



# How digitisation will transform construction

# Stepping up on sustainability

Already committed to sustainability and circularity, tool manufacturer Hilti is taking its efforts to the next level. Margaux Wibin, head of sustainability for Hilti Great Britain, tells **CM** how the company's unique business model enables its holistic approach

**S**ustainability is not something new for us. It has always been at the heart of how we operate – now we are stepping this up,” says Margaux Wibin, head of sustainability for Hilti Great Britain.

Hilti has partnered with independent business sustainability rating supplier EcoVadis, which assesses 85,000 companies across the world. The tool manufacturer has already jumped from silver status in 2020 to gold in 2021, putting it among the top 5% of companies. But Wibin wants Hilti to rise further to a platinum rating and the top 1%.

It's a strategy that Hilti's workforce and customers are on board with. Wibin explains: “For the young generation that we are now hiring, it's a given that we take action. But our customers are also expecting us to lead.”

## Three pillars

Hilti's approach to sustainability is supported by three pillars, under the headings of: Environment, People, and Society (see box opposite).

When it comes to environmental measures, the business has already taken a significant leap on cutting its CO<sub>2</sub> footprint. In 2019, emissions stood at 195 kilotons of CO<sub>2</sub> across the globe. That fell to just 84.8 kilotons in 2020 – understandable in the context of Covid-19 lockdowns. But interestingly, it rose only



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Margaux Wibin, head of sustainability for Hilti Great Britain

▲ Margaux Wibin explains how Hilti's approach to sustainability is supported by three pillars: Environment, People and Society

slightly in 2021, to 92.3 kilotons, despite lockdowns subsiding.

It's not a coincidence, as Wibin explains. Hilti has embraced the remote working practices that it found itself having to use in 2020. But it's by no means the whole story – with it has come a concerted effort to move Hilti's substantial fleet of vehicles away from fossil fuels and onto electric vehicles (EVs). “The vehicles are a big part of our footprint,” says Wibin. “We have 14,000 vehicles globally and almost 4,000 are now fully electric or hybrid.” Despite the heightened demand for EVs, Hilti hopes to accelerate its move to EVs as quickly as possible.

Meanwhile, it has moved its northern European headquarters in Manchester from an ageing building in Trafford Park to the energy-efficient Circle Square building, on the former site of the BBC's Broadcasting House on Oxford Road. Built by John Sisk & Son, the building has a BREEAM Excellent rating.

Efforts to reduce direct emissions go hand in hand with a programme of carbon offsetting that Hilti hopes will help it to achieve its aim of being carbon neutral in 2023.

## Circularity

When it comes to the tools it produces, Hilti's commitment to circularity is key. Hilti is at pains to reduce the resources it uses by first making sure that customers have the

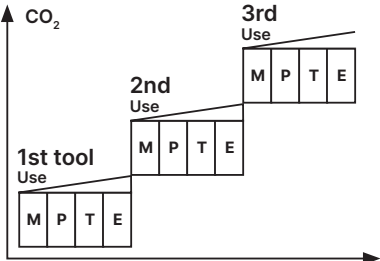
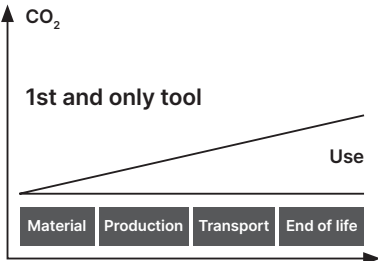


4,000

Out of Hilti's 14,000 vehicles globally, almost 4,000 are now fully electric or hybrid



► Emissions produced by a single more durable tool compared with replacing less durable tools



right number of tools for their needs and then offering local repair services to extend their lifetime as far as possible – the longer a tool's life, the fewer resources used up replacing it.

