# CXO

BY **NTT DATA**

The Sustainability Transformation

Transforming towards a sustainable business model with a focus on the triple bottom line of people, planet and profit is crucial in the fight against climate change. The business advantage is increased efficiency and resilience, reduced organisational risk and a surge in commercial opportunity.

INSIDE ISSUE 4: **How the Circular Economy Benefits Business and Investors While Tackling Global Challenges** Michiel De Smet, Ellen MacArthur Foundation // **Taking Action Now to Prioritise ESG Impact** Zahra Bahrololoumi, Salesforce UK and Ireland // **Making the Case for Sustainability** Mufaddal Sulemanji, NTT DATA UK // **Bold, Innovative Partnerships Can Drive Sustainability and Benefit Business, People and Planet** David Bloch, WWF International // **And more...**

Hello.

Welcome to the fourth issue of CXO Magazine.

Our theme for this issue is The Sustainability Transformation: a $12 Trillion Opportunity, which explores the abundant and diverse opportunities for businesses to benefit society, environment and their bottom lines by placing sustainability at the forefront of business strategy.

The enthusiasm and passion that this topic has evoked in our contributors from across the world is incredible, and has amounted to more than double the amount of contributions than usual. From supporting hospitals in Singapore to transforming utilities businesses in Spain, we have a plethora of talent and programmes pushing sustainability into what we do for our clients.

It is important to note that whilst the magazine represents many companies, cultures and personalities, there is a consistency to the voice from those contributing. That voice is one bound to the mission of creating a harmonious and affluent society, and through that mission our people want to do good work for the triple bottom line of people, planet and profit.

This issue is an expression of that mission, and we hope you can support us in proactively promoting it far and wide.

Enjoy the read,

Joe Trainor
Editor, CXO Magazine

Issue 4 Contents

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Leading Transformations – The Fundamental Shift in Strategic Management

By Dr Petra Kuenkel, global transformation expert and author of *Stewarding Sustainability Transformations*

Our planet is the only known place in the universe that has brought about this incredibly rich diversity of life. But it also brought about a strange species, equipped with the capacity to diminish life on Earth – or rescue it. The most powerful actors for transforming our world are companies. If they change the way they operate, hope for the future gains a new meaning.

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Long-term collective and societal value is not about pouring money into philanthropy. It is about an essential shift in the purpose of companies and accepting their role as a positive caretaker and shaper of societies and planetary life.

On a global scale, the Covid-19 pandemic is far from over, forest fires frighten and impoverish people and floods scare thousands into evacuating their homes. Amazon's former CEO, being far away in space during his first astronaut mission, realised our planet Earth is "this tiny little fragile thing … we're damaging".

Young people aren't the only ones saying that time is running out; the latest IPCC report paints a grim picture of our collective future. For years, scientists have been warning of "Hothouse Earth" scenarios, and almost 50 years ago the Club of Rome published the widely acclaimed and fiercely criticised report "Limits to Growth".

How do companies step in to save our children's future and their own operating licenses? Do we need more philanthropic business initiatives that create foundations to fight climate change? Yes and no. Yes, because overcoming the climate crisis is an innovation and agility route that requires action, inventiveness and accessible investment. Every fund counts.

No, because the most powerful actors for transforming our world, as the 17 Sustainable Development Goals suggest, are companies themselves – large and small. If they change the way they operate, hope for the future gains a new meaning.

To do so requires three fundamental strategic shifts:

1. **Moving from outperforming competitors to seeking strategic alliance for positive impact.** Pioneering companies collaborate with competitors in a pre-competitive space for sustainable supply chains – in cocoa, coffee, seafood, timber, water resource management and ocean clean-up. Doing it alone is an outdated strategy. Networks, partnerships and alliances are the future-oriented strategies we need to leverage positive impact, create enabling conditions and support government regulations that help us into a better future. They secure supply and create healthy supply chain relations.

2. **Moving from short-term company returns to seeking long term collective and societal value.** This is not about pouring money into philanthropy. It is about an essential shift in the purpose of companies and accepting their role as a positive caretaker and shaper of societies and planetary life. Products, services and inventions will in future always be linked to the impact they cause, upstream and downstream. Transparency, accessibility and accountability will become strategic key elements.

3. **Moving company sustainability strategies from compliance towards strategic contribution to the future.** Not doing harm and following legal obligations is table stakes. The future requires reinventing each company as a contributor to the vitality of ecosystems and societal resilience. Embedding operations in a region's economic, environmental and social advancements can have many different entry points: circularity of materials, sustainable sourcing, economic empowerment of entrepreneurs, human rights or product innovation, among many others. There is no limit to creativity in a world that craves transformative change.

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There is no limit to creativity in a world that craves for transformative change.

Future-oriented strategic management means accepting that in today's world, the business of business is no longer just business: it ensures the long-term conditions for being able to operate. It is the call for companies to include their contribution to societal and global value creation in their core strategic processes.

Behind Bezos's view of the immensely beautiful yet tiny and fragile planet is a delicate life support system. Scientists have explored how it has grown over billions of years and still agree that it is the only known place in the universe that has brought about this incredibly rich diversity of life. But it has also brought about a strange species that is loving and longing for life, yet equipped with the capacity to diminish this life support system – or rescue it.

What would rescuing mean for every company, across company competitors and along value chains?

It means you need to start taking action immediately if you haven't done so. Intensify your efforts if you think you are on track. Escalate your transformative effort together with business partners if you truly seek to contribute to life on this planet. Push your competitors into becoming collaborators on a route to a regenerative civilisation. Human intelligence and the will to discover pathways have no limits. Learn from life: business vitality, human vitality, ecosystem vitality and societal resilience are not mutually exclusive – they thrive together when you apply these six strategies:

1: Build company purpose around a livable future

This is more than redrafting the mission statement.

It means invigorating the deep desire to make a difference in the world – small or large! People around the world have a core desire to shape a better future, at whatever scale. Such an emotionally compelling purpose orients and motivates. A collective purpose can empower diverse change agents, and research shows: it contributes to employee satisfaction. But this only works if strategies to implement the purpose are visible, doable and measurable. Take a long-term attitude of responsibility and defend the benefits towards blinded shareholders.

2: Engage internal and external stakeholders

Be a responsible societal actor and show your employees that you care about the future and their lived reality. Reliable internal engagement processes contribute to trust-building and identification with the company. In addition, trust in company reliability (financially, regarding sustainability and towards societal contribution) is a long-term asset. In the context of diverging interests of external stakeholders, build trust through networks, partnerships and authentic communication. The side effects can be tremendously helpful. As a company, you benefit from your embeddedness and learn about key elements of future pathways from your stakeholders.

3: Invest in life-enhancing innovation

Given the state of the world and our human responsibility to save the planetary life support system, inventiveness needs guidance. Invest time, space and funds into the human creativity

"**Business vitality, human vitality, ecosystem vitality and societal resilience are not mutually exclusive – they thrive together.**

that emerges when the future is at stake. Direct innovation towards solutions that enhance the quality of life – socially and environmentally. Look for problem-solving benchmarks, get inspired by pioneers, be on track with trends and developments, learn from failure and reinterpret agility as the capacity to constantly and collaboratively reinvent an even more regenerative approach.

4: Simply be human

Compete where you are sure it helps to make a better contribution to the world. Otherwise collaborate. Drive excellence and become the master in your product, strategy or service. But the shark mentality has passed its sell-by date. We are all in this future together, not because we are good-doers, but because we are humans. We are intelligent enough to save the planet and help each other learn how best to do this. Collective value is the keyword for future strategies.

5: Harvest collective intelligence

Say farewell to going it alone. The lonesome hero mentality is driving the world to the edge. Building and acknowledging competence, or even mastery, is of utmost importance. But conversations about the best way forward contribute to efficiency. Structured dialogue is not a nice-to-have but an ability to arrive at meaningful solutions faster. Company-internal strategies benefit from the sense of ownership and accountability that arises when people feel heard. But even as an entire company, going it alone reduces short-term success and long-term sustainability results. Transformative change requires sector-wide collaboration.

#6: Make positive impact your strategic North Star

Every strategic step towards a regenerative future that cherishes our planetary life support systems is a valuable contribution. The necessary transformation is a long journey with many steps. Recognise the insight that a long journey is best travelled together. But do not lose your particular North Star: your defined new contribution, your strategic plan towards increasing your positive impact.

Every company counts. Every determined CEO counts. Every visionary leader counts. Collective stewardship will take us into a better future.

For references, please go to cxomag.com/the-fundamental-shift-in-strategic-management

Dr Petra Kuenkel is a thought-leader, renowned author and leading strategic advisor for global sustainable transformations. As an executive committee member of the Club of Rome and CEO of the Collective Leadership Institute she empowers leaders to take decisive action for our planetary future.

In Depth

NTT DATA takes a deeper look into critical areas of sustainability transformation.

Building Back With Purpose for a Safe, Equitable and Connected Future

Technology has played a momentous role in responding to the Covid-19 crisis: supporting healthcare, enabling businesses and governments to function remotely and keeping people connected in lockdown. This speaks directly to the social impact goals of many companies around the world, whether that is to safeguard the health and safety of employees, bring communities together or improve access to vital services like health and education.

Scan the QR code with your smartphone camera

How the Circular Economy Benefits Business and Investors While Tackling Global Challenges

By Michiel De Smet, Finance Initiative Lead, Ellen MacArthur Foundation (and Member of the EU Platform on Sustainable Finance)

The circular economy not only allows us to live within planetary boundaries, it can deliver superior returns, new growth opportunities and access to preferential credit lines. The finance sector is increasingly getting behind this framework and is supporting businesses in their transition with significant growth in funds.

The Covid-19 pandemic has drawn our extractive global economy into an existential crisis. Environmental, social and governance (ESG) issues, once fringe considerations in corporate boardrooms, have accelerated up the agenda in the last two years to become an increasingly strategic imperative. Mounting public awareness combined with greater legislation means businesses' licences to operate hinge more and more on the positive contribution they make to the environment and communities.

The circular economy provides a framework for achieving these non-financial goals while providing opportunities for new revenues and better growth. For instance, adopting circular economy principles in Europe in the mobility, built environment and food sectors alone could offer annual benefits of €1.8 trillion in 2030. Based on three principles, all driven by design, the circular economy eliminates waste and pollution, keeps products and materials in use, and regenerates natural systems. Its relevance has become even more apparent in recent discussions about post-pandemic economic renewal, as policymakers and businesses look to address

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Total assets managed through public equity funds dedicated solely or partly to the circular economy have grown more than 25-fold in just a year and a half.

other urgent global challenges, such as climate change, biodiversity loss, and plastic pollution.

Apart from responding to shifting customers' mindsets and stricter legislation, growing evidence shows that implementing circular practices is good for businesses, and their investors. A recent study by the Ellen MacArthur Foundation, Bocconi University and Intesa Sanpaolo set out new evidence that circular economy strategies can de-risk investments and offer better risk-adjusted returns.

The world's largest corporations and emerging innovators alike are already adopting circular principles to generate new sources of revenue, reduce costs, spur innovation and mitigate risks. For example, Renault offers remanufactured components and spare parts with as-good-as-new warranties to customers for prices that are 30–50% lower than for new replacement parts. Similarly, Danone has enhanced its supply resilience by investing in regenerative agriculture while also appealing to consumers interested in where and how their food is grown.

Funding the transition

Applying circular economy principles to existing business models and products is progressively recognised as an investment in resilience and future growth; however, the shift can appear challenging. A reimagined relationship with materials and products can mean practical changes: innovative

approaches towards supply chain collaboration, such as reverse logistics for reusable containers; disruptive technologies, such as digital resale platforms; and alternative business models, such as pay-per-lux lighting models; which all can be complex in the short term.

Encouragingly, as the opportunities are recognised by financial institutions, support for these transformations is becoming increasingly available for both mature and startup companies. In its latest investment round, for example, food system innovator Apeel, which has created a plant-based protective layer that keeps fruit and vegetables fresh longer without packaging, attracted $250 million. This doubled the company's value to $2 billion and brought its total funding to more than $635 million.

Targeted financing activity for circular activities is taking off rapidly around the world. This June, BlackRock's circular economy fund hit $2 billion in assets under management, reflecting steep growth in the area. Total assets managed through public equity funds dedicated solely or partly to the circular economy have grown more than 25-fold in just a year and a half, from $300 million at the beginning of 2020 to $8 billion by the end of June 2021.

Elsewhere in the finance system, dedicated banking products aimed specifically at stimulating the development of the circular economy are emerging in the market. Intesa Sanpaolo has a €6 billion credit facility to support circular activities

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The question now is no longer whether climate change, biodiversity loss, and other ESG issues should be considered, but how they can be best integrated into business strategy.

and ABN Amro concluded nearly €850 million of circular economy deals from the beginning of 2019 to the end of 2020. Several companies started to link debt financing to circular economy KPIs, such as AB InBev's $10 billion revolving credit facility with terms linked to the use of recycled material in its primary packaging.

Larger organisations are also testing creative ways to finance circular strategies in debt capital markets. For example, in February, fashion retailer H&M Group issued a €500 million sustainability-linked bond, which links pricing to a number of the company's 2025 targets, including increasing the share of recycled materials used in its products to 30%. It was heavily oversubscribed. As less than 1% of materials used to produce clothing globally is currently recycled into new clothing, this commitment could be an unprecedented step towards a circular economy for fashion if it is achieved.

As well as bonds targeted at fashion products, there is increasing interest and investment in new innovative businesses. Clothing resale, for example, is projected to grow to more than twice the size of fast fashion by 2030, with market developments already supporting this projection. In the first half of 2021, online fashion marketplaces had successful funding rounds, including Vestiaire Collective and Vinted, and IPOs, such as by Poshmark and ThredUp. Smol, a subscription-based company selling concentrated surface cleaners in refillable bottles

and other cleaning products, recently raised £24 million in funding, bringing its total investment to £32 million since its inception in 2018.

Momentum is building behind the circular economy as companies and policymakers are increasingly joining the dots between economic recovery and tackling global issues. The question now is no longer whether climate change, biodiversity loss and other ESG issues should be considered, but how they can be best integrated into business strategy, strengthening financial objectives. The circular economy is a crucial part of the answer to that question, one that businesses and investors alike can no longer afford to ignore.

For references, please go to cxomag.com/how-the-circular-economy-benefits-business-and-investors-while-tackling-global-challenges

Michiel De Smet leads the Foundation's Finance Programme, aiming to scale finance for the circular economy. He is also a member of the EU Platform on Sustainable Finance, working on the EU Taxonomy.

Why Having a Clear Ethical Purpose Results in Better Business and Happier People

By Paul Hargreaves, CEO of Cotswold Fayre, B Corp ambassador and author of
Forces for Good

When the people who work in a company know and understand that their workplace puts people and planet first, they thrive. Purpose equals happier people.

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> **As we have moved towards a global society, the damage our companies do to our planet is out of sight and out of mind – our waste is someone else's problem.**

Adangerous combination of colonialism and industrialisation has meant we are now living on a disintegrating planet and in a more unequal society than ever before. Thankfully some businesses are rising to the challenge of correcting this imbalance (and may many more do so). What we discuss less is how the disconnect between individuals and between people and planet causes us a profound lack of fulfilment. These gaps violate our true humanity. Let's explore what businesses can do to reverse this, leading to better business and happier, more fulfilled employees.

What's gone wrong?

Ignoring the most recent millennia, for much of the history of humanity, communities were generally balanced and equal. The intuitive, creative right side of the brain was given as much precedence as the logical, cerebral left side. Homo Sapiens didn't see herself as dominant at the top of a pyramid of nature but as an integral part of all life on earth. There was as much importance put on being – on who we were – as on what we were doing. The feminine was not seen as inferior to the masculine but an equal and essential counterpart. Perhaps most importantly, human beings lived in communities and saw the direct results of how their actions and work impacted other people within their community and nature itself.

How life has changed! And whilst western business cannot be blamed for all of this, it must carry much of the responsibility: business culture has often reinforced the cult of the individual at the expense of life-giving and caring communities.

The colonial mindset fostered by the industrialised west has been exported all over the world, encouraging people to think of themselves as independent to nature and other communities in the world. We have given the logical mechanistic brain pre-eminence over the intuitive side and put the masculine over the feminine – nowhere are both factors more obvious than in traditional business leadership.

As we have moved towards a global society, the damage our companies do to our planet is out of sight and out of mind – our waste is someone else's problem. We have stopped viewing the people within our businesses as people but human resources, commodities to help us with our single aim of advancing profit at all other costs.

All this has created a disastrous impact on our people's mental health and happiness. The UK government's Health & Safety Executive in November 2020 stated that "in 2019/2020 stress, depression or anxiety accounted for 51% of all work-related ill health cases and 55% of all working days lost due to work-related ill health". This was significantly higher than the previous year before

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> **Happiness at work, contrary to many people's beliefs, is not directly correlated to salary. Perhaps someone should try telling this to Goldman Sachs, who in early August 2021 significantly raised the salaries of their junior bankers after complaints about a 95-hour working week, thinking that throwing money at a problem will solve it. It won't.**

Covid-19 had taken hold in the UK. How much worse are these stats now?

Clear purpose creates a clear difference

So, as C-suite execs, what can we do to improve our people's happiness? In short, ensure that all our employees come to work with a clear purpose. Happiness at work, contrary to many people's beliefs, is not directly correlated to salary. In Boston Consulting Group's 2014 paper 'Decoding Global Talent', an attractive fixed salary was only 8th on the list of happiness on the job. Perhaps someone should try telling this to Goldman Sachs, who in early August 2021 significantly raised the salaries of their junior bankers after complaints about a 95-hour working week, thinking that throwing money at a problem will solve it. It won't.

Let's talk about purpose, first company purpose. As more and more Gen Z and Y come into the workforce (already more than 50% of the whole), the best talent will increasingly want to work for companies that are helping bring social justice to the world and positively impacting the climate emergency. They will increasingly resist working for companies that still hold the financial bottom line as paramount.

Getting our priorities right

Yes, absolutely, every company needs financial sustainability, but at our companies we put people and planet first, and the profits follow. When the people who work in a company know and understand this important shift, and actively partake in that purpose, they are happier. Happier people are more productive people, which nearly always leads to greater profits. It has never been a great motivation to work in a company where the CEO is being paid more than 300 times the average worker's wages; this level of inequality, as seen in many of the UK's FTSE 250 companies, breeds discontent and unhappiness.

Where making the world a better place comes first, rather than directors lining their own pockets, people don't see work as a chore to be endured in order to enjoy their weekends and holidays – they can actually enjoy being at work!

Every year at Cotswold Fayre, we mail out an anonymous employee survey. One of the more straightforward questions is "Do you enjoy coming to work? (Yes/No)". The worst score we have ever had is 94% 'yes', and the best was 100% (that year we did check the 'no' button was working!). As a consolidator and wholesaler of speciality food, our entire business model is better for the planet. Still, the people here love being part of an organisation that is doing more than that to make the world a better place. We are a long way from perfect, but we do make progress every year – indeed, we

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> **As businesses, we have encouraged people to have a 'work face' and then forced them to fit into a hierarchical structure where creativity is often discouraged and fun frowned upon.**

must in order to remain a B Corp, where the bar to certification increases each time we certify.

So, yes, being part of a company having a strong positive purpose is important, but we must also look at some of the other disconnects that have been part of the human condition since industrialisation.

As businesses, we have encouraged people to have a 'work face' and then forced them to fit into a hierarchical structure where creativity is often discouraged and fun frowned upon. Leaders have often seemed distant and certainly not vulnerable. The inner side of us has been repressed at work, and we would do much better to foster an atmosphere where people, including leaders, are encouraged to talk about their fears and express their emotions.

Personal purpose is important too

Finally, where does personal purpose fit in? It's all very well being part of a company with a strong purpose, but encouraging all our people to have a fulfilled life is equally important. We can learn from the Japanese here: a philosophy from the island of Okinawa (where more people live to 100 years old than anywhere else in the world – not a coincidence!) says that fulfilment, or ikigai, comes from being balanced in four areas. These areas are:
1. Loving what you do
2. Being good at what you do
3. Being paid for it
4. Doing something the world needs

Let's decide today to create a more fulfilling workplace. Ensure your company has a clear purpose and everyone in the company feels part of that. Create an atmosphere where it isn't all about productivity but where people talk about feelings too. Encourage your people to be open about what could be better for them, and ensure everyone is operating in a role they enjoy. Be prepared to move any people on that are dragging others down.

If this open, fun and fulfilling atmosphere is fostered, people will stay in our companies longer, be absent from work less and be happier and more productive. And the world will be a better place too.

For references, please go to cxomag.com/why-having-a-clear-ethical-purpose-results-in-better-business-and-happier-people

Paul Hargreaves is a B Corp Ambassador within the UK and is one of the leading voices in the UK encouraging and inspiring businesses to make a positive impact on the world; the subject of his books, Forces for Good and The Fourth Bottom Line. Paul is CEO of Cotswold Fayre, a rapidly growing specialty food wholesale business supplying over 1,750 retail sites in the UK.

5 Minutes on....

Companies as Caretakers of the Planet

Dr Petra Kuenkel

Founder of Collective Leadership Institute and author of Stewarding Sustainability Transformations

5 Minutes On... why companies need to proactively transform and be the pioneers of a thriving future, and how planetary health needs to be the new core orientation of business.

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Making the Case for Sustainability

By Mufaddal Sulemanji, Senior Consultant, Enterprise Agility & Business Transformation, NTT DATA UK

The risk to your business of doing nothing to move toward sustainable operations might be the greatest risk you can take in this volatile environment. The potential for disruption by government and market forces has businesses asking: Why has it been traditionally difficult to make the case for sustainability, and how can I bring sustainability into my organisation?

Over the past few decades, sustainability has seen growing importance on the agenda of businesses. The UN's Intergovernmental Panel on Climate Change (IPCC) published their Sixth Assessment Report this year, giving a stark assessment of how human activity is changing our climate in unprecedented ways. "It is a statement of fact," said Professor Ed Hawkins of Reading University, an author of the report. "We cannot be any more certain; it is unequivocal and indisputable that humans are warming the planet." The increase in the frequency of extreme weather events (drought, flooding and heatwaves) over the past few years is a case in point.

2021 also represents somewhat of a landmark milestone, with 197 parties signing up to attend this year's COP 26 conference to accelerate action towards the goals of the Paris Agreement and UN Framework Convention on Climate Change. It's excellent to see such overwhelming support from countries; however, more work must be done in conjunction with businesses in order to meet climate goals.

Companies have historically struggled to justify the investment needed for environmental initiatives. In this article, we examine why this is the case and explore a method to include sustainability as part of ongoing business activity.

Driving forces behind sustainability

Before examining how to address the failings of business cases, it is worth exploring the main driving forces behind the increased focus on being sustainable, which include a combination of market and government forces:

Driving force #1: Customers

Customer attitudes are changing; customers are placing greater importance on supporting and doing business with organisations that have and promote sustainability.

Impact: Customers increasingly focus on buying and engaging with sustainable companies. Nielson reports that 73% of consumers would change their consumption habits to reduce the impact on the environment.

Driving force #2: Talent attraction and retention

Staff (and potential staff) increasingly prioritise the sustainability credentials of their (prospective) employers.

Impact: As employees increasingly place sustainability higher on their agenda (53% of the UK workforce say sustainability is an important factor in choosing a company to work for), this is having an impact on companies' ability to attract and retain talent, particularly the best talent, which in turn impacts the organisation's future.

Driving force #3: Investment

Investor attitudes (particularly institutional investor attitudes) are changing; they place growing importance on Environment, Social and Corporate Governance (ESG) investments.

Impact: Investors are increasingly focusing on investments that have strong ESG credentials, with record demand for ESG investments in 2020. Investment into ESG funds accounted for roughly 25% of all investment into US stock and bond mutual funds in 2020.

Driving force #4: Regulation

New legislation and regulations are coming into effect including the Paris Agreement and the Task Force on Climate-Related Financial Discourse (TCFD).

Impact: Government regulation mandates that companies adopt sustainable practices as part of their goal to meet the Paris Agreement. In addition, the UK government has become the first country in the world to make TCFD-aligned disclosures mandatory by 2025, with many in place by 2023.

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The investment case and financial metrics that traditionally govern new projects do not align well with sustainable initiatives, meaning that environmental benefits are only considered qualitatively, and all too often that means decision-makers do not give them the consideration they deserve.

What does this all mean?

Quite simply, sustainability is not just a passing trend; the driving forces highlighted above show that being sustainable is vital for the future survival of companies. Rethinking how to approach sustainability in business must be embedded into each and every company in order to protect their customer base and reputation, and to attract and retain the best talent.

Yet, the case for sustainable initiatives remains a challenge: there is clearly significant demand for sustainable initiatives, yet companies continue to be reluctant to adopt or invest in such initiatives.

The mindset summarised in Milton Friedman's assertion that the "only social responsibility" of business is to maximise profits (commonly summarised as "the business of business is business") remains influential. Many businesses are therefore reluctant to concern themselves with externalities such as sustainability.

The problem herein is threefold:
- Businesses tend to value investment in quantitative metrics (e.g., ROI, payback period), and many green initiatives are not large enough to make a material impact on the return of capital employed;
- Qualitative benefits are difficult to justify (employee morale and talent attraction or retention);
- There is no standardised metric for measuring green initiatives nor any benchmarking between companies (though ESG ratings by investment firms and TCFD reporting are helping to change this).

What can companies do?

Companies have tried a multitude of different initiatives, from adding solar panels to reduce electricity demand on traditional electricity sources to reducing packaging on products to reducing the carbon footprint along their supply chain.

IKEA has invested in sustainability throughout its supply chain by sourcing wood from sustainable forests, using 700,000 solar panels to help power its stores. Unilever has made strides in sustainability by reducing its carbon footprint along its entire supply chain from sourcing to production. Panasonic moved their North American headquarters from outside the city to near a metro station to eliminate employees' need to drive to work and thereby reduce their carbon footprint.

These are daring examples of how some of the largest companies have begun to approach sustainability. They require large sums of investment, management buy-in and long lead times. That support has made it possible for each company to set sustainability goals to measure itself against (IKEA makes for a good example).

These large-scale initiatives, however, are not the only methods for companies to contribute to sustainability.

Maximising the adoption of sustainability

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Large-scale change is required in order to meet the Sustainable Development Goals proposed by the UN, but considering sustainability as a factor in investment decisions is a great step to kick start your sustainability journey.

qualitatively. Therefore, all too often, that means decision-makers do not give them the consideration they deserve.

In order for sustainability to play a stronger role:

1. Make sustainability one of your strategic goals, so progress and results are closely measured, monitored and discussed in the boardroom (the UN proposes 17 Sustainable Development Goals which could be used as a basis);
2. Ensure sustainability is a decision criterion as part of your investment request process;
3. Turn sustainability into a financial factor and metric in investment request cases and decisions;
4. Include sustainability as a criterion when selecting partners across the supply chain (e.g., sustainability criteria included in partner agreements or contracts).

For instance, if an initiative results in the reduction (or increase) in tonnes of CO_2 equivalent produced, it would be easy to estimate the financial impact using the prevailing cost of CO_2 equivalent and factor this benefit (or cost) into the investment case. Furthermore, the businesses could align their initiatives to a sustainable development goal to justify the investment case and sustainability credentials.

Without changing the approach to investment cases, it will remain difficult to justify investment into sustainable initiatives. There is an expectation that large-scale change is required to meet the Sustainable Development Goals proposed by the UN. Though this may be true, considering sustainability as a factor in investment decisions is a great step to kick start your sustainability journey.

Sustainability is here to stay. The growing importance placed on sustainability by customers, employees and investors only shows what a significant role it plays, and shall continue to play, in the future of business.

The road to adopting sustainability, and measuring its benefits, is undoubtedly complex. But, through assigning monetary values to the CO_2 equivalent produced by certain processes, for example, sustainability can easily be factored into investment decisions. Start small – smaller initiatives involve less time, capital and risk and therefore can be easily measured – but start you must: as market and government forces continue to push sustainability, the risk to your business of doing nothing is perhaps the greatest risk of all.

For references, please go to cxomag.com/making-the-case-for-sustainability

Mufaddal Sulemanji spent the first part of his career working in the energy industry before making the transition to consulting. He is passionate about technology and business in particular the opportunities technology presents for consumers and companies.

Transforming for Growth and the Future of the Planet

David Costa, CEO, everis UK, an NTT DATA Company

As we navigate the rapidly changing business landscape, soon the only lasting competitive advantage that companies have will be the sustainability of their operations and their readiness to develop products and services that positively impact the world around them.

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Simply put, corporations cannot afford to ignore their responsibility with regard to the environment, society and their own governance. But by embracing this responsibility, a considerable and lasting competitive advantage can be gained.

The time is now. Consider this a rallying cry to every CEO and business leader: we can protect our planet's future at the same time as our companies'. To succeed and endure, businesses must radically rethink how they operate, as well as their very purpose as a commercial enterprise. As powerful actors on the world's stage, companies can make the difference between exuberance or extinction.

The time is now for strong leadership. There's no debate that action is needed at a global level, in order to sustain life on Earth. We have the knowledge, the technology and the resources to redress the balance, and set the right foundations for future generations. Leaders must step up, demonstrating with their actions instead of (just) their words that they have a genuine desire for positive change.

The time is now to transform to sustainable business. Operating through a triple bottom line framework equates to placing as much emphasis on people (social impact) and planet (environmental concern) as on profit. Crucially, the impact of companies' sustainability initiatives must be quantified and consistently measured; with the right data, we have a fighting chance of moving the needle on climate change.

Ten years to transform our world

With good reason, sustainability is firmly on the C-suite agenda. Politicians, business leaders, academics, activists and influential figures of all kinds are publicly and loudly declaring their fears, as well as their hopes and ideas, for our collective future.

How much of a business priority should sustainability be? The facts are stark: humanity is overspending its 'biological budget' every year by 56% (i.e. using 1.56 times more resources than the planet can regenerate), and 1 million animal and plant species are threatened with extinction. Simply put, corporations cannot afford to ignore their responsibility with regard to the environment, society and their own governance (ESG). But by embracing this responsibility, a considerable and lasting competitive advantage can be gained.

Crises can be profound catalysts for change, creating opportunities to gain new perspectives. Businesses that see climate change – and sustainability – not only as a threat but as an opportunity will be best placed to unlock new innovations and ignite unexpected collaborations. There is a prodigious and diverse array of opportunities for businesses to innovate, optimise and profit, within the push for sustainability.

The mindset shift to a different way of doing business

Our deepest values, as a company, are rooted in supporting a harmonious society. That goal is interconnected with the sustainability transformation of our business, and those of our clients: transformation that reimagines products and service to be more circular, rethinks company purpose and vision to consider people and planet in conjunction with profit, and uses data intelligently to accurately measure impact.

