



SECURE CONNECTIONS
FOR A SMARTER WORLD

SUSTAINABILITY STORIES

ISSUE 3, NOVEMBER 2022

INTRODUCTION



Welcome to Issue 3 of NXP's Sustainability Stories, where we focus on people.

We believe in a world without barriers, where technological innovation enables a better, safer, secure, and more sustainable world that is socially and environmentally advanced.

When it comes down to it, sustainability is about people. It's central to everyone's quality of life and vital for a well-functioning society. It is also driven by people's inventiveness, and why our purpose as a company is to bring together bright minds to create breakthrough technologies that improve the connected world.

For NXP, our sustainability journey is dedicated to continuous improvement – from designing and manufacturing technology that positively impacts the planet and society, to [taking actions](#) to achieve carbon neutrality in our operations, to increasing the number of women at NXP globally and underrepresented minorities in the United States, as well as preventing [human rights](#) abuses throughout our supply chain.

This issue of our sustainability magazine gives you a glimpse of the ideas, efforts, team members, and partners behind those efforts, which we also document every spring in our annual [Corporate Sustainability Report](#).

On the following pages, we invite you to join us as we envision a world with even more smart technologies and explore the role these innovations will play in creating a more sustainable society. We will uncover how NXP is enabling smarter farming and programs to help achieve a more sustainable food ecosystem. Our recurring feature on diversity, equality, and inclusion (DE&I) explores unconscious bias, its impact on the workplace, and the opportunity to address this important issue to enable our people to perform at their best. We'll also reveal our new statement of human rights principles, reinforcing our commitment to providing a safe and supportive workplace for our team members.

And that's just a brief sample; there's much more in this issue, and I encourage you to explore it. Also, join us on our sustainability journey by visiting our [website](#) and [blog](#) or following us on [social media](#), where we regularly post new stories and related content. We'll publish the next issue of NXP's *Sustainability Stories* next spring.

I'm excited about our commitment to sustainability, and I am proud of how we are helping improve people's lives around the world.

Jennifer Wuamett
EVP, General Counsel, Corporate Secretary and Chief Sustainability Officer

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No eXtra Planet



We know that smart technologies can make our lives better and more convenient. But now, they can help us make huge strides in sustainability, too.

A SMARTER, MORE SUSTAINABLE WORLD FOR ALL

AI Opportunities to enhance people's lives by innovating smart technologies are critical considerations for NXP.

That's why we're focused on making these outcomes not just possible, but transformative to how we live and work.

Innovation At the Edge.

Today, many of the conveniences in our lives rely on networks from which our devices receive and distribute data. NXP is shifting this traditional model through the innovation of edge computing solutions. We expect the benefits of this shift will deliver sustainability outcomes, as well as faster, better, and more secure technology experiences.

Ultimately, edge computing innovations are designed to improve lives. Think about it. Edge computing involves embedding more artificial intelligence (AI), machine learning, and processing power in the devices we use daily. They can sense and react to our needs

instead of relying on connecting to a cloud network to get that work done. This means the devices do more for us, working faster and more proactively.

Imagine a device that doesn't just respond to your commands but anticipates them instead of waiting for you to ask. The operation is local, fast, and secure.

The scale of this opportunity is immense: Already, humans and computers generated more than 64 zettabytes of data last year. It's hard to get your head around this figure (it's 64 followed by 21 zeros), and this is expected to increase by some orders of magnitude as it's predicted there will be 75 billion or more connected devices in use by the next decade.

The potential sustainability impacts will be huge. We anticipate that the most useful devices will use energy more wisely and enable other devices to be more efficient.

