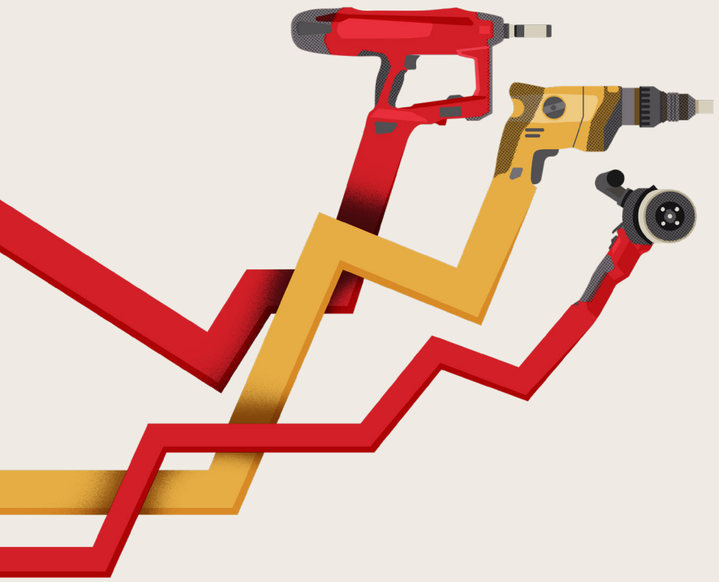
Big Data, Not Bigger Batteries

How IoT and cordless tools are driving productivity into the future

Introduction
Looking beyond battery power



From compact drills to concrete breakers, **high-performing cordless tools have become essential jobsite equipment** and will represent 45% of all power tool sales growth by 2024. [1] That's mostly thanks to improvements in battery technology that have allowed cordless tools to **match the performance and productivity of corded and even gas-powered tools.** Professionals doing medium- and heavy-duty work are now benefitting from cordless portability and convenience.

But for managers, more cordless equipment can mean **more complex tool cribs and compatibility issues.** Meanwhile, some manufacturers seem primarily focused on outdoing their competitors with increasingly powerful mega-amp batteries that are just bigger, heavier and more expensive. **This neither boosts productivity nor saves money.**

So how do you choose a platform? **By looking beyond just battery power and performance stats and focusing also on its IoT (Internet of Things) and data capabilities.** Today's jobsites generate vast amounts of data waiting to be collected and exploited. Tools and batteries can capture real-time usage data that can be analyzed on the back end by software and human experts. This information can help businesses make proactive operational decisions that **save money, increase productivity, enhance safety and enable compliance.**

All it takes is the **right kind of battery.**

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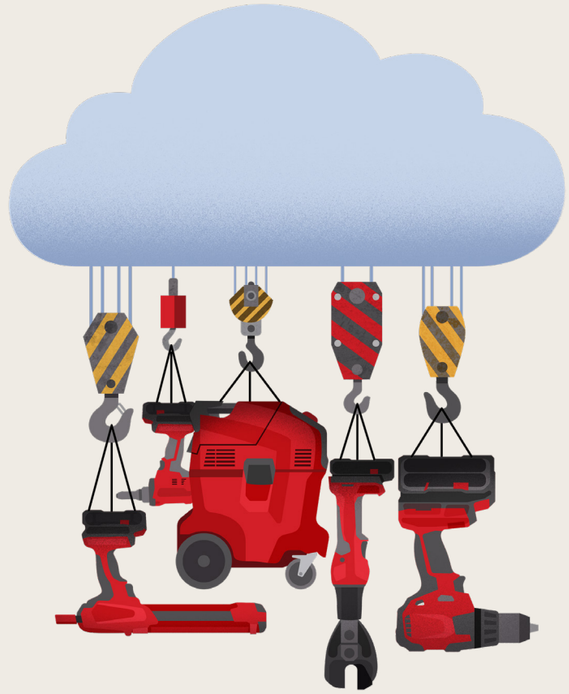


Putting IoT to Work on the Jobsite

IoT has already made inroads on large construction sites, particularly with heavy equipment. Some machines can be controlled remotely with high precision; others use sensors to trigger automated maintenance and usage alerts. Either way, **IoT helps companies protect the value** of these assets by enabling preventative maintenance while finding ways to increase productivity.

With expensive heavy equipment the savings are clear and immediate. But what about power tools? Compared with, say, a loader, the outlay of individual tools might seem insignificant. But considering each worker likely has two or more power tools assigned to them, plus shared tools, **the aggregate costs, both direct and indirect, can quickly add up.**

Whether a company has five or five thousand cordless drills, it's important to know that every single one is providing as much value as possible.

Ask yourself: **What's the real cost of managing your cordless tool crib?** After all, there are direct costs from purchasing, repairs, maintenance and calibration, and indirect costs from time spent procuring tools, managing failures and tracking down lost equipment (see "Destroying Downtime with Data" on page 8). And when a battery or tool starts underperforming over time, **incremental productivity decreases can go painfully undetected.**

So, while construction booms (hello, infrastructure bill), demand increases and timelines shrink, management becomes more complex. Suddenly **traditional processes – paper trails, incompatible technology and siloed platforms – are woefully insufficient.** All this hurts the bottom line.