Shifting to a sustainable business model means continual growth where impacts on the environment are not only harmless, but in fact

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Many business leaders already recognise the need to move toward, and the growth opportunities within, a circular economy – the renewable energy market alone is expected to be $2.15 trillion by 2025.

beneficial: where companies make a positive contribution to stabilising and restoring natural and human capital, and reducing inequalities This new perspective requires a shift in mindset: everyone must commit to sustainability – everyone can contribute to it. And through collective action, leading by example and using the right tools and frameworks, we can make the drastic changes needed to safeguard our world.

Sustainability pays off

Sustained competitive advantage can be gained through sustainable practices. Embedding ESG into business models and operations delivers benefits across the board.

From a consumer and brand reputation standpoint, studies show that 66% of consumers are willing to pay more for products from sustainable brands. In a 2017 study, Nielsen found that every generation, from the so-called Silent Generation aged 65+ through to Gen Z, feels it is "extremely or very important that companies implement programs to improve the environment", with a huge 85% of Millennials caring deeply about corporate sustainability. This crucial aspect of genuine company purpose (beyond making profits) affects the loyalty of employees, and therefore companies' ability to attract and keep the top talent, too.

Working toward the UN's 17 Sustainable Development Goals (SDGs) – which offer a global blueprint for organisations to reconfigure themselves for a prosperous future for all – makes business sense: market opportunities related to delivering the SDGs could generate business revenues and savings worth more than $12 trillion

by 2030.

Foundational elements for transforming to a sustainable business model are:

Operational transformation to circularise the production of products and services, reduce costs through better management of resources, and get ahead of coming government regulation. A sustainability strategy is profitable, substantially lowering costs and affecting operating income by as much as 60%. Not only that, but moving to a circular economy could create 6 million jobs by the end of this decade.

Sustainability-driven purpose to motivate and retain staff, build increased loyalty from customers, and de-risk market investment and finance. With Millennials and Generation Z fast becoming the largest consumer and employee demographic, their demand for responsible and environmentally-conscious brands will be unignorable. Three quarters of Millennials, according to a US survey, are changing their habits to reduce their environmental footprint; and a global survey from 2021 shows nearly half of Gen Z are making decisions about employment based on personal ethics.

In 2018, responsible investments accounted for more than $30 trillion. As reported by Boston Consulting Group, the trend is only set to continue when faced with "the mounting evidence that addressing ESG issues does not hurt financial performance. In fact, companies that are proactive on issues such as diversity, climate stabilisation, and consumer responsiveness can deliver substantial financial rewards."

Product and service innovation to drive new growth in current and new markets, and gain

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We must break away from the short-termism that has become the norm in corporate strategy. Purpose and operations in organisations now must be genuinely focused on the triple bottom line.

competitive advantage over non-sustainable competitors. Many business leaders already recognise the need to move toward, and the growth opportunities within, a circular economy (the renewable energy market alone is expected to be $2.15 trillion by 2025).

Sustainability transformation, like digital transformation, will offer the greatest advantage to those who have pivoted quickly. Those who act first and fast, adapting to new regulations and the changing expectations of customers and employees, will reap the greatest rewards, becoming more resilient, more cost-efficient and more secure in their reputation and market position.

How to make an impact

At everis, true to the NTT DATA Group's values, we are on the journey to building a better society, guided by the UN 2030 Agenda and the SDGs. Our vision is to be a company that excels both ethically and emotionally, an ambition that's codified in our 20/21 Sustainability Report. In particular we focus on diverse talent, responsible technology, and specific propositions in support of the European Green Deal.

As the sixth biggest technology services provider in the world, we have a huge responsibility. From investing in technology for the planet (clean energy and sustainable transportation), to reducing the digital divide (inclusive education) and promoting ethical digital governance (responsible use of AI), we take ESG seriously. Moreover, we help clients and partners through advanced data and analytics to address that essential element: measuring impact.

Through combining the expert knowledge of our sustainability specialists with our technology

innovations, our dedicated NTT DATA Green Deal Industry unit helps clients and partners with solutions for the Primary Sector, Sustainable and Smart Cities, Sustainable Mobility, Sustainable and Renewable Energy, and Climate Change and Environment. Green Deal Industry projects we have made an impact with include:

Working with Aena, the world's leading airport operator by passenger numbers, to develop their renewable energy plan in their airport network in Spain;

Establishing a framework contract with the European Bank for Reconstruction and Development, for the development of sustainable and climate change strategies in cities under the scope of the Bank in Europe, Asia and Africa;

Participating with UNDP in Africa to improve the climate and environmental observatory at the Centre for tropical ecology and climate change (CETAC) in Huambo, Angola;

In partnership with Bankia/Caixa Bank, a major financial institution, and AENOR, a multinational Certification Agency accredited by the UN, developing a Carbon Emissions Trading platform based in blockchain.

The Carbon Emissions Trading platform developed with Bankia/Caixa Bank and AENOR allows promoters of sustainable projects to upload their projects' information to the registry, triggering an automated validation process that determines whether the project can generate carbon credits. Once a project is validated, the certification agency calculates and verifies the number of credits the project generates per time-period, triggering the automatic generation of the non-fungible tokens (NFT) Tokens which represent the certified

emissions, owned and priced by the project promoter, and linked to the promoter company bank account.

The marketplace allows investor companies to access the platform after undergoing a KYC ('Know Your Customer') process and purchase generated tokens using their standard bank accounts. If investor companies wish to nullify their carbon footprint, they can do so by uploading their production data to the CO_2 footprint calculation module and then trigger the corresponding certification process. Regulators and authorities can trace the generation and further trading of the emissions credits, allowing for strict control of the market, avoidance of unlawful or improper practices, and for future enhancements of the regulation based on analysis of the trading history.

From AI and machine learning to predictive analytics and the Internet of Things, advancements in digital technology are smoothing the transition to a sustainable way of doing business. Sustainability transformation combines the best of digital transformation with purpose and responsibility, and form two sides of the same coin: integrating digital tools into all areas of the organisation is the key to unlocking efficient, sustainable, future-fit business operations.

Leading by example

We must break away from the short-termism that has become the norm in corporate strategy. Purpose and operations in organisations now must be genuinely focused on the triple bottom line in order to fulfil their part in keeping our planet and its habitants safe, happy and healthy.

The catalysts for sustainability transformation are technology and data, without which we are unable to quantify, and learn from, the real-world impacts of our actions. Further, equity must be upheld as the most important principle; achieving the global SDGs is only possible when the future is prosperous for all.

Action is needed now, and every business leader has a crucial role to play in ensuring a better future. But goodwill and good business sense must come from a place of authenticity: effective leaders, those who truly inspire and manifest change, lead by example.

For references, please go to cxomag.com/transforming-for-growth-and-the-future-of-the-planet

David Costa has spent over 25 years in the Management and IT Consulting industry. He became CEO of everis UK in 2013, and is a member of A Blueprint for Better Business, a charity that aims to unite corporate purpose and personal values to better serve people and planet. David works with startups, universities and charities as an advisor and investor, to support expansion and increase productivity, leveraging his experience so he can give back to society and help others.

Bold, Innovative Partnerships Can Drive Sustainability and Benefit Business, People and Planet

By David Bloch, Corporate Partnerships Director, WWF International

Businesses must be pioneers of a new development path that is just, equitable and puts people and nature first. Beyond ensuring their own operations are sustainable, businesses are primed to lead on rapid adaptation and the innovative solutions needed to drive change.

Climate change and nature loss are no longer future risks. We are already living in times of unprecedented environmental change that present significant challenges for business.

According to the World Meteorological Organisation, climate, weather or water-related disasters have increased by a factor of five over the last 50 years due to climate change. On average, the world has experienced one disaster every day over this period, killing 115 people every day and causing $202 million in losses. In total that's more than 11,000 disasters, over 2 million deaths, and $3.64 trillion in losses.

While climate change and nature loss are increasingly becoming material risks for business, there are also unparalleled opportunities for positive change. Through innovation, science and collaboration, partnerships between the private sector and civil society organisations like WWF can help turn things around.

Nature loss is a business risk
The WWF's Living Planet Report shows that nature

loss is at an all-time high: global population sizes of mammals, birds, fish, amphibians and reptiles have declined on average by 68% since 1970. This should be alarming for business: according to research by the World Economic Forum, $44 trillion of economic value generation – more than half of the world's total GDP – is dependent on nature and its services, and could be wiped out if we do not reverse nature loss.

Pollination is a prime example of business dependency on nature. Bees, often described as nature's most essential workers, and other insects, are vital for pollinating about 75% of all crops and contribute at least $235 billion to global food production. However, as most are likely aware, bee populations continue to decline at alarming rates.

California's almond industry, for example, which produces 80% of the world's almonds and is worth over $10 billion, risks collapse without a healthy bee population. As a result, farmers in America have been reported to spend $274 million on shipping in bees to pollinate their almond crops.

More broadly, agricultural expansion, deforestation, overfishing, urban development, energy use, mining and pollution are all driving habitat loss, water shortages and climate change. And according to the World Economic Forum's Global Risks Report, nature loss and climate change are the greatest systemic risks to our global economy, and natural disasters caused by human ecosystem disruption and climate change already cost more than $300 billion per year.

Addressing climate change and reversing nature loss should be both an ethical imperative and a business strategy for the corporate sector. Our conventional model of growth and development has pushed nature, and the services that power and sustain us, to the brink.

Acting for nature makes good business sense

As business drives much of the global economy, enterprise also has a specific responsibility to ensure that the natural resources and ecosystems that underpin their business are used sustainably. Business is also primed to lead on rapid adaptation

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$44 trillion of economic value generation – more than half of the world's total GDP – is dependent on nature and its services, and could be wiped out if we do not reverse nature loss.

and the innovative solutions needed to drive change.

Yet, in our experience at WWF, corporate sustainability can be a complex journey.

Bold, innovative partnerships can help companies accelerate positive change, whether future-proofing operations and supply chains, securing a license to operate, or enhancing brand and reputation.

While companies may adopt one or more different approaches in the pursuit of sustainability and transformation, our experience at WWF has shown that three elements are key.

Starting 'at home'

Sustainability should begin 'at home', in the heart of your business operation. Companies can find ways to make their operations and supply chains more efficient through innovation and reducing costs and impacts. The Danish toy company LEGO demonstrates this approach well.

Through participating in WWF Climate Savers between 2013 and 2016, the LEGO Group met or exceeded all its climate targets. This included balancing 100% of energy use with renewable sources through investing 6 billion Danish Krone (almost £690 million) in two offshore wind farms. In addition, the total energy output from investments in renewable energy was greater than the energy used at LEGO factories, offices

and stores. The LEGO Group has also invested in research and development of more sustainable materials and improved the energy efficiency of producing LEGO bricks by more than 12%, beating the target of 10%. This was achieved by optimising the production process and investing in newer, more efficient moulding machines used to make LEGO bricks.

Investing in nature

This requires businesses to look outwards at their supply chains, engaging with peers, competitors, governments and local communities. Working with other resource users, companies can deliver collective action and create shared value.

Our new and ambitious partnership with the VELUX Group, the world's leading roof window manufacturer, epitomises this. The company has committed to reduce its greenhouse gas emissions in line with climate science and also, through working with WWF, capture its historical emissions – totalling 5.6 million tonnes of CO_2 including a 25% buffer – through forest conservation projects. This forms part of the VELUX Group's Lifetime Carbon Neutral commitment, which the company has set out to achieve by its 100th anniversary in 2041. The climate, forest and biodiversity projects under this partnership will tackle climate change and halt

> **Businesses [must] look outwards at their supply chains, engaging with peers, competitors, governments and local communities. Working with other resource users, companies can deliver collective action and create shared value.**

habitat loss, preserving biodiversity and improving local livelihoods around the world.

Influencing change

Through evolving services, promoting sustainable consumption, engaging consumers, and calling for good governance and supportive public policies, companies can drive wider societal change. A strong example of this is WWF's partnership with Organic Basics, a young and B-Certified Danish company that makes everyday essentials for women and men. In November 2020, off the back of their three-year partnership with WWF supporting regenerative cotton agriculture in Turkey, Organic Basics ran a Black Friday campaign aimed at raising consumer awareness about the impact of conventional cotton farming, and also promoting more sustainable cotton farming. The campaign landed positively with consumers and others in the industry. As a result, several textile companies approached WWF to discuss possible implementation of similar projects around regenerative cotton and starting a movement in Turkey.

#TogetherPossible

The threats facing our planet affect us all. But working together, through collective and concerted effort, we can find solutions and act at a scale that delivers. What is needed are concrete commitments and actions from countries, businesses and individuals to tackle nature loss, climate change, and pursue a new development path that is just, equitable and puts people and nature first. Business is known for being entrepreneurial; now is their chance to be pioneers and truly achieve a triple bottom line.

To read more about WWF's work with businesses visit panda.org/naturemeansbusiness.

For references, please go to cxomag.com/bold-innovative-partnerships-can-drive-sustainability-and-benefit-business-people-and-planet

David Bloch is the Director of Corporate Engagement at WWF-International. In this role, David leads a community of 500+ colleagues to forge innovative, impactful corporate engagements that contribute towards an equitable, and nature-positive future for people and the planet.

Traceability Can Fix the Primary Sector's Image Problem

By Angel Luis Teso, Head of Cities, Territories and Primary Sector & Fernando Monzón, Technology Manager, everis, an NTT DATA Company
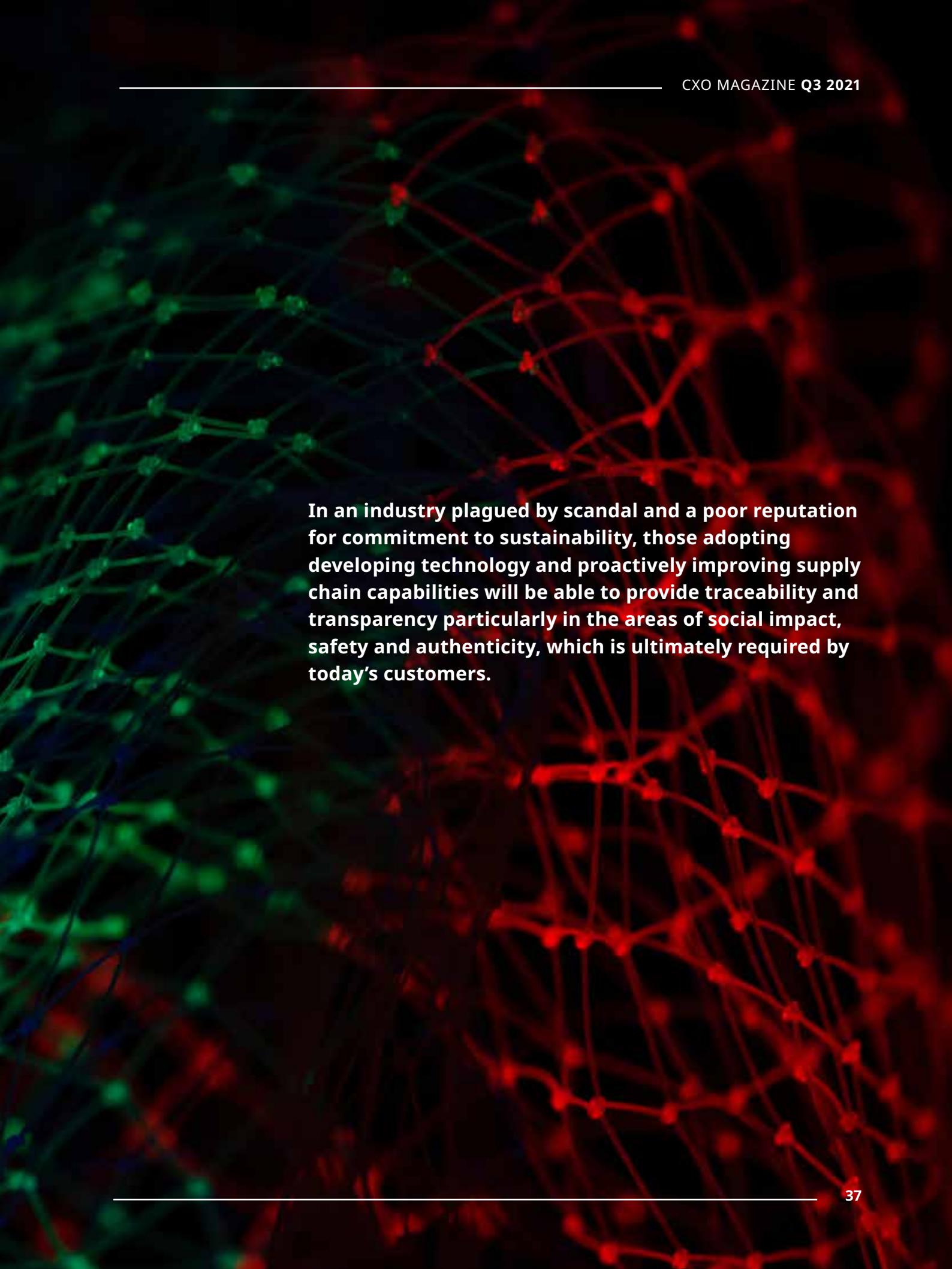
In an industry plagued by scandal and a poor reputation for commitment to sustainability, those adopting developing technology and proactively improving supply chain capabilities will be able to provide traceability and transparency particularly in the areas of social impact, safety and authenticity, which is ultimately required by today's customers.

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Companies willing to rise to the demands for more transparency must first deliver on supply chain capabilities. They should be looking to focus their traceability digitisation in three areas: social impact, quality and authenticity.

Transparency has journeyed from luxury convenience to top priority in 2021. With global access to smartphones and social media, brands can no longer hide behind international production borders. Millennials, and – new arrivals on the market – Gen Z, are more concerned about their purchases contributing to global issues, like climate change and brutal working conditions than ever before. For this reason, they're buying from more ethical brands and investigating brand promises further than the copy on the homepage.

Many companies don't offer the transparency that customers are demanding because current traceability systems are immature, incomplete and, in some cases, corrupt. This is usually because the complexity of supply chains is currently reflected in independent IT systems of record, which can lead to participants avoiding responsibility if there is wrong, incomplete or false data somewhere along the way.

Digitised traceability systems, supported by technologies, are key to transforming the primary sector and meeting a more responsible consumer demand. In the food industry, technologies like blockchain, best known for strengthening code in cryptocurrencies, and IoT measurement tools can provide the strength, security and accountability that producers need to enable end-to-end transparency. Blockchain technology in particular supports accountability since the entire history of a given product is stored in a single system of record (the ledger), which allows for a much higher degree of control over missing or incoherent data.

The food industry companies willing to rise to the demands for more transparency must first deliver on supply chain capabilities. They should be looking to focus their traceability digitisation in three areas: social impact, quality and authenticity.

Tracing social impact

Younger generations have grown up around media coverage of human rights violations in production lines, namely fashion, toys and food. Unfortunately, the threat of exposure hasn't deterred every company from using unlawful and inhumane methods. Due to the labour-intensive nature of the tasks, the agri-food sector is particularly high risk for modern slavery. In recent years, it has emerged that a fair living wage for workers is one of consumers' primary concerns when it comes to food and drink purchases. With increased awareness of the problem, more shoppers are looking to purchase from brands that can validate adequate working conditions, such as through regulatory partnerships (like Fairtrade and B Corp).

Consumers expect fair trading practices all the way along the value chain. To give customers, regulators and businesses complete supply chain

> **Drones and digital tools can be used to monitor fields, collect data and intervene when necessary: a practice that's becoming known as "precision farming". IoT sensors with real-time tracking capabilities can also send notifications when conditions change during transport. Foodborne illnesses are preventable and waste can be managed with upgraded observation and action.**

visibility, we need to look at upgrading the current standard of barcode labelling. Barcodes are the most common auto-identification technology, but they are limited in the amount of data they can store. There are now more sophisticated labelling technologies, like QR codes, that can store links to website URLs. These URLs provide opportunities for querying databases, providing detailed data or checking the validity of the codes supplied by the QR tag. Unlike their predecessors, they can also track individual items. For example, a QR code on a bag of coffee could be scanned to reveal the farmer profile, the beans' journey, the roasting process – the possibilities are limitless.

Tracing safety
Health is at the top of everyone's minds, and customers want to know they're getting a product that has been handled, packaged and transported responsibly. Not only is food safety a public health concern, it's bad for business on many sides. For example, romaine lettuce has been the culprit of several E. coli outbreaks. In 2018 America, the contaminated salad leaves shattered the market, plummeting buyer trust, costing the industry at least $71 million and killing five people.

Deploying better-suited solutions at the beginning and middle of the journey could help companies monitor changing variables, reducing the likelihood of pathogens multiplying and contaminating an entire shipment. Drones and digital tools can be used to monitor fields, collect data and intervene when necessary: a practice that's becoming known as "precision farming". IoT sensors with real-time tracking capabilities can also send notifications when conditions change during transport. Foodborne illnesses are preventable and waste can be managed with upgraded observation and action.

Tracing authenticity
News headlines have revealed counterfeit food has been stocking supermarket shelves and fed to oblivious restaurant-goers. "Food fraud" encompasses a range of sins, from deliberate substitutions to bulking out products with cheaper additives to making false claims on packaging. While the deception is shocking in its own right, food fraud can also be dangerous, with reported cases of allergic reactions due to undisclosed ingredients. Fraud has infiltrated the seafood industry and many other household staples, such as honey, olive oil, alcohol, dairy and more.

With big brand names admitting to deceit and inspectors under scrutiny for malpractice (at best) and payouts (at worst), consumer trust in food industry standards is in free fall. Companies cheating the public are being found out and are facing the consequences, and honest companies

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Shoppers are willing to put their wallets where their mouth is when it comes to buying more sustainable food and drink.

with nothing to hide are looking to win over the loyalty of consumers with full, validated transparency. They can combat fears and mitigate supply chain risk with a blend of digital and human authentication methods (such as regular third-party auditing). Blockchain can once again be implemented, in tandem with robust data collection technologies, to create a decentralised, immutable ledger of the product's journey. Many companies are piloting blockchain programmes to track their international logistics. For example, Nestlé is using blockchain technology to track their dairy from farms in New Zealand to warehouses in the Middle East.

But will they pay for it?

Shoppers are willing to put their wallets where their mouth is when it comes to buying more sustainable food and drink. In a widely-cited study on buyer expectations, Nielsen reveals that almost two-thirds of the 30,000 consumers surveyed in 60 countries are willing to pay more for products and services that come from companies committed to positive social and environmental impact (especially those earning less than $20,000). One interesting finding is that although participants are happy to pay up more for responsible products, they don't feel these products are always immediately available – signalling an opportunity for honest brands to be more overt with their practices. The study confirmed that the market for sustainable goods continues to grow.

Conclusion

Younger buyers are demanding radical visibility from companies producing their products, so they can be more confident that their local eateries and supermarket shelves are stocked with ethical brands. We must move past the current way of thinking about supply chains to give them what they want. Traceability should be seen as a way to give the food industry a more certain future in unprecedented times. With the support of rigorous, integrity-building technologies, the primary sector can break through its image crisis to adopt a farm-to-fork production cycle that benefits people and planet.

For references, please go to cxomag.com/traceability-can-fix-the-primary-sectors-image-problem

Angel Luis Teso is currently in charge of the development and deployment of Company Consultancy, Engineering and Technology Services in Cities and Territories on the Public Sector side, and on food production, alimentary chain and its distribution and retail in the Primary Sector.

Fernando Monzón has an extensive background in Internet of Things and is currently dedicated to the Primary Sector practice. He is in charge of blockchain developments oriented towards Food Traceability, Certification and CO_2 trading solutions.

5 Minutes on....

Innovations in Sustainability Risk Management

Iain Chalmers
Head of Oil, Gas & Logistics, everis,
an NTT DATA Company

5 Minutes On... how the carbon market will create a transformation in world economics, and what companies can do to manage and reduce their carbon risk exposure – increasing attractiveness to investors as well as consumers.

Scan the QR code with your smartphone camera

The Era of the Bioeconomy

By Giorgio Scarpelli, CTIO, NTT DATA Italia

Enabling technologies have given us the power to harmonise natural and economic systems. There are now lucrative opportunities for corporations to translate complexities into solutions for biodiversity protection, pollution prevention, public health improvements and job creation. Welcome to the era of the Bioeconomy.

Energy: it is what powers industry and entrepreneurship. It's what gets people to work and defines work excellence. And it is being trapped by greenhouse gases (GHG) like carbon dioxide (CO_2) and causing a radiative imbalance on the planet. The balance between the energy received from the sun and emitted by the earth changes climate and weather patterns on global and regional scales. Human activity is the primary cause of the global warming problem that's become increasingly dangerous over the past 50 years.

CO_2 and other GHG changes are redrawing the planet, changing the picture currently painted around society and ecosystems and life. The social cost of carbon is quantifies the damage done to the climate, and right now, it's $100 per tonne of CO_2. This is expected to increase to $600 over the next two decades. The reality is that climate change is a reality and that immediate and decisive action is needed to ensure that the world achieves the necessary net zero GHG emissions it needs over the next 30 years.

Companies are becoming increasingly focused on the environmental footprint of their operations, making pledges to achieve ambitious e.g., targets. But making pledges is one thing; actually meeting these targets is another.

The Herculean opportunity

To put the reality into perspective, eliminating carbon emissions over the next 30 years would mean cutting down the production of over 400 million tonnes of CO_2 every year. It's a staggering number, one that requires the transformation of lifestyles and production in ways that significantly change society because today, every single person on the planet emits approximately seven tonnes of carbon annually.

This radical transformation of environment and lifestyle to meet a target that cannot be missed is a challenge. Reliance on renewable energies isn't technically possible, as it would require that almost 2% of the cultivated areas of the planet be covered with solar panels or that wind turbines be planted on every spare hill. The Herculean task

ahead of the planet and its citizens is not to build solutions that sustain existing practices but to look to transformation using new technologies and opportunities. We need to create a convergence of technological evolution, clean energy, the remodelling of human activity and a revisit in our approaches to energy.

It's a daunting task. But it is also a great opportunity.

Given the massive allocation of resources to achieving these goals over the next few years, and the scale of the challenges that have to be overcome, there is a chance for innovative businesses to benefit from this change. From finding new ways of producing green energy to developing tools that help us understand the economic impact of carbon neutrality on a particular territory, there are business opportunities for companies that sit on this new frontier of innovative technology. New jobs, new professions, new markets and new ways of working: it's a shift in perspective and approach that does more than just shift the CO_2 problem into

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The Herculean task that lies ahead of planet and citizen is not to build solutions that sustain existing practices, but to look to transformation using new technologies and opportunities.

the realm of solution, but equally benefits from strong investment.

Governments and central bodies are putting investment on the table, providing funds to organisations that can create the advancements that help address these problems at speed. This is the new market, the new world of opportunity that can create employment and address economic complexity while countering the risk of environmental catastrophe.

The digital planet
So, how can entrepreneurs, tech innovators and corporate social investment strategy truly make inroads on global sustainability? The answers lie in a close look at the expected and in finding the unexpected solutions. Forests, for example, play a huge role in the carbon cycle, acting as net sinks of carbon and contributing to the mitigation of carbon emissions. Acting as both a carbon reservoir and a tool to sequester additional carbon, forests transform the carbon into biomass through photosynthesis. This biomass, deadwood and litter in forest soils adds to the rich soil quality and changes environmental stability for the better.

Companies could invest in forests to address climate change, protect nature and create jobs in one simple move. With forests providing a net carbon absorption of around 7.6 billion tonnes of CO_2 a year, responsible forest conservation is a smart way of removing atmospheric carbon and building climate resilience. The sustainable management of forests can potentially create $230 billion per year in business opportunities and create around 16 million jobs worldwide. Companies could sell carbon credits representing a tonne of captured CO_2 or emissions avoided over specific baseline conditions, and organisations can use these to fund climate change solutions or balance their emissions. Introduced by the Kyoto Protocol, these credits are expected to reach a $200 billion market value over the next 30 years.

To exploit these potentials, refined tools are needed to measure the actual carbon absorption capacity of forests. Technologies will be needed to direct specific interventions to maximise the contribution made by forestry activities. It will require the merging of technologies such as IoT, satellite sensing, artificial intelligence and data intelligence to make a real impact.

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Companies could invest into forests as a way of addressing climate change, protecting nature and creating jobs in one simple move.

There's a dire need for innovation leveraging new technologies and capabilities to do more than just achieve the objective of carbon neutrality. Enabling technologies have the potential to balance natural systems alongside economic systems, keeping social and economic balances intact even as the risk to the world is reduced. Technology innovators and market leaders have the opportunity to leap into markets that sorely need to translate complexities into solutions for biodiversity protection, pollution prevention, public health improvements and job creation.

This is the era of the bioeconomy, where green represents growth. Where it is not the green of the dollar bill that turns technology towards innovation, but that of the world. It's a shift in systemic thinking that puts advancement towards sustainability and the creation of environments, solutions and roles that will fundamentally benefit both business and planet bottom line.

This is an opportunity for everyone, not just a social need to fix the future.

Giorgio Scarpelli is strongly committed to the implementation of an Open Innovation model by leveraging collaboration with external bodies such as startups and academic institutions. In recent years, Giorgio has contributed to the evolution of NTT DATA Italia's offering on environmental protection, focusing on important issues such as Water Management, Smart Forestry and Sustainable Mobility.

For references, please go to cxomag.com/the-era-of-the-bio-economy

Taking Action Now to Prioritise ESG Impact

By Zahra Bahrololoumi, CEO, Salesforce UK and Ireland

The future belongs to businesses who are acting now to weave environmental, social and corporate governance criteria into everything they do. With business-societal interactions changing as we emerge from the pandemic, the challenges we face can help rather than hinder progress if we remain committed to reform and innovation.

This autumn, the corporate and political world is moving into summit season. In the coming weeks and months, business leaders and politicians will gather for the B20, the G20 and COP26 – reaffirming many of the messages delivered recently at the UN General Assembly.

There is a common theme to these meetings: the need to accelerate climate action. Every company, government, and individual has a role to play in building a sustainable future. All stakeholders must play an increasingly meaningful role in meeting the 17 UN Sustainable Development Goals to halt poverty, mitigate climate change and secure a more equal and peaceful future.