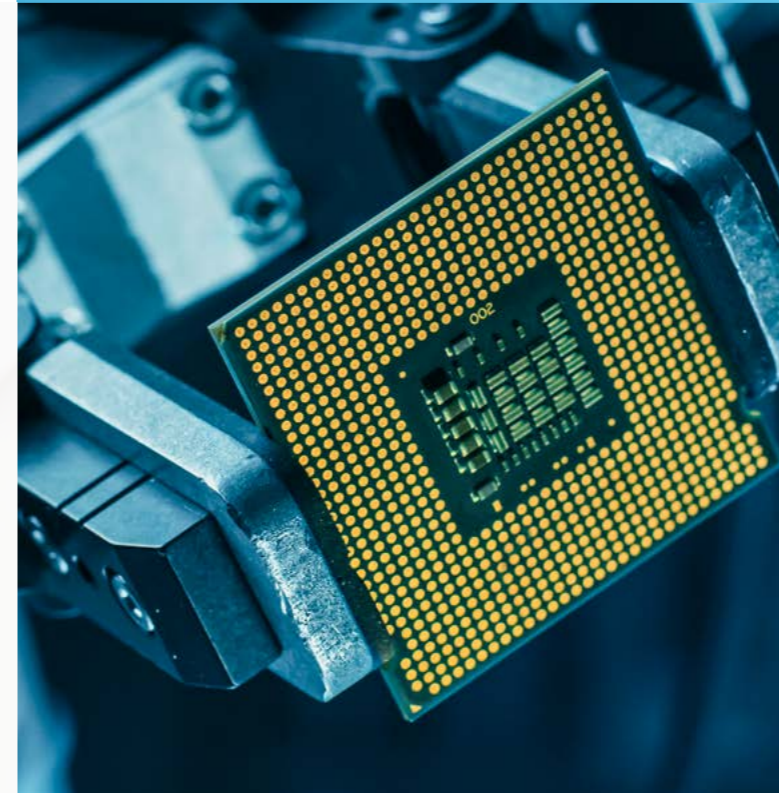
Our Vision for A More People-Centric, Sustainable World

Four benefits from innovation at the edge will help improve how we live sustainably:



Use less energy.

Devices will use less power, from wearables to 5G base stations. Battery chargers will be more energy efficient, and more advanced technologies will optimize battery life in mobile and stationary devices. A smarter world will give people more smart tools for how they use energy which, in turn, will be used to manage how larger systems use it. Using energy more efficiently will help mitigate the need for more power generation.



Produce less waste.

The low-power processors used for edge computing generate less heat waste, use less energy which will reduce carbon emissions and can be upgraded over the air for security and functional updates to realize longer lifespans (and less waste in landfills). This will result in smart buildings and vehicles (think EVs) with reduced carbon emissions through efficiency and the use of locally acquired renewable energy.

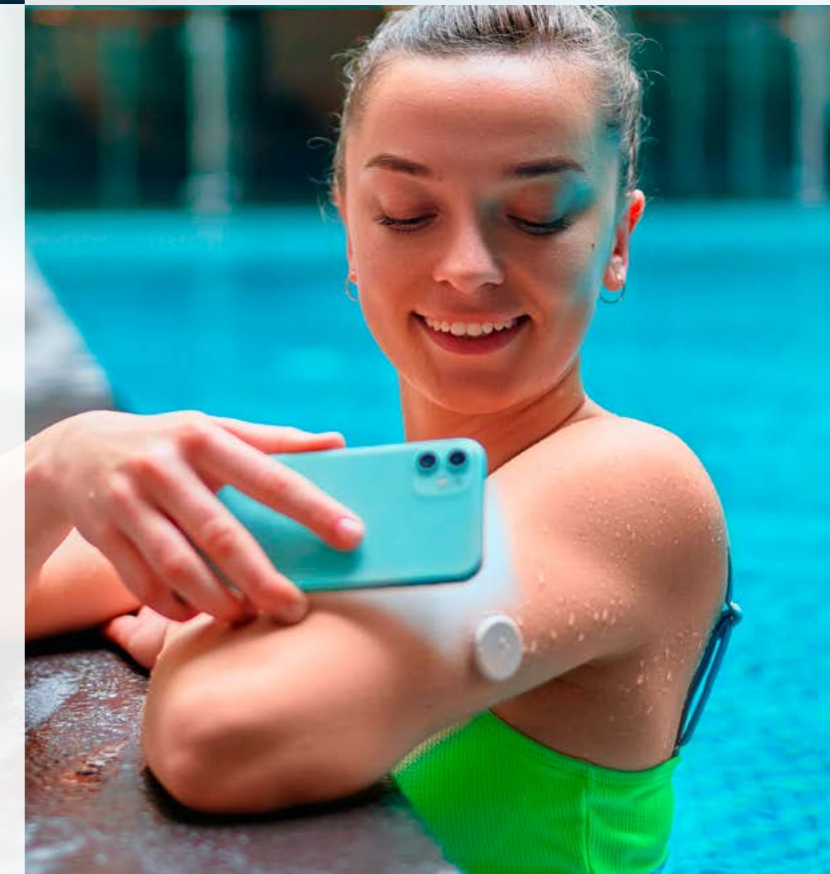
Improve productivity.