"For general contractors making 1-1/2% profit, you can't force a developer to pay more," Brad Robinson, the immediate past chairman of the Construction Financial Management Association, told Construction Dive. "[But] what you can do is **manage the costs on the back end** because that's really the only option that you have." [2]

That's where IoT can help. Smart batteries and tools that capture jobsite data can digitize processes on the back end, **enabling you to manage costs better while keeping your teams working productively.**

IoT and Power Tools: Innovation or Gimmick?

Everything is “smart” and “connected” these days: cars, TVs, even toasters. It seems some manufacturers have pushed the “things” part of IoT as far as it can go, often into places that provide no value.

Likewise, most major power tool brands have incorporated some form of IoT into their cordless platforms. But **just because a tool can be connected doesn’t mean it should be.**

IoT on power tools can sometimes be gadgetry. Instead of increasing productivity, which is the point, it can slow teams down. For example, workers might have to juggle multiple platforms, each with its own smartphone app. Instead of a more productive jobsite, you’ve got workers standing around looking at their phones.

Connected solutions shouldn’t just exist for the sake of it, but rather to **make power tools more productive.**

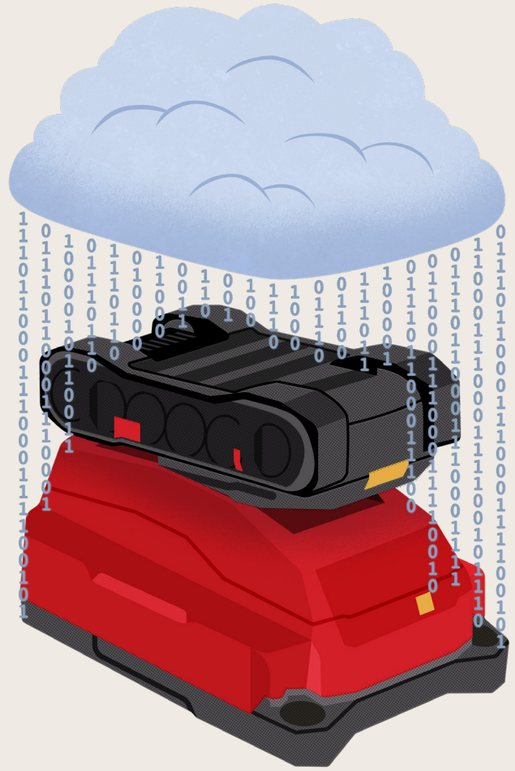
37%
of contractors say they’ll adopt equipment tagging for asset management by 2022.[4]

75%
of construction companies already provide project managers with mobile devices.[5] But only...

18%
of companies report using mobile apps regularly to access project data and collaborate.[6]

36%
of construction professionals say technology fails when it doesn’t fit with existing processes.[7]

The real power comes when jobsite data is uploaded to the cloud for back-end analysis.



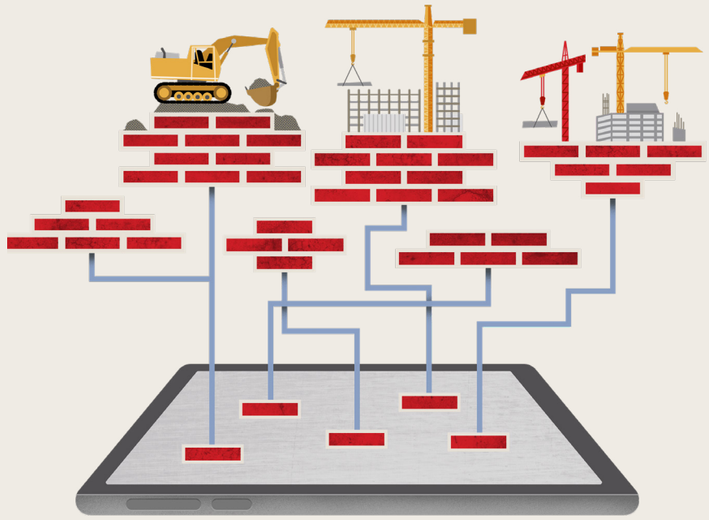
Capturing Real Data in Real Time

Some manufacturers build IoT directly into the tool. Others put it in the battery, creating **a fully connected ecosystem comprising any tool on the platform.** IoT-connected smart tools can capture real-time jobsite data such as:

- **Where the tool is**
- **Who it’s assigned to**
- **How it’s being used**
- **Whether it’s being used properly and safely**
- **How often it’s being used**
- **Whether it’s idle**
- **Battery health and tool performance**
- **Any conditions detrimental to productivity, such as overloading**

This data can be delivered directly to the user as an update, such as tool or battery state of health, or to provide personalized recommendations, such as torque and speed settings for specific fasteners and base materials.

But the real power comes when jobsite data uploads to the cloud for back-end analysis. This could happen when the battery is plugged into the charger, which allows for an uninterrupted transfer that requires no additional intervention from the worker. But whatever platform a contractor chooses, it should be **a single ecosystem