency and create sustainable industries.

That couples with Goal 17, "Partnerships for the Goals," which calls for collaboration among governments, the private sector and civil society. "These inclusive partnerships built upon principles and values, a shared vision, and shared goals that place people and the planet at the center, are needed at the global, regional, national and local level," the UN said.

At the recent conference on SDGs, "Setting the Goals for a Flourishing World," co-sponsored by Wharton's Initiative for Global Environmental Leadership (IGEL) and FMC, speakers agreed that one of the best tools available to business is the public-private partnership, or P3.

P3s don't always succeed, wrote the *Harvard Business Review.* A European Union study of nine projects started between 2000 and 2014 found seven that were over budget or late. But when successful, P3s "provide a trove of valuable lessons for managing any large project that involves multiple organizations—think digital transformations involving multiple consulting and training firms, merger integrations, enterprise software installations, corporate headquarters relocations, and so on," *HBR* said. And this is precisely the kind of innovative thinking called for in the SDG goals.

According to a 2017 McKinsey & Company report, "A strategic P3 approach can potentially mitigate the overruns and schedule delays that plague traditional infrastructure project delivery by clearly delineating governance, allocating shared risk, integrating resources, applying best practices, and establishing a lifecyclelong perspective of costs and accountability." A 2016 Syracuse University study found a significantly higher likelihood of meeting cost and schedule objectives under P3 models, compared to traditional, government-run projects.

Assets under management in P3 funds reached \$450 billion by the end of 2017, up from just \$7 billion in 2000. P3s have been fully embraced in Europe, where almost 1,400 deals were signed between 1990 and 2009. The partnership structure is less common in the U.S., but it has made inroads. Some 90% of the \$13 billion to renovate John F. Kennedy Airport in New York City is coming from private funds, Gov. Andrew Cuomo has said.

"Elected officials' reasons for hesitance are varied but often boil down to misplaced perceptions about enabling a private entity to finance, construct, and manage the long-term operation of public assets."

McKinsey & Company

"Elected officials' reasons for hesitance are varied but often boil down to misplaced perceptions about enabling a private entity to finance, construct, and manage the long-term operation of public assets," McKinsey said.

For the sake of the SDG goals, that attitude needs to change. "To solve such difficult problems, the answer has to include P3s," said Gary Survis, a senior fellow at IGEL and conference moderator. "If left solely in government

hands, the potential impact is likely to be too limited by political considerations. It's private businesses that are forced to compete for their existence that can go in there and truly deliver."

Survis points to the success of Walmart in reducing greenhouse gas emissions from its operations. As part of Project Gigaton, launched in 2017, Walmart said in 2019 that its suppliers have avoided more than 93 million metric tons of emissions, towards the goal of 1 billion metric tons avoided by 2030. The company aims to meet 50% of its electricity needs with renewables by 2025, and is currently at 28%.

"P3s are becoming a critical part of business. They're part of the new emerging normal," said conference speaker Nitesh Dullabh, CEO of 2POD Ventures. "They can get very complex and messy, but if the partners are on the same page with expectations and deliverables, they can successfully move through that space."

"When we get involved as a supplier to P3s, we often find the private partner is a bit more aggressive in terms of their technology vision."

Colby Manwaring, CEO, Innovyze

While profit hasn't lost its importance, Dullabh observed that companies are increasingly moving to the "triple bottom line," a concept developed in 1994 by British business consultant John Elkington. Profits, yes, he said, but also people and the planet. "Companies are learning how to embed and make corporate social responsibility part of their emerging strategy," Dullabh said.

It's unclear that the SDG goals can be reached by 2030 without such progressive thinking, new commitment and cross-disciplinary action. The World Bank said in 2018 that ending poverty by 2030 (the very first SDG goal) is unlikely to happen on current trajectories, which will leave 480 million people (6% of the population) in dire conditions by that date. And the UN's own annual checkup report that same year said that progress towards all the goals is too slow and that "a sense of urgency" is needed by the global community.

# PARTNERSHIP PREFERRED: WE CAN'T GO IT ALONE

At the conference, the speakers embraced the P3 concept—with some caveats—and gave concrete

examples of successful ongoing partnerships, plus some they'd like to see.