Productivity means empowering people to do more by using less, so think about how smarter devices can get more done using less energy while putting fewer demands on users' time. Using AI and machine learning can help keep industrial machines and processes operating more effectively (known as "uptime"), thereby avoiding expensive repairs and costly impacts on slowed production.



Support health.

Innovative technology will continue to advance and enable wearables that monitor health and prompt early action, often helping to avoid the need for more time and resource-intensive treatments. Remote connectivity (telemedicine) can accomplish diagnostics without the need for physical travel. So, imagine healthier people and more ways for them to stay that way.





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The Innovation Remit:

The edge internet economy has been projected to reach \$4-5 trillion by 2030, which means we're still only at the beginning of imagining what use cases and benefits are possible.

We see a future in which homes aren't just smart but sentient, transportation is available where and when needed, manufacturing is always up-and-running, and lives are better because we're more aware and in control of our health.

Central to that vision will be innovation that not only provides the software, low-power use, and performance for a wide variety of devices but also prompts the collaboration between semiconductor makers, system builders, OEMs, software developers, and networking infrastructure operators. Together, we must align on standards that allow all those edge devices to connect and communicate reliably and securely.

And underlying all that, innovation will continue to focus on improving people's lives. By delivering these innovations, we believe we will continue to help make a world that is not only smarter, but a more sustainable society overall.





Sherry Alexander, NXP's Vice President and Head of Diversity, Equality, and Inclusion, is expanding NXP's DE&I programs and initiatives to meet the needs of today's multicultural workforce and to establish NXP as the technology company where the most talented team members across the globe choose to work.



UNCOVERING UNCONSCIOUS BIAS

Everyone has biases. What's important is to recognize your bias for or against something or someone and not allow it to negatively influence your decisions.

Snap decisions are common. With so much going on in our lives, it can be tempting to lean into a first impression, abandoning deeper reflection. While relying on assumptions and associations can seemingly save us time, when it comes to relating to others, it can have negative ramifications – however unintentional – whether in your personal life or in the workplace.

We all draw on past experiences, beliefs, stereotypes and other information when considering the people around us. We often use surface-level observations about someone, such as their skin color, hairstyle or body type to make conclusions about who they are – often without even realizing it. These beliefs, known as unconscious or implicit biases, can adversely affect all of us, both in and outside the office.

At NXP, we're committed to fostering a workplace where team members feel accepted, respected, and valued, but creating such an inclusive climate requires effort and intent. Becoming aware of our unconscious biases takes work and self-reflection, which can sometimes be uncomfortable. Unconscious biases can come in many forms, and recognizing them in ourselves can be the first step toward creating an environment in which everyone feels a sense of belonging.

Confronting Bias Head-On

Everyone has biases. What's important is to recognize your bias for or against something or someone and not allow it to negatively influence your decisions. Unconscious bias stems from learned societal norms and cognitive shortcuts and can lead to subtle exclusionary practices. It can affect every part of the team member experience, from recruiting and training to assignments and promotions. The practice of recognizing differences between people – and rejecting the urge to assign "good" or "bad" associations to those differences – is key to accepting and celebrating others for who they are.

Breaking the Bias

At NXP, we recognize that a diversity of backgrounds and experiences leads to a thriving workplace, yielding better results overall. We are committed to building and sustaining a qualified, diverse talent pipeline with equitable processes for hiring, professional development, and growth.

In recent years, NXP has worked diligently to increase the number of women at the company, with women now representing 37% of NXP's global workforce. We have also increased the number of women in research and development roles. Additionally, we enhanced our hiring practices to require diverse candidate slates for management roles

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and increased our Employee Referral Program award incentives for hires of qualified women and underrepresented minorities. We've successfully grown the overall representation of Black/African American and Hispanic/Latino team members in the U.S. through our diversity-focused hiring practices.

Building a diverse workforce is not without challenges, but we continuously work to equip our team members with resources to foster an equal and inclusive culture. Through our Employee Resource Groups (ERGs), we regularly facilitate training on diversity, equality and inclusion topics. Our Women in NXP (WiN) ERG provides valuable mentorship and training opportunities for women within the company, and the group seeks and creates opportunities for recognition and leadership among women team members.