Next, it focuses on reuse. Hilti is a rarity in the world of construction tools, in that it services and repairs all its own tools and takes them back once they reach the end of their life. It can do this thanks to its Fleet Management programme. Customers effectively lease the tools and at the end of the contract, the tools return to Hilti's 65 repair centres across the world. Hilti removes any spare parts that can be reused and puts them back into

Hilti's three pillars of sustainability:

- Environment:**
- Become CO<sub>2</sub> neutral by 2023
  - Lead the industry in circularity
- People:**
- Differentiate through user health and safety and building safety
  - Lead in employee health and safety
- Society:**
- Create social impact at scale
  - Uphold Hilti and the industry to the highest standards in business ethics

the repair cycle. If the tools are still in fairly good shape, Hilti repurposes them so that they can go to charitable organisations. Finally, anything that it can't reuse – whether it's batteries, plastic, steel or copper – is recycled via third-party organisations. Almost 70% of Hilti's tools are recyclable, and 27% of the materials in its new tools are recycled materials.

That's crucial when you consider that the lion's share of the embodied carbon in a tool comes from the raw materials needed to make it. Its production, use and transportation account for far less (see graph above).

The company's Nuron system, which recently launched with a range of 70 cordless tools that operate off the same 22V battery platform, is the next step. It promises to make Hilti's 'reduce, reuse, recycle' approach even more efficient. "If you operate in a smart way, you won't need as many batteries as before. We can offer a full tool park analysis to customers who have a fleet contract with us. Most of the time our assessment tells them that they need fewer tools going forward," says Wibin.

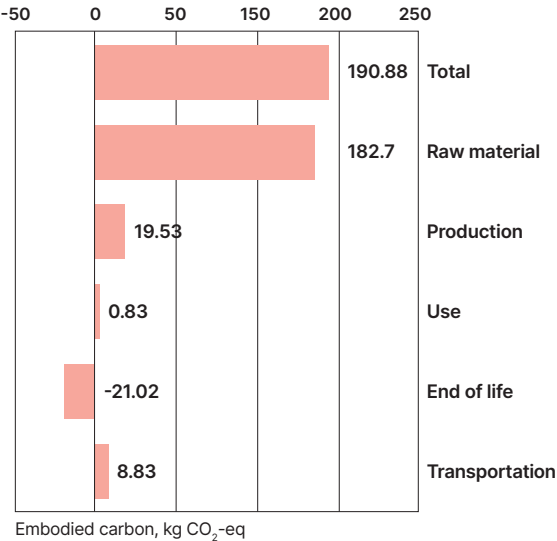
**Safety**

She explains that Hilti is an advocate of BIM, not just to improve building safety but to make buildings greener too. "If architects use BIM from the start, we know there is much less waste during construction. And we can also make sure that the products

Major contracts are assessing their CO<sub>2</sub> impact right at the start of a project now. Everything that goes into site, bricks, mortar, concrete or tools, is assessed

Margaux Wibin,  
head of sustainability  
for Hilti Great Britain

CO<sub>2</sub> emissions over the life cycle of a tool



staying in the building have as little carbon footprint as possible."

When it comes to user safety, many Hilti tools boast features such as Active Torque Control (ATC), which shuts tools off if it detects them stuck in the base material and starting to rotate, as well as Active Vibration Reduction (AVR). AVR helps to damp vibration, reducing the risk of hand-arm vibration syndrome (HAVS).

While issues such as HAVS are well publicised in construction, Hilti is also focusing on how it can protect workers from musculo-skeletal disorders. That has given rise to the development of its EXO-01 exoskeleton, launched a year ago. The exoskeleton reduces load on workers' shoulders and back.

"This is a seismic update in the marketplace," Wibin concludes. "Major contracts are assessing their CO<sub>2</sub> impact right at the start of a project now. Everything that goes into site, whether it's bricks, mortar, concrete or tools, is assessed. Hilti's clear overview and transparency will be massively important going forward."