Emily Schapira is executive director of the Philadelphia Energy Authority (PEA), which works with dozens of partners, including Greenworks, Penn State at the Navy Yard, Entrepreneur Works, Food Trust and the Hispanic Chamber of Commerce. "Because we're an authority, we're able to do public-private partnerships much more easily than the city alone," she said.

As an example, PEA administers a program that, for \$8 a month, provides a warranty to city households covering repair of water leaks and pipe replacement. The actual service is performed by American Water Resources, a market-based subsidiary of American Water whose other partners include the cities of Yonkers, New York; Wilmington, Delaware; and the Orlando Utilities Commission in Florida.

Only 9% of claims processed so far involved previously detected issues, so the program is dramatically reducing water waste. "The city didn't feel it could administer the program effectively, but now that it's in place it is also saving considerable money for the water department," Schapira said.

Asked about P3s during his keynote talk at the conference, Colby Manwaring, CEO of Innovyze—which like American Water Resources applies technology solutions to water issues—cited company partner Thames Water, which serves 15 million customers in London and the Thames Valley.

The Thames Tideway Tunnel is the biggest infrastructure project ever undertaken by England's water industry, and it's designed to control sewage flows into the Thames River. Eight private contractors are part of the P3. "They came to us and asked us to make their early warning system operational," Manwaring said. "When there's a big storm, there's only a 45-minute window to get the people and equipment out. We built the analytical tools for a warning system that gets updated every 15 minutes and can make operational changes, such as diverting floodwaters."

Manwaring said, "When we get involved as a supplier to P3s, we often find the private partner is a bit more aggressive in terms of their technology vision. When entities like Thames Water have the leadership vision to adopt the latest and greatest technology, that's when they pull in the private partners."

Working quickly is a major requirement for SDG compliance. The World Wildlife Fund set up its Markets Institute in 2016 specifically to speed up the pace

of global food sector sustainability, and it works on multi-stakeholder platforms. What's the urgency? Food production needs to approximately double by 2050 to meet net demand.

Julia Kurnik, director of innovation startups at WWF, said that 130 major companies globally "influence most of the food and agriculture footprint," and that it's necessary to work with as many as possible for maximum impact. "We're working to create unique partnerships that probably wouldn't exist in the absence of WWF," she noted.

The larger the project, the more likely a P3 is needed. A current Markets Institute initiative is to lay the groundwork for a potential massive shift of agricultural production from climate- and water-stressed California to the water-abundant but economically depressed mid-Mississippi Delta. "We're now seeking funding for phase two of the project, which we hope to conclude by the early fall of 2021, and then launch a pilot program," Kurnik said. "The people we're working with may have differing views on climate change, but they recognize the value of bringing an industry to a region that needs it. The farmers are overwhelmingly in favor of the project."

Kurnik acknowledges such a big shift won't be easy, and that's where the partners come in. "While these crops are higher value and could bring a significant financial boost to growers and their communities, there are also hurdles to overcome," she said. "Infrastructure investments would need to be made to grow, harvest, store and transport these more delicate and perishable crops."

A second WWF Markets Institute project brings together a different set of partners to reduce agriculture's carbon footprint using soil-free approaches, such as hydroponics (growing plants solely in water), aquaponics (growing plants and aquatic animals together) and aeroponics (plants grown in an air or mist environment). Because these forms of agriculture are energy intensive, potential partners include energy companies with excess generating capacity. Other possible partners include the U.S. Postal Service for distribution, academic researchers and cutting-edge private companies.

Amtrak, a private company whose primary stockholder is the U.S. Congress, is also looking to manage energy more sustainably, said senior sustainability manager Kara Angotti. Amtrak's two most heavily traveled corridors--in the Northeast between Boston and Washington, D.C., and in California between Los Angeles and San Diego--are electrified (as are most passenger trains in Europe and Asia). But for the rest of its routes, the trains are pulled by diesel locomotives. That's why the national rail service is investing in 75 new locomotives. During a conference panel on the "Role of Business in Building Sustainable Cities and Communities," Angotti said, "The new locomotives will operate at 10% better fuel-efficiency than our current fleet." The Siemens Mobility locomotives, to be delivered starting in 2021, will also be equipped with Tier 4 emissions technology, which cuts nitrogen oxide emissions by more than 89% and particulate matter by 95%.

In his closing keynote to the IGEL-FMC conference, Rubicon Global's chief strategy officer, Michael Allegretti, described the company's SmartCity program as its "crown jewel," a product it sells to 45 city partners in the U.S. and Canada, with Atlanta a major success story. "Government fleet vehicles running regular fixed routes can be used to look for a variety of things, including potholes and overflowing trash bins," Allegretti said. "Waste vehicles, snow plows and street sweepers are perfect for this kind of monitoring, because they travel at a slow speed and stop a lot."

Allegretti meets regularly with mayors, governors and business leaders, and he says "all but the most retrograde of elected officials want to do right by the environment. But it's clear that cities can't go it alone. They're restrained by budgets and don't have the resources to make it happen. So, when city governments partner with private companies, which have most of the technology innovation, they can work with a shared vision and actually show what is possible. P3s can potentially lead us forward."

According to conference speaker Andreas Gruson, chief sustainability officer at compology, "Sustainability has become more of a real thing for waste companies, and they're embracing it." Gruson works with Compology, a private, venture-backed company that partners with cities on sustainable solutions that also save money. The company has raised \$16.7 million through its most recent Series B round. The giant Waste Management is an investor.

Compology uses cameras to deliver data on dumpsters used for garbage, recycling and compost. Without sending inspectors, companies can remotely monitor bin fullness, contamination levels, location and contents greatly reducing the number of trucks deployed and dumpster lifts needed. Using new technology, the University of California at Santa Cruz reduced such lifts by 23%.



### **Return on Investment: Reconciling Profitability and Sustainability**

WHARTON'S INITIATIVE FOR GLOBAL ENVIRONMENTAL LEADERSHIP (IGEL) FOCUSED ITS 12TH ANNUAL CONFERENCE, "Setting the Goals for a Flourishing World," on the United Nations Sustainable Development Goals (SDGs). As leaders from business, academia, government and nonprofits discussed a wide range of issues, a fundamental question permeated the day's proceedings: Can the pursuit of profit advance the cause of sustainability?

Eric Orts, professor of legal studies and business ethics at Wharton and IGEL's director, opened the conference by suggesting that businesses have to look beyond the profit motive. "If you're a business, your goal cannot just be, 'Let's maximize profits as much as possible." he said. Michael Allegretti, Rubicon Global's chief public strategy officer, ended the conference with the same thought by quoting Salesforce CEO Marc Benioff. "Yes, profits are important, but so is society," Benioff wrote in a recent *New York Times* opinion piece. "And if our quest for greater profits leaves our world worse off than before, all we will have taught our children is the power of greed."

"If our quest for greater profits leaves our world worse off than before, all we will have taught our children is the power of greed."

Marc Benioff, CEO, Salesforce

Nearly 200 executives with the Business Roundtable have joined Benioff in arguing that business leaders "need to embrace a broader vision of their responsibilities by looking beyond shareholder return and also measuring their stakeholder return." According to Benioff, it's not a question of choosing between shareholders and stakeholders (which include employees, customers, communities and the planet). Businesses must do both, he said, whether that means ensuring equal pay for their female employees, donating a share of their profits to philanthropy or reducing their carbon footprint. A growing number of corporate leaders and investors agree.

## INVESTORS ARE INCREASINGLY FOCUSED ON SUSTAINABILITY

"There's been a long-held belief that it's mostly millennials and women who are interested in sustainable investing," said Libby Bernick, head of sustainability at financial services company Morningstar and a speaker at the conference. But, in fact, "One in every four dollars now is being invested with some aspect of sustainable investment taking place," Bernick explained. "That's trending up with no end in sight."

What this means in terms of investment strategies is less clear, she said. Many asset managers and owners simply steer clear of companies that don't conform to their personal views on sustainability—as long as the exclusion doesn't hurt their portfolio. For these investors, companies with strong environmental, social and governance (ESG) histories are a plus, but financial gain remains their primary goal.

A much smaller group of investors actively seeks out ESG-related opportunities. Through the third quarter of 2019, just \$13 billion has flowed into what Morningstar considers more sustainable-oriented mutual funds and electronically traded funds (ETFs), said Bernick. That's triple the amount in 2018, but still far from the €595 billion (\$662 billion) invested in Europe. And both fade to insignificance in light of the \$5 trillion to \$7 trillion the UN says is needed annually to achieve its goals. Still, the amount invested in sustainability is likely to grow as Morningstar and others continue creating more opportunities and tools for so-called impact investors.

"Many of these people understand that there might be business risks related to environmental or social issues in their portfolios," said Bernick. She offered Volkswagen's emissions scandal as a prime example. According to *Forbes*, such poor ESG performance can erode brand value, company reputation and the other intangible assets that constitute more than 80% of company value.

Societal and environmental challenges can also threaten supply chains and basic operations. It's worth noting in this regard that four of the top five risks identified by the World Economic Forum's 2018 Global Risks Report were ESG-related, including extreme weather events, water crises, natural disasters, and the failure of climate change mitigation and adaptation.

# SUSTAINABILITY CAN ENHANCE BUSINESS PERFORMANCE

There are also positive reasons for investors to value companies' ESG performance. One is the need to cultivate a strong workforce. Like others at the conference, Bernick explained that Morningstar sees sustainability as "very important to retaining and attracting top talent."

For Subarna Malakar, director of global diversity at FMC, which co-sponsored the conference, the importance of improving diversity is even more fundamental. "For FMC, diversity is really not an HR strategy. It's a business strategy" driven by senior leadership, he said during his morning keynote. As Malakar explained, "There's been 20 years of research on how diversity drives innovation." One study he mentioned, by McKinsey & Company, found a statistically significant correlation between a more diverse leadership team and financial performance. Both gender and ethnic diversity yielded positive bottom line results, according to the study.

At some companies, sustainability does more than enhance performance. It defines the organization's purpose. At Rubicon Global, a technology company dedicated to ending waste, employees' compensation is directly tied to the company's mission. "At the outset of each fiscal year, we establish a goal to improve the landfill diversion of our customers' portfolios," explained Allegretti. "Our bonuses are pegged to that goal. If we don't meet it, each employee's bonus is less." Actions like that won't achieve all 17 SDGs, he admitted, "but if you move actions like these through an entire business ecosystem, you can drive real change."

For software company Innovyze, SDGs helped reshape the entire company. Several years ago, Innovyze efforts included building facilities management and rug design, as well as water services. "We had to make a strategic internal decision to focus, to avoid trying to cover too many sectors, too many issues," said CEO Colby Manwaring. Company leadership quickly zeroed in on water, and then used the SDGs to focus its efforts even more sharply. "We found that goals 6, 9 and 13 (clean water and sanitation; infrastructure, industry and innovation; and climate action) really spoke to our organization internally and helped us focus on what we're trying to do with our software tools," he said.

"There's all this attention around ESG as a factor in investing, but if you look at what is being sold to banks and hedge funds as far as ESG intelligence, it's really thin."

 Michael Ferrari, managing partner, Atlas Research Innovations

The narrower focus meant looking beyond profitability, which Manwaring said actually simplified decisionmaking. "If you're looking at purely financial decisions, every dollar is a good dollar," he explained. And the research and documentation informing the UN goals confirmed for Innovyze that the specific issues the company had chosen to focus on were, in Manwaring's words, "globally significant with a large market potential."

# TURNING SUSTAINABILITY INTO A PROFIT CENTER

Michael Ferrari, managing partner at Atlas Research Innovations and a senior fellow at Wharton, sees an even closer connection between profitability and sustainability. With a background in science and engineering, Ferarri is frustrated by the approach most companies and investors take to measuring ESG performance. "There's all this attention around ESG as a factor in investing, but if you look at what is being sold to banks and hedge funds as far as ESG intelligence, it's really thin," he said. According to Ferrari, there is so much data being fed through services like Bloomberg News, "it's hard to find the signal in the noise." "If you really want to evaluate companies the right way, you want to use alternative data," he explained. Ferrari offers satellite imaging as an example. By analyzing the spectral signatures of the images, scientists can identify the materials leaving an industrial site, including pollutants. "Any kind of pollution you look at, that's some sort of waste, and waste is a potential recoverable resource that has value for the companies themselves to improve," Ferrari said. "So, this isn't something that just gives you a marketing edge among investors. It actually gives you a different type of read on efficiency."

It also gives Ferrari a competitive advantage in the investment world. "If you just look at what's happening every day, that's not going to tell you much," he said. "But if look at how a plant's emissions profile is changing over time, compared to other plants in the same industry at other locations, you can start to tell a story that others probably aren't looking at." And the information is more reliable than the usual metrics. "The satellite data is a real measure, not a voluntary disclosure checklist with no true regulatory mechanism behind it," he said. "You don't have to worry about any subjectivity, you don't have to worry about some companies abiding by the rules and others not. The data is the data."

Companies themselves can prosper when they view sustainability as a profit center. "I've seen that firsthand," said Ferrari, who worked at Coca-Cola when the company first began to incorporate water-management goals into its core business. "Coke put a lot of time and effort into it, and it really turned into a significant financial win for them. Now it's just the way they do business," said Ferrari. "So, I think that's a great model to emulate. If a public company like Coca-Cola can do it, with that kind of size and scope and reach, there's really no excuse for others not to do the same."

#### THE WINDOW IS CLOSING

The need to achieve the UN's goals is no longer in question. Millions are already at risk. And without effective action to reduce greenhouse gas emissions and achieve carbon neutrality in the coming decades, the planet's average temperature will surge over the 1.5°C scientists say is manageable. As the United Nations Development Programme said in 2018, "A path exists to 1.5°C, but the window for achieving it is declining rapidly."

The same can be said of the need to reconcile profits and what Orts called sustainable well-being. "There is a window right now," said Ferrari. "ESG is on everybody's radar screen, both on the investor side as well as the management side. But if it's not done well, if it's not shown that ESG performance can be (a) a good way to run a company and (b) also provide returns for investors, that window is going to close."

The final outcome remains in doubt, but there is some reason for optimism, according to Ferrari. "When I'm at the IGEL conferences with people on what I call the solution side, I do see progress, which leaves me more hopeful than doubtful," he said.

### **USEFUL P3 RESOURCES:**

https://hbr.org/2019/01/what-successful-public-private-partnerships-do

http://infrastructure-info.com/project-watch/thames-tideway-tunnel-london/

https://www.devex.com/news/sdgs-show-slow-progress-not-on-track-to-reach-2030-targets-un-reports-92971

https://www.reuters.com/article/us-global-development-poverty/global-goal-to-end-poverty-by-2030-unlikely-to-be-met-world-bank-says-idUSKCN1LZ2JL

https://www.worldwildlife.org/blogs/sustainability-works/posts/rethinking-where-we-grow-our-food-delta-farmersare-up-for-the-challenge

https://media.amtrak.com/2018/12/amtrak-to-improve-national-network-with-new-locomotives/

https://corporate.walmart.com/newsroom/2019/05/08/walmart-on-track-to-reduce-1-billion-metric-tons-of-emissions-from-global-supply-chains-by-2030

https://www.wsj.com/articles/amtrak-seeking-to-break-even-sees-some-light-at-the-end-of-the-tunnel-11573223401

http://chesc.org/wp-content/uploads/Edberg-Angell-Beebout\_Tues\_BrenHall-Room4016.pdf

Special Report

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The Wharton-led, Penn-wide Initiative for Global Environmental Leadership (IGEL) promotes knowledge for business sustainability through world-class research, transformative teaching and constructive dialogue between top alumni, academic, corporate, government, and non-government organizations. IGEL is a hub for business and sustainability, connecting and leveraging academic capital at Penn to help business leaders of today and tomorrow to create more sustainable industries.

For more information, please visit https://igel.wharton.upenn.edu

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Innovyze is the global leader in water infrastructure data analytics software, providing enduring support for customer success. More than 3,000 customers in nearly 60 countries use Innovyze's solutions to plan, design, manage, optimize, and maintain water and wastewater networks and assets.

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