We also created an internal resource hub to provide information on topics such as intercultural collaboration, microaggressions, bias, and allyship. This year, we launched an unconscious bias training initiative to give all people managers an opportunity to examine and confront their biases.

We're also committed to understanding more about why people choose to leave the company. We conduct diversity exit interviews at the director level and above with women globally and with underrepresented minorities in the U.S., to give these individuals the opportunity to provide feedback directly to me regarding their reasons for leaving. These interviews give us anecdotal information about someone's experience at the company, and the candid conversations uncover areas of improvement that can be taken into account for current and future team members.

Everyday Inclusion

We believe a true commitment to diversity goes beyond special events and training, and should be a meaningful part of day-to-day activities. Last year, across NXP we introduced **Inclusion Insights** – a brief discussion about a specific inclusion topic at the beginning of a meeting. Intended to reinforce the importance of inclusivity in every aspect of our lives, team members across the company have expressed appreciation for these regular reminders. After having the opportunity to share an Inclusion Insight, one of our LGBTQ team members said, "Thank you for allowing me to share that story. For most of my life I had separate work and personal lives, and the two never crossed paths. I have felt like I've been living a double life all these years. The environment the NXP management team has created from the top down

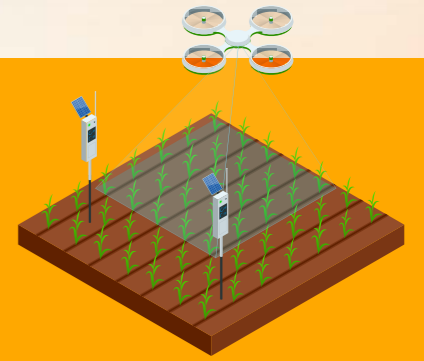
has allowed me to reconcile these two lives and just be me. I can't tell you how liberating it is. So, I THANK YOU."

*This practice and other efforts to foster **diversity, equality and inclusion** – such as recognizing our own biases – helps create an environment where everyone feels welcomed, valued and accepted as they are, which in turn increases collaboration, advances innovation, and enables our team members to unlock their full potential.*



NXP ON THE FARM

SMART AGRICULTURE



HoverGames THIRD ANNUAL CHALLENGE: SUSTAINABLE FOOD ECOSYSTEMS

NXP is hosting a [global challenge](#) to innovate ways to use drones and rovers to help achieve a more sustainable food ecosystem.

It's the third annual competition, called NXP HoverGames, and past challenges have addressed other issues facing society like disaster management and the health crisis. The competition offers drone development support to coders, developers, and innovators to use in exploring software and hardware solutions for achieving sustainable food ecosystems in the future.

For more information and/or to participate, visit [HoverGames](#) on our website.



Agriculture is the world's largest industry, **according** to the WWF, and it's tasked with feeding a global population that the UN **estimates** could grow from about 7.7 billion to 9.7 billion by 2050. **Making farming more sustainable isn't just the right thing to do, it's vitally necessary to our survival.**

Sensing change

Farming is a notoriously complex endeavor with many moving variables: plants and animals have different needs at different times based on different and always changing conditions. Using sensors to monitor them can help farmers not only respond more quickly and accurately to those needs, but anticipate and address them before they impact their operations.

For example, before the use of sensors, if one animal became unwell, farmers had to treat the entire herd because they couldn't identify those affected until they became symptomatic. And that was a risk they could not take. **Sensors** and machine learning (ML) methods today enable ranchers to isolate and provide medical treatments only to cattle in need which yields healthier organic agriculture and many other sustainability benefits. **Vision-based ML solutions** can alert to lameness in individual animals and provide the ability to treat the animal to limit suffering and minimize loss.

NXP has been on the farm since the late 1990s, helping them do just that with **our radio-frequency identification technology**. You may be familiar with the technology as RFID tags that are used on items like clothing so they can be identified and tracked. Farmers have used it for decades to track animal place-of-origin data and journeys through the supply chain.

*Our **NTAG SmartSensors** build on that leadership and provide far more robust and nuanced remote sensing capabilities, including temperature, movement, light, and environmental conditions for both animals and plants.*

Significant opportunity

The opportunities to make farming more sustainable are as immense as its complexity and impact on our lives.

Agriculture uses a lot of water (in the US **it accounts** for approximately 80% of consumptive water use, which means it's not returned to the environment), and as much as half of the water used by farms is lost. Fertilizers and pesticides are often **misapplied or overused** and can have impacts on surrounding communities (and they're highly sensitive to cost hikes). **Almost half** of harvested dry crops are lost before making it to peoples' tables (**another estimate** is that 1/3 of all global food



is lost or wasted). Agriculture is both victim to the vicissitudes of global climate change and a contributor to it, **as it generates** as much as 29% of total greenhouse gases.

The World Bank has articulated an approach called climate-smart agriculture (CSA) that addresses these interconnected challenges and inefficiencies by using existing knowledge and technologies to increase productivity, enhance resilience, and reduce emissions. NXP's technologies, which are low-power and can connect wirelessly to automated systems that can read the data they capture, are firmly positioned to help deliver those goals.

Smart sensors including cameras can be paired with **NXP edge processors** to identify with higher granularity which plants need how much water and what the ideal fertilizer concentration should be based on observable traits as well as sampling. ML can also help in the early identification of pests and the necessary precautions that can be taken in terms of optimal pesticide use or the release of biocontrol agents.

NXP products and technologies are also extremely helpful to farmers aiming to deliver the highest quality produce. We all appreciate properly ripened sweet fruit on our table, but the reality is that diverse conditions across the field can significantly impact farmers' (and thereby grocers') ability to deliver this. Some plants get more sun, and some get too much shade. Temperature and moisture in the soil can vary in each area of the crop as well. The NTAG SmartSensors log the amount of daily sunshine, temperature ranges and humidity in the soil. Utilizing this data, water usage is more efficient and increased crop yields are realized. And, because the sensors also indicate which plants are and are not ready to be harvested, we get to enjoy that delicious ripe fruit.

This story is the first in a series about smart technologies and sustainable farming. Stay tuned for additional stories in our next issue of Sustainability Stories (Issue 4, Spring 2023) where we'll address other challenges and innovations impacting farming today, and importantly, the potential benefits of these advancements on food supplies that must continue to increase alongside growing populations.

The opportunities for smart technology to make farming more sustainable are as immense as its complexity and impact on our lives.



PROTECTING HUMAN RIGHTS IN TIMES OF CHANGE

As technology changes how we live, it also impacts how we work. Protecting, and respecting human rights is a key component of NXP's ESG commitment.

On December 10th, the world will observe Human Rights Day, which commemorates the UN's adoption of the Universal Declaration of Human Rights nearly 75 years ago in 1948. It was a different world then: the first computer program had just been written but semiconductors, mobile phones, and almost all of the technologies we take for granted today lay years in the future.

At NXP, we endeavor to demonstrate respect for human rights through everyday initiatives and constant re-evaluation to ensure we're consistent with evolving stakeholder expectations of our industry. We are committed to adapting our human rights policy to meet the challenges of continued change, including issuing an updated statement of principles in 2022 and the continued rigorous, daily application of our policy to protect and respect human rights across our business and supply chain.

Innovating the "S" in ESG

Our newly updated human rights policy reaffirms our core commitments to sustaining human rights values consistent with global principles and practices to identify and address any potential adverse impacts associated with our operations. You can read it in its entirety [here](#).

We've innovated ways to implement it, ranging from instilling human rights awareness and ownership in our team members and other stakeholders through ongoing support and training and mechanisms for them to provide feedback and report any issues, to a variety of activities to review, track effectiveness, publicly report on our performance through our annual [Corporate Sustainability Report](#).

The willingness to take action

Our updated policy states explicitly what we'll do when we identify actual or potential impacts on human rights. First, we'll review and develop action plans to address and mitigate them, working collaboratively and consultatively with our team members and/or affected supply chain partners. Then we'll implement and track the effectiveness of our mitigation and improvements measures while making sure to engage and communicate with relevant internal and external stakeholders.

You can explore the results of our assessments and actions in 2021, both within NXP and with our supply partners, [here](#).

Meeting the challenge of change



With a global manufacturing, supply, and service footprint, NXP's team members and other

stakeholders are exposed to a wide variety of changes in their lives as our business and the world develop and deliver new technologies and experiences.