**For more information, go to: <https://hilti.to/58ddyr>.**



# In depth: Hilti's new Nuron cordless battery platform

**CM** takes an in-depth look at Nuron, Hilti's new cordless battery platform. Initially launched alongside a range of 70 new tools, and now comprising 95 tools, Nuron promises a combination of better performance, greater efficiency on construction sites, and enhanced worker safety and sustainability

**U**sing handheld tools on a construction site can be a confusing business. A range of different tools running on different platforms can mean a mess of cords, cables and chargers. Batteries go missing or aren't compatible with other similar tools. In the worst case, tools and batteries can end up

being thrown away if one or the other ceases to work.

It was partly in order to address this problem that Hilti has created its new Nuron cordless battery platform, initially launched at the same time as a range of 70 tools designed to run on it. This has now increased to 95 tools. But the Nuron platform offers more than just practicality:

▲ Hilti's Nuron TE 2000-22 cordless breaker at work on site

Hilti claims it also improves the tools' performance, enhances worker health and safety, and offers construction the opportunity to save money by reducing the number of tools needed on site.

Until recently, Hilti had two main battery platforms to run its cordless tools – a 22V platform and a 36V platform. It also offered a range of tools that run on petrol or cords.

"The vision behind Nuron is that we wanted to get rid of all that," says Sebastiaan Groenhuijsen, head of product management for Hilti in northern Europe. His aim is to be able to offer customers the option to have a fully cordless jobsite. This journey continues in 2023, with 25+ more products expected to join the Nuron range this year.

## Performance

The 22V Nuron battery has a new interface with power connections and a data connection sandwiched in the middle. But how was Hilti



**70** The Nuron cordless battery platform was launched with a range of 70 tools designed to run on it

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able to get enough power out of 22V batteries to power such a large number of tools of varying sizes?

"Compared to what we used to have, this new battery is like night and day. The power that I can draw out of this battery – the watts – is two and a half times as much. That sounds relatively simple. In reality, the heat you create and the materials engineering required to get that to happen is probably the coolest part of this innovation," says Groenhuijsen.

"In the past, to get enough power to run a larger tool, I needed to up my voltage from 22V to 36V. Now, with the capability to draw more amps out of Nuron, I can kill 36V and do everything on 22V. Nuron has taken more time and effort but we wanted to build a singular platform



**Compared to what we used to have, this new battery is like night and day. The power that can be drawn out of this battery – the watts – is two and a half times as much**

Sebastiaan Groenhuijsen, Hilti



that can deliver the full range of power required on site."

There are five different batteries, running from 55Wh (watt-hours) for the smallest (watt-hours measure battery capacity and run time), up to 255Wh at the top end for the larger tools. Meanwhile, the cylindrical internal battery cells receive plenty of protection from chunkier bumpers, while batteries can actively recognise if there is something wrong and essentially shut themselves off.

"Things get dropped on construction sites," says Groenhuijsen. "So we did everything we could to make the batteries as safe as possible when it comes to preventing thermal runaway. We have also made Nuron batteries even better at resisting any kind of exposure to moisture."

#### Data-driven services

In the event that there is a problem with a Nuron battery, the platform's new data-driven services provide peace of mind there too. The batteries are capable of downloading information from every tool they are paired with during that charge cycle.

One battery can remember more than five sets of information during a single charge, storing it on a memory chip. The data port on the battery can relay all of this information to the charger, which itself can remember 80+ sets of information and can upload the data it receives to

the cloud via an inbuilt SIM card running on the Edge network.

As a result, for customers on Hilti's fleet management programme, the battery can automatically alert Hilti to any damage to the battery. Hilti will send out a new battery to the customer as well as a box for the customer to send the old battery back for repair.

The data also helps Hilti to diagnose any potential faults with tools to allow for their early repair. Not that Hilti is expecting its batteries to break. Some of Hilti's Nuron tools are on a 60-month fleet cycle, and Groenhuijsen expects the batteries to last throughout that cycle.