Six years on since the goals were first unveiled, compliance has changed and the urgency is now. Whether it is the auto industry being forced to cut emissions or the technology sector being required to protect personal data, the role of business is changing. Regulations remain an important tool
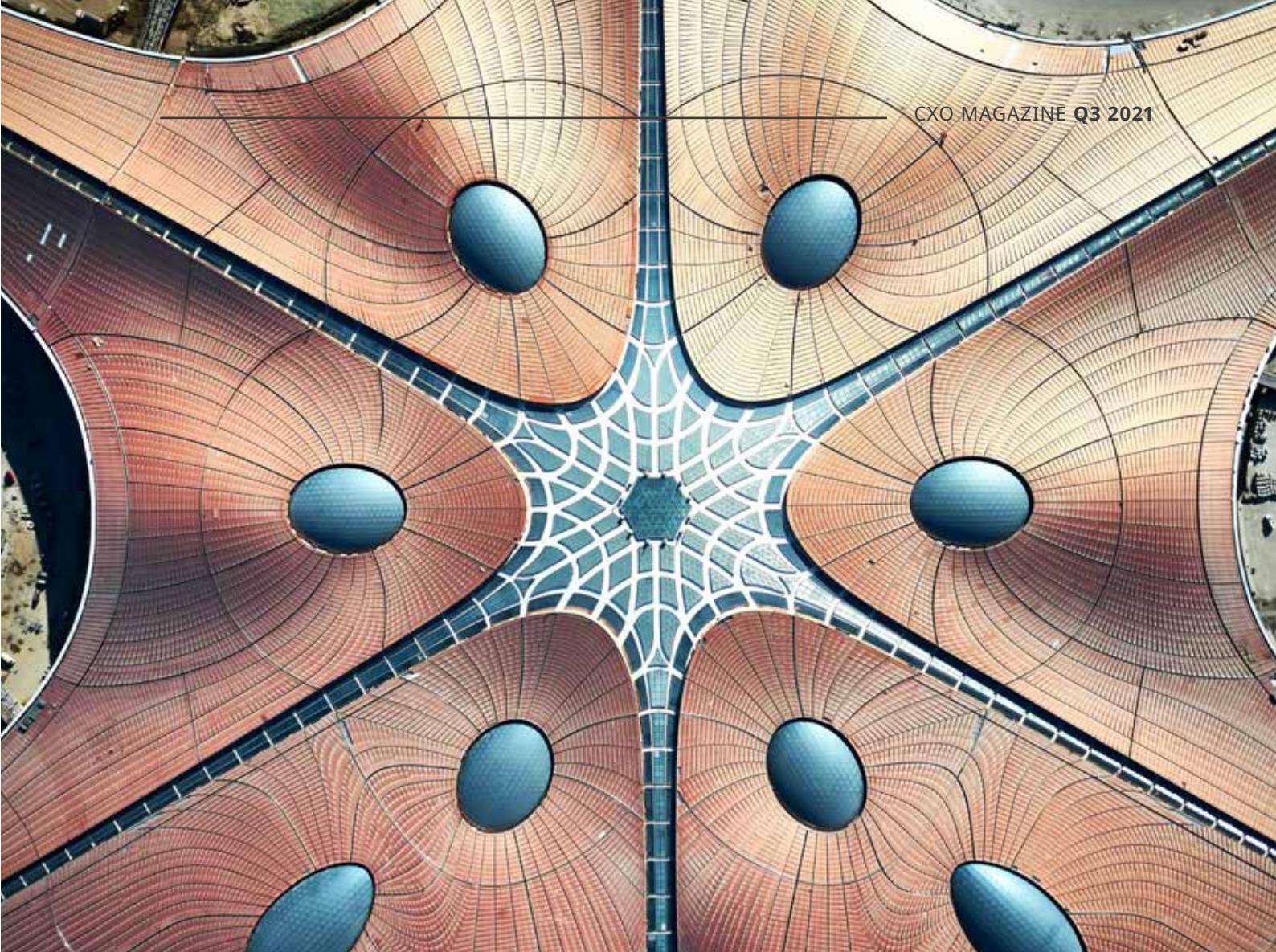
to drive greater sustainability and the future will belong to those companies taking action now.

Salesforce has been on a sustainability transformation journey for over a decade. Being a purpose-led and values driven organisation is not only the right thing to do, it helps us work best with our customers and attract and retain talent. Today, people expect a company to have values hard-wired into every aspect of its business. This is something increasingly recognised by investors too. Institutional shareholders increasingly allocate capital to companies with measurable performance on environmental, social and governance (ESG) criteria.

By leading with our own values, we inspire others to make a difference too – colleagues, customers and communities. Put simply, this is no longer a compliance burden; it is vital corporate DNA.

This is one reason why Salesforce has joined forces with the likes of Citi, JP Morgan and Amazon to create impact-focused venture funds, which help smaller companies to deliver positive impacts in areas such as education, workforce development, sustainability, equity and inclusion.

Technology can be a force for good

The pandemic has accelerated transformations across all pockets of our society like we have never seen before. The importance of these issues has also grown with the prolonged period of disruption forcing us all to rethink old behaviours. All of us have adapted to lockdowns, to remote learning, to e-medicine, to new workplace methods and new forms of social and corporate interaction.

The pandemic has illuminated how interconnected our planet is and laid bare many of the structural challenges we still have to address. Our resilience is being challenged and I fear that society in its current state will not be able to withstand the pressures of climate change.

As a result this is the era where digital innovation

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The expectation to balance financial return and market innovation with a positive social and environmental contribution is greater than ever.

has embraced society agendas. It has shown us that technology and sustainability can go hand in hand. Digital systems are becoming essential for sustainable innovation in everything from telemedicine to zero-emissions transport. And our workforces can now turn to better data management to make their businesses more sustainable.

To take one example: the Salesforce Sustainability Cloud has been launched to track, analyse and report reliable environmental data to help customers reduce their carbon emissions.

Meeting new expectations

In the run up to COP26, the UN climate change summit in November which we are proud to sponsor, we expect to see similar initiatives and a new wave of innovation for business to meet regulation requirements and to future-proof their operations.

The expectation to balance financial return and market innovation with a positive social and environmental contribution is greater than ever. Companies and business leaders should actively embrace ESG initiatives because it is good business to do so. It is good for customer loyalty, good for talent retention and attraction, good for investor relations and good for the communities we serve.

These trends have been accelerated by a pandemic

period that has forced a fundamental rethink of business-societal interactions. We need a more equal, fair and sustainable way of doing business that values purpose alongside profit. If we remain committed to reform and innovation, impact has the opportunity to prove that the challenges we face can accelerate progress, not inhibit it.

For references, please go to cxomag.com/taking-action-now-to-prioritise-esg-impact

Zahra Bahrololoumi is Executive Vice President and CEO of Salesforce UK and Ireland. Zahra has been widely recognised throughout her career as an industry leader, including Computer Weekly's Most Influential Women in UK Tech 2021. Zahra is a strong advocate for equality for all and has held many D&I roles across the world. She currently sits on the boards of TechUK and Movement to Work.

VIDEO

A Corporate Compass in the Age of Diversity

Toshi Fujiwara, Senior Executive Vice President and Representative Director, NTT DATA Corporation

Toshi talks to CXO about how innovation is essential to realise sustainability, what NTT DATA is doing to solve social problems, and why Gen Z – the most diverse generation to date – are the bearers of the future.

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Sustainable Innovation in Aviation

By Dr Johannes Bußmann, CEO, Lufthansa Technik

The aviation industry is facing its greatest performance test to date – addressing the challenges of climate change in an economically weakened state. Rethinking the way we make decisions, holding fast to a century of achievement and continually improving one's own solutions are the guiding principles to industry transformation.

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For centuries, good foresters have been working the way an entrepreneur should run his business: they take only as much wood as can grow back.

The summer of 2021 has been a long time coming: after months of lockdown, I could, at last, see queuing at the check-in counters of airports around the world, see people in full anticipation of their holiday and see aircraft on the taxiways once more.

Images of flooded cities, burning forests and snow in tropical Brazil, however, starkly bring to mind the reality of ever-accelerating climate change. Every day I sense more acutely the increasing political and social pressure on our industry, and our company, to do something about the aviation industry's CO2 emissions.

A new challenge

The aviation industry is facing a challenge like never before. Hit hard economically by the Coronavirus crisis, we must now, within a relatively short period, be able to address the growing global demand for mobility, in a virtually climate-neutral way.

A walk through an old forest helps to bring things into perspective. For centuries, good foresters have been working the way an entrepreneur should run his business: they take only as much wood as can grow back. The principle of "sustainability" originates in forestry.

Forestry represents an economic system; thus, sustainability is not an ecological principle but rather an economic one! It is rudimentary that a company should be led in such a way that future owners and other stakeholders such as employees and society will benefit from it. For the company to be successful in decades to come, this also requires an environment worth living in.

Here are three guiding principles for a sustainable future.

Economy over ecology

Firstly, one must make economic decisions, rather than – as is often the case with sustainability transformations – ecological ones. At Lufthansa Technik we have long been developing service products that reduce kerosene consumption (and therefore CO2 emissions).

For example, our engine wash Cyclean increases the efficiency of engines simply by removing dirt. We also developed a special bionic film, AeroSHARK, that imitates the structure of sharkskin and reduces drag. And finally, our digital platform Aviatar allows predictive maintenance of our aircraft and thus further increases efficiency.

These three completely different technologies have one thing in common: the economic advantage for our customers and not the ecological benefit. As a result, airlines will use up to 5% less kerosene and thus emit millions of tonnes less CO2 every year.

Act long term and remain steadfast

My second deduction is: Act long term and remain steadfast. Mankind will never stop flying ever again. Over the course of nearly a century, a globally interconnected infrastructure has been established: airports that are linked to refineries with pipelines; roads and railways that connect cities and congested urbanisation to airports; and a transport infrastructure, of which air traffic is an integral part.

The achievements of a century cannot be abandoned at short notice without causing immeasurable damage. In addition, when setting up new structures, problems emerge that are often

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The achievements of a century cannot be abandoned... This is why we must adjust existing structures to meet the requirements of climate-neutral aviation.

deliberately overlooked in the fascination for the new. This is why we must adjust existing structures to meet the requirements of climate-neutral aviation.

Which leads to the third deduction derived from the principle of sustainability.

Innovation and improvement over replacement

Sustainability involves unceasing improvement. Simply abandoning something because one is concerned about its impact is very short-term thinking.

Further improvement of aviation's climate footprint seems to be best achieved by new fuels. Since the consumption of fossil kerosene will very soon no longer be a viable solution, we need to replace it. This is controllable and justifiable as we can use the existing infrastructure.

Therefore, it is important to develop fuels that can be used in existing engines and release less CO_2 during combustion.

Synthetically produced kerosene will gradually replace fossil kerosene. The production entails using kerosene that has already been emitted (e.g., from cement plants) so that no additional CO_2 arises. Furthermore, soot particles are minimised because the fuels produced are highly purified and specially designed for aviation. Other substances in kerosene that also impact global warming, such as nitrogen oxides and soot, can be reduced and eventually avoided altogether.

The future

The ultimate step is the use of CO_2-free fuels. Today, hydrogen seems to be the most suitable candidate.

Although I can hardly imagine solving all the difficulties that, at the moment, stand in the way of using hydrogen in aviation – extreme cooling, working with high pressure, safe refuelling and usage in the aircraft – we must always be open to new technology. That's why we have already started to build a hydrogen technology demonstrator together with the German Aerospace Center, even though we do not know whether a hydrogen aircraft will ever enter regularly scheduled services.

The aviation industry is facing its greatest performance test to date – addressing the challenges of climate change in an economically weakened state. Economic decision-making criteria, steadfastness and constant improvement of one's own solutions are the three guiding principles based on sustainability that will make this transformation a success.

For references, please go to cxomag.com/sustainable-innovation-in-aviation

Dr Johannes Bussmann has over 20 years of experience in engineering, working in Germany and internationally throughout his career. He has been a member of the Executive Board of Lufthansa Technik since September 2012, and CEO since April 2015.

Why It Makes Business Sense to Protect and Restore Nature

By Eva Zabey, Executive Director, Business for Nature

Business and nature are eternally and irreversibly linked. Corporations that transform their business models will gain a competitive advantage over those that do not advocate for nature. To take a leadership position in this realm, companies must Assess, Commit, Act and Advocate.

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Resilient economies and thriving businesses rely on nature for a stable operating environment, healthy customers and workforces, and natural resources necessary for production. But we are pushing nature to the brink.

UN negotiators have recently concluded two weeks of intense discussions between countries to progress a global agreement to protect nature for the next decade.

Due to be agreed at the UN's 15th Biodiversity Conference (CBD COP15) in Kunming, China, the Post-2020 Global Biodiversity Framework is the nature equivalent to the Paris Climate Agreement. It has the potential to scale and speed up action and investment from the private sector, unlock trillions in economic opportunities, and guide global society to achieve the CBD (Convention on Biological Diversity) 2050 vision of "Living in Harmony with Nature".

The latest draft of the agreement has been produced by a CBD working group chaired by Canada and Uganda. Over the coming months, the draft will get refined to a point where all parties are expected to agree to the text at the COP15 conference next year.

There are many improvements in this latest draft, in particular the recognition of the role of business in co-leading the transformation needed. However, many elements still need to be strengthened and refined to ensure the adoption of a transformative framework.

Inextricably linked
While most businesses might not be aware of the

COP15 negotiation process, the devastating effects of nature loss and climate change are visible.

Resilient economies and thriving businesses rely on nature for a stable operating environment, healthy customers and workforces, and natural resources necessary for production. But we are pushing nature to the brink. More than one million species are threatened by extinction, and WWF estimates that the cost to business of continued biodiversity depletion could be as much as £8 trillion over the next 30 years.

All companies not only impact but also depend on nature and the resources it provides. Nature provides ecosystem services worth at least $125 trillion a year globally, from which businesses benefit at no cost. From the food we eat to the clothes we wear, businesses depend on freshwater and climate regulation; agribusinesses depend on pollination and pest control; hydropower companies rely on erosion control. Simply put, there is no business on a dead planet.

Taking decisive action to advocate for nature
Businesses must act now to protect, restore and sustainably use natural resources. The World Economic Forum has highlighted that by

> **Those who transform their business models will gain competitive advantage, and forward-thinking companies are committing, acting and advocating for nature.**

transforming the three sectors responsible for almost 80% of nature loss (food, infrastructure and energy), a nature-positive economy can unlock $10 trillion of business opportunities.

Those who transform their business models will gain a competitive advantage, and forward-thinking companies are committing, acting and advocating for nature.

Unilever has announced a $1 billion climate and nature fund and committed to protect and regenerate 1.5 million hectares of land, forests and oceans by 2030.

Walmart has committed to protect, manage or restore at least 50 million acres of land and one million square miles of ocean by 2030.

Brazilian pulp and paper company Suzano uses only sustainably-grown wood and has put in place a strict zero deforestation policy.

HSBC has partnered with Pollination to launch the first large-scale investment fund aiming to raise $1 billion to finance a diverse range of activities that preserve, protect and enhance nature over the long term and address climate change.

What businesses can do to take the lead

On a practical level, companies can do the following to make sure they take a leadership position:

Assess their material impacts and dependencies on nature across their value chain and strengthen their accountability systems, incorporating social and environmental contributions.

Commit to setting science-based targets for nature. These targets should be ambitious, measurable, time-bound and public. Companies must also monitor, report and improve on progress.

Act to avoid or reduce the impact on nature and regenerate and restore natural ecosystems. This means transforming business models and giving back more than they take. Firms could redirect assets that over-exploit nature to invest in circular business models and products.

Advocate for more ambitious nature policies. This includes making nature core to the economic recovery from the pandemic, redirecting harmful subsidies towards protecting nature, requiring mandatory nature-related disclosures, implementing green taxes and creating integrated climate-nature policies.

Incentives for long-term thinking

With all this said, businesses cannot address this global crisis on their own. To accelerate action, governments must set ambitious nature policies that provide a level playing field and stable operating

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While businesses have been part of the problem, they must be part of the solution. Now is the time for us to work together and deliver an equitable, nature-positive and net-zero future where everyone can thrive.

environment. We need a fundamental rewiring of our economic system to recognise and reward long-term performance, not short-term profitability.

Through the 'Nature is everyone's business' Call to Action, more than 900 companies are urging governments to adopt policies now to reverse nature loss this decade, and I'd encourage all companies to add their support.

The Post-2020 Global Biodiversity Framework, due to be agreed at the CBD COP15 in China next year, is a critical moment when the international community will hopefully consent to a new Paris style agreement, but for nature.

Businesses can and should engage in the discussion to ensure a meaningful outcome. Working with companies, we're calling on governments to:

1. Deliver a clear, simple and rallying mission to halt and reverse biodiversity loss by 2030;
2. Strengthen the targets in the framework to support and require businesses and financial institutions to measure, disclose and report on their dependencies and impacts on nature;
3. Eliminate or redirect all subsidies and incentives harmful to biodiversity.

Businesses and CEOs should also raise their voices to ensure the right level of ambition is achieved at the UN Climate Change Conference (COP26) in Glasgow later this year, which is an opportunity to urge for greater integration of climate and nature policy.

While businesses have been part of the problem, they must be part of the solution. Now is the time for us to work together and deliver an equitable, nature-positive future where everyone can thrive.

For references, please go to cxomag.com/why-it-makes-business-sense-to-protect-and-restore-nature

Eva Zabey is an experienced leader, facilitator, speaker, writer and media spokesperson who has led Business for Nature since 2019. She has 15 years prior experience leading multiple projects at the World Business Council for Sustainable Development (WBCSD). This included work on natural, social and human capital measurement and valuation for business decision-making, towards integrated performance management, and ultimately reporting for investors.

Talks for Good

NTT Disrupt speaks with world-class leaders about how tech can lead society for the better.

VIDEO

Joel Cuello on The Future of Food and Water

"We need innovative technology so that we create and add value towards advancing the long-term sustainability of the food supply in the whole planet" says Joel Coello, Professor of Biosystems Engineering, The University of Arizona. Vice-Chair, International Association for Vertical Farming (AVF).

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How Renewable Energy Communities Give People the Power Back

By Miguel Fontela, Director, everis, an NTT DATA Company

The European Green Deal's ambitious decarbonisation goals are a chimera without the contribution of small and medium energy users. This disruptive change from consumers to prosumers will only happen if we find the way to engage them with technology, digital tools and new energy markets. Energy communities are one of the most promising initiatives to foster this vital change.

The ambitious goals of the EU Green Deal have put even more emphasis on the need to empower, mobilise and engage citizens for reaching our climate energy objective. Focusing on people and citizen-driven initiatives is seen as a key priority of the European energy policy, as it will support the transition to a cleaner and more efficient energy system.

Energy communities, locally owned and operated entities geared towards the transition to clean energy, have the potential to contribute to the various initiatives and objectives of the EU Green Deal. They offer a holistic approach to the decarbonisation of local energy systems by including a wide range of potential activities such as renewable energy integration, energy efficiency measures, balancing and flexibility services to the grid, novel ICT management platforms, local stakeholder engagement (through information, education and participation), clean mobility and more.

In a nutshell, they are pushing and helping citizens and local stakeholders to shift from passive consumer to active prosumer (one who produces as well as consumes energy; individuals may do this,

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> **Focusing on people and citizen-driven initiatives is a key priority... it will support the transition to a cleaner and more efficient energy system.**

for example, through the use of solar panels on their roof at home).

This view is encapsulated by the European Commission's Directorate-General for Energy: "Energy communities should lead the transitions from consumers to prosumers while giving the tools and regulatory framework to allow citizens and local authorities and stakeholders to rethink and decarbonise their local energy systems."

The abundant advantages of energy communities

Renewable (or Citizens) Energy Communities, as defined within the EU regulatory framework, are legal entities of voluntary shareholders and members – individuals, SMEs and local authorities. Essentially, it is for and by the local community. In the definition from RED (Renewable Energy Directive), the autonomous Renewable Energy Community is "effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity".

More specifically, taking the definition from IMED (Internal Market for Electricity Directive), these communities "can be engaged in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members."

Invariably, these communities are not about profit and financial gain, but rather the collective benefits – environmental, economic and social – for the local area it serves.

Studies in Germany, and more recently in France, have shown that the return to the local economy is up to seven times higher when renewable energy projects are community-owned. Community ownership empowers and engages consumers, as well as fosters acceptability of the clean energy transition to a carbon-free economy and society.

Moreover, energy communities are especially well-suited to foster energy transition in rural and energy-poor areas. They lower the barriers that prevent socially vulnerable groups from participating in distributed generations and communities. They also fight energy poverty by reducing consumption and supply tariffs and, in some cases like Greece, a percentage of the profits made by an energy community must be allocated to energy poverty by law. Therefore, energy communities are central to ensuring that no one is left behind in the energy transition.

All for one and one for all

Energy communities, by definition, are built upon a wide range of stakeholders, ranging from public bodies and municipalities to citizens and SMEs. This leads to an important challenge in design to find the optimal scenarios that meet and balance the different stakeholders' interests and

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> **The return to the local economy is up to seven times higher when renewable energy projects are community-owned.**

objectives. These initial consultancy works are key to developing a successful energy community.

To measure and track the main impacts and benefits of energy communities, relevant KPIs must be defined to ensure all stakeholders needs are taken into account, such as:

- **Grid functionality.** Integration with distribution system operators (DSOs) and transmission system operators (TSOs) is key to assure the stability, reliability, security, safety and privacy of energy communities' assets and services;
- **Affordability.** (Including ROI and low energy bills) Tracking financials is crucial to ensure energy communities meet their environmental objectives in an economically feasible way;
- **Behaviour change.** The success of energy communities needs the engagement and behaviour change of the people involved, so developing a methodology to measure it is crucial;
- **Community benefits.** Local authorities should work hard to ensure the energy community also fosters the social aspects of inclusiveness, energy independence and community building;
- **Externalities.** (e.g., GHG emission reductions, increasing renewable energy, lowering noise level, etc.) These are the most obvious but important outcomes of energy communities and a solid and reliable methodology to measure them is therefore fundamental;

- **Competitive advantage.** (Including local employment, innovation, green image, validation of new products and services, replicability, etc.) The competitive advantages provided to the local ecosystems should be exploited and measured to get the most out of energy communities.

Using the power of local action is essential to redress the imbalance of resources that our climate emergency is making all too apparent. Through energy communities, small and medium-sized energy users can move from consumer to prosumer and help us attain the European Green Deal's decarbonisation targets. Together, we can be the difference.

For references, please go to cxomag.com/how-renewable-energy-communities-give-people-the-power-back

Miguel Fontela uses his 18 years of experience of construction knowledge to support projects about energy efficiency, smart grids and data management, local energy communities (LEC), demand response (DR), integration of renewable energy (RES), batteries for energy storage and energy P2P trading laying in BlockChain technologies.

Think Bigger When It Comes to Your Carbon Footprint

By Dries Guth & Paul Dietrich, Principal Innovation Manager & Innovation Expert for Sustainability, NTT DATA Business Solutions Germany

Understanding what needs to be done to decrease emissions is one thing, but putting it into effect is something else. Sustainability technologies that enable businesses to take action do exist – corporations must now be willing to use them.

Time and time again, nature reminds us that sustainability is the most pressing issue in this day and age. And it is safe to say that it will stay this way for years and even decades to come.

Natural catastrophes like wildfires or floods occur regularly all over the globe, which serve as warning signs and explicit calls for action. These phenomena make it evident that we need to intensify our efforts to find a more sustainable lifestyle. And it has to happen as quickly as possible because current reports of the Intergovernmental Panel on Climate Change (IPCC) are once again alarming.

When it comes to the business world, many companies have already adjusted their individual strategies and business practices to operate more responsibly. Corporations that are already on board have understood their corporate social responsibility (CSR) assignment at a high level and try to contribute to the longevity of our planet. This development is beginning to move in the right direction – but we need them to do more.

It seems to be the case that some corporations still approach the concept of sustainability in too limited a
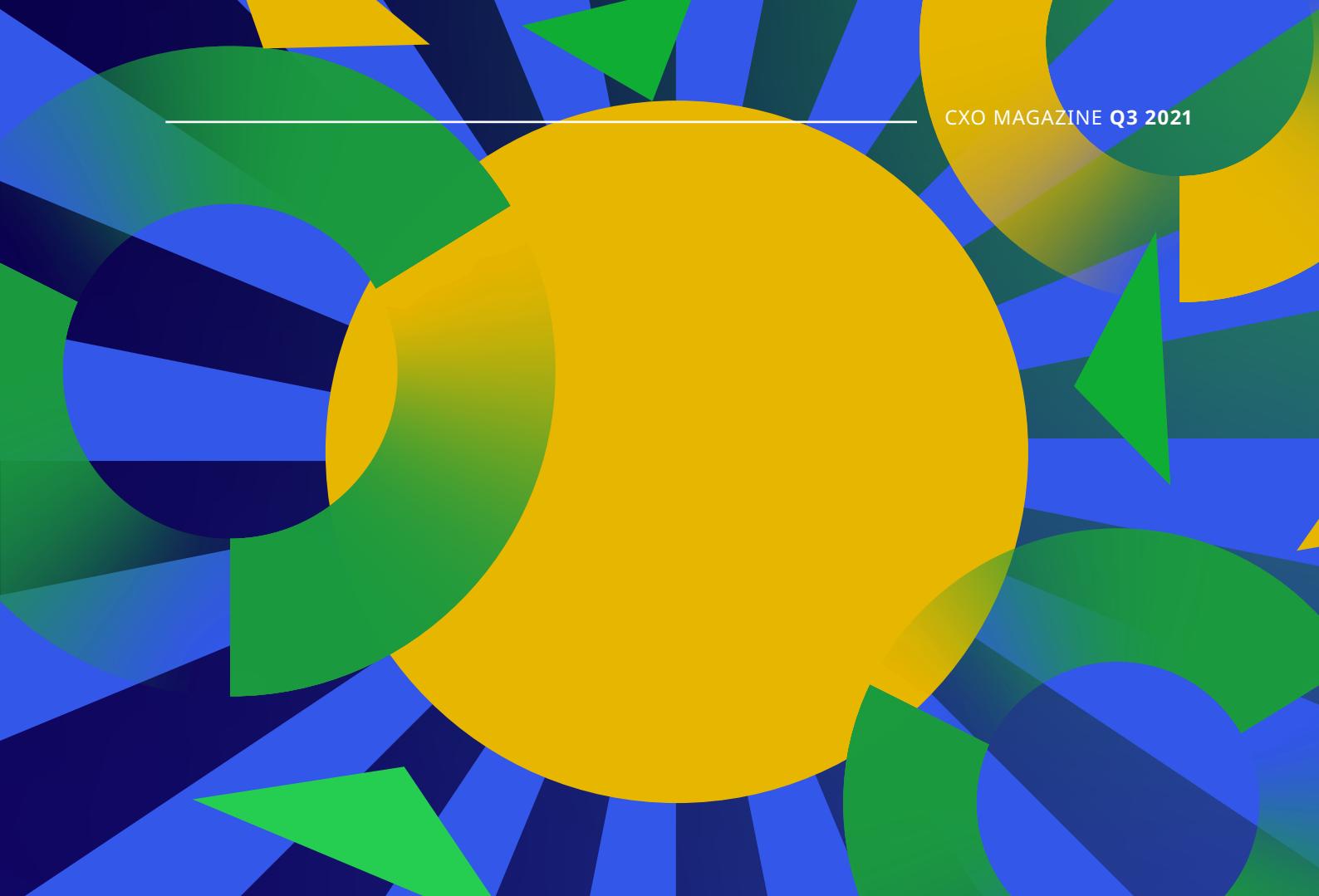
way – by focusing too much on their individual carbon footprint and, in the course of this, forgetting about the bigger picture.

Keep an eye on your entire value chain

When it comes to the carbon footprint, knowing all about CO2e becomes a necessity. CO2e stands for carbon dioxide equivalent and is a measure for various greenhouse gases, whose emissions have an increasing effect on global warming.

Businesses need to understand that knowing what happens in their own backyards regarding the direct (Scope 1) CO2e emissions is just one part of the equation. Having an eye on the direct CO2e emissions – i.e. all the emissions caused by one particular company – does not provide valid information on whether a product can be labelled as CO2e neutral.

To determine whether a product can, in fact, be regarded as eco-friendly, the whole value chain has to be put into consideration – including all the indirect CO2e emissions, known as Scope 2 and Scope 3 emissions. In Germany, for instance, the aptly named Supply Chain Law verifies that the entire value chain remains sustainable.

Companies should ask themselves the following questions: What is the structure of your value chains? Correspondingly, how many suppliers do you work with? And most importantly, are all the parts that these suppliers produce on your behalf CO2e neutral? One more thing: what about the suppliers of the suppliers?

These questions insinuate that the topic of sustainability is complex and that monitoring your own actions in an isolated way just does not do the trick. Instead, businesses need to broaden their perspectives and think holistically when it comes to their carbon footprint. All the processes across the value chain have to be carefully evaluated in order to gain an overview of how eco-friendly the overall production of a company actually is.

There is a term for this approach: the key is to monitor the product-based carbon footprint (PCF).

Keep track with modern data technology

Understanding what needs to be done is one thing. Putting it into effect is something else. How can a company achieve a clear and transparent insight

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The current environmental situation is too urgent to shy away from treading new paths. Businesses can make an even bigger contribution by stepping up their efforts: take a more in-depth look at value chains and track the carbon footprint of all the production steps.

into the carbon footprint of its entire product portfolio? And how can this be done across the entire value chain?

The answer is provided in the field of technology, and respectively, data collection and analysis. Each step on the value chain of a product can be attributed to the precise CO_2e emission value that is caused by all the individual production processes. The Greenhouse Gas Protocol provides companies with a detailed overview of emissions and can serve as a guideline for identifying environmentally harmful substances.

From the development of resources over the processing of materials to the transportation of goods – everything can be broken down to the last detail and can get recorded in databases. And cloud-technologies make it possible that data for all the direct and indirect CO_2e emissions can be captured since companies and all their suppliers are interconnected.

The good news is that most companies already possess the IT infrastructures that serve as the foundation for putting this product-based carbon footprint tracking approach into action. And the market for technological solutions that assist in this endeavour is growing rapidly. New business opportunities are arising: major companies, like SAP,

are already developing carbon footprint analytics software that provide companies with detailed, real-time data insights into the carbon footprint of their entire value chain.

In sum, all the required options for a more efficient take on tracking, and thereby reducing, CO_2e emissions already exist. Companies only need to implement them by using suitable technologies and maintaining the existing emission standards.

Increase sustainability, increase business benefits

The time for companies to revise their strategies for more sustainable production methods across the entire value chain is now.

The basis for the decision to make this shift is clear: it supports the UN's 17 Sustainable Development Goals (SDGs), which provide a true north for companies in terms of longevity; it is the right thing to do in terms of corporate social responsibility; and it will be financially beneficial since a lack of sustainability will go hand in hand with higher expenses in the future.

Rather than dread this development or even consider it as something forced upon them, businesses must focus on all the positive aspects of it.

By getting more transparency of their value chains,

" **The good news is that most companies already possess the IT infrastructures that serve as the foundation for putting this product-based carbon footprint tracking approach into action. And the market for technological solutions that assist in this endeavour is growing rapidly.**

companies have the chance to:
- Optimise their overall production;
- Gain more detailed insights into which processes are environmentally friendly or harmful;
- Make well-calculated adjustments for the sake of better and more sustainable productivity;
- Reduce costs and increase flexibility when it comes to financial planning.

Realising this and acting accordingly creates a situation in which everybody profits: businesses become more productive and sustainable, and at the same time, environmental pollution is reduced, and nature is preserved more effectively.