That's why we remain steadfast in our commitment to provide a workplace that respects human rights, that is safe and secure, where team members are consulted and engaged, and where everyone is treated with dignity and respect. We are committed to ensuring a workplace that is free of forced, bonded or child labour, that respects equality, welcomes diversity and inclusivity, is free of discrimination and harassment, and respects the right to freedom of association and to collective bargaining.

NXP is proud to join with other leading businesses and NGOs to commemorate the Human Rights Day, and to continue our commitment to making its principles real every day.



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INNOVATION FOR PUBLIC GOOD

These efforts aim to contribute to NXP's alignment with numerous United Nation's (UN) Sustainability Goals as well as NXP's mission to work together and accelerate the breakthroughs that advance our world.

A Global Effort

NXP's Public Cooperation Programs ("PCP") team draws on the company's expertise and resources to participate in dozens of projects around the world focused on various aspects of speeding sustainable solutions to market. This includes recognizing the central role that safety and security play in user adoption of any new technology solution.

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THERE'S NO SUSTAINABILITY WITHOUT SAFETY



The technologies to better produce, distribute, and store renewable energy are advancing rapidly. And they need to be safe and secure for us to adopt them. NXP is sharing and applying safety and security knowledge to a variety of transformative projects.

Because there's no sustainability without safety.



Safer Windmills

Wind turbines generated almost **twice the energy** worldwide as solar in 2021 and enough to provide **more than 7%** of global power requirements. However, there are potentially negative impacts for wildlife such as bats due to threats like collision risk and habitat loss.

***Drones4bats** is a research and development project to prototype autonomous measurement drones to gather more mobile data at greater heights. The intent is to save bat lives while delivering more efficient wind turbine operation at a facility in Germany.*

NXP's involvement is focused on developing a platform for secure communications during drone takeoff, landing, and charging that also provides real-time data insights on wind and other variables. It involves a combination of our established leadership in processors, UWB, and 77Ghz radar for autonomous mission control and collision avoidance, as well as automatic data transfer into the cloud.



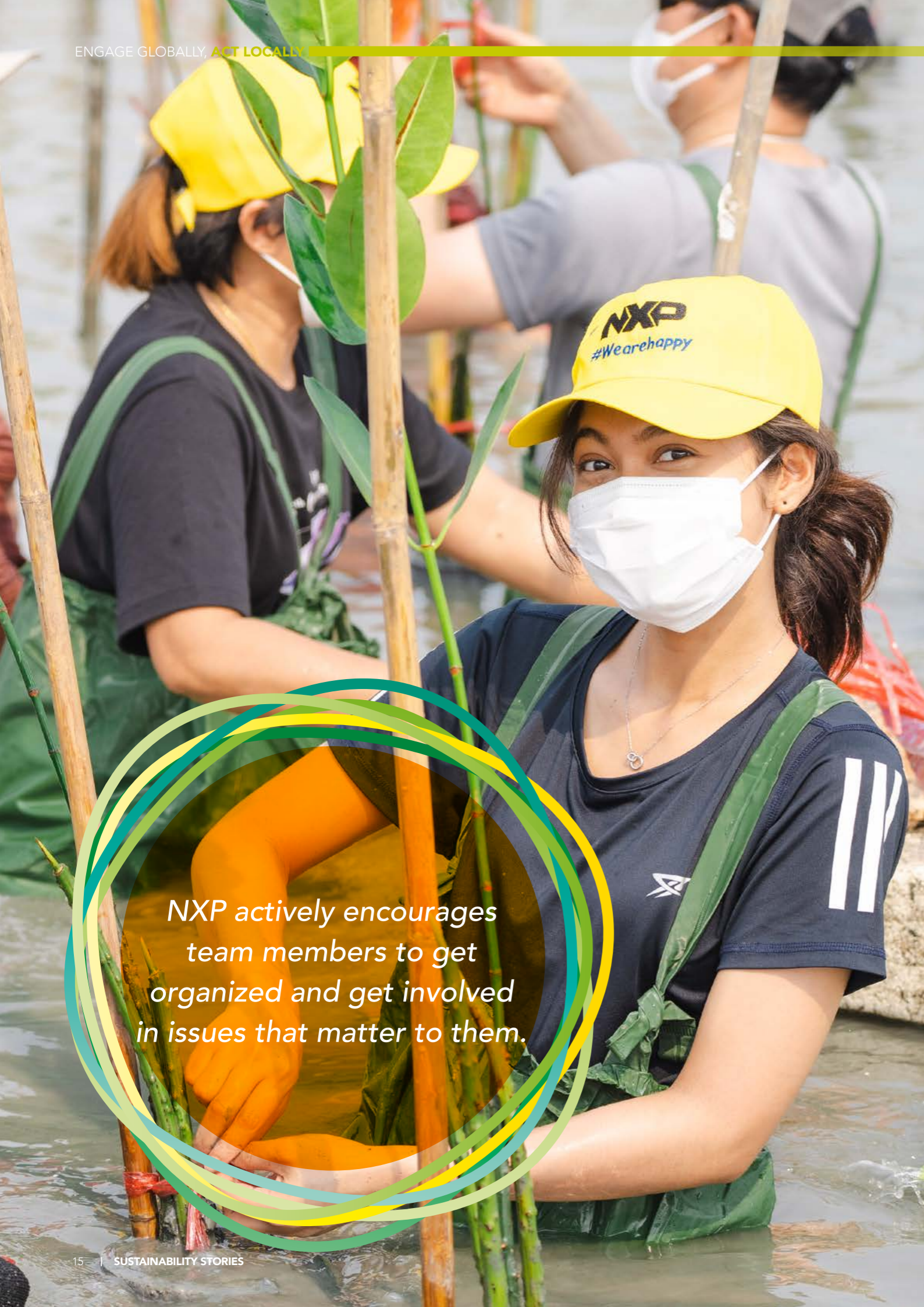
Safer Batteries

The **Li-ion batteries** that power the e-transportation revolution aren't simply electric gas tanks. They're technology devices for which estimating and then managing variables such as charging, output, and range based on actual use and environmental conditions are key for better performance, safer operation, and eventual recycling.

A project called Cell-integrated SENSing functionalities for smart BATtery systems with improved performance and safety – **SENSIBAT** – is a consortium of 12 partners from 7 European countries focused on developing novel sensors for an advanced Battery Management System, or "BMS."

Teams from NXP in France and the Netherlands are working with system partners to help apply and properly read the data from their sensors. This will help the trial run more smoothly and provide data to continue to refine the precision, rapidity, and measurement levels from existing and new sensors at NXP.

The PCP team, which handles all operational, financial, and legal matters involved in collaborative projects, is currently overseeing dozens of additional public projects for NXP. We look forward to featuring more of this exciting work in future issues of *Sustainability Stories*.



NXP TEAM MEMBERS ORGANIZE TO ENGAGE GLOBALLY, ACT LOCALLY

No eXtra Planet was co-founded in 2021 on International Women's Day by NXP team members Anne-Marie Paap, based in the Netherlands and Priya Saikumar out of Hamburg, Germany, when they established a group focused on creating awareness and action in the NXP community to take care of the planet. Michael Doescher, also based in Hamburg, later assumed the co-lead role with Anne-Marie.

Their ERG, which stands for Employee Resource Group, now has teams working on eco-friendly business, green mobility (for team members commuting to and from work), a green canteen (plant-based food), and initiatives for CO₂ reduction at NXP sites.

NXP actively encourages team members to get organized and get involved in issues that matter to them. To date, there are ten ERGs focused on a variety of topics at NXP, including the Black Achievement Leadership Team (BALT) and Women in NXP (WIN). All of

them are supported by the company's HR organization and members of our management team, depending on location and interest. Our CTO Lars Reger sponsors the Hamburg site's team member efforts to become CO₂ neutral and No eXtra Planet is a member of NXP's Sustainability Council in the Netherlands.

More than 200 team members have joined the No eXtra Planet ERG, with many regularly attending monthly meetings, while an additional 120 team members follow their work on our internal Yammer channel. The team uses its activities and communications to encourage participation in environmental events such as Earth Day, raise awareness of the UNESCO 17 Sustainable Development Goals, and hosted its first lecture earlier this year (on the semiconductor industry's impact on sustainability).

Why the name? Because there's "No Plan(et) B," thus no extra planet, so we must do our best with the one we have.

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New stories will appear regularly during the year on our [website](#) and we encourage you to share your thoughts or email us at csr@nxp.com.

#WEARENXP



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