#### Health and safety

The Nuron range of tools sees technologies to keep workers safe on site brought to more tools. They include Adaptive Torque Control (ATC), Active Vibration Reduction (AVR) and Hilti's Dust Removal System (DRS). But new to some of Hilti's angle grinders on the Nuron platform is SensTech. SensTech involves putting pressure sensors in the grip of the tool. If the operator loses their grip on the angle grinder for any reason, it shuts off.

Hilti has also used the Nuron launch to refocus on dust management, and now has more dust removal systems available than ever before. This includes an M-class rated cordless vacuum cleaner, a first for the manufacturer.

Groenhuijsen sums up: "Nuron is one platform, with the vision to not only phase out our existing 22V and 36V batteries but also to phase out cords, gas, any other power source in the future. Nuron is the foundation for our vision for a fully cordless jobsite. That vision is now officially starting to become a reality." ●

▼ The DSH 600-22 battery cut-off saw can cut concrete, metal and masonry

▼ The saw can be used in both interior and exterior work environments





# Powering productivity with Hilti's smart range

The construction sector knows it's missing a trick when it comes to productivity. Thibaud Lefebvre, Hilti's GB vice president, tells **Hamish Champ** how his company's smart tools can help the industry slash time-wasting and work more sustainably

**T**he challenges facing construction – coping with tight schedules and labour shortages, defending margins, managing risk and doing things as efficiently and as environmentally responsibly as possible – are all too familiar

to companies in the sector. Important as these issues are, the industry's poor productivity record is instrumental in holding back its fortunes.

Thibaud Lefebvre, the newly appointed vice president of tool manufacturer Hilti's GB operation,

▲ Hilti's Nuron DSH 600-22 Battery Cut-Off Saw at work on site

argues that the reason construction productivity is stagnating, lagging behind most industries from agriculture to retail, is simple.

"You have many stakeholders working on a site, all using a multitude of systems. You have workers who aren't as productive with their time as they could be – around 70%, we believe, of unproductive behaviour is due to missing information, materials or tools. And then you have poor communications between workers on site and those in the office."

Much of this could be overcome if the industry embraced digitalisation, Lefebvre argues. Hilti commissioned research which showed its customers' adoption of digital working was held back by two factors: first, a lack of integrated solutions – firms were working across numerous software platforms at any one time, leading to duplication, time delays and even mistakes. The second issue centred on clients struggling to implement new software packages. Barriers to the adoption of new software include an absence of integrated solutions and critically, says Lefebvre, a lack of management coaching in digital technology.

Hilti's strategy of having a direct relationship with its customers is a key factor in solving both these hurdles to success. As Lefebvre says: "We don't go through big distributors. We work directly with clients. That change management element, which is so important in the adoption of new technologies, is supported by our field teams. More than half of our total workforce are out there every day, supporting customers, job sites, offices. We are supporting every step of their journey."



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### Enhancing clients' profitability

Three things make Hilti a great productivity partner, says Lefebvre: "Our dedication to the industry; a commitment to innovation, which sees us invest \$500m [£407m] every year launching more than 100 new solutions, connecting hardware, software and services together; and that direct relationship with our customers."

Hilti can enhance the profitability of a client by boosting the degree to which it works digitally. Its systems support a job site team's ability to plan and delegate tasks, while its resource management capabilities support the management of assets, commodities and consumables. Hilti also works with customers on design, construction and prefabrication.

"We help clients increase many minutes of productivity per hour, using the best performing tools and applications," says Lefebvre. Which leads neatly into a discussion on Hilti's new generation of battery-powered tools and how they can enable teams to work more productively.



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Thibaud Lefebvre, Hilti



### Cordless battery platform

Across 2022 and 2023 Hilti will have launched over 100 new cordless tools using its state-of-the-art Nuron 22V battery platform. "You have the same performance as a corded tool," says Lefebvre of the system, "along with uncompromising health and safety."

Hilti's tools are 'smart', using digital communication technology to alert operators when the battery is running low via a 'state of health' function.