Step up efforts – it's time to extend the scope

All in all, the current environmental situation is too urgent to shy away from treading new paths. Businesses can make an even bigger contribution by stepping up their efforts in terms of becoming more sustainable. A very promising approach to achieve this is to take a more in-depth look at value chains and to track the carbon footprint of all the production steps.

It sounds like a little bit of work – which it is. But the rewards are significant: public demand

for sustainable products is sharply on the rise. The concepts and solutions for sustainability transformation are out there, especially in the field of technology. Businesses just have to be willing to incorporate them.

For references, please go to cxomag.com/think-bigger-when-it-comes-to-your-carbon-footprint

As Principal Innovation Manager, **Dries Guth** drives sustainable innovation in the areas of Internet of Things, Artificial Intelligence and Cloud Platforms to develop business models with impact on climate and society.

Paul Dietrich works with Dries at the Co-Innovation Lab and is an innovation expert in evaluating product carbon footprints in corporate sustainable supply chains.

Quantum Computing's Leap into a Sustainable Future

By Oliver Koeth, CTO, NTT DATA DACH

Complex computations are needed to help us solve the planet's climate crisis. Business innovators can stay one step ahead of changes with an adolescent mathematical field, Quantum Computing – the tool that will increase the velocity of exploration toward a more sustainable future.

Since we evolved the capabilities, humanity's drive has always centred on optimisations that better manage the earth's resources that allow us to harness the most advantages. With the pressure to move forward to a more sustainable society, traditional optimisation goalposts – around getting more, moving faster and, in the case of business, being more profitable – are shifting.

Organisations are asking new, difficult questions about how we work, create and consume. Rather than be daunted, however, forward-thinking organisations are viewing this phase as a 'blue ocean' of opportunity to explore.

How can we, as business innovators, keep one step ahead of these changes? Technology, and particularly new Quantum Computing power, is already finding exciting applications.

Time is of the essence

Societies throughout recorded history, from nomadic herdsmen to hard-nosed city investors, have organised themselves around the limitations of the resources available to them.

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Success will not come from predictable places, and the proven innovation paradigm of 'fail fast, fail often' will grow in importance. Analysts will need to evaluate approaches in this field not by outcomes, as we've grown used to, but by the throughput of any exploratory approaches in themselves.

Be it stone and sand or dollars and yen, much of the work of humans has been motivated by the management, movement and ownership of things. Regardless of whether social policy came from democracy or dictatorship, whether transactions were governed by capitalist or socialist ideals, or whether individual morality was directed by mono- or polytheistic religions (or, in fact, no religion at all), what got people out of bed every morning was a need to control what was around us for gain.

However, today the heuristics of contemporary pure growth models are widely understood to have stalled. If we have reached an end, how do we move forward?

The Covid-19 crisis has shown societies can pivot quickly and that a fundamentally different allocation of resources is possible, albeit temporarily. The question is, can 'optimal configuration' be aligned to new sustainability goals long term? Assuming it can, how would we go about such a move practically? The painfully slow process of gaining political consensus on these issues implies it won't be easy. Using outdated assumptions and algorithms, some of which date back centuries, is part of the problem.

Success will come from finding new ways to frame questions themselves. Of course, businesses are not necessarily motivated by the greater good either. Change will ultimately come when rewards can be realised. These will surely come to the first movers in any brave new world. It will not only pay then to find solutions; it will pay to do it quickly.

The fifth industrial revolution

Some say we are currently in flux between a fourth and fifth industrial revolution. The first two, in the 19th and early 20th centuries, were the result of great strides in mechanisation and the exploitation of fossil fuels. Early computing and mass communication kickstarted the third, and digitisation and the internet led to a fourth.

The one thing we can say about the fifth industrial revolution, whatever form it takes, is it will be here sooner than we think. The Japanese government has already launched a Society 5.0 initiative, for example, that focuses on new, more human-centred measures for their nation's growth. There will clearly be commercial winners and losers in such developments.

For businesses to prosper in the uncertain days to come, they will need to follow a broad exploratory approach. Success will not come from predictable places, and the proven innovation paradigm of 'fail fast, fail often' will grow in importance. Solutions will come from repeatedly tackling business problems with ever-increasing variable combinations. Analysts will need to evaluate approaches in this field not by outcomes, as we've grown used to, but by the throughput of any exploratory approaches in themselves.

The power of computers

"I do not seek. I find." – *Pablo Picasso*

Studying Picasso's brand of Cubist painting, it is clear he didn't start with a desire to optimise his

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> **Nobody can deny that traditional computing has played a great role in propelling our economies to unprecedented wealth and well-being. But what of finding answers to tomorrow's challenges?**

subjects. He had a radical way of seeing the whole, from which we can learn.

Nobody can deny that traditional computing, using Alan Turing's 'input, memory and output' model in ever-expanding parallel series, has played a great role in propelling our economies to unprecedented wealth and well-being. These computers are very good at, to borrow Picasso's language, seeking answers through calculating 1s and 0s. But what of finding answers to tomorrow's challenges?

Quantum Computing opens up Combinatorial Optimisation (CO) – an emerging sub-field that uses mathematical methods to determine the best possible solution from a vast set of possibilities, i.e. to solve discrete optimisation problems – to industry and business as never before. Quadratic Unconstrained Binary Optimisation (QUBO), for example, is a mathematical formulation that can embrace an exceptional variety of important CO problems. Thanks to special reformulation techniques, they are also straightforward to apply to practical, real-world problems related to sustainability.

If you tasked traditional computers with finding the highest point of a rollercoaster, for example, they will calculate it by measuring each point and doing a comparative check. Now imagine a technology that can 'see' the whole structure at once and that the rollercoaster is 100km long. That's what Quantum Computing gives us.

Current Quantum Computing use cases include:

- Finding alternatives to depleting noble earth elements for electronics manufacturers;

- Reducing emissions in mobility and supply chain networks; and
- Discovering new sources for drugs and medicines in nature.

This is exactly why I feel excited about NTT DATA's unique position as a provider of Quantum Computing. Thanks to the organisation's commitment to R&D, we, alongside our customers, can use new tools to greatly increase the velocity of exploration. We are confident such analysis will play a key role in changing the trajectory of societies towards more sustainable futures.

For references, please go to cxomag.com/quantum-computings-leap-into-a-sustainable-future

As CTO, **Oliver Koeth** advises clients on issues relating to new technologies in the areas of cloud, internet of things, artificial intelligence, cyber security and quantum computing, and brings in the expertise of NTT DATA's global technology and innovation portfolio. He is also responsible for the global Agile/DevOps centre of excellence and co-founded Ensō, which combines human-centred design with a deep understanding of technology to co-create desirable futures with NTT Group customers.

Seven Tools for Sustainability Success

By Kristoffer Nilaus Tarp, Head of Sustainability Practice, NTT DATA Business Solutions Nordic Region

We don't have time to think conceptually about sustainability operations anymore – we must act. Results on the ground are what we need to move the needle, but many leaders aren't sure how to get started. With this toolkit, you can put theory into practice now.

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Customers will have their specific requirements and expectations around products and services. Regulators will have guidelines for your industry to follow. By mapping these varying data points, you can create a picture of your current performance and establish the starting point for your sustainability transformation.

Eventually, all organisations looking to change to more sustainable operations will need to transition from strategic thinking to tactical implementation. In a career that's observed international development in some of the world's political hotspots, I have learned that results on the ground are often what matter most. This is especially true if you are working under pressure, as we all ought to be in relation to climate change today.

Living beyond our means

Earth Overshoot Day is a point on the calendar that clearly illustrates the challenge we are facing. It is the day when, according to climate science and ecology data, the earth runs out of natural resources, and humanity goes 'into the red' each year.

In 2021, Earth Overshoot Day was 29th July – the earliest ever recorded. Since that day, we have been using resources we simply don't have. Such a stark, tangible indicator moves the debate out of the political and theoretical. Therefore, the focus for this article, and my book on the subject, is practical. With this toolkit, you can make changes to your organisation today.

It all starts with data

It is useful to begin by viewing your business in the round: as an ecosystem of investors, employees, partners, suppliers, regulators and customers. Each of these groups will have different sustainability

data packages that are relevant to them, and it's important someone in your business has an overview of them all.

Employee satisfaction, for example, can be measured in terms of alignment with personal sustainability goals. The sustainability agenda is probably the only area of business where there is such a close one-to-one overlap between the personal and professional. It's your employees' planet, too, after all. Customers will have their specific requirements and expectations around products and services. Regulators will have guidelines for your industry to follow. By mapping these varying data points, you can create a picture of your current performance and establish the starting point for your sustainability transformation.

As you do this, there is a risk you will judge yourself harshly. High-profile sustainable startups are often cited as examples to follow, but they won't be right for everyone. By contrast, change for long-established global agriculture or construction organisations may be slower and perhaps less glamorous,but no less important. Realistic and sensible benchmarking is key to success. You may have to work through complex dilemmas, tough decisions and competing priorities as you do this. As an example, though we know single-use plastic is damaging, it played a key role in saving lives during the Covid-19 pandemic.

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As with any change management initiative, sustainability needs linking directly with your business KPIs and the way you manage and reward your employees. A sustainability programme that isn't linked across the business in this way risks being just lip service.

Seven tools for sustainability

Owing to the above, the first of my seven tools for sustainability is **understanding where you are starting from**, objectively and accurately. It's important to celebrate successes as you identify things that need changing. Nobody enjoys being beaten up. Lean on your willingness to change with brazen transparency, and your employees will rally behind your purpose, even with disappointing initial figures.

The second tool is a **narrow focus** for sustainability activity. You can't do everything immediately, so focus energy on the areas that will make the biggest difference. That doesn't mean you shouldn't have aspirational sustainability goals. Ambition is important too: dream big, and trust that you can and will drive commercial advantage from ambitious sustainability initiatives in the longer term.

The third tool is, therefore, a bold target. Rather than talk of percentage reductions or marginal improvements, **tell the world where you want to be in ten years.** John F. Kennedy's inspirational 'Moon Shot' speech announced a seemingly impossible goal. In the beginning, announcing your targets might feel tantamount to launching humans into space, aiming for a much smaller rock. But keep in mind, Kennedy's astronauts weren't on the moon the day after his speech. There was a series of smaller goals to conquer to

take that one small step for man.

The fourth tool builds on this with an **engagement strategy** for internal and external partners and stakeholders. Employees, suppliers, customers and regulators all have a role to play in delivering success. One of the most important components of your sustainability mission will be to motivate and involve all parties. Strengthen the chain of jobs to the outcome with faithful links.

Sustainability is a new discipline for many of us. It is hard to get right too, so there will definitely be failures along the way. This is why the fifth tool I recommend is a **testing methodology.** It should allow you to try things easily, test variables and then scale responsively as you roll out new ways of working.

The sixth tool is an **integration programme** that allows you to 'walk the talk'. As with any change management initiative, sustainability needs to link directly with your business KPIs and the way you manage and reward your employees. A sustainability programme that isn't linked across the business in this way risks being just lip service. Such an initiative might ultimately be less effective than having no policy at all.

The seventh and final tool is **innovation.** Imagining the transformation required for a sustainable future might feel challenging, but it is also exciting for anyone involved in developing new ideas. Indeed, innovation processes are in

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Change will only happen if leaders consciously point innovators in the direction of sustainability.

themselves fantastic tools to unleash enthusiasm amongst your teams. Good companies can make their employees excited about a new product or entering a new market, but both seem less inspiring than turning an unsustainable practice around. It's not overly dramatic to suggest such things will save the world after all.

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Changes will only happen if leaders consciously point innovators in the direction of sustainability. New applications of big data, artificial intelligence, robotics, autonomous vehicles or any similar new tech can equally be used to continue current levels of consumption. This is something we are very aware of at NTT DATA as innovation is a key part of our own sustainability initiatives. Our focus is squarely on how we, alongside our customers, can use it to do good and create genuinely sustainable outcomes.

You only need to think of the dire implications of Earth Overshoot Day to realise we haven't time to keep talking about sustainability strategies without making real, lasting change. I trust some, if not all, of the seven tools I have described here strike a chord for you and your business. Here's to moving forward together.

Kristoffer Tarp is an expert on sustainability, speaker and co-author, Business for the Future. In his role at NTT DATA Business Solutions he has advised over 40 private and public companies on sustainable business development, and sits on several Boards of sustainably focused companies and investment funds – from startups to market leaders.

For references, please go to cxomag.com/seven-tools-for-sustainability-success

5 Minutes on....

Going Circular

Catherine Weetman

Founder of Rethink Global and Author
of *A Circular Economy Handbook*

5 Minutes On... why moving to a circular economy is such an important part of zero carbon strategies, and how making products for life deepens relationships with customers and opens up new markets.

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The Beating Heart of Sustainability: People

By Denisa Potra, Head of Administration and Talent Acquisition, NTT DATA Romania

The world is online, working remotely, clocking long hours from unusual locations. It's important to remember that the workers that sit behind the screens and keyboards are people, and they need more than just another KPI to keep them connected and engaged.

Employees are experiencing burnout at extraordinary levels. Recent data from Indeed shows that employee burnout has become increasingly severe, with 52% of respondents burned out and 67% believing that this has grown worse over the past year. Millions of people are online. They're working longer hours, dealing with different types of stress, and anxiety levels are high. The prolonged pressure of the pandemic alongside unpleasant social media, politics and economic challenges has made the world a toxic working environment. An unsustainable environment.

Organisations need to step in and step up, providing their people with the kind of support that they really need during these challenging times. It's time to think outside the box and give people another place to play, think, learn and grow, one that takes them away from the nine to ten hours they sit in front of their computers and gives them space to breathe.

One way to do this is to connect with local communities and start projects that include sports, education, culture and environmental activities. These initiatives offer people new experiences and

connections in society and play no small role in personal and community-led sustainability. Give people more than work: give them projects they can believe in and that take them away from the stress and anxiety of everyday life.

Create engagement with Corporate Social Responsibility

A well-developed Corporate Social Responsibility (CSR) programme that connects communities and people has proven benefits for both business and employees.

Research has long shown that young people entering the workforce want to work with companies committed to building good practices and a good reputation. In 2007, a global workforce survey found that CSR is the third most important driver of employee engagement overall, and an organisation's reputation for social responsibility is an important driver for both engagement and retention. More recently, a survey of young professionals found that 64% won't take a job from a company that doesn't have strong CSR practices.

Moreover, IBM's Institute for Business Value found that sustainable growth was a key benefit

of CSR and that it should become a part of the organisation's sustainable growth strategy. Now, customers, employees and investors are demanding that companies prioritise sustainability.

CSR needs to become an important part of the organisation's strategy to create a connected and more engaged workforce and help people avoid burnout. It can be implemented on a global scale, focusing on communities and projects that are relevant to the local teams, and give people an opportunity to become involved in something more than just the daily grind, the slouched-over-the-keyboard exhaustion.

Companies need to be concerned about their employees. They need to make sure that they're connected and that the company addresses their core values. If a person hungers for knowledge, give them learning opportunities. If a person wants to contribute to society, create a CSR programme that makes a difference.

The long-term sustainable value of people-focused leadership

Engaged and connected employees are happier

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Give people more than work: give them projects they can believe in.

and more fulfilled. They are more resilient and empathetic, and they are loyal to companies that help them feel this way – companies that give them opportunities to thrive.

If you embed a skills development programme into your business and create a culture of learning, you're building tomorrow's workforce. Skills are in short supply on a global scale, so by upskilling your employees, you're opening up new opportunities for them while creating a sustainable flow of talent throughout the business. This minimises the risk of skills gaps being filled by expensive talent that is often more loyal to the salary than the company while maximising the potential of the people you already have on board. Of course, the other value add is that you're building a workforce with agile and adaptable minds and approaches that are invaluable to business growth and long-term success.

Another important consideration that's often addressed with CSR programmes and a culture of learning is to ensure that employees are given the right tools to manage their work-life balance. This is a difficult tightrope to walk. Engaged and committed employees want to work more and show their value, but the business needs to ensure that their well-being is part-and-parcel of the culture and approach to work. It's important to promote sustainable human development that contributes to your employees' mental health and includes healthy boundaries and balance.

While leadership from remote locations is challenging, it is the responsibility of leaders to ensure that these balances are kept and upheld. Managing burned-out people is far more complex and is not a sustainable way of holding onto your talent. There need to be synergies between all areas of life: home, family, community, personal

well-being and health. These need to be sustainably managed across the mental, emotional, social, financial, physical, digital and environmental spheres of life. People are not automatons; they are complex ecosystems that have to be balanced and supported to achieve their full potential.

This is the right time to shine the light of sustainability on your talent. To focus on identifying, promoting and supporting talent by providing resources that resonate with their career plans and personal needs. Regardless of age, skill level or location, your people can be inspired to learn more, do more and go further without burning out and fading away.

We have succeeded in creating and sustaining innovative programmes through which people can learn practical skills. We are connected to the needs of the local community and promote development opportunities. Our wish as an organisation is to create a culture that supports a work-life balance that promotes sustainable human development and respects essential boundaries.

For references, please go to cxomag.com/the-beating-heart-of-sustainability-people

Now Head of Talent Acquisition & Administration, **Denisa Potra** has worked at NTT DATA Romania since 2011. During her career she has implemented the procurement department, and now focuses on her HR capabilities growing the NTT DATA team.

5 Minutes on....

Brand and Customer Loyalty

Alonso Dominguez
Green Deal CEO at everis, an NTT DATA Company

5 Minutes On... how sustainability will have an impact on all processes within the company, but will also bring new opportunities that companies must be able to take advantage of, specifically brand loyalty.

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VIDEO

The Sustainability Transformation

A film by NTT DATA

Sustainability has turned into a financial growth area as consumers become more aware of sustainable credentials, regulators and governments shoot for ecological targets and consumption threatens to outstrip resources. The business case for sustainable development is strong already: it opens up new opportunities and big efficiency gains, it drives innovation, and it enhances reputations.

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In Depth

NTT DATA takes a deeper look into critical areas of sustainability transformation.

Creating a Vision for a Sustainable Future

The world is changing beyond recognition. Society is increasingly demanding that companies address sustainability as part of their transformation to a post-pandemic world. Sustainability is now firmly on the C-suite agenda and it's at the heart of NTT DATA's vision for the future.

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Sustainability Within Organisations: The Shift from AOB to Business Critical

By Henrietta Marsh-Smith, Delivery Director, NTT DATA UK

The next generation have not only grown up as digital natives but as truly global citizens, connected like never before to people and events all over the world. Threats to our very survival, as well as an equitable and prosperous future, are felt more sharply by Generation Z than any others before them. Protect their future – and in the process, your organisation's future too.

"**A** society grows great when old men plant trees whose shade they know they shall never sit in." – *Greek proverb*

There is more than meets the eye in relation to sustainability and its impact on your company. In the last 20 years, 'job done' may have involved companies buying a few recycling bins and reducing water usage in their offices. As awareness of sustainability challenges has increased, so too have the expectations of organisations to contribute positively.

Sustainability is something that I have been distinctly aware of from a very young age. My father was a devoted environmentalist, passionate about raising awareness of the long-term damage from decades of local, national and global decisions made without consideration or understanding of environmental impacts. Whilst each individual can play their part, it is large organisations that have the ability to drive significant change.

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Given the wealth of information available at the touch of a button, it is no coincidence that Generation Z are the first to say with one voice that companies must take sustainability more seriously.

Legacy organisations cannot continue with the same business models that saw them succeed in the previous millennia, however. They are having to shift perspectives and practices to cater to consumers who seem invested in combating climate change like never before.

Why do Generation Z have such different views to those before them?

Born between 1997 and 2015, Gen Z is the first generation to grow up in an internet age from birth, and thanks to this, they are much more aware of what is going on globally, not just in their immediate community or country. This generation is much more informed about the damages that have been done to the world we live in.

A brief scan through Facebook or Instagram can bring up a reel of horrendous photos of the devastation arising from a lack of sustainability and the ignorance of previous generations on what it takes to protect the environment. Given the wealth of information available at the touch of a button, it is no coincidence that Generation Z is the first to say with one voice that companies must take sustainability more seriously.

What's now expected of employers?

Generation Z will increasingly make up both your workforce and your customer base. Early indicators suggest that the generation after (Generation Alpha, those born after the mid-2010s) will care about sustainability even more. Simply, Generation Z and beyond are your company's future, and they want you to take action. The under-25s not only want organisations to contribute to sustainability, but they also want to be involved. Employee satisfaction has been shown to improve when staff feel able to give back to their community.

Each generation has different expectations, and psychological contracts, with their employers. In the 'good old days', companies relied on providing competitive salaries to attract employees and maintain them. The employee package of pension, annual leave and benefits could be tweaked as required, and having a strong company brand and reputation would attract higher calibre staff. This approach is still somewhat effective, but Generation Z is much more comfortable job-hopping if it means going to work for a company that shares its environmental concerns and values.

Words simply aren't enough; both employees and consumers are actively searching online for information on carbon emissions, plastic consumption and green credentials. Generation Z is the first modern-day workforce to not place salary as the single most important factor in choosing one employer over another.

Of course, Generation Z is not alien to the rest of

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The under-25s not only want organisations to contribute to sustainability, they want to be involved.

the workforce; all employees are equally deserving of being respected and valued for their individual contributions. As consumers, Generation Z still wants to associate with brands that make them feel good. This generation is still as susceptible to marketing as the rest of us. The difference is that sustainability is of fundamental importance for Generation Z. All indicators show this trend will only get bigger. Organisations won't survive if they cannot adapt.

Recently, whilst interviewing potential employees, I have been asked and challenged about our sustainability practices. This is a common question by interviewees about whether the employer has a robust and impactful sustainability strategy. Reporting on the company's carbon emissions is an excellent place to start, if your organisation is not already doing so, to demonstrate commitment to climate action.

Up to 90% of a company's carbon footprint is located within its supply chain and is often generated by suppliers globally. Very few companies measure the carbon emissions of their supply chain, as many countries do not stipulate a legal requirement to do so. While not mandated, investors and shareholders are increasingly likely to expect carbon emission data for a company's supply chain due to the financial burden of achieving carbon neutrality. In May 2021, the price of carbon hit a record high in the European Union, above

€50 per tonne. This price is likely to exponentially increase as demand increases for resources to achieve carbon-neutral status.

How is consumer behaviour changing established business models?

For a number of years, Ikea was the go-to shop for cheap, short-term use furniture. I remember many of my classmates at university furnishing their student accommodation for a few hundred pounds. I remember wondering at the time whether this business model could be sustained if one day people moved away from the endless cycle of buying cheap and new.

This is not to say that cheapness does not remain a very attractive proposition for many, and it doesn't mean that the quality is low. But the desire for more sustainable living is a clear challenge for companies operating in these markets. For this reason, a system has emerged where waste is eliminated because resources are circulated and reused (the circular economy), meeting consumer needs while supporting the environment. This year, Ikea announced the Buy back & resell scheme, where customers can sell their furniture back to Ikea for it then to be resold, giving it a second lease of life.

Fashion retail has suffered significantly over the last ten years, as more questions have been asked about the sourcing of materials and the treatment of

> **If companies don't act, they will fail to attract the best talent for current and future generations. They will lose current and future consumers.**

employees. Combined with the impact of Covid-19, this has led to many brands and retailers going bust and opened the door to new forms of fashion retail. In 2017, HURR, a fashion hiring platform where customers can not only borrow clothes but also loan their clothes to others, was launched. Fast, disposable fashion has created a desire to wear things once and always have a new look. Instead of expelling this idea completely, the answer could be to rent instead of buy and chuck.

Where does your organisation stand?

World Earth Day was introduced in 1970. However, only recently, a mainstream audience has really started to take sustainability seriously – along with the realisation that it may be too late.

With COP26, the UN's Conference of the Parties on Climate Change, due to take place in Glasgow this November, action will need to be taken at all levels of society to meet the goals set out. With many big brands not only supporting the event but also publishing their own sustainability strategies, it is clear that all companies are responsible for taking action. If companies don't act, they will fail to attract the best talent for current and future generations. They will lose current and future consumers.

There is still a debate amongst politicians, scientists, and world leaders on the importance of sustainability and whether it is downplayed or hyped-up. The bottom line is that Generation Z has spoken. It could not be clearer that they care about sustainability and will make career and consumer decisions accordingly. It is up to employers to decide where they stand.

For references, please go to cxomag.com/sustainability-within-organisations-the-shift-from-aob-to-business-critical

Henrietta Marsh-Smith is a Delivery Director and head of ESG at NTT DATA UK with a passion for large-scale agile transformations. She also has a passion for sustainability, the environment and how technology transformations can support sustainability.

The Shift to Zero-Emission Mobility

By Pierfrancesco Fusaro, VP Consulting Energy & Utility, NTT DATA Italia

The EU has set ambitious goals for e-mobility, but so far hasn't created the infrastructure to meet them. A definite and significant first-mover advantage is here, as well as the potential for a new market. Using integrated digital platforms to create an ecosystem will improve the customer experience – the currently missing ingredient to make e-mobility stick.

Mobility and transport matters to us all. From the daily commute to the proper functioning of global supply chains for consumer goods, mobility is an enabler of our economic and social life.

Whilst mobility brings many benefits for its users, it is not without costs for our society. These include greenhouse gas emissions, air, noise and water pollution, but also accidents and road crashes, congestion, and biodiversity loss – all of which affect our health and well-being.

The most serious challenge facing the transport sector is to significantly reduce its emissions and become more sustainable. At the same time, this transformation offers great opportunities for better quality of life, and for the industry (across the value chain) to modernise, create high-quality jobs, develop new products and services, strengthen competitiveness and pursue global leadership.

The EU's goal of reducing greenhouse gas emissions by 55% by 2030, and of climate neutrality by 2050, will only be reached by introducing more ambitious policies to reduce the transport industry's reliance on fossil fuels – and fast – in synergy with zero pollution efforts. The success of the European

Green Deal depends on our ability to make the transport system, as a whole, sustainable.

Technological advances and societal changes have triggered a drastic evolution in mobility. Alongside other trends, such as digitalisation, autonomous driving and shared mobility, electric mobility (e-mobility) is also gaining momentum and could help the EU to achieve its goals of reducing greenhouse gas emissions, air pollution, noise and dependence on oil. However, the extent of this help will depend on various factors, such as the share of electric vehicles in the overall vehicle fleet.

The great opportunity within the great challenge

One major issue holding back the wider uptake of electric vehicles (EVs) is the perception that they cannot cover the desired distance without needing a recharge, known as 'range anxiety'. This could either be due to the actual lack of charging infrastructure or to a lack of awareness that it exists. Although the charging infrastructure for EVs has been increasing at various speeds across the EU, it is still insufficient in some Member States, and

there is lack of centralised information on existing recharging points.

Recent data analysis by the European Automobile Manufacturers' Association (ACEA) shows a completely unbalanced picture when it comes to the spread of charging points for electric cars across the EU. 70% of all charging stations are concentrated in just three countries in Western Europe: the Netherlands (66,665), France (45,751) and Germany (44,538). Together, these countries make up just 23% of the EU's total surface area. By contrast, the other 30% of infrastructure is scattered throughout the remaining 77% of the region.

Based on EU Commission calculations, a further decrease of car CO_2 emissions in 2030 would require some 6 million publicly available charging points. With less than 225,000 available today, that translates into a staggering 27-fold increase in less than a decade.

The EU has also taken measures to make information about the location of charging points more easily available, and to help standardise their technical specifications. The EU encourages the State Members to implement and adopt national

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The EU's goal of reducing greenhouse gas emissions by 55% by 2030, and of climate neutrality by 2050, will only be reached by introducing more ambitious policies to reduce the transport industry's reliance on fossil fuels – and fast.

platforms (a single, unified database) to provide EV users with data regarding the geographic location of the charging points accessible to the public.

At NTT DATA, we believe this concept of a unified database – an e-mobility data platform – is essential to meet the EU's goals.

A centralised platform accessible to all

This intelligent platform would integrate key information concerning availability and specification of charging points, models and costs , with any other information coming from the EV (e.g., residual battery capacity, electrical routes – and traffic and travel information, thanks to technologies such as 5G for real-time data sharing and mobile edge computing solutions).

Real-world data captured from diverse sources can be leveraged to generate crucial real-time insights. This would enable, for example, new models to manage the pressure on the power grid and ensure its stability.

We are also convinced that this platform, with related integrated services, can facilitate the opening of the market, reducing the information asymmetry between competitors, but also the barriers to market entry thanks to the availability of useful information to enable new services. It can catalyse the future of electric mobility and, at the same time, multiply market opportunities for all components of the e-mobility ecosystem, consisting

of different infrastructures, services and operators.

The e-driver experience is also a strategic key to success: the product or service experience is becoming more relevant than the product or service itself. Consumers move between different categories of products and services, continually seeking greater speed and personalisation.

We observe that the EV charging sector comprises a small number of individual companies, which act mainly in isolation. Payment processes often vary from provider to provider; EV drivers need to subscribe to a variety of plans, download different apps, or acquire different RFID cards if they want to use public charging stations. In order to ensure an optimal and seamless customer experience, e-mobility operators must improve the entire e-driver journey: localisation, sockets specifications, booking, start-and-stop charging, payment procedures, billing and more.

Interoperability between charging units and providers is also a critical enabling factor to accelerate the adoption of EV, allowing customers to recharge their vehicles wherever they are and whenever they need it.

Technology is the key for e-mobility's evolution

Digital technologies are at the centre of the e-mobility value chain. We are moving from a physical product perspective to a virtuous

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A further decrease of car CO2 emissions in 2030 would require some 6 million publicly available charging points. With less than 225,000 available today, that translates into a staggering 27-fold increase in less than a decade.

ecosystem, based on integrated digital platforms enabling services for a more fluid, comfortable, sustainable mobility experience – and a more balanced and stable environment and society.

Companies operating in the e-mobility ecosystem have to adopt a data-driven approach and make the most of the data potential, with an integrated system for their acquisition and management.

Analytics, next generation data platforms and cloud native solutions will be integrated, offering huge business potential. Machine learning algorithms, neural networks and artificial intelligence open the doors to process optimisation and the adoption of new business models capable of creating differentiation in an increasingly competitive market.

Smart mobility for the future

The transformation in the field of energy constitutes a great opportunity to redesign society and improve the quality of life with a new model of sustainable development, enabled by technology and achievable thanks to the involvement of citizens, companies and institutions.

We at NTT DATA work every day to build a more sustainable society, based on the Society 5.0 model, born in Japan and inspired by the 17 Global Goals of the UN. Through our Electric and Sustainable Mobility products and services, as well as through our wider portfolio of technology innovation, we

strive for an intelligent society, which puts human well-being at the centre and integrates growth with not only environmental but also social sustainability. A society with fewer inequalities, in which access to resources is guaranteed and inclusion is advocated.

To us, smart mobility means identifying symbiotic relationships between different industry players, both consolidated and emerging, and leveraging intelligent, integrated digital platforms to offer an outstanding customer experience for e-drivers. Through maximising the uptake of e-mobility, we can make the all-important shift to zero emissions.

For references, please go to cxomag.com/the-shift-to-zero-emission-mobility

Pierfrancesco Fusaro has worked in the IT industry for 25 years. Since 2014 he has been Head of the Energy & Utilities Practice for the Business Service Line Consulting, promoting and contributing to the offering of services related to digital transformation for national and global Customers in the Energy sector.

The Most Important Data Challenge There's Ever Been

By Bill Wilson, Head of Data & Intelligence Solutions, NTT DATA UK

With strong pressure in B2B coming from supply chain and investment funding to be able to prove sustainability goals, robust data is vital. Despite the complexity, organisations must work towards the big picture of data collection and analysis within their business now, to be in position to take the opportunities that carbon emission data can provide.

My interest in the climate emergency accelerated when I realised the crucial role that data has to play in providing accountability for action. It was when I looked deeper into the level of commitments made to specific targets that I became worried.

Having designed solutions that required strong data lineage and clear, auditable decision processes to meet regulatory changes in financial services, I can see that the regulatory environment for carbon is heading that way. Just as regulation led scores of data programmes to collect more accurate, fine-grained data in banking, investments and insurance, so climate change regulation will drive a similar wave of disruption across organisations that currently lack mature data platforms.

While climate change regulation has created impetus across industries, and protest movements are affecting brands in the public eye, in B2B stronger pressure is arguably coming from the supply chain and the movement of investment funding. We can now see that data will serve the climate best by uncovering opportunities before as

well as within a firm's operations. But first, we must understand how to achieve a data baseline.

Avoiding data stalemate and minutia paralysis

Data pervades the climate action issue and, indeed, sustainability in general. The starting point is carbon measurement at the organisation level. But the challenge of this is that each carbon reduction initiative gathers its own measurement data (v the amount of recycled material in new products), making it difficult to compare emissions across organisations.

A second issue is choosing the right level of detail when it comes to measurement. What level of granularity is necessary when calculating Scope 3 emissions? There certainly comes a point where you expend as much carbon trying to measure other carbon accurately.

What we need is a way of bringing this data together from across the organisation and external stakeholders, including emissions in the supply chain and information from customers about in-life use of products and services. I call this 'the Single

View of Carbon' (to complement 'the Single View of Customer' goal that many data practitioners have made their life's work).

To illustrate, most organisations start with simple master data management: can we see everything a customer has purchased? These solutions gradually become more sophisticated, tracking deeper within the customer journey, logging more customer interactions and enriching customer data with third-party information. We can parallel this with emissions calculations. Organisations need to start with getting a handle on the big picture, sacrificing detail to begin with. The holistic view then points the way to where greater accuracy and focused action is needed. However, to achieve the Single View of Carbon begs a number of data-related questions, and signals a new era of data exchange between organisations around carbon information.

None of this confusion on regulation uptake is new to data practitioners. A colleague asked me how we would break out from the current cottage industry of spreadsheets often used to calculate the carbon footprint. My answer was bit-by-bit, like the

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Eventually, emissions could become as much a part of the tendering process for new contracts as financials.

thousands of data platforms that began as out-of-control Excels.

What is new is the pace of change and the cross-cutting nature of the impact. The data itself isn't that tricky to understand. It's the interactions between parties and the stakeholders who all have a small, differently-shaped piece of the puzzle. This is the challenge that NTT DATA are taking on in partnership with our customers.

Driving opportunities on all horizons

Leaders in the field are investing in a range of technology solutions to combat the data accuracy challenges. Some are focusing on precise internal measurement, such as sensor technology, smart meters, instrumenting products to report emissions in use, and more rigorous data recording. Others require collaboration, such as distributed ledgers for supply chains and data-sharing ecosystems.

Here are some more opportunities for data to play a key role in emissions reduction projects:

Cutting costs and emissions with repurposed data. The data gathered and cleansed for a carbon analysis of the supply chain, such as is needed to measure Scope 3 emissions, can be put to use for other purposes. The most obvious example is procurement analytics, which allows organisations

to have a more financially astute sourcing model and to buy raw materials at more opportune times. It is perhaps assumed that large firms already had this under control, but I worked with one FTSE 100 company who described the same steel component in 16 different ways, which prevented bulk purchasing. Another example of repurposing data is using fine-grained sensor data, intended for measuring efficiency to drive AI models around predictive maintenance, which can increase equipment uptime by up to 20%.

Competitive low-carbon suppliers. As a supplier, being able to provide emissions data as part of a contract will become a differentiator. This is an area where first movers in B2B will gain a foothold. Eventually, emissions could become as much a part of the tendering process for new contracts as financials, and purchasing organisations will also need to trade off carbon alongside the usual criteria today. Firms will be driven to innovate to find ways to undercut each other's carbon cost.

Investment decision-making. Driven by carbon targets, firms are already making investments that they wouldn't have previously considered, such as in low-energy lighting, solar cells or heat recovery. The more forward-thinking are using abatement curves, which present the financial and

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> **Addressing the most important data challenge there has ever been has the potential to reap rewards not just for first movers but for everyone who comes on the journey.**

carbon trade-offs. We are also delivering more IoT solutions to customers with the specific objective of energy reduction and smarter use of existing equipment. At the same time as these opportunities present themselves, investment funds linked to green initiatives are booming ($9 trillion focused on firms with net zero targets; $40 trillion to those with ESG aims).

A new data marketplace. We can already see that sustainability data is valuable: UBS estimates the current global market for Information Service providers specialising in ESG data at $2.2bn. In future, data that drives better carbon insights (e.g., competitor benchmarks) will itself become valuable. Those multi-organisation data ecosystems that focus on data for operational efficiency today (Lufthansa's open Aviatar platform as one example) will start to embrace more use cases around carbon efficiency.

We're still at the beginning

The opportunities mentioned are just a flavour of the potential upside to getting a handle on emissions reduction. Addressing the most important data challenge there has ever been has the potential to reap rewards not just for first movers but for everyone who comes on the journey.

Regulation is one part of the answer, but

everyone's data needs to be robust and play well with each other. Data exchange standards and ecosystems are still emerging, and for data practitioners, history is simply repeating itself in a different context.

Being able to calculate your carbon footprint and devise a measurable plan is now about access to markets and access to capital. With a more complete picture of our collective carbon use, we will finally be able to put the right moves into action.

For references, please go to cxomag.com/bill-wilson-the-most-important-data-challenge-theres-ever-been

Bill Wilson leads on Data and Intelligence Solutions for NTT DATA. He has been wrestling with data challenges in commerce, government and the third sector for over 20 years – ranging from genomics to hydraulics.

Closing the Digital Gap: Boosting Diversity in STEM Vocations

By Felipe Zaforteza, Director of Public and Health Sector, Columbia & María Jesús Villa, CSR Director, everis, an NTT DATA Company

The skills gap is only growing, with the number of women holding STEM degrees still uncomfortably low. This is the time for businesses to take responsibility in growing diversity in the workforce of tomorrow through investment into the young people who will shape the business landscape in years to come.

The modern world owes a lot to women in science, technology, engineering and mathematics (STEM) vocations. They paved the way for phones, TV and the internet with their research on fibre optics. They first identified and isolated stem cells, and they designed the first solar-powered house, among many other things. More recently, women have been instrumental in developing the most effective vaccines against Covid-19.

Despite their breakthroughs in science and technology across the ages and their prominence in vaccine development, the numbers of women holding computer science and engineering degrees remain low – just 19% and 22% respectively in the US. The tech talent gap, in particular, transcends gender boundaries, and it's widening globally. As Bob Miano, president and CEO of Harvey Nash USA, told the Wall Street Journal: "CIOs may have great ideas, but if you can't get the IT talent, that's a growing problem."

Innovation requires a blend of backgrounds and experiences to ignite creativity. NTT DATA and everis are working to protect our unique human ability to innovate by creating initiatives to secure more interest in the STEM industries through programmes such as the SENA project and #girlsgonna.

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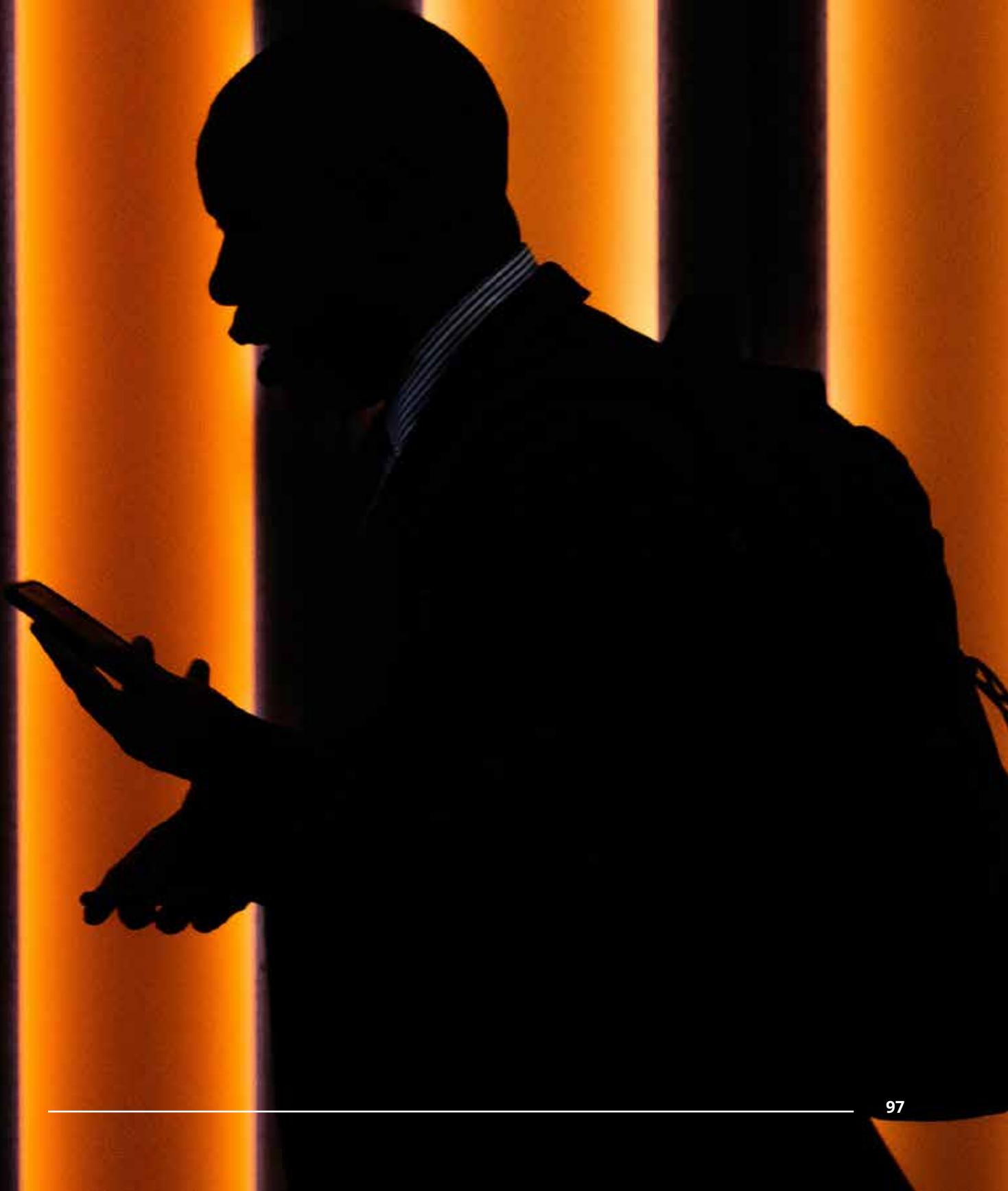
Innovation requires a blend of backgrounds and experiences to ignite creativity.

Protecting our present: The SENA project

Colombia's Servicio Nacional de Aprendizaje (SENA), or national training service, is beloved by the country's citizens. Its main objective is to lead the comprehensive technical education of the country, aimed at the most vulnerable population.

Every year, about 9 million apprentices pass through SENA's classrooms. At the end of their education, they are supported in obtaining a dignified, decent and stable job. In this sense, SENA manages almost two-thirds of the formal employment in the country. One of SENA's main indicators of success is to get 57.5% of apprentices to work within 6 months of graduation. And, all training provided is free.

For over four years, everis Colombia and SENA have been designing a digital ecosystem to close the digital divide in Colombia. Their goals are ambitious, aiming to train and employ 70,000 apprentices in new technologies by 2025.

The programme is twofold. First it designs and implements a sustainable talent environment that promotes training in technology fields lacking skilled individuals. Secondly, it provides opportunities for graduates to enter the global market with experience working with a multinational company. The model seeks to offer complimentary training opportunities, improve apprentices' employability, and guarantee their first work experience.

This is achieved through the apprentices completing a series of challenges monitored by the team. The challenges are real world and requested by SENA, thereby equating their first work experience. This practical stage lasts six months, where the apprentices develop projects in emerging

technologies such as RPA or analytics and maintain the core systems of the organisation. They participate in the entire software development cycle, from functional and technical design, to development, QA and the transition to production of each challenge.

One of the most advantageous moves in the programme has been the construction of three software development centres in the country: the first in Popayán, continuing with Medellín and the third in Quibdó. Popayán and Quibdó are two of the most unemployed populations in the country. With our training and development centres, we have been able to add around 150 jobs to each community, strengthen the skills of the citizens in new technologies and connect them to the world of work.

With each cohort, we aim to meet the high demand for digital talent in different sectors of the economy, throughout the country and around the world. To date, we've instructed and prepared more than 12,000 apprentices, with more enrolling next year.

This year, we are starting with new initiatives framed within the alliance with SENA including the implementation of a 'Digital Resource Centre' in Barranquilla, which will provide SENA with the technology and knowledge necessary to be able to build digital content to strengthen their training programmes. We are also developing a new platform for monitoring and communicating with apprentices on the challenges they must solve to graduate. The final initiative for 2021 is the training of 18,000 apprentices, under the Bootcamps methodology, in technologies such as cloud, IoT, web design, among others.

Safeguarding our future: #girlsgonna

Since 2008, a lack of girls in tech has been on

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> **If we don't address the gap, technology will continue to grow with the unconscious biases that lead to a small range of successful developers, of the same types of developers, and society may struggle to innovate to the best of our potential.**

everis's mind. An everis report highlighted a receding interest in tech sciences in Colombia, particularly among women and after seeing that the trends were maintained in 2012 findings, we knew that action needed to be taken.

A year later, we created an animated video series called Noa & Max to generate interest in science and technology among children. This series also aims higher, hoping to help break gender stereotypes associated with the STEM field by including a female main character who solves problems with tech and engineering skills.

In 2015, the everis employees created and delivered far-reaching volunteer robotics and programming workshops. The employees now organise and deliver family-oriented workshops in ten countries across Europe, South and Central America and the US. These workshops seek to inspire technovation through competitions that can win participants sponsorships.

In 2017, we created and launched our successful platform CLOQQ (which stands for Crea Lo Que Quieras—"create what you want"), where children can build music, apps, games and more by learning to code in a block programming environment and most recently, we've built on this platform to promote a new educational initiative in 2018: #girlsgonna. Through workshops that make the CLOQQ activities more accessible for every child, we teach young girls and their families about the world of tech while knocking down barriers and stereotypes. The key to this initiative was involving families to reinforce the learning, promote understanding of the field and create a supportive environment for the girls to continue their studies.

Closing the gap

We need more people and more diversity in tech, especially women. If we don't address the gap, technology will continue to grow with the unconscious biases that lead to a small range of successful developers, and society may struggle to innovate to the best of our potential.

To address this issue, we're focusing on delivering talent for the workforce now, by creating sustainable ecosystems for continued growth in the sector, and tomorrow, by building interest among the women of the future. The human race doesn't yet know what we're capable of. By nurturing a more diverse tech workforce today, we can face the challenges of tomorrow.

For references, please go to cxomag.com/closing-the-digital-gap-boosting-diversity-in-stem-vocations

During his 17 years at everis, **Felipe Zaforteza** has worked across projects in both the public and private entities in the public, health, education, utilities sectors, among others, achieving great transformational impacts on clients such as: SENA, the Judicial Branch, the General Comptroller's Office of the Republic, the ICT Ministry, Pacific Rubiales, Nueva EPS and Ecopetrol.

María Jesús Villa is a Professional with 20 years of experience in management, brand management, communication and institutional relations in the media, as an entrepreneur and in a multinational technology consulting company.

How Businesses Can Serve the Greater Good

By Sergio Oliveira, Director of Research & Development, NTT DATA Business Solutions Brazil

Machine learning and AI are often associated with enhancing the consumer experience, but they can also assist businesses significantly in their tax-related work. Simplifying the taxation processes and compliance procedures contributes to business sustainability, and through it, the wider community and society.

The concept of a fair and sustainable society is simple: communities can only function in the present and persist in the future if all their members abide by common rules.

Businesses are not excluded from this social responsibility assignment. Every company has to pay in, first and foremost, by paying taxes that keep communities sustainable. But what sounds quite self-explanatory can be a difficult task for companies, especially with regard to complicated tax systems and non-transparent regulations.

Business practice and social responsibility go hand in hand

Maximising profits has always been a major goal of almost every company. To make something clear: generally, there is nothing wrong with this agenda.

But this strive for profit maximisation has to be aligned with social values. To prevent harm from the system of society, corporations cannot only focus on their own well-being; they need to act responsibly towards society as a whole. Playing by the common rules and paying a fair amount of taxes is an essential contribution.

In today's business world, this alignment between

business goals and ethical principles is known as Corporate Social Responsibility, or CSR.

CSR as insurance for sustainability

CSR includes a set of guidelines that businesses need to follow to live up to their duties towards society and allow fair market conditions. Overall, these guidelines cover three main aspects that are essential for the sustainability of society:

- First of all, businesses are obligated to organise their production processes in an eco-friendly way. Natural resources have to be used deliberately in order to protect the environment.
- Secondly, CSR covers social aspects such as employee rights that have to be respected in order to provide workers with safe and healthy working conditions. Exploitation or other harmful factors that endanger the well-being of employees have to be omitted.
- And lastly, economic specifications ensure fair market conditions and regulations for business practices within companies. This includes, for instance, penalties for companies that avoid tax payments through evasion attempts, which

would give them unfair competitive advantages. CSR guidelines are specified in the reference documents of several international organisations. Examples are the declaration of principles by the International Labour Organization (ILO), which focuses on social justice and employment laws; the OECD guidelines for multinational corporations, which regulates market-based conditions of the business sector; and the guiding principles for the economy and human rights of the UN.

All these guidelines have a common agenda: to ensure the stability of society overall, i.e. to provide sustainability. Therefore, companies all over the globe are compelled to adopt these principles in their strategy and business practices.

The importance of tax as part of CSR

Let's be realistic. Not every company is thrilled to fulfil its social responsibility assignment by paying taxes. It's part of the DNA of corporations to lower their expenses, which guarantees a high cash flow and future-proofs financial planning.

However, paying taxes should not be regarded as a burden but rather as a form of giving back. Every company benefits from the conditions of the city

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If parts of the system collapse, it is only a matter of time until the whole system becomes unstable.

and country in which it is situated. The usage of the local infrastructure and local resources are just two examples to illustrate this notion.

Tax money can be regarded as the blood flow that makes communities sustainable. But even if companies are willing to pay their fair share of taxes, that's sometimes easier said than done.

The example of Brazil: an overly complex tax system

Tax systems often lack transparency. In Brazil, for instance, there are three governmental institutions that all collect taxes: corporations are obliged to pay taxes on a federal, state and city level for every sale and receipt of goods and services. The country of Brazil is subdivided into 26 states, the Federal District, and more than 5,500 cities, which all have specific tax rates and different tax reporting requirements. This alone indicates how complex the Brazilian tax system is.

Moreover, up to five different taxes are incurred for each selling process, and businesses need to send electronic documentation to several different governmental institutions.

What's more, tax laws and compliance regulations often change, which increases the complexity of the Brazilian tax system even further.

Companies constantly need to stay informed about the latest developments regarding the tax system and fulfil all the tax-related requirements. Otherwise, they risk committing tax evasion – even if there is no intention to defraud. Understandably, this is a challenging endeavour, especially for smaller businesses with limited financial budgets.

Risk reduction and sustainability through technology

The avoidance of tax frauds (intentional or otherwise) is not only essential for the sustainability of companies but also for society in general. If parts of the system collapse, it is only a matter of time until the whole system becomes unstable.

To ensure sustainability, corporations have to practice effective risk management, or more precisely, risk reduction. In terms of taxes, organisations need to gain an overview on current tax laws and compliance regulations. And, of course, pay arising taxes to their full extent.

Risk reduction requires a significant effort, of course, but technological innovations can assist businesses significantly in their tax-related work. Technologies such as AI, machine learning, robotic process automation or big data analytics

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Regulations quickly change, bringing not only new legal requirements, but also opportunities to leverage new scenarios, tax incentives and technologies. Businesses with a consistent integration of processes, technologies, development infrastructure and partners are much better positioned to grab these opportunities.

help companies stay up to date in terms of tax regulations and optimise the declaration processes. Furthermore, most of these processes are completely automated. As a result, incorporating these solutions helps to simplify taxation processes and compliance procedures, which contributes to the sustainability of businesses and, consequently, the wider community and society.

Regulations quickly change, bringing not only new legal requirements but also opportunities to leverage new scenarios, tax incentives and technologies. Businesses with a consistent integration of processes, technologies, development infrastructure and partners are much better positioned to grab these opportunities before their competitors.

Sustainability only works if we all play our part

Providing society with a state of sustainability is only possible if companies meet their duty of acting responsibly. Paying taxes and sticking to the compliance regulations of the market is an act of solidarity that all competitors need to take seriously.

Companies that ignore this agenda by evading taxes, however, do not only cause harm to the market by violating the rules of competition: they harm society itself.

Paying taxes is an essential part of the sustainability equation, and technology provides crucial support. Making the world a better place is possible only if every company leads by example.

For references, please go to cxomag.com/how-businesses-can-serve-the-greater-good

Sergio Oliveira has been working at NDBS Brazil since 2002. In 2009 he was asked to run the new business unit to focus on Own IP development. To date this unit has around 100 employees and a portfolio of market-leading products covering tax-related processes for the Brazilian market.

The Role of Operations: Sustainability, Optimisation and Cost Reduction Working Together

By Rodin Socaciu, Head of Delivery, NTT DATA Romania

R&D into new forms of power generation, such as solar and wave power, might always attract the most attention, but the teams and individuals running the operational side of businesses also have the opportunity to make a difference. Significant change can come from internal optimisation.

In business, with its conflicting priorities, it can sometimes be challenging to see where you and your teams can make a difference within the sustainability movement. Colleagues working directly in Research & Development, for example, might appear to have a closer connection to creating a greener and more eco-friendly future than those in operations. But that's not the case.

My role as Head of Delivery means I am responsible for getting quality outputs to our clients, often against tight constraints, every day. I have had to consider how production, development, testing, monitoring and other critical functions make a difference when it comes to sustainability. I have found that operational staff are crucial to every organisation's journey to sustainability.

Cooperation not competition

My start point is that sustainability, optimisation and cost control do not compete – rather, they investment in new products or blue-sky thinking: real, lasting change can come from carefully re-assessing existing policies, processes, tools and tasks

and finding opportunities to improve.

As a quick example, buying new personal computers across a business once every five years rather than four might seem an economic cost-based decision. Still, it has a significant impact on the resources involved, from raw materials to energy. The switch may help optimise procurement activity too and free up resources to solve other problems.

Making such decisions is, of course, a team effort. Success will come from having sustainability play a key role in corporate culture. This should include clients, suppliers and other stakeholders as well as management and colleagues. Without being on the same page, it can be hard to convince anyone of the need to invest in change and achieve tangible results. Any required spending, from an operational perspective, is likely to lead to optimisations and provide value overall, but this can sometimes be a challenge to see in early discussions.

To help, it is important to focus on key priorities. Lots of ideas can fly around when operational people get together to discuss possible optimisations. It can be hard to progress without agreeing to

specific goals. Switching to digital-only invoicing is perhaps a straightforward optimised process with positive sustainability benefits, for example, but it can be a challenge to gain client agreement unless you can clearly explain the objectives.

Collaborative creativity

The journey towards sustainable, optimised and cost-effective operations depends on providing opportunities for team members to use their creativity. Removing repetitive tasks and duties from people using automation is a clear step towards this. With a healthier balance between regulation and agility, creative workers can help you find ways to speed up response times, improve compliance, and use resources more effectively. Couldn't it be said that the true purpose of work is to put our skills and judgment to best use? I'd go further and say creative problem solving is the reason humans are on the planet. It is surely key to securing our future in the face of current challenges.

This is why, for me, optimising our day-to-day activities, producing fewer steps in a process,

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Not all changes come from investment in new products or blue-sky thinking: real, lasting change can come from carefully reassessing existing policies, processes, tools and tasks and finding opportunities to improve.

reducing repeated actions, reducing waste, embracing automation, and similar interventions, are all important when it comes to delivering change.

First you understand, then you simplify

When considering optimisation, it is worth remembering the IT principle of understanding and then simplifying any issue. The 'understand-simplify' methodology has become widely accepted, having been applied to software, programming and robotics since the earliest days of electronics.

A useful example of this in action is the optimisation of testing and Quality Assurance. Thanks to rapid technology improvements, checking outputs is easier than ever – but are new checks simplifying the issues or adding unnecessary complications? There is a strong sustainability (and return-on-investment) case for switching to narrower automated processes or guidance here, rather than employing yet more 'monitoring police' to be on continual guard.

We have a seemingly ever-increasing amount of data at our fingertips today too. One of the side effects of the recent pandemic is a rush to share. NTT DATA has certainly been kept busy helping clients put more and more information in the cloud to enable remote access, for example. However, does more data access inherently aid our understanding of any operation? I would argue not. Reducing the

amount of data touchpoints in any system to the minimum is a good habit to get into.

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Sustainability, optimisation and cost reduction steps such as these work on a different magnitude to research and development into new technologies. Investment in new forms of power generation such as solar and wave power might always grab the headlines; the exciting thing about having an operational impact on sustainability, however, is that every team and individual within a business has the opportunity to make a difference. The optimisation of things is ultimately the optimisation of people too – and every organisation can get started with this to kickstart their sustainability transformation right now.

For references, please go to cxomag.com/the-role-of-operations-sustainability-optimisation-and-cost-reduction-working-together

Rodin Socaciu is responsible for setting strategic direction for delivery management, defining and implementing standards and processes, managing the team across a broad portfolio of accounts, and successfully implementing recovery for project crisis situations.

5 Minutes on....

Carbon Footprint Measurement

Bill Wilson

Head of Data & Intelligence Solutions, NTT DATA UK

Bill gives CXO 5 minutes on how businesses can address risk exposure when it comes to climate change, and why the challenges in measuring carbon emissions are more than made up for by the opportunities and payoffs.

Scan the QR code with your smartphone camera

Decouple or Die! How Circular Approaches Can Unlock Business Success in a World of Challenges and Constraints

By Catherine Weetman, Director of Rethink Global and author of *A Circular Economy Handbook: How to Build a More Resilient, Competitive and Sustainable Business*
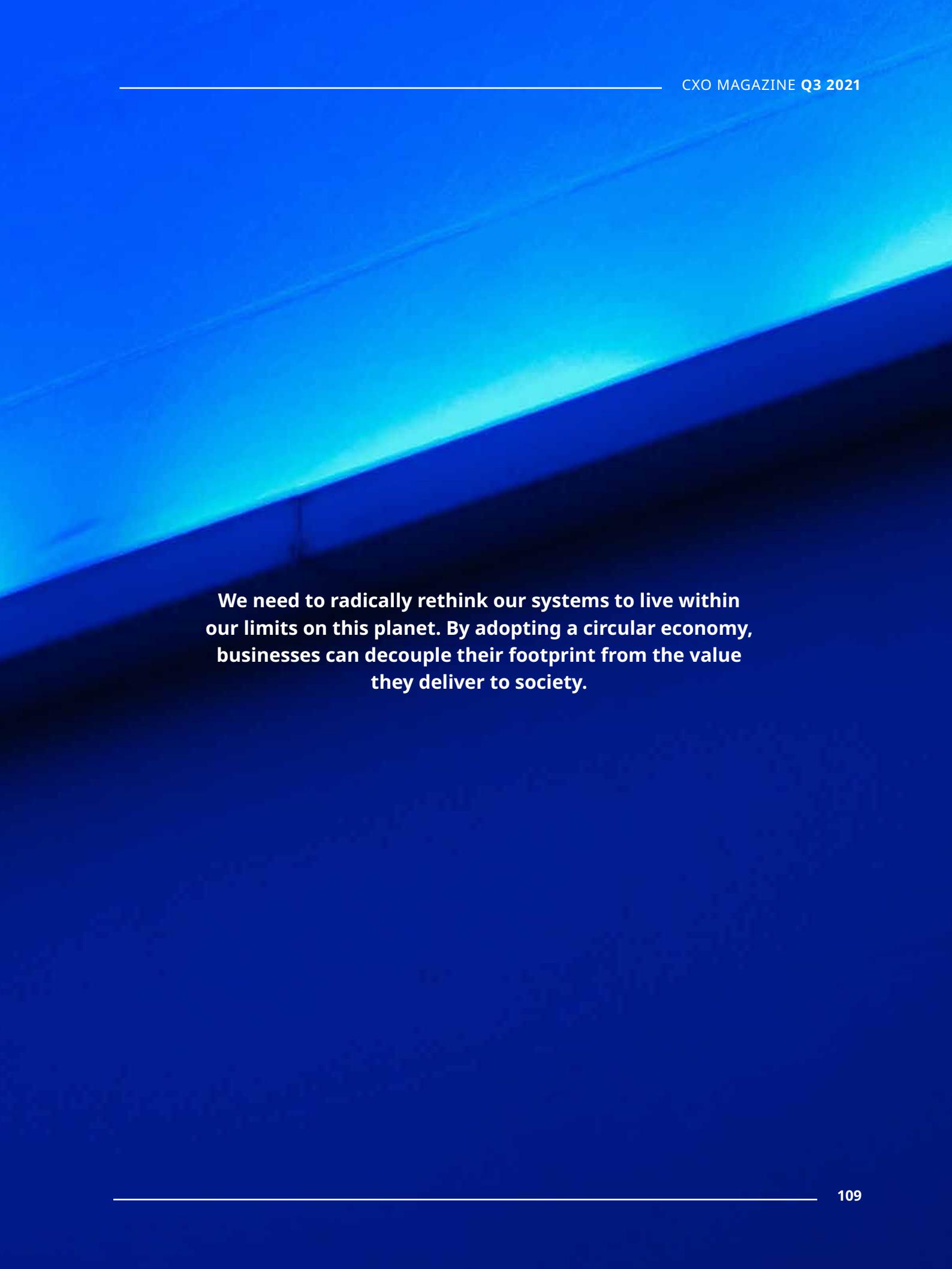
We need to radically rethink our systems to live within our limits on this planet. By adopting a circular economy, businesses can decouple their footprint from the value they deliver to society.

> **We are guilty of wilful blindness. We buy more and better things to fuel our higher standards of living, yet this degrades humanity's wealth (our global commons), undermining the well-being of future generations.**

We are heading towards a precipice. Our 'take, make, waste' economy is driving the climate, ecological and health crises we're facing everywhere.

What can we do? We must radically rethink business as usual: to be regenerative instead of destructive and wasteful. The better our lifestyles, the bigger our footprint grows: resource extraction, ecosystem degradation, waste, and emissions.

Over the last 50 years, global resource use has tripled, growing 70% faster than the population. Extraction and processing of materials, fuels and food cause over half of greenhouse gas emissions and 90% of water stress and biodiversity loss. We've incited climate chaos, depleted oceans, water scarcity and degraded land. Humanity is causing the widespread extinction of other species.

In short, we've designed systems with voracious appetites that are destroying value and even threatening our ability to thrive – and survive.

How did we get to this cliff edge? With our relentless drive for business growth: more sales, faster 'fashions', single-use and disposability, underpinned by the myth of consumerism: that more 'stuff' makes us happy.

Most businesses depend on increasing consumption, enabled by sophisticated marketing strategies. Behavioural psychology and other techniques 'hook' customers into buying more and replacing things quickly. Happiness chemicals, including dopamine (the reward molecule) and oxytocin (the 'love' hormone), can drive sales and addictive behaviour.

We are guilty of wilful blindness. We buy more and better things to fuel our higher standards of living, yet this degrades humanity's wealth (our global commons), undermining the well-being of future generations. Now, though, leading thinkers, NGOs, politicians and even major consultancies are highlighting the conflict between business success and social prosperity.

So how do we rethink these systems to live within the limits of our planet? How can companies find ways to supply those desirable, functional objects, to meet aspirations for higher living standards without increasing the carbon, ecological and resource footprint? What behavioural shifts can marketers encourage?

Each successive industrial revolution has used breakthroughs in power generation, communications and transport to spark innovation, build new industries – and expand our footprint. The next industrial revolution will be different, based on 'caretaker' mindsets and systems thinking, to conserve and regenerate precious resources and ecosystems. It will be a circular revolution.

Circular approaches hold the key to the puzzle. Circular systems change the dynamic, breaking the link between consumption and well-being, seeing

> **Circular approaches hold the key to the puzzle. Circular systems change the dynamic, breaking the link between consumption and well-being – seeing success through a different lens.**

success through a different lens.

You've probably come across different definitions of the circular economy, with most schools of thought using these four principles:

- Design to keep products and materials in use.
- Eliminate waste and pollution.
- Recover and regenerate resources and living systems.
- Use safe, sustainable materials.

Businesses are leaning towards increasing recycled content, improving recyclability, and developing 'new generation' materials. But these advances don't tackle the main issue: our vast consumption.

Products with a life of their own

We need a breakthrough: products with a 'life of their own', not just serving a single user. Objects should be designed for reuse and resale once someone no longer needs them, or they should be available in multi-user systems with customers sharing or renting when needed.

Let's unpack this to understand how it helps separate the benefits of products and services from their cost to global commons.

Firstly, we can design things to be durable and robust, easy to care for, repair and upgrade. Circular designs allow products to be efficiently remade (remanufactured), involving rigorous testing and

replacement of worn components. Remanufacturing means cheaper, high-quality, high-performance products backed by a solid warranty.

Might these circular products be less affordable? No. Extra costs are more than offset by a reduced cost-of-ownership. Over a longer lifetime, purchase cost plus maintenance minus resale value is lower for each customer in the ownership chain – the result is better value. Patagonia, Fairphone and Vitsoe all embed these approaches into their business models.

What about business impact? Selling fewer new, high-quality products supports healthy profit margins. In the long term, some overheads are lower, with fewer new product launches and less marketing to find new customers or encourage people to replace existing products. Plus, there are revenue opportunities from selling servicing, spare parts and upgrades, and from supplying resale, subscription and pay-per-use services.

Secondly, we can design objects to be used more intensively: rented, shared or exchanged with other users, so we get more 'use' from the product and its embedded resources. Algramo and Loop offer reusable packaging that's more convenient and better value, so brands like Unilever and Nestlé can engage directly with consumers. Homie provides pay-per-use home appliances, rewarding customers for using lower impact wash cycles, and

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By designing circular products to have a life of their own, we can decouple industry's footprint from the value delivered to society.

Grover rents the latest technology products with affordable and flexible options.

Finally, we recover value instead of wasting it. Once the product finally reaches the end of its life, circular systems recover the product and regenerate the materials we need for the next generation of products.

Radical and disruptive

By designing circular products to have a life of their own, we can decouple the industry's footprint from the value delivered to society. We reduce resource and environmental costs by extending lifetimes to slow the replacement cycle or by supplying the same level of service through fewer products to boost productivity.

This is radical. It's not resource efficiency or a few tweaks to product design. It will be as disruptive as digital, changing every aspect of business, from finance, sales, marketing and operations to your entire supply chain.

By bending the curve on accelerating waste, emissions and resource use, we can start to regenerate depleted soils, forests, rivers and oceans. The circular economy is a critical tool to create future-fit, prosperous businesses that contribute to

societies and create value for future generations.

We're already in the decisive decade. It's time to rethink your strategy for a circular revolution!

For references, please go to cxomag.com/decouple-or-die-how-circular-approaches-can-unlock-business-success-in-a-world-of-challenges-and-constraints

Catherine Weetman is an international speaker, workshop facilitator, coach, consultant and host of the Circular Economy Podcast. She founded Rethink Global to help businesses, social enterprises and community groups to use circular economy approaches to build a better world.

CXO
BY NTT DATA

VIDEO

Disintermediating the Third Sector

Interview with Eugenio Galdon, President of Teaming Foundation

Scan the QR
code with your
smartphone camera

Eugenio talks to CXO about Teaming's journey,
why bringing efficiency to the Third Sector is
so important, and how companies must lead to
help make the world a fairer place.

Educating the Next Generation for a Sustainable Future

By Daniela Mazzarone, Head of Cyber Security Strategy & Governance Practice, Director, NTT DATA Italia
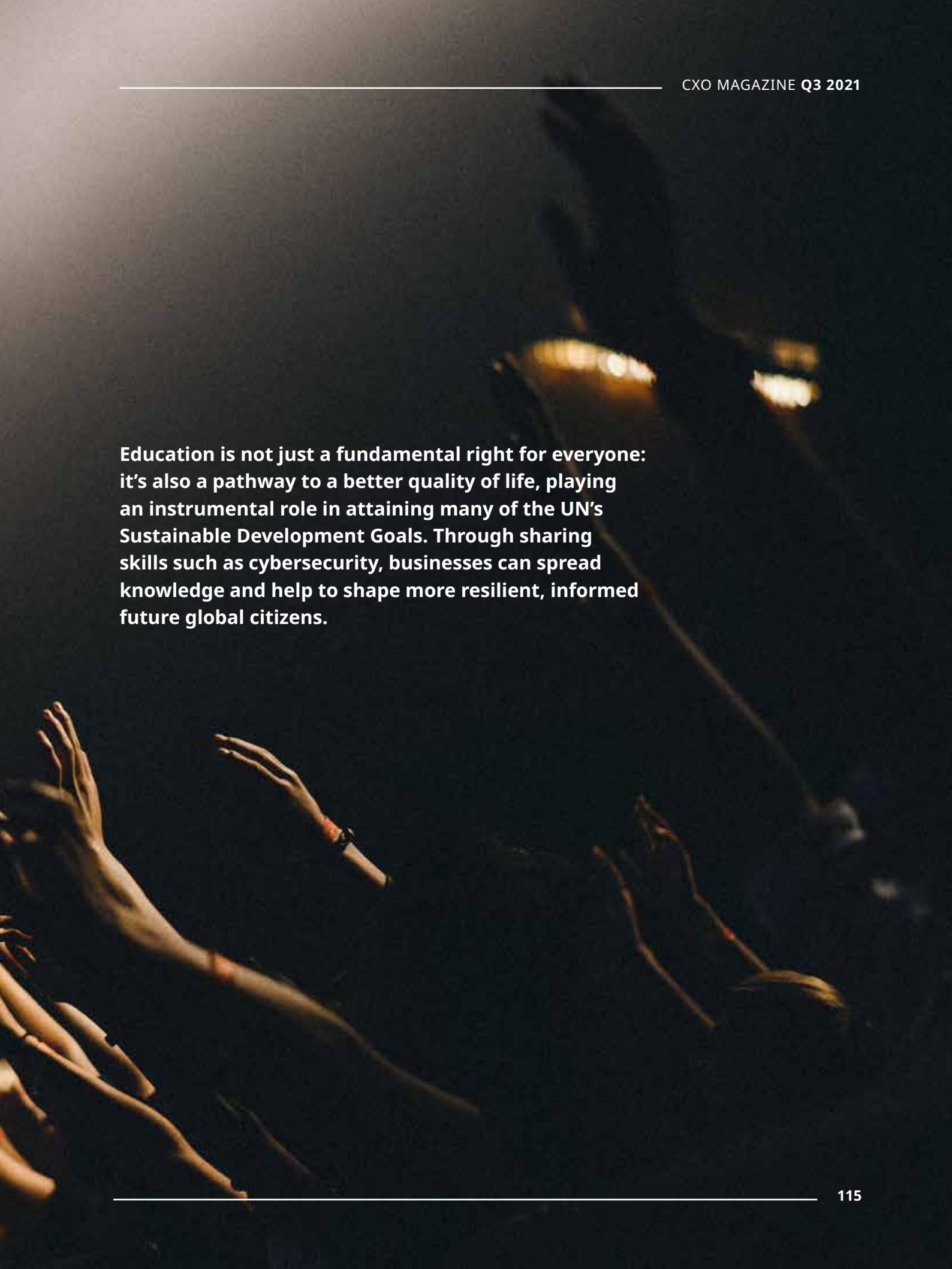
Education is not just a fundamental right for everyone: it's also a pathway to a better quality of life, playing an instrumental role in attaining many of the UN's Sustainable Development Goals. Through sharing skills such as cybersecurity, businesses can spread knowledge and help to shape more resilient, informed future global citizens.

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Every child receiving a quality education and the tools to develop to their own full potential, is primed to become a conscientious adult, ready to give back to their communities.

The UN's Sustainable Development Goals (SDGs) represent a call to action for everyone, with quality education not only a goal itself but also an enabler to achieve others. As pioneers of new and breakthrough technologies, innovative companies play a crucial role in levelling the playing field and improving access to education for all.

There are myriad ways that organisations, large and small, can help achieve the SDGs. Technology companies, for example, support the equitable distribution of (and access to) high-quality education, not only as the result of product innovation or improvement but through experience, knowledge and sharing of skills.

Sustainable development, and the organisational transformation required to achieve it, is by its nature forward-looking. By valuing the needs of future generations, models can be put in place to protect our precious and finite natural resources, as well as promote social and economic equality.

The foundation for change

Education is a fundamental right for everyone. It's also a pathway to a better quality of life. Moreover, it's instrumental in attaining many other SDGs. Every child receiving the tools to develop to their full potential is primed to become a conscientious adult, ready to give back to their communities.

Amongst the expected outcomes of the quality education SDG:

- A higher number of young people and adults with professional skills suitable for employment and entrepreneurship;
- Elimination of gender inequalities in education and equal access to all levels of education for the most vulnerable populations;
- Better literacy and numeracy;
- Deeper and more widespread understanding of sustainable development, human rights, a culture of non-violence and peace, cultural diversity and global citizenship.

Arguably, education is the most powerful weapon we can use to change the world; with the right grounding in the facts and the values of our world, every individual has the capacity to interpret – and apply real-world solutions for – the true challenges of our time.

Technology's part in a sustainable and equitable future

Information technology is a true driving force supporting the sustainability goals in education. Advancements in technology and connectivity enable wider access to quality education for millions who would be otherwise left behind. And areas such as artificial intelligence, big data and social media are completely transforming the methods and strategies of teaching and learning.

A big shift from conventional education is that learning is becoming problem-based rather

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> **Artificial intelligence mechanisms support an adaptive instruction approach, capable of modifying its patterns according to students' responses, and any learning difficulties. This adaptation and provision for neurodiversity is crucial for equitable education.**

than curriculum-based. Artificial intelligence mechanisms support an adaptive instruction approach, capable of modifying its patterns according to students' responses and adjust for any learning difficulties. This adaptation and provision for neurodiversity is crucial for equitable education.

With new visualisation and virtualisation technologies, new learning spaces can be created, offering ubiquitous opportunities for training and development – individuals can learn from anywhere.

To support a cooperative and social learning experience, which builds interpersonal as well as technical and creative skills, collaboration and social media tools are opening up new avenues.

Lastly, digital technologies allow better tracking and monitoring of students' learning progress as well as any problems or challenges they encounter. However, this aspect poses serious issues related to data privacy and requires a robust governance model to ensure rights are always protected.

From this perspective, it becomes clear that both teachers and learners need to get familiar with, and interact safely and responsibly with, the new technologies. Students must be equipped with skills and competencies that will make them future-ready digital citizens and become aware of the responsibilities and civic duties associated with digital citizenship.

How companies facilitate progress

While these are common goals that should concern all of society, companies, particularly global tech companies that promote innovation and digital transformation, share a great responsibility towards the communities in which they operate.

- First of all, companies should promote the accessibility of new technologies to everyone, ensuring they're doing everything in their power to redress the digital divide. Digitalisation is a significant enabler for quality education, and lack of access to technology will contribute to even wider inequality.
- To promote overall equality, for example, in eliminating prejudices, companies should embrace, support and champion the responsible development of digital learning platforms. In particular, when considering artificial intelligence in education, issues of data privacy and biased algorithms must be carefully and systematically addressed on an ongoing basis.
- Knowledge within the company and of individual employees is unique and powerful (for example, in their expertise of advanced and breakthrough digital tools). By sharing this knowledge and experience with their own communities, both the individual and the organisation can positively and impactfully contribute to sustainable development.

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First of all, companies should promote the accessibility of new technologies to everyone, ensuring they're doing everything in their power to redress the digital divide.

Schools are driving forces in stimulating ideas to create a better world. Schoolchildren are becoming fluent in digital citizenship and will be the digital leaders of a better and more sustainable future. At NTT DATA, we strongly believe in this concept, having designed and launched several initiatives to collaborate with educational institutions to help students gain a better understanding of how technologies operate, including their social and psychological effects.

For example, NTT DATA Coding at School promotes a simple approach to code development in primary schools. It favours the development of computational thinking and a problem-solving attitude, demonstrating to young students how a computer works and how to make it work for us – not just how to use a computer. We recognise how important it is to ensure the next generation is informed about the safe use of, and interaction with, new technologies.

Learning online offers huge benefits. Pre-adolescent children have an innate talent in using digital devices; however, there is often a blindspot to potential risks. With an unprecedented number of children using online applications due to Covid-19, cybersecurity has become more important than ever. Our Security Ninja initiative (where our security experts educate children and their families about the main risks of, for example, social media, chats and online games) was born

because we understand that our children need more than technical security controls to stay safe online: we must teach them the right behaviours, as well as the basic principles of cybersecurity.

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Inclusive, quality education is vital to spread, promote and prolong well-being and prosperity. With so many opportunities to develop new, more connected, accessible and tailored ways of learning, innovation in technology is one of the most important enabling factors.

Individuals and institutions, charities and commercial organisations – everyone should understand the potential of digital tech and how to exploit it for the betterment of all. Companies play a significant role: through their experience, skills and activities, businesses can spread knowledge and help to shape more resilient, informed future global citizens.

For references, please go to cxomag.com/educating-the-next-generation-for-a-sustainable-future

Daniela Mazzarone has always been passionate about innovation and education. She has more than 20 years of experience in cyber security, supporting clients belonging to different industries in designing their cybersecurity strategy.

Talks for Good

NTT Disrupt speaks with world-class leaders about how tech can lead society for the better.

VIDEO

Ramez Naam on The Clean Energy Revolution

"Clean energy, mobility and industry will be cheaper than fossil fuels", says Ramez Naam, Co-Chair, Energy & Enviro at Singularity University. His career has focused on bringing advanced collaboration, communication and information retrieval capabilities to roughly one billion people around the world and took him to the role of partner and director of programme management within Microsoft.

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Sustainability Transformation in Healthcare and Education

By Krishnappan Ramanathan, Managing Director, NTT DATA Singapore

Technology will star in every organisation's journey to more sustainable operations. Accelerated by the Covid-19 disruption, the most forward-thinking leaders in healthcare and education now embrace new digital tools to improve engagement, measure impact and optimise performance.

Sustainability transformation is more significant than ever. As we navigate the everyday challenges of our personal and work lives, we now have the added concerns of Covid-19, its trials and tribulations, and the current stress of ensuring our pandemic preparedness. The pandemic has exposed vulnerabilities in all levels of society. Both private and public sectors need supply chains that deliver effective solutions to get their products and services to market.

It's core to how we operate at NTT DATA Singapore because we focus on innovative solutions that integrate services around the needs of businesses and citizens. Operational efficiency, customer engagement and satisfaction, product design, brand reputation, employee engagement and risk rationalisation are therefore critical factors for us. To deliver sustainability transformation, we believe these focus areas should permeate throughout all levels of an organisation's structure and across the value chain.

In every organisation's journey towards sustainable practices and sustainable growth, technology will have a starring role. Across industries, forward-thinking leaders are embracing the opportunities that new digital tools offer (both to improve engagement with customers and to measure and optimise operational impact); Covid has only accelerated this shift.

We've worked closely with two key industries that have been significantly impacted by the pandemic, witnessing firsthand how the accelerated rate of sustainable transformation has been crucial to their daily functions and operability: healthcare and education.

Better together: partnering for sustainability in healthcare

We will only be able to overcome the challenges of 2021 and beyond through a spirit of open collaboration. We believe that sustainability within the healthcare industry means partnering with our clients to create a stable, quality, integrated healthcare system.

Given the ever-changing nature of the Covid virus, its variants and the possibility of future societal disruptions, we need robust structures that contribute to improved operational efficiency and responsiveness to real-time data.

For example, we could be creating solutions and systems that provide the highest quality patient experience through thorough application of design thinking principles, factoring in cultural, societal and environmental concerns that would impact the stability of the healthcare system. Financially, all these factors must be carefully considered, in line with the overall organisation's goals and workforce planning strategy, and to minimise any untoward impact on the value chain.

Seeing sustainability from a medical perspective means assigning resources appropriately (both human and material), bearing in mind the health and well-being of staff members – the most crucial

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> **The pandemic has exposed vulnerabilities in all levels of society, and both private and public sectors need supply chains that deliver effective solutions to get their products and services to market.**

factor in the value chain – as they sit on the front lines of delivering healthcare.

Tools we have developed in healthcare digital transformation focus largely on digital health, AI in medicine and intelligent automation. Leveraging these tools allows the industry to:

Improve user engagement – enabling better patient engagement and population health;

- Digitise, integrate and automate processes across the value chain – improving diagnosis and productivity;
- Generate insights from data – transforming data into advanced operations and clinical knowledge and strengthening the response to the pandemic.

Best of both in education: sustainable hybrid learning solutions

The education industry has been significantly impacted, with schools temporarily shut worldwide during Covid spikes. Home-based learning determined how lessons could best be taught when face-to-face instruction was either limited or not available at all.

Connectivity issues, availability of devices, effective learner engagement (especially those with unique learning needs), submission of coursework, analysing data insights from student records and staff being able to do their job effectively – everything was turned 180 degrees. Teachers, students and the school system itself were abruptly faced with a new way of learning.

Moreover, both students' and staff's mental well-being, physical health and safety needs were a core concern. To run all these moving parts seamlessly, our partners required a strong and integrated policy, and a robust operations and technology system.

Ways that new technologies offer sustainable hybrid learning solutions, which allow optimised operational efficiency together with quality solutions to benefit both student and educator, include:

- **End-to-end hybrid learning** allows educational institutions and training providers to have learning continuity through building common data and digital platforms. This helps maintain an integrated sustainable education system, minimising platforms and technology solutions to reduce the organisation's carbon footprint.
- **Remote synchronous learning** lessens the need for transportation to various locations for both students and e-educators or trainers. It allows for mass education and training opportunities that further saves on carbon footprint.
- The Singapore Government's blueprint for education calls for the **integration and consolidation of platforms** such as Training Management Systems (TMS), Learning Management Systems (LMS), data warehouses and CRMs that we see more commonly now. These sustainable tools help streamline and consolidate mass resources, costs and carbon load on different public sector organisations.
- **Immersive education solutions** such as XR/AR (Extended Reality/Augmented Reality) allows educational organisations to scale up authentic assessment of skills. These skills would

normally take a lot more resources to reach the kind of mass levels that can be achieved via XR/AR, saving on workforce output and the amount of time spent sieving through piles of data.

- **Robotic Process Automation (RPA)** removes the inefficient work processes that unnecessarily burden the educational workforce. This, in turn, saves on electricity, wages, time and overheads, while increasing productivity.

Supporting the transformation goals of our clients and partners

There are countless ways that businesses can facilitate the sustainability transformation of their clients and collaborators.

A recent example is that of an Institute of Higher Learning (IHL) in Singapore, one of our clients, who needed a smart energy solution for one of their buildings, a greenhouse, to progress a set of sustainability goals. We designed and built an energy management platform, leveraging a product called Ignition (owned by Inductive Automation). Using sensors in the greenhouse, the solution collects data from different areas and displays this on a dashboard – showing real-time measurement against KPIs, such as:

- Energy consumption trend;
- Current energy consumption;
- Current water consumption;
- Water treatment and management;
- Cost savings from water saved and green energy produced.

Measurement is crucial in supporting client organisations to reach their environmental, social and governance targets. So, solutions such as this for measuring energy consumption are a fundamental piece of the sustainability puzzle. Through the customisation and integration of services to meet their business needs, as well as their operational and reporting requirements, we were able to help this client achieve their transformation goals.

NTT DATA has always been heavily invested in the improvement of the wider society it serves. As an organisation, we constantly evolve to meet new challenges head-on and think creatively by seeing opportunities in all scenarios. In this way, we can continue to ensure our organisation, our clients and our communities maintain long-term sustainability and profitability.

For references, please go to cxomag.com/sustainability-transformation-in-healthcare-and-education

Krishnappan Ramanathan has worked in the IT Services industry in Singapore for more than 30 years. He has steered his team to great heights by adding many key accounts and building long-lasting partnerships along the way. Most recently, NTT DATA Singapore was awarded Microsoft Partner of the Year as Best Global Systems Integrator for the APAC region, as well as the SG Enable Silver Mark for being an inclusive organisation that champions disability hiring.

Only Natural: Using the Five Capitals Model to Form a Sustainable Development Strategy

By Jesús Carrasco Naranjo, Natural Capital & Biodiversity Project Manager, everis, an NTT DATA Company
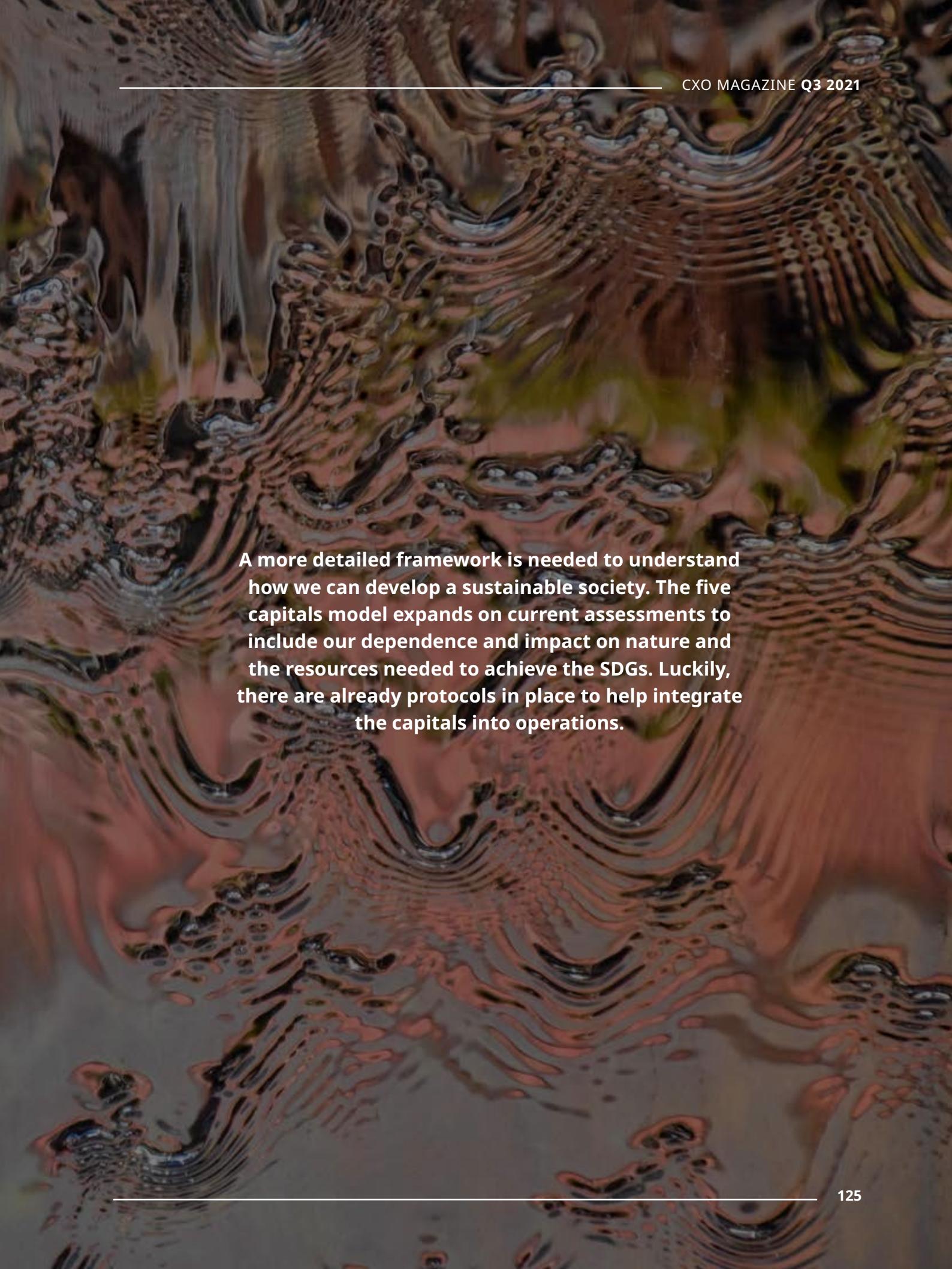
A more detailed framework is needed to understand how we can develop a sustainable society. The five capitals model expands on current assessments to include our dependence and impact on nature and the resources needed to achieve the SDGs. Luckily, there are already protocols in place to help integrate the capitals into operations.

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From the perspective of the private sector, the transition to sustainable business involves incorporating a more holistic vision of their impacts and dependencies from nature.

The planet is currently facing a state of climate and biodiversity emergency, where the impact on society and the economy is yet to be determined. Accounting models such as gross domestic product (GDP) show social and economic development based on manufactured, financial, social and human capital; however, these models do not include natural capital – the social, industrial and economic dependence from nature, such as the source of natural and cultural resources needed for achieving the UN's 2030 Agenda for Sustainable Development.

The five capitals model describes how these components fit together for sustainable development. To assess development, the model includes:

1. **Social capital** – derived from human relationships, such as smooth-flowing operations due to optimised communications channels;
2. **Human capital** – the people-based issues, like maintaining high work standards and nurturing employee knowledge and skills;
3. **Natural capital** –the natural resources needed by a company, such as timber or fuels, with a view to operate within regeneration

limits or contribute to the resources' natural replenishment;

4. **Manufactured capital** – comprises the goods and infrastructure needed to turn the resources acquired into a product (probably involving natural, human and social capitals); and
5. **Financial capital** – covering all forms of money and assets, ensuring that businesses are profitable even with all other capitals considered, but also includes fair distribution of wealth.

Due to the five capitals model interdependence, any improvement or detraction action towards natural, social or financial capital flows will have a response on the rest of the capitals. If we do not address the nature crisis in time, and accelerate the transition from business as usual to sustainable business, the social and economic system could be plunged into an unprecedented crisis, just as we have witnessed the systemic effects caused to the economy by Covid-19.

Human population models show continuing growth, putting pressure on the natural capital and, in turn, risking the stability of development. From the perspective of the private sector, the

> **Achieving a model of life and economic and social development in harmony with nature, which allows for sustainable and sustained growth, requires a transformational change in the way we measure risks, identify opportunities, manage resources and make investment decisions.**

transition to sustainable business involves incorporating a more holistic vision of their impacts and dependencies from nature, and considering more fairly nature's positive contributions to society.

Achieving a model of life and economic and social development in harmony with nature, which allows for sustainable and sustained growth, requires a transformational change in the way we measure risks, identify opportunities, manage resources and make investment decisions. In this 'new normal', the market, society and regulators are making increasing demands on the private sector to value and transparently communicate their capital risks.

A 360° sustainability vision should ensure the operability of a business model that guarantees the contribution of natural capital to human well-being is neither less than it could be (making the most of natural resources), nor greater than it should be (no increased risks to the five capitals).

This vision incorporates a double materiality perspective, where a company reports the impact of climate change on their business while also reporting their business's impacts on climate change.

A safe operating space for a sustainable future

A safe operating space, in this context, defines a conceptual framework where companies integrate social and environmental drivers in their sustainability operating model.

From the nine stressors defined by planetary boundaries, i.e. climate change, biodiversity loss, air pollution, and others, the ecological roof (carrying capacity) of a natural system can be identified. If social and economic sustainable development goals are included within the planet boundaries, foundations are defined to ensure that no one is left in deficit of life's essentials and that we collectively do not overstretch the pressure on the Earth's life support systems (doughnut economics).

Exceeding a threshold of negative impact on any of the nine planet stressors implies endangering the self-regeneration of an ecological system of biological relationships and functions. This can translate into real dangers to the stability of the natural system with fatal consequences for business stability, society and the economy as a whole.

Therefore, the operational space is defined by the green fringe between the natural system's capacity

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Alignment to the human, social and natural capitals also positions the company better to attract funds from sustainable financing mechanisms or institutional investors interested in high-impact products portfolios.

to replenish itself from the activities of exploitation and transformation, and the social and economic needs from the rest of the capitals. In this way, organisations not only address the sustainability of the ecological system – using natural resources with respect to their maximum admissible levels – but also the social sustainability of the territory by responding to the demand for social, human and financial capital above the minimum necessary.

Adopting this conceptual framework, companies have the opportunity to orient priorities and urgencies towards 360° sustainability, creating shared value for the benefit of the natural environment, society and the economy. Let's explore three ways to ease the implementation of such a framework.

Integrate a secure operational framework

You don't have to reinvent a green wheel. Procedures and techniques to create a sustainable operational framework already exist, such as the system of environmental economic accounting (SEEA), natural, social and human protocols or life cycle assessments. These approaches are used to measure the positive and negative impacts on the natural and social environment and to assess

the implications for the human and economic development of the territory. Based on this knowledge, adaptive management plans can be implemented to operate safely under science-based targets or other sustainable premises, responding to nature and social, physical, regulatory and systemic risks.

Employ sustainability data and its technologic governance for corporate risk decision-making

Following guidance from the Taskforce on Climate-Related Financial Disclosure (TCFD) and Taskforce on Nature-Related Financial Disclosure, data from a company's most material impacts and dependencies on nature and society should be measured and disclosed. This enables businesses to assess the risks and opportunities regarding the physical, regulatory or systemic material aspects. Risk assessments identify the baseline for developing corporate sustainability strategies on biodiversity, natural capital, climate change or social impact. They use the information to define ambitions according to international goals, science-based targets or regulatory agreements that should be managed and monitored under a good governance mechanism.

Finance this 360° sustainability approach by increasing transparency and improving economic accounting information

Organisations may be concerned with the cost to implement sustainable operations and report using empirical, traceable data. However, with an end-to-end sustainability approach, the company will be better positioned to demonstrate to its stakeholders and financial markets that its entire value chain is sustainable. With proof in the rising stock performance of sustainability-driven companies, an alignment to the human, social and natural capitals also positions the company better to attract funds from sustainable financing mechanisms (Green Bonds Principles) or institutional investors interested in high-impact products portfolios.

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Our current models for measuring development are outdated and not inclusive of our precious resource – nature. The five capitals model forms the basis of a sustainable development strategy that any organisation can follow, enabling businesses to "meet the needs and aspirations of the present without compromising the ability to meet those of the future".

For references, please go to cxomag.com/only-natural-using-the-five-capitals-model-to-form-a-sustainable-development-strategy

Jesús Carrasco Naranjo has more than 10 years of experience resolving complex issues using science approaches on conservation, sustainability and natural capital. Passionate about his work, he has oriented his career translating the planet's richness and biodiversity value towards private, public and academia.

Educating the Next Generation for a Sustainable Future

By Thomas Geiger, Senior Director, Strategic Industry and Management Advisory, NTT DATA DACH

More than a legal obligation to meet governmental targets, consumers, employees and investors are all pointing towards a sustainable future. We can see that sustainability presents a number of profitable opportunities. So, the question is: can you afford to be left behind?

Having come to NTT DATA from a banking background rather than a particular technical discipline means I regard business cases and decision-making through a different lens. Like many business leaders, I have also been considering the economic risks and rewards associated with sustainability. With this article, I aim to inspire readers to look at sustainability with a new, fresh positivity that they can take back to their strategic committees for inclusion in the decision-making process.

Celebrating sustainability

Despite today's lax legislation, many business leaders already consider sustainability a duty or obligation from outside their organisations and, as a result, a cost to be managed or even avoided. This could turn out to be a short-term or even risky view.

We know change is going to come, so why not put ourselves in a position of leadership? Many are taking up this mantle, with green energy supplier Bulb Energy winning a lucrative 5% market share in just five years, and US pest control company Aptive becoming one of the fastest-growing

companies in the world, thanks entirely to its commitment to the environment.

Genuinely working towards the United Nations' Sustainable Development Goals (SDGs) should be something to celebrate rather than fear. I add the qualifier 'genuinely' here because organisations perceived to be 'greenwashing' themselves – claiming sustainable credentials without backing them up – risk serious reputational damage and harsh penalties from regulators or, at the very least, their customers. In a recent pollution case, UK water company Southern Water was fined a record £90 million, on top of negative publicity.

Truly aligning your business to sustainability best practices means considerable change. This can't be avoided, but there will be clear rewards to be had for those that succeed.

The bottom line

Is sustainability profitable? That is the question at the heart of many of today's boardroom discussions. In my view, the answer is a definite yes. Tesla is now a profitable business, to the tune of $1 trillion in 2021; the case for electric cars has been made, and

an entire industry is shifting. By 2030, Volkswagen has said 70% of its total European vehicle sales will be battery-electric.

Consumers have been paying a premium for organically-grown, ethically-sourced groceries for many years now. Value brand Lidl leads the industry in responsibly labelling its animal products, for example, confident that people will pay more for higher welfare standards. (If you still need evidence that carefully aligning yourself to consumer behaviour is worth a premium, look at the prices of Apple's new iPhones.)

Spending habits are likely to continue to change as consumers experience climate change more directly through flooding, storms and other extreme weather effects. The global Covid-19 lockdowns have no doubt contributed to the re-evaluation of many priorities too. There is also a generational aspect at play. Younger people are already using their spending power differently than their parents.

Based on my careful analysis of all of this, I feel confident companies that invest in sustainability now will be able to sell more of their goods at higher prices with higher margins in the future.

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Genuinely working towards the United Nations' Sustainable Development Goals (SDGs) should be something to celebrate rather than fear.

Hiring the best people

The other factors that influence business resilience include employee engagement and performance. Potential employees are already asking NTT DATA about our approach to sustainability during the recruitment and onboarding process. Do you have a plan? Do you have goals? What are you doing about climate change? What difference will you make? The best people with the best skills want to work for employers aligned with their views and aspirations. This means organisations need to know, and communicate, exactly what they're doing on the global issues employees care about.

Existing members of your team are making decisions about their futures, too; employers must think hard about retaining talent as well as attracting it. The classic interview question "where do you see yourself in five years?" may well apply both ways when it comes to sustainability issues.

Reputation management

Employees and customers make decisions based on company reputation, product quality and pricing all the time. They are increasingly adding a company's sustainability track record to the list. Seeing fossil fuel exploration companies shift their brand focus to renewable energy is a clear example of this in action. Because of this pressure, I fear organisations that are not seen as committed to the UN's SDGs may begin to lose their freedom to make decisions about their futures. Customers and potential recruits will begin to look elsewhere.

It's not just consumers and employees who care about these issues either. Financial institutions, investors and lenders are taking sustainability into account in their decision-making too. Larry Fink, chairman and CEO of BlackRock, writes of climate transition presenting a historic investment opportunity in his 2021 Letter to CEOs. He described more and more investors choosing to tilt their investments towards sustainability-focused companies. With such a big player making such a bold statement about a sustainable future, the question becomes: can you afford to be left behind?

Any shift to sustainability will have a wide range of consequences. Supply chains may need to be reviewed, production processes changed, new materials sourced. Your company might even need to rethink its core values and reasons for being. The transition for businesses will not be easy, but I am confident that the organisations, and the leaders, that embrace opportunity will thrive.

I know that business leaders should act thoughtfully and, if possible, on the basis of facts. But the challenge of creating a sustainable future is certainly unique to all of us in its scope and complexity. Optimism, and a moderately risky approach, may well prove to be the best policy in the face of adversity.

For references, please go to cxomag.com/reasons-to-be-cheerful-why-it-pays-to-be-optimistic-about-sustainability

Thomas Geiger develops new, unusual use cases for innovative technologies and advises decision-makers on the interpretation and conception of new topics. The positive perception and active acceptance of the topic of sustainability is particularly close to his heart.

5 Minutes on....

ESG at NTT DATA

Yoko Tomioka

SVP & Head of ESG Promotion Department, NTT DATA Corporation

5 Minutes On... the importance of continually improving Environmental, Social and Governance (ESG) practices, and how NTT DATA is tackling important social issues – benefitting company and community – through technology.

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Sustainability Trends for a Stronger, More Resilient and Nature-Positive World

By David Álvarez, CEO, Ecoacsa Reserva de Biodiversidad
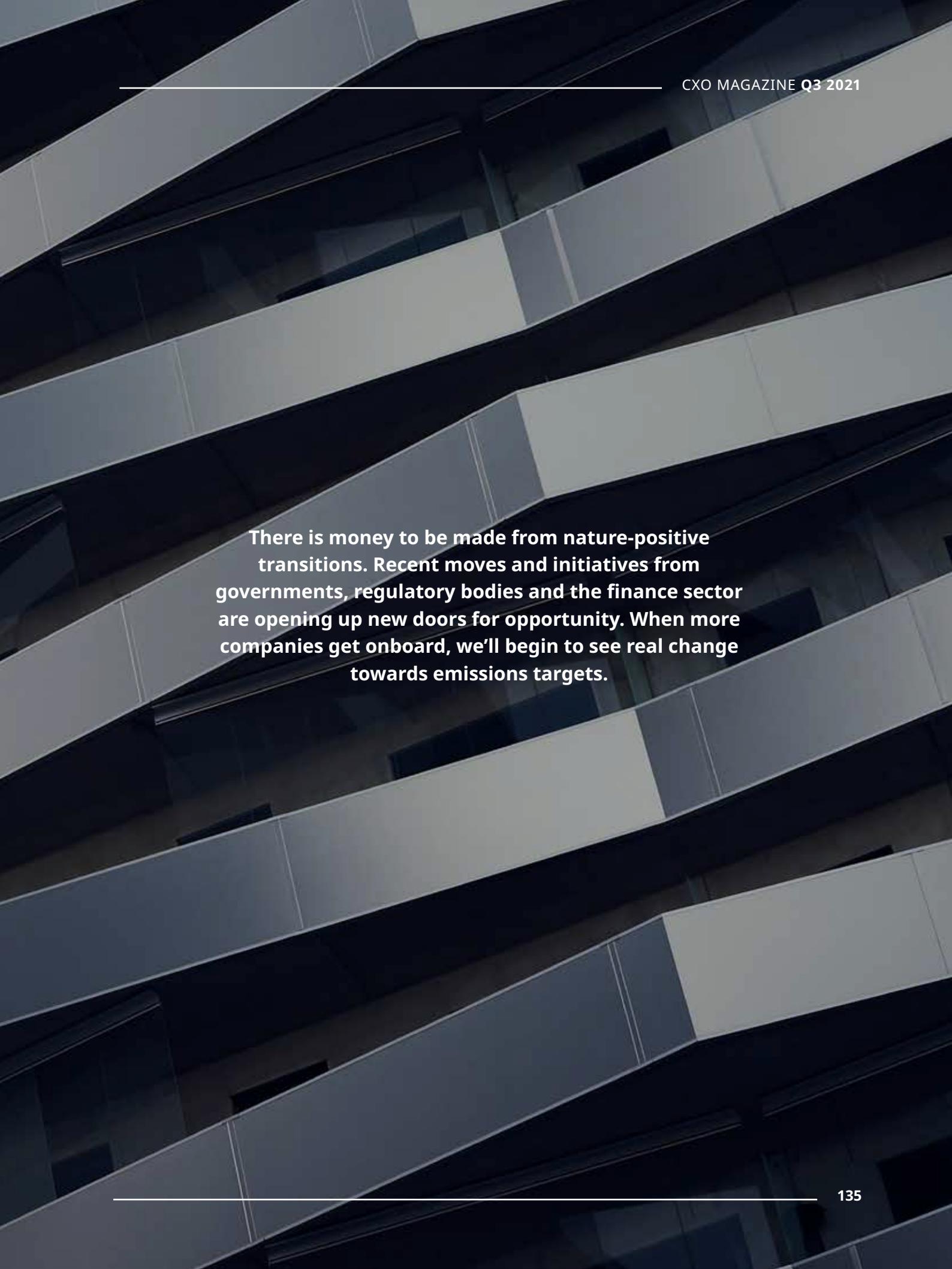
There is money to be made from nature-positive transitions. Recent moves and initiatives from governments, regulatory bodies and the finance sector are opening up new doors for opportunity. When more companies get onboard, we'll begin to see real change towards emissions targets.

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Inaction in dealing with these threats is listed in the top five global risks that humanity will face in the next ten years. These risks are immense. At the same time, opportunities for action and making strategic shifts are equally huge.

The last year and a half has been especially challenging for everyone due to the Coronavirus pandemic. This globalisation-related phenomenon has had impacts on us all in many ways and has made it more evident than ever how interconnected our world is and how dependent on complex and multinational systems we are.

The growing ravages of nature loss and changing climate, increasing economic inequality, the importance of trust and reliance on our institutions and economic and financial systems, and a higher demand for transparent and fair companies have caused many of us to reflect on the need of rethinking fundamental issues. Among them is the way business is done and how we consume, as well as how we value goods, services and the things we depend upon.

Although half of the world's GDP is at risk due to nature loss, the decline of biodiversity and ecosystem integrity, together with climate change and pollution, we haven't seen a solution in the short term. All these issues undermine the world's progress toward 80% (35 out of 44) of related Sustainable Development Goal targets. In fact, these threats are listed in the top five global risks that humanity will face in the next ten years. These risks are immense. At the same time, opportunities for

action and making strategic shifts are equally huge.

Where action meets opportunity

Action for nature-positive transitions could generate up to $10 trillion in annual business value and create 395 million jobs by 2030. However, to achieve these figures, financial institutions and companies must improve their understanding of how their operations and investments impact and depend on nature and, therefore, to what extent they are exposed to nature-related financial risks. Now is very much the time to act!

In this context, important changes, efforts and initiatives from governments, regulatory bodies, global organisations, accountancy bodies and businesses have been unleashed in the last months, contributing to a new movement with leaders from public and private policy-making fields, as well as science, business and civil society committing to action. In a move that may reshape decision and policy-making towards sustainable development, the United Nations has adopted a new framework that includes the contributions of nature when measuring economic prosperity and human well-being.

G7 leaders announced that our world must become not only net zero but also nature positive

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Action for nature-positive transitions could generate up to $10 trillion in annual business value and create 395 million jobs by 2030.

by 2030 – meaning enhancing the resilience of our planet and societies to halt and reverse nature loss – for the benefit of both the people and the planet. They have also committed to taking bold actions to deliver ambitious outcomes at COP15 (the 15th Conference of the Parties of the Convention on Biodiversity) and COP26 (the 26th UN Climate Change Conference of the Parties), building on the G7 Metz Charter on Biodiversity and the Leaders' Pledge for Nature.

With the urgency for green recovery, and to be able to support global nature and climate-related goals, investors and businesses need high-quality and comparable data from companies. A new task force – the Task Force on Nature-Related Financial Disclosures, or TNFD (which complements the work developed by the TCFD (Task Force on Climate-Related Financial Disclosures) – was launched last June to fill this gap. The TNFD is aimed at delivering a framework for organisations to report consistent, comparable and decision-useful data and to act on evolving nature-related risks. They also aim to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.

In the fast-changing landscape of reporting, within the framework of the European Green Deal, the EU has set an ambitious path to reorient capital flows towards a sustainable economy while avoiding greenwashing; it has introduced far-reaching legislation, such as the Sustainable Finance Disclosure Regulation and the EU Taxonomy. The Taxonomy establishes a list of environmentally sustainable activities by defining screening criteria. It will support the EU's 2030 climate and energy targets and the objectives of the EU Green Deal and will enable increased investment in activities deemed environmentally sustainable across a range of sectors, which includes agriculture, buildings, ICT, transport and utilities. Activities in these sectors represent 93.5% of EU greenhouse gas emissions.

The EU's shift in recognition and reporting standards

The EU Corporate Sustainability Reporting Directive (CSRD) proposal released in April this year replaces the Non-Financial Reporting Directive (NFRD), and it also pursues EU Green Deal goals. The change in name is appropriate and welcome, as it highlights that sustainability issues are also financial issues, rather than opposed to them, and gives sustainability information the same importance as financial information.

The CSRD will cover close to 50,000 companies

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Our world must not only become net zero, but also nature positive by 2030 – meaning enhancing the resilience of our planet and societies to halt and reverse nature loss – for the benefit of both the people and the planet.

(compared to 11,000 under NFRD), and its main goal is to provide investors with the information needed to consider ESG (environmental, social and governance) aspects in their investment decisions. It also enables civil society organisations and other stakeholders to assess businesses' impact on society and the environment. An important development in the business reporting sphere, included by the CSRD, is that it introduces a 'double materiality' perspective. It means that companies have to report on how sustainability issues affect their business and their own impact on people and the environment.

Rebuilding a nature-positive society
All companies wishing to be front-runners and fit for the future should keep a close watch over the aforementioned sustainability-related developments and initiatives. The powerful momentum behind them has come to stay and shows no sign of abating soon. They strengthen the case for action to build a sustainable economy by paving the path towards rebuilding stronger, more resilient and nature-positive economies and societies, which is the only way we can provide

a win-win-win situation for nature, people and business. Therefore, there is a huge opportunity for leadership that cannot be missed.

For references, please go to cxomag.com/sustainability-trends-for-a-stronger-more-resilient-and-nature-positive-world

David Álvarez promotes innovative projects with the aim of developing new environmental markets, natural capital integration into organisations and to foster ecosystem services valuation. He is involved in many international panels and working groups, including his role as an expert in the Advisory Board of the EU Business @ Biodiversity Platform, the System for Environmental Economic Accounting-Natural Capital Accounting and Valuation of Ecosystems framework of UN-STATS.

5 Minutes on....

Why Reporting is the Unsung Hero of Sustainability

Rosy Cinefra
VP, Head of Legal & Compliance,
NTT DATA Italia

5 Minutes On... building reputation and trust through sustainability standards and reporting, and some of the ways that corporations can make a positive impact on the environment and society, as well as the economy, through championing ESG.

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Embedding Sustainability Into Your Organisation's Foundations

By Rosy Cinefra, SVP, Head of Legal and Compliance, NTT DATA Italia

Sustainability reporting and standards are so important. Customers want to know that the companies they work with have clearly defined sustainability goals and mandates. Companies need to be prepared, need to recognise the value of sustainability in achieving their long- and short-term goals.

Building sustainability into the business has become increasingly important for leading global organisations. Stakeholders want to know where the company is going and how it is meeting sustainable development targets and best practices. Customers want long lists of sustainability questions answered before they sign on the dotted line: they want to know what kind of company they're building a relationship with from the outset.

The critical onset of climate change and crises has led to increased global pressure, and companies are now expected to pay attention or pay the price. A collaborative report called companies to action, stating that 99% of CEOs say sustainability issues are important to the future success of their businesses. The challenge, however, is how the business measures this sustainability.

What systems, reporting tools and factors have to be put in place to ensure that the business ticks the right sustainability boxes – boxes that mean something for the company and the planet?

Building sustainability foundations

The Global Reporting Initiative (GRI) has established itself as the leading standard in sustainability reporting management and in developing robust

sustainability practices within businesses.

The platform provides insight into how organisations can impact the economy, the environment and society. It gives them tools to increase internal and external accountability and transparency. However, there remains a need to develop a global standard on sustainability reporting, one that is driven by the International Financial Reporting Standards (IFRS) Foundation.

The IFRS, a nonprofit accounting organisation, asked for input on these global standards in October 2020, following a statement released the previous month by organisations that include the World Economic Forum.

The hunt for a comprehensive sustainability reporting system has started, and leading organisations are stepping up and taking part.

However, this can't be lip service participation in yet another box-ticking exercise that makes a brand look shiny in its reporting. It has to be a process that digs deep into the business foundations and develops the metrics against which it wants to be measured. These vary depending on industry and corporate focus but should hold sustainability at the heart of every engagement across customer, supplier, development, product and stakeholder.

It's essential that organisations fully realise their sustainability standards and how these apply across (amongst other metrics) accounting, technology, communication, economic responsibility, social responsibility and the environment.

A realistic view

There are several ways the business can identify and prioritise the main elements of its sustainability strategy. One step is to find out the benchmarks for the business sector and the trends shaping the market. This phase should leverage established reporting standards and global best practices.

The next phase should involve engaging with the leadership team and hosting dedicated workshops that help leadership identify key sustainability targets. Then these findings should be woven together along with client, employee and market perceptions to create a complete picture.

This is the process that NTT DATA Italy started when it released its first Sustainability Report in September 2021. A mix of best practice industry and reporting standards, the report is a deep dive into the foundations of our sustainability standards and is designed to provide our stakeholders (customers, employees, suppliers, local communities and

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It has to be a process that digs deep into the business foundations... Metrics vary depending on industry and corporate focus, but should hold sustainability at the heart of every engagement across customer, supplier, development, product and stakeholder.

academia) with answers to pressing sustainability questions. The report unpacks exactly what our stakeholders would want to know about how we approach sustainability and define our own ethics and best practices within this arena.

The report has helped us refine our four primary areas of sustainability focus – governance and ethics, economic responsibility, social responsibility and environmental responsibility – and ensure that these are consistently managed against clear KPIs. We have ensured that specialised people focus on this reporting so that it's legal and compliant and delivers what we want it to deliver: genuine sustainability goals set against the highest possible standards.

We believe that sustainability is critical to the future of any business, in any sector. It's not an exercise in being compliant or environmentally aware; it's an ethos, a way of thinking, that should influence the very culture of the business and be embedded into its legal and reporting frameworks. The future of the planet isn't going to be soothed by a ticked box. Only by real change and real effort can the very real challenges of climate change be mitigated and addressed.

A sustainability report is just one step towards the ultimate business goal – changing the size of the corporate footprint on the planet. With the right sustainability reporting in place, the right information sharing, and a commitment to transparency, organisations can change the future.

For references, please go to cxomag.com/embedding-sustainability-into-organisational-foundations

Rosy is an innovative lawyer with extensive international legal, commercial, corporate and M&A, litigation, privacy and cybersecurity, and ESG expertise. She also serves as secretary of the board of directors, Data Protection Officer and member of the Supervisory Body of NTT DATA Italia.

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Episode 4: The Role of Corporations in the Push for Sustainability

Matthew Higham, Chief Digital Officer & Sustainability Lead at Microsoft, and NTT DATA's Henrietta Marsh-Smith talk about the role of large corporations in transforming the industry towards a triple bottom line framework of people, planet and profit.

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Episode 5: Circularity and Future-Fit Corporate Strategy

Circular economy expert and director of Rethink Global, Catherine Weetman, talks with NTT DATA's Maria Vittoria Trussoni about bringing circular principles into corporate strategy, and the surprising benefits it will bring.

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Innovating With Data in a Rapidly Changing World

By Ian McVicar, Director, Data & Intelligence, NTT DATA UK

Businesses are too focused on their desired data end-state being advanced analytics and machine learning. With increasingly rapid change and radically fluctuating consumer behaviours, historical data is a poor guide to the future. Partnering to establish data-sharing ecosystems is the future of assessing innovation success.

"It's incredibly frustrating – we know all the use cases, we have the data, but we just can't figure out how to get value from them." This statement may surprise some readers: surely, data is one of the most highly-valued assets a company can have? Analysts said that by 2021, companies would be valued by their information portfolios. Since Gartner made this prediction in 2017, I suspect most leaders with significant data repositories available have expressed similar feelings to the exasperated Chief Technology Officer who recently said this to me.

I believe popular analogies between data and various scarce, valuable commodities have resulted in executives using a narrow frame of reference when pursuing data-driven innovation. Instead, business leaders should view data as a resource requiring continuous renewal, generated through mutual collaboration and sharing value.

The new oil

One of the most popular commodity analogies is that 'data is the new oil'. Consequently, most leaders conceive of data initiatives as using a finite, extractable resource that provides fuel for generating business value through its exploitation.

With the enormous valuations of the Big Tech

companies in the US (the likes of Facebook, Amazon, Apple, Netflix, Alphabet and Microsoft), ambitious management teams have no shortage of inspiration. Moreover, these companies provide access to the same tools they have developed, ranging from open-source tools and libraries to commercial, enterprise-grade platforms and infrastructure.

However, replicating their success has not been straightforward. A Gartner analyst, in the same year as their information portfolio prediction, estimated that close to 85% of big data projects fail. Furthermore, companies have not had any more success becoming data-driven in the intervening period.

With the passage of time and experience, executives have come to appreciate Clive Humby's insight that data is just like crude oil – it needs refinement to be usable. For data to have value, it must be broken down and analysed.

Rather than replay the practical challenges around this 'refining' process – such as a lack of talent, data culture and process, or the well-documented ethical and societal concerns – I want to consider a comparatively neglected and more deep-rooted problem that questions the comparison itself.

Data isn't a store of value

Whether you believe data to be the new oil (or gold), there is a consistent assumption that data acts as a store of value and utility, indeed even more so than commodities: "Data is essentially infinitely durable and reusable, whereas oil is a finite resource. Data being compared to oil implies that data has no value after use and decreases in utility like in the case of oil."

For most businesses, this isn't the case. And it is based on the mistake of conceptualising data as a commodity rather than information. Instead, let's consider an older concept of data as forming a map that provides a reduced, digestible view of a specific territory (or reality). As a practical example:

- The territory is your customers and their actions to purchase goods or services;
- The map is the abstracted data about your customers and their transactions (e.g., products viewed, the price paid and demographics) from which you draw insights.

The typical lesson is that 'the map is not the territory'. As an abstraction, our map is necessarily flawed:

- We may not capture the most critical data;

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Executives should be preparing for a future where rapid, unpredictable changes in the territories in which they operate, driven by climate or other environmental change, is the rule, not the exception.

- The data may be incorrect without us realising it;
- We may be misinterpreting the data.

By necessity, we must use maps, but we should keep in mind George Box's aphorism that "All models are wrong, but some are useful". However, our challenge is not only that our maps are wrong, but that the territory itself is also rapidly changing.

Covid-19 and mapping unpredictable territorial change

The Coronavirus pandemic accelerated existing trends by a decade: "At the beginning of 2020, approximately 16% of retail was transacted via digital channels. Eight weeks after the pandemic reached the US, that number leapt to 27%... and it's not going back. We registered a decade of e-commerce growth in eight weeks."

Fundamentally, all of our insight-generating models, from basic statistics to highly complex machine learning algorithms, use historical data to provide observations or predictions we can apply to the present or future. Therefore, as the territory changes, your map will also increasingly lead you astray, regardless of its initial quality. For example, in a recent Bank of England survey, over a third of UK banks reported a negative impact on machine learning model performance due to Covid.

Ironically, in the same survey, the risk appetite for machine learning and data science projects also experienced an equivalent positive impact. In doing so, respondents may be revealing their complacency that the disruption of Covid is a one-off. Reading the recent Intergovernmental Panel on Climate Change (IPCC) Report, executives should be preparing for a future where rapid,

unpredictable changes in the territories in which they operate, driven by climate or other environmental change, is the rule, not the exception.

Imagine that your oil deposits not only decay but do so unpredictably with increasing frequency and severity. Thinking of data as oil neglects the possibility that even if you can refine it into products, they may not provide the combustion you expect.

The pandemic has given a glimpse of the potential impact of these territorial changes, with waves of Covid-related corporate bankruptcies underway or anticipated. Moreover, the Big Tech companies that have prospered over the last 18 months remain ideally placed to handle rapid territorial changes.

In exchange for a limited, restricted glimpse of Big Tech companies' maps (e.g., personalised recommendations), users consent to provide considerably more detailed, ongoing, territorial data (e.g., every customer interaction on their website) to update their maps.

Therefore, rather than working with an infinitely reusable, durable store of value, leaders should approach data initiatives with the mindset of improving and maintaining a rapidly fraying, ageing map.

Partnering to disrupt

What does this mean for the frustrated CTO I quoted earlier who was struggling to obtain business value from their data, despite knowing all the use cases?

Fundamentally, their challenge is one of scale; customers use Google and Facebook's ever-expanding services every day, linked by a

single unique ID. Interactions with most other companies (even the best at collecting and managing data) are decidedly more limited in both their frequency and volume of data captured.

To tackle their sub-scale maps, leaders should not jealously guard their crumbling fragments but work with partners to accelerate the updating and development of their mutual maps and drive innovation. I suggest there are two potential approaches for leaders to consider:

1) Partner to maximise the breadth, and value, of existing data

The CTO's challenge is the data they possess is not relevant for their use cases or out of date by the time they can use it. There will be other organisations within the same value chain that suffer the same challenge. For example, within the automotive industry, tremendous opportunities are beginning to be explored by OEMs, retailers, finance companies etc., as they combine their data to deliver value for customers throughout a fragmented, rapidly changing, end-to-end lifecycle.

2) Partner to discover or create the territory and pioneer data collection

A more radical approach involves exploring, or perhaps even creating, new territories that are unmapped. As Rory Sutherland argues: "It doesn't pay to be logical if everyone else is being logical," or to put it another way, it doesn't always pay to be data-driven if everyone else is data-driven. Think of the iPhone, developed from the vision of a single individual running counter to all available market research.

Returning to the automotive industry, executives need to look at the alternative reading of being "driven by climate change" and take advantage of the demand to mitigate the severity of the climate crisis. For example, despite evidence that Gen Z is the most environmentally conscious, a recent NTT DATA survey of UK car buyers revealed that only 35% of 18 to 25-year-olds intend for their next vehicle to be electric or hybrid, considerably less than those over 55 years old. Which OEM or other market player is prepared to offer a radical business model that will reshape the territory of electric car buying to make these vehicles affordable to young buyers?

Where we've been going wrong is that organisations, particularly those with immature analytics capability and infrequent touchpoints, have been viewing data through the 'scarce resource' lens, harvesting and protecting their mined assets. Instead, corporations should be thinking about how they can connect to other businesses to continually renew this resource. Only then can they determine if their innovations are relevant, successful and scalable.

For references, please go to cxomag.com/innovating-with-data-in-a-rapidly-changing-world

Ian McVicar is the Consulting Lead for NTT DATA UK's Manufacturing, Automotive, and Services Business Unit. He leads data-driven transformation programmes that not only deliver immediate value, but provide flexibility to adapt and innovate in a rapidly changing business landscape. He thanks Bill Wilson for feedback on this article's initial drafts.

Opinion

Opinion pieces from NTT DATA's subject matter experts across EMEA.

The Future of Work is More Flexible, Greener and Smarter

By Christopher Heath
Solutions Lead for Digital Workplace and
Healthcare, NTT DATA UK

Smarter and more sustainable workplaces are essential for all businesses as we tentatively emerge from the restrictions of the pandemic. Technology is pivotal in not only providing a seamless user experience but also in building a greener IT strategy.

When most of us consider returning to "normal" working there are quite a range of views on what that could (and should) look like. At NTT DATA, part of our role is ensuring that we have services ready to support our customers in meeting the challenges not just of today, but of what comes next.

So, having just about coped with the sudden requirement for huge numbers of people to work from home, what's next for the IT department to deal with? In this blog, I take a look at some ways in which the world of work is likely to change in 2021 as organisations start to encourage people to return to the workplace. From flexibility, to sustainability, to automation, I'll look at what they mean from a user, organisation and technology perspective as well as how NTT DATA can help make the transitions smoother.

Flexibility

The traditional 9-5 working day is gone for good, with flexible and remote working reigning supreme throughout the pandemic. Of course, not every role can be fulfilled remotely, not everyone wants to work from home and teams do function better with some face-to-face contact. So how do we use technology to bridge those gaps and balance out our working lives?

Flexible working has long been near the top of what employees consider to be the most attractive part of a job (immediately after pay, pensions and holidays). Yet for many people, flexible working was previously restricted to a couple of hours a day or at most a couple of days a week working from home. Now organisations will have to consider how to deal with a large number of staff who have got used to working patterns that are very far removed from 9 to 5 and a daily commute to "my desk" in "my office".

Collaboration tools like video conferencing have been crucial for coordinating these much more dispersed and diverse teams. There is likely to be considerable focus on a wider set of collaboration tools in the 2021 workplace. Many organisations have simply invested in laptops, tablets and other devices and connected them via VPN as a short-term measure, when what is really needed is a longer-term, strategic approach to dispersed teams and information sharing.

When considering how to equip the workforce and the office, it is therefore a good idea to consider not just how people worked previously, but how these extended, dynamic teams can be enabled and supported as part of both the virtual and physical workplace.

At the start of the pandemic, we supported the rollout of Microsoft Teams over a single weekend to all the staff at the UK healthcare regulator, MHRA, to support their work on medicines and ventilator approvals as well as Covid-19 vaccines and testing.

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Many organisations have simply invested in laptops, tablets and other devices and connected them via VPN as a short-term measure, when what is really needed is a longer-term, strategic approach to dispersed teams and information sharing.

At NTT DATA we believe that the key to this new, more flexible way of working is a different approach to End User Computing, one which puts the focus on service quality to provide four key customer benefits:

Simplicity: A choice of devices to fit specific roles and requirements, all delivered as a managed service at a fixed monthly cost;

User Experience: Users can get access from a new device in seconds and switch between devices without having to wait or leave any significant "footprint";

Telemetry: We use analytics to proactively monitor thousands of key performance metrics across the service to identify trends and resolve any issues which might impact productivity;

Visibility: Sharing information about our service quality and performance is key to our centre of excellence and continuous improvement programmes.

Greener

Until the pandemic, 2020 was set to be the year when the environment dominated the news agenda. Even as the global medical and financial emergency unfolded, climate change, plastic waste and environmental damage continued to be front and centre.

Tackling sustainability from an IT perspective is often a footnote to an otherwise quite detailed plan. Devices (along with people) are now much more mobile and mostly used outside of work premises, making their energy consumption difficult to measure.

Most organisations (and users) now access a wide variety of cloud services. Whilst there is a steady decline in organisations investing heavily in developing their own on-prem data centres, almost all still have some facilities on site.

This mobility and diversity make it very difficult to accurately measure or account

for IT-related carbon emissions. Yet it is vital that we do so. Academic research indicates that IT and work-based travel are jointly responsible for more than 5% of worldwide greenhouse gas emissions; it would require a forest the size of Canada and Greenland combined to remove that pollution from the atmosphere*.

So how can organisations ensure that their workplaces and ways of working are as sustainable as possible in 2021 and what can NTT DATA do to help?

1. Commuting

Under "normal" working conditions, 68% of the UK's 27.7 million employees use their cars to commute and spend about an hour a day doing so. That equates to around 19 million hours of driving, creating many millions of tonnes of CO_2 and other toxic emissions.

An IT strategy that supports

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> **Device as a Service can ensure that every aspect of issuing devices to users is managed and accounted for, from manufacturing to eventual disposal with zero waste to landfill guaranteed.**

working from home even two days a week can significantly reduce the environmental impact of commuting as well as improving work-life balance.

2. Data centres

Until recently, power consumption was rarely a critical factor in selecting which IT equipment to buy. As a result, server rooms and data centres are packed with power-hungry devices, often in racks and rooms not optimally configured for efficient cooling, with the need for resilience meaning the issues are replicated to a second room or centre.

A cloud strategy can help to improve resilience, reduce energy consumption (and costs) and reduce emissions.

3. Devices

Users are often issued with higher specification devices than they actually need, and it is

common for their IT equipment to be replaced every few years regardless of its condition. From a sustainability perspective the power used by the device is important, but equally manufacturing (embodied carbon) and disposal (electronic waste or WEEE) contribute significantly to the overall carbon footprint. With the UK currently one of the worst in the world for electronic waste, action is needed.

Device as a Service can ensure that every aspect of issuing devices to users is managed and accounted for, from manufacturing to eventual disposal with zero waste to landfill guaranteed.

As global warming accelerates, we must look to technology for answers and NTT DATA is ready to answer the call. IOWN is NTT's vision for fundamentally changing technology, delivering the communication infrastructure of the future.

IOWN, or "Innovative Optical and Wireless Networks", reimagines the internet – some people call it the green internet. IOWN transforms today's existing networks and data centres by introducing a new architecture that brings photonics into the chips. By shifting from the world of electronics to the world of photonics, we are striving to realise IOWN, an innovative network with excellent capacity, low latency, flexibility, and energy efficiency, based on photonic technology.

Smarter

For more than 35 years we've been using personal computing devices for work. They were part of a wave of automation across what is now known as "knowledge workers". Unlike mainframe computers or even modern cloud services they are, quite literally, personal – we make changes to them, install

software, change settings, store documents, get viruses, infect them with malware, etc. Over time the devices get slower, more error prone and out of alignment with the latest software and services, so they are replaced.

To make matters worse, many users actively avoid using support services, so use colleagues, friends and relatives to work around issues. Over time such workarounds can build into lengthy delays and loss of productivity.

This is where NTT's vision for a smarter element of the modern workplace can help, through our three 'A's: Analytics, AI and Automation.

- **Analytics:** To deal with the sprawl of devices, both in terms of location and configuration, analytics gather comprehensive remote metrics on every device every second of every day. This information is available to helpdesk teams, analysts and planners who can use it to resolve problems, identify trends, manage capacity, and plan upgrades.
- **AI:** Because there are so many

devices and so many metrics (effectively big data for End User Computing), AI is used to accelerate the process of detecting and interpreting patterns. This effectively turbo-charges the support service by uncovering the hidden data about exactly what is going on and why.

- **Automation:** Finally, having gathered the data and analysed it, automation allows the service to self-heal, or to provide the user with scripted fixes they can run themselves (so-called "shift left"). As part of a multi-channel approach to providing support, automation is a key tool that provides reliable fixes to many known problems.

In July, we partnered with NTT Ltd UK to help our clients maximise the value of the distributed workforce, enabling them to benefit from leading intelligent workplace solutions, consulting expertise and world-class managed services. The intelligent workplace accelerates teamwork, ensures secure and seamless collaboration across distributed

teams, and ultimately creates meaningful employee experiences.

Final thoughts

As we edge away from the pandemic, a smarter workplace will be crucial for business success. Key to this journey is a refreshed approach to End User Computing, ensuring the service is more reliable and offers a seamless user experience – wherever and however someone chooses to work. Not to mention utilising technology to build a more sustainable IT strategy, helping the ongoing threat posed by climate change to individuals and businesses alike.

The Blue Economy: Combining Technology and Sustainability to Defend the Seas

Maria Vittoria Trussoni, Head of Sustainability Championship & Martina Maffioletti, Software Developer Engineer & Sustainability Champion, NTT DATA Italia

Technological development is an important vehicle to achieve sustainability, but companies must open up to innovation. Developments in the Blue Economy – protecting our marine environment and sustainably using ocean resources for improved social and economic life – offer inspiring examples of how technology is helping to protect and enhance the most vital element of our planet's natural resources.

The fight against climate change is humanity's great challenge of the 21st century. Finding a way to stop the disintegration of terrestrial ecosystems is one of the main objectives for contemporary society; among these, those most in difficulty are the seas and oceans. To try to stop this negative process, a lot of support can come from technology. For this reason, the Sustainability Goals Championship was born in NTT DATA in 2019, whose goal is to make technological skills available to achieve the UN goals of the 2030 Agenda.

In particular, great attention is paid to the Blue Economy. The

sea has always been one of the greatest human challenges: space to be conquered and at the same time a resource to be protected; man constantly obtains food, raw materials and jobs from the sea resource. In short, this is the economy of the sea which in the European Union had a turnover of €750 billion in 2018, according to the Commission.

The Blue Economy is the evolution of the Green Economy: while the latter asks companies to invest to reduce the environmental impact, the Blue Economy wants to completely eliminate the environmental impact and emissions harmful to the planet, starting from the

ocean and approaching it as a unique and fundamental tool for sustainable growth.

The European Union supports the economy of the sea through various instruments: the European Fund for Strategic Investments, for example, has invested over €1.4 billion in Blue Economy projects, such as building new ports and creating cleaner shipping. Added to this are the creation of a new fund, BlueInvest, and the financing by the European Bank for Reconstruction and Development of a series of projects concerning the Blue Economy. In total, €45 million has been allocated to support startups and SMEs that develop innovative products, materials and services, capable of contributing to improving the conservation of the oceans and the sustainability of the blue economy.

Training, automation, monitoring: how technology can help the economy of the sea

The concept of Blue Economy is very broad and there are many

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> **The Blue Economy is the evolution of the Green Economy: while the latter asks companies to invest to reduce the environmental impact, the Blue Economy wants to completely eliminate the environmental impact and emissions harmful to the planet, starting from the ocean.**

facets that can be found within it. As NTT DATA, we have focused on the role that technology can play in guaranteeing the sustainable development of this sector, which has not yet fully opened its doors to technology: for this reason the ideas and projects that go in this direction take on even greater value.

We are therefore working to develop, in collaboration with universities, partners and centres of excellence, business models and technological solutions that are future-proof for the Blue Economy.

The first aspect that we have studied in depth in which technological experience can be very useful is the training of port operators: through virtual reality, they are trained in less time and in total safety; this aspect is fundamental above all with regard to emergency situations. Certain circumstances, in fact, even if properly studied and

analysed, cannot be adequately managed if not personally experienced. Virtual reality allows us to recreate these emergency scenarios, preparing port operators to deal with them in a safe and considered way.

With regard to the structure and functioning of the ports, the intervention of technology can still be greatly increased, for example through the automation of many service structures which, through artificial intelligence, can guarantee a higher level of safety of the port docks.

It is possible to devise a model for the oscillation of cranes in container loading and unloading operations, by predicting the effects of wind. Careful and precise monitoring, which only technology can guarantee, can be applied to the entire coastal area, so as to always have under control any meteorological criticalities that can represent a great danger for ports and their

workers; thanks to this, it is also possible to schedule maintenance, having the certainty of always operating in maximum safety.

Another area where we are applying our technological approach is with a view to safeguarding biodiversity, and in particular fish farming: the idea is increasingly spreading that breeding must respond to quality standards, which are always controlled and certified to prevent the unlimited exploitation of marine resources for commercial purposes.

This verification operation is made possible thanks to the use of technologies such as blockchain, a very useful tool for identifying problems and monitoring farms: it is possible to map the life cycle of each fish, from when the eggs are raised, in in order to certify that the final product respects all the quality standards in the entire supply chain.

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To be truly successful, we must also look beyond the Blue Economy's use of technology, and embrace open collaboration: all companies operating in the maritime sector need to open up to innovation.

Beyond technology

To be truly successful, we must also look beyond the Blue Economy's use of technology, and embrace open collaboration: all companies operating in the maritime sector need to open up to innovation (for example, appointing an Innovation Manager dedicated to achieving collaborative innovation goals). Awareness is certainly increasing but the gap is still wide, because the maritime sector still lacks real know-how on exploiting the potential of technology for business and the environment – not only from the technical perspective but also the conceptual and organisational point of view (despite the benefits being evident and clearly higher than the costs, as certified by all the realities that have already started this process).

The concept of education and information takes time, but it is important not to waste even a minute. The funds of the National Recovery and Resilience Plan can give a big boost to this transformation process, which is why it is essential that these steps are already taken by 2025. The process, by its nature, is slow and long term, but many companies have already started it, thanks to the entry into the world of work of the new generations, more open to innovation and with a greater awareness of sustainability.

It is important that these examples are not isolated cases but become the rule: the economy of the sea offers a great opportunity for companies, for the financial sector and for each of us, to enhance the ocean, coastal areas and marine ecosystems, create jobs and boost social development.

Achieving Sustainable Growth By Attracting Young Talent

By Selin Bakaçhan
People & Culture Director, NTT DATA Business
Solutions Turkey, Middle East and North Africa

Worldwide retention of top talent has been an organisational issue for some time now. The recent 'turnover tsunami' headlines show us the problem isn't getting better. Here's how NTT DATA Business Solutions Turkey, Middle East and North Africa have managed to retain 97% of new employees in the last five years.

Sustainability means different things to different people, but most business leaders would agree that employees are a precious resource and increasing headcount always needs to be managed with the long term in mind. For me, attracting and retaining talent is the central element in the Sustainability Transformation.

Over the last five years, I've witnessed how, by placing skills growth and career development at the centre of our recruitment, onboarding and training. Because of this, the company has grown year-on-year and created new opportunities for both personal and community advancement.

In Turkey, we have been running the One Talent recruitment programme since 2016, hiring the country's best young professionals and encouraging their stay within the NTT DATA family. The figures speak for themselves: 97% of the recruits who stepped through our company doors between 2016 and 2020 are still with us (and many have progressed to more senior roles). With terms like 'turnover tsunami' grabbing headlines, we're proud to be able to keep our workforce fulfilled.

Below are five key talent management areas which will help companies achieve their sustainability ambitions – for profit, people and planet.

Attraction: be where the talent is

We want to be in all of the places that students visit when planning their careers. So via the One Talent programme, we collaborate with universities directly, often speaking at recruitment summits and events, proactively engage with students using social media and using Turkey's Toptalent online careers platform (home to 500,000 jobseekers).

Here, the help of marketing teams proves invaluable. The involvement of our specialist colleagues means any campaigns are created quickly and effectively with the right messaging. Recognising the value of specialist capabilities from elsewhere in the business is, of course, a key tip for any recruitment strategy.

Application: make it as easy as possible

We run a range of application

> " Hosting each phase [of recruitment] within one digital platform helps us find talent extremely efficiently, minimising time and resources looking for data or establishing the next steps.

processes in parallel, giving applicants a choice of routes into the business. They can apply for roles through LinkedIn, local recruitment site Kariyer.net, the Toptalent platform or, as you might expect, they can email us directly through our dedicated careers email.

Covering all these channels means we make our application process both easily accessible and straightforward for candidates.

Selection and recruitment: centralise and consolidate

Applications are managed through a structured programme using a local in-house digital platform. Firstly, as a global business, we assess foreign language skills in both English and German. If applicants are successful, we set various competency-based tasks, group interviews and group exercises. The latter includes a 'hackathon', collaborative programming challenges that assess potential.

Any one-to-one interviews, again often managed online, are also delivered through the platform, as are job offer

and acceptance processes. Hosting each phase within one digital platform helps us find talent extremely efficiently, minimising time and resources looking for data or establishing the next steps.

Orientation and ongoing development tasks are also managed through this single platform. This gives us continuity for the first 12 months of a recruit's career.

Onboarding: celebrate your culture

One Talent includes a two week orientation period that immerses recruits in our company and culture. Although led by the Human Resources team, Senior Management from across the business is also engaged. For example, young recruits are always formally welcomed by the CEO, Managing Directors or People & Culture Directors. We then provide introductory soft skills and technical training, arrange one-to-one mentoring, induct them into our QA procedures and provide department-specific

briefings. Recruits are then given consultancy skills training in a two-day online programme and specific team projects to undertake. The results of the latter are presented to top management and marked in a formal certification ceremony. This marks a valuable early opportunity to celebrate our young talent's achievements.

Onboarding during the Covid pandemic made us particularly grateful we had robust processes in place within an established digital platform. It made the transition to working online relatively straightforward.

Ongoing development: structure, collaborate and play

After orientation, each recruit starts a year-long development journey. Additional soft skills and technical training modules are closely monitored through a series of quizzes and exams, and roleplay studies and project simulations play their part as recruits continue to develop their skills. Specific project issues are covered through

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> **Onboarding during the Covid pandemic made us particularly grateful we had robust processes in place within an established digital platform.**

lessons-learned documents, and everyone has a named 'buddy' within their field to ask questions. We also establish cross-team mentoring to help embed recruits further into our company culture as the year goes by.

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You can see proof that One Talent works in our headcount figures. Our year-on-year growth rate has been 30% throughout the programme's first five years. While this is a success in itself, it is important to say we are not driven by growth in isolation.

Expanding quickly comes with risks to the business, after all. To mitigate these, we continue to prioritise service quality and gain customer feedback on all our people, continually refining our processes and approach. Moreover, we know as we grow that engagement must be deliberately cultivated. Employee satisfaction is supported through a range of

social clubs (sports, health and well-being, entertainment, etc.) running alongside One Talent. The Covid-19 pandemic forced all these things online, so we developed a new private social media platform, One Social. Its development took just two months and had a significant positive impact on our teams.

Central as it is, attracting and retaining talent is just one part of the company's commitment to sustainability. Last year we planted more than 1,000 trees in İzmir, on Turkey's Aegean Coast. We look forward to seeing our NTT DATA forest grow, alongside our business, for many years to come.

Electric Mobility: Trend or Key to a Truly Green Future?

By Nazario Martino
Energy & Utilities Client Manager, NTT DATA Italia

Today, there is no lack of critical issues that are holding back the take-off of electric mobility. Here are the issues to be solved for a more sustainable tomorrow.

We are in an era of transition, a necessary transformation of society: the current economic model, based on the logic of resource consumption, waste production and pollution and energy dependence on fossil fuels, is leading us towards a new, more sustainable future characterised by the search for solutions to the multiple environmental crises and adaptation strategies to their irreversible effects.

Mobility from a more sustainable perspective is certainly one of the most promising solutions, which will allow the country to achieve the goal of decarbonisation by maximising social, environmental and economic benefits.

For several years now, NTT DATA has decided to take the field decisively in this sector because we are convinced that

it represents an opportunity to improve the society in which we live and create a more promising future: from this year, confirming this commitment, NTT DATA has begun to collaborate with MOTUS-E, the first Italian association established on the impulse of the main industrial operators, the academic world and environmental and opinion associations to facilitate the transition of the national transport sector towards the massive adoption of sustainable means, through the promotion of electric mobility and related environmental benefits.

In Italy, electric mobility is certainly growing: to date, 0.25% of the cars circulating on our streets are electric, and only in 2020 there was a 4% increase in new registrations. Although the spread of electric vehicles is still

marginal, the trend is positive: sustainability applied to mobility concerns both private vehicles and public transport, a factor that increases the possibility of impact of green culture on our society.

The business opportunities that are created in this area do not only concern mobility, but also IT services to improve the user experience, for example through the creation of a single application that integrates the possibility of organising travel with different means, from booking an electric car to that of a train.

Therefore, the data of the last period points to a positive trend for companies that are investing in this sector, though the road is long and there are still many critical issues to be solved for electric mobility to definitively triumph over the traditional one.

The main obstacles to the spread of electric mobility, from costs to recharging points

The main problem today is represented by the still high costs for the end user, which mean that electric cars currently remain

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Although the spread of electric vehicles is still marginal, the trend is positive: sustainability applied to mobility concerns both private vehicles and public transport, a factor that increases the possibility of impact of green culture on our society.

a product that is not accessible to everyone. It is very likely, however, that with the further development of technologies related to electric motors it will be functional to the reduction of vehicle prices, consequently increasing the segment of the population able to acquire an electric vehicle.

However, the economic aspect is not the only obstacle: another big problem is represented by the lack of adequate infrastructure for electric mobility, especially for long stretches on the motorway. The number of recharging points, in fact, is still very limited and those in place are not always able to provide a quick service. In terms of distribution throughout the territory, 57% of this type of infrastructure is located in northern Italy, while in the centre and south there are only 23% and 20% of the recharging points respectively. This large gap obviously hinders the nationwide

uptake of electric cars, although a recent amendment that went into effect in December 2020 provides a charging point on the motorway every 50 kilometres: certainly an important step, but not yet decisive.

In order for electric mobility to be effectively established, it is also essential to work on connected services, for example by creating a single national platform that allows users to know where the recharging points are located in the area. Today all the data is aggregated by individual operators, but there is still no reality that can offer an overall and shared vision.

It is also essential that the systems, when they exist, work perfectly: at the moment 20% of the infrastructures that can be found along the roads are not working, do not have the necessary permissions or are not connected to the network operators at all. It is clear how these problems need to be

resolved for electric mobility to take a decisive step in terms of diffusion.

Future scenarios: towards increasingly smart cities
There is a strong awareness that, besides the problems listed above, electric cars and a green society represent the only way to reduce the environmental impact of our journeys. The cities of tomorrow will necessarily have to be increasingly smart and ecological, trying to lower emissions to zero.

In an urban context of this kind, it will no longer be necessary to resort to limiting the circulation of vehicles with alternating number plates or similar measures, because electric mobility would significantly reduce emissions. Many global automotive brands are already investing in electric and self-driving car technology, thus fueling a virtuous circle that benefits everyone. We go more

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and more towards an approach that favours the service over the product: following this logic, all sharing services – from cars, to motorcycles, through bicycles and scooters – will become more and more welcomed into the habits of citizens.

With technological development, the cost of electric cars will drop, especially as regards batteries, and this will happen in tandem with a growth in sharing services. In some large cities, historic centres could be open only to electric vehicles, able not only to recharge with zero emissions but also to sell electricity to the grid in case of need.

This scenario represents an opportunity for the whole nation. The small municipalities, where the problem of pollution is less relevant, could become the ideal context in which to experiment with this new concept of sustainable mobility, because distances are reduced and fewer

charging installations for electric cars, sharing services and public transport are required.

In general, we can say that the growth of smart cities will start from small municipalities to reach large cities, where again it will be appropriate to operate with an incremental approach, district by district, to cover the entire urban territory.

In closing, the message that must be spread is that electric cars do not represent a trend of the moment, but a reality that must necessarily become customary: not only because technology goes in that direction, but also because only in this way can we preserve the environmental resources of the planet.

Sustainable Public Places and Infrastructure for a Greener Future

By Thomas Kierkgaard
Director, Innovation & Technology, NTT DATA
Business Solutions Nordic Region

One of the UN's Global Goals is that of Sustainable Cities and Communities, to make these urban areas safe, resilient and inclusive as well as reduce energy consumption and carbon emissions. On the Danish island of Rømø, NTT DATA Business Solutions is employing a versatile data platform to analyse and forecast flows of people, holidaymakers' buying habits, water and energy consumption, traffic flows, weather information and data from the web – making Rømø a truly 'smart island'.

The Danish holiday destination of Rømø is well-known for its idyllic landscapes – little houses, sand dunes, a vast beach, and direct access to the island via a causeway – but few are aware of what makes it truly special. Rømø is a 'smart island': a large-scale network of sensors and a cloud platform for integrating and evaluating data, collected from everything from shower heads to social media posts. This is possible thanks to a team from NTT DATA Business Solutions who designed and implemented a versatile data analytics platform – and now other regions are jumping on the bandwagon to determine customer preferences and become a smarter destination.

Digital destination

Together with a team from the Danish tourism authorities and researchers from Copenhagen Business School and Aalborg University, NTT DATA Business Solutions realised the 'Digital Destination' project with the main aim of analysing and forecasting flows of people, holidaymakers' buying habits, water and energy consumption, traffic flows, weather information, and data from the web. Taken together, the solution delivers real-time insights into connections that would otherwise be invisible.

Data collection and measurement began in April 2020, slightly delayed due to Covid-19. First, we aggregated all data and integrated it on our cloud platform in order to analyse it.

Five experts in the core team used mainly existing devices and sensors, such as street cameras. All images were evaluated on our AI platform to record pedestrians, vehicles and their routes taken. We also gathered information from garbage cans, flow meters, parking lots, sanitary facilities, and at the point of sale, such as revenue and the cardholder's origin.

Sensors, SAP and sequences

In line with data protection regulations, data from the integrated sensor networks is uploaded to the Azure cloud, before being transferred to an SAP system. Here, the data is supplemented by mobile network, weather and statistical information, as well as social

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From tourist resorts to ice cream parlours, the groups involved in the project learned what data analysis in the cloud can do for them, and how a digital solution benefits their bottom line.

media (for example Instagram posts with Rømø-related hashtags). The AI platform records the objects in the images – often depicting family and social activities like watersports, horse riding and festivals – and the core message of all posts.

Even a sole focus on quantifying the exact number of tourists justified collecting and analysing the data; over the years, the estimates made on the island had shown huge variations. But with our platform it's now also possible to realistically forecast visitor numbers for the following day. For the island's ice cream parlours, this allows them to work out how many employees they need, and how many waffles to bake in the morning, optimising efficiency and minimising waste. Similar analyses were conducted for Rømø's tourist hotspots and resorts, where business is affected by factors such as visitor group patterns.

Benefits for the bottom line

For us, the biggest success of the Rømø project is the connection

we have made between people and organisations – many of which had hitherto no experience of using smart technology solutions to improve their everyday lives, at home and at work. From tourist resorts to ice cream parlours, the groups involved in the project learned what data analysis in the cloud can do for them, and how a digital solution benefits their bottom line.

Building on the positive outcomes at Rømø, the NTT DATA Business Solutions team is working with the tourism authorities to implement other Digital Destinations. A second Danish island, Mandø, is beginning the process.

Using the multi-cloud ecosystem developed for Rømø, we will be able to analyse the various data sources in other destinations. Our flexible data platform can process information from a wide range of sources as required. On this basis, we can efficiently integrate the existing sensor infrastructure and add value fast.

Future flexibility

Beyond applications for tourism,

our data analysis platform can easily model different business cases from other industry sectors. Project-specific adjustments mainly relate to a seamless integration into the infrastructure layer of data sources, such as cameras, industrial scales and social media posts.

The platform can be used for many different aims – to create smart destinations, to control packaging processes, to chat with customers or to analyse patterns in water quality. Rather than technical feasibility, it is more about the questions the data can answer for the individual organisation. By ensuring that the platform is adjusted to the business focus of the project, i.e. closely and clearly linked to both financial and ESG (environmental, social and governance) outcomes, there are countless exciting possible future applications for this solution.

The AIDA Project: Using AI to Help Caregivers Communicate with Autistic Children

By Corinne Schillizzi
UX & Service Designer, Tangity – part of NTT DATA
Design Network

Innovation in technology has great potential in helping to provide accessible, tailored learning for every child. Through our AIDA project, we created a unique system that could give caregivers and educators the information they need by bringing together elements from design, AI, IoT and VR.

1 in every 54 children in the world is diagnosed with autism. Despite being a widespread condition, many of us still don't know enough about Autism Spectrum Disorder (ASD), and how it can affect children in areas such as education and communication.

One of the main challenges autistic children face is the diverse nature of each child's experiences. Every child is unique and will respond best to certain kinds of communication and teaching. For autistic children, being able to tailor the method of communication so it takes these individual characteristics into consideration is vital in providing the best possible approach to education.

This is where innovation in technology can help. Advances

in automation and AI mean we are increasingly able to create products and services individually tailored to the needs of each user. It's this possibility that inspired the team at Tangity to propose 'The AIDA Project'. By bringing together elements from design and AI, as well as drawing on expertise in IoT and VR, we hoped to create a unique system that could give caregivers and educators the information they need. Today, I'd like to share with you how the project was conceived, the challenges we faced along the way, and finally how we were able to bring it to life.

How it started

Tangity, a global network of design studios, was launched last year as a means of creating a community of designers from

across the NTT DATA network. The foundational drive of Tangity is to humanise complexity, and this belief is no more apparent than with the 20/80 projects. The idea of the programme is to encourage designers to come forward and propose an idea that has a tangible human impact and can be of benefit to wider society. Once agreed upon by the group, designers are then able to spend 20% of their working hours devoted towards these social and humanistic non-profit projects, giving them the opportunity to turn their skills towards a cause that is close to their heart.

The AIDA project is a shining example of the potential of these projects. It seeks to change the perspective around autism and take the individual characteristics of each child into account. Consistency in communication and education is vitally important in this area – a fundamental fact only heightened by the pandemic. With many children having to transition from school to home and back to school at short notice, it has been a challenge for caregivers to provide their child with the continuity they desperately need.

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By leveraging the latest innovations in automation and AI, we realised there was a way we would be able to give caregivers the tools they need to adjust the context to the child's needs, and provide this much-needed consistency.

The method

Having identified a way we could help, conducting a stringent and thorough research programme was the first important step. Our AI and design experts had to create their own dataset, taking into account any potential human biases throughout. Given the nature of the project, it was vital to adopt an ethical approach that involved collaboration between both designers and AI experts from the get-go. We had to create an AI solution that was considerate of the environment in which it would operate, and could be explainable to the final user.

To achieve this, we needed both qualitative and quantitative data. We were lucky enough to spend some time meeting autistic children in schools, and gain a first-hand understanding of the caregiver experience. By using a combination of interviews, workshops and participant observations, we could better understand the challenges of communication, and utilise this experience to inform our work. Being able to see just how important communication is for meeting the unique needs of each child helped open our minds to a different way of thinking, and ensure the project never lost track of its ultimate goal.

With this qualitative background, our team of designers, IoT, AI and VR experts could contextualise the creation of an AI dataset, and ultimately create a solution that puts the child's needs at the centre.

The solution

Following the research stage, our AI and design experts collaborated to produce a scalable system that provides caregivers with the information they need. The first step in the development of the system was the app that collects a child's preferences over time, as well as information from parents and teachers. Such information will be integrated with other data coming from the other kit devices, biometric and environment data. The app then correlates this data to provide personalised suggestions with the aim of simplifying communication, whilst ensuring all caregivers can have access to the same knowledge.

As mentioned earlier, being able to provide consistency in terms of education and communication is crucial for caregivers and educators, especially during times of disruption. I hope the AIDA Project can become a useful tool in helping such people in their work. The app is currently undergoing real-world testing from caregivers, and should this phase go well, the system will be available to the wider public sometime over the next year.

Tech for Good

NTT DATA uses its technology and innovation capabilities to help its communities and clients.

VIDEO

Educational Program in Mumbai, India to Support Girls' Right to Learn – NTT Ltd India

We believe girls should be empowered to stay in school. We 'adopted' 840 female students from a school in India, providing expanded learning opportunities and empowerment through knowledge.

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コミュニティの構築に取り組んでいます

VIDEO

Farmbot: An Agricultural Platform That Will Sustain the World – NTT Group

It is forecast that the world's population will reach 10 billion in 2050. This means that new methods for producing and distributing food will be necessary. To this end, NTT DATA Business Solutions has developed a network called "Farmbot" that uses an agricultural robot that produces food in urban spaces.

Scan the QR code with your smartphone camera

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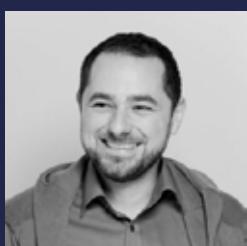
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