"We can radically reduce the number of steps it takes to become aware of a battery's condition, when it goes below 60% capacity, and the time it takes to supply a replacement. Given the number of tools a company might be using, this can save a lot of money – and, crucially, it also enhances productivity," says Lefebvre.

In addition, digital processes including near-field communication (NFC) systems, where tools have inbuilt chips; Bluetooth, which connects the tool with the database via a sensor tag; and wifi technology can all advise a company when and where a tool was last charged.

These also help with locating tools and helping to find out how many are lying idle. This can optimise the use of assets worth hundreds of thousands of pounds. Checks can be carried out by location, asset group or worker.

Managing tools in this way is part of Hilti's ON!Track system, which the company says is the largest software system for asset management in the world, serving 16,000 customers.

Says Lefebvre: "Companies can integrate ON!Track with their own enterprise planning system in order to manage small tools and equipment, along with materials, labour and consumables, thanks to the strategic partnership we have established with Trackunit, the world's largest telematics device provider."


The sensor tags and software work not just on Hilti tools but across all different brands and equipment both onsite and in vans, ultimately sharing all the information with the offices and warehouses.

"The strategic partnership with Trackunit will enable full automation of tracking, managing and optimising all kind of assets, Hilti or non-Hilti assets, including heavy equipment and vehicles through telematic devices leveraging GPS technology. There will be no more lost tools due to mismanagement and automatic transfers between vans and warehouses," says Lefebvre.

This 'live' information will help firms to be more productive. "Can I relocate a tool not being used at one location to another site where it could be put to use? With Hilti's smart tools I can. This is all part of proactive tool scheduling, tracking and maintenance. Essentially we are offering tools that talk."

Hilti's Nuron single cordless platform allows connectivity between site, office, warehouse and vehicles, enabling firms to know the location and power status of every small tool.

And it doesn't stop there. Hilti offers impressive sustainability credentials – repairing tools to be sent out to customers, or simply recycling parts of the equipment where possible.

"Our one-platform battery offer means our customers can have fewer batteries in stock at any one time," says Lefebvre. "Combined with our approach to recycling materials we believe this is circularity in action." 

▼ Lefebvre says the 22V Nuron battery platform offers the same performance as corded tools





# Fieldwire puts a spring in construction's productivity step

San Francisco-based tech firm Fieldwire was bought by Hilti to help address the built environment's productivity problem. **Hamish Champ** finds out how it works

**T**he construction industry is well aware it has a productivity issue. The problem is illustrated by well-researched figures that show a typical craftsperson spends just 30% of their working day on what we like to call 'direct wrench time'. The rest is taken up with 'field coordination' – that is to say, preparing for a job, transitioning, waiting for material, equipment or information.

Other issues holding construction back include a reliance on paper-based documentation, poor communication and hit-and-miss progress reporting.

Such challenges are what Fieldwire, the San Francisco-based construction technology company which Hilti bought in 2021, was created to address.

Founded in 2013 by former video games designer (and ex-French paratrooper) Yves Frinault and Javid Singha, a supply chain management graduate from MIT, Fieldwire offers an easy-to-use software solution that enables customers to improve onsite productivity, and more besides.

Since it launched, Fieldwire has proved to be a big hit with users. Why? Well, those involved in delivering a project often struggle with a number of issues – design

▲ Subcontractors can run the system to oversee and manage construction crews

problems, communications glitches, reporting challenges etc – which can potentially delay a scheme's successful delivery.

They need a single source of truth, guiding them through the process, helping them best manage their teams in the field.

Fieldwire fulfils this need. It gives customers the ability to access up-to-date information on the go, whenever they need it, helping them to plan and manage work through a process of effective communication, and easy-to-access documentation.

Says Fieldwire business owner Gordon Hunter: "At Hilti we already provide customers with high-quality



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Research shows that customers using Fieldwire saved between five and 10 hours per worker per week

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**FIELDWIRE** BY **HILTI**

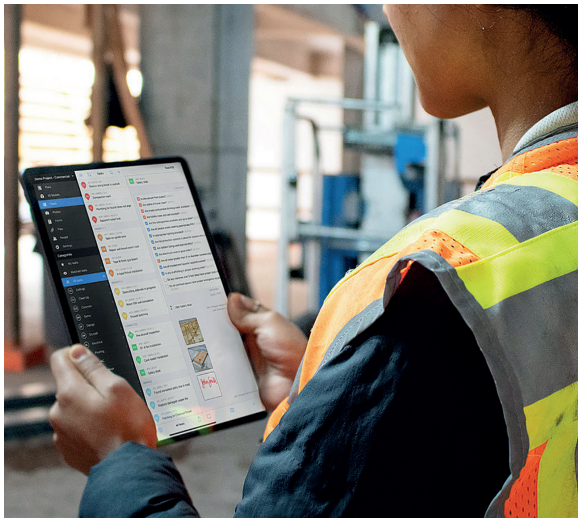
tools, together with a support network, that significantly improve their productivity. We also believe the key to driving productivity improvements in the construction industry is greater use of software and digitalisation, reducing the reliance on paper plans and improving communication between teams in the office and in the field.

"This is why we decided to extend Hilti's offering into software by acquiring Fieldwire."

In adopting better and more capable solutions, such as those offered by Fieldwire, the construction sector has a great opportunity to improve. Time saved is just one of Fieldwire's benefits. Research shows that customers using Fieldwire saved between five and 10 hours per worker per week. Saving time, using it more efficiently, is hugely important in a project's development and viability.

One such business is Midlands-based contractor Speller Metcalfe, which has been using the service for the last six years: "Any new technology means investment – both in time and money – but we

▼ Fieldwire offers better task management and easy messaging



## Any new technology means investment – both in time and money – but we have recouped it in spades

Laurence Speller,  
Speller Metcalfe



have recouped it in spades with Fieldwire," says Laurence Speller, process manager and trainer at Speller Metcalfe.

He continues: "On average, we think our sites are saving around eight hours a week in rolling out processes and undertaking quality inspections. That is a whole working day on site, every week, and it means that time can be put to use elsewhere."

As well as time savings, Fieldwire empowers companies to work within the array of regulations that are applied in jurisdictions around the world. The software smooths the compliance process, since a contractor will have access to all the regulatory information they need.

Being able to demonstrate to clients and to building owners that a project has been completed properly – the golden thread element – is paramount.

Transparency is another of Fieldwire's benefits. When a building's owner deploys the software, they can see what's happening at the subcontractor level. In turn, subcontractors can run the system to oversee and manage construction crews, as well as work they need to do on their own. Meanwhile main contractors can use it to communicate the key bits of information and organise a project in the way they want.

Fieldwire is effectively a one-stop shop for project management in the field, says Hunter. "It enables

users to see plans and markups easily and provides access to BIM documentation and 3D drawings. Fieldwire means better task management, easy messaging and the creation of checklists that reflect the needs of the job. Users can create custom forms and files and log images, ranging from ordinary photos to 360-degree images and video clips."

It helps that Fieldwire is easy to operate, says Niels Goos, Hilti's head of marketing for northern Europe. "Its design is based on being user friendly and, while we have a 24/7 customer support team on call, even without such assistance a customer can get to grips with it inside just a few hours. It's that intuitive."

One of the key advantages of the product is its adoptability. Fieldwire can be scaled up through a whole company within four weeks if required; it's that simple to put in place, thanks to a series of tutorials which guide a new user, step-by-step, through the process.

Adds Hunter: "How long it takes you to get on board just depends on how quickly you want to get up and running with the technology."

"We regularly hear that those using Fieldwire day in, day out, really enjoy the experience. We know it saves our customers time and money, helping them deliver their projects to the satisfaction of everyone."

"These are our value propositions. We are very proud of them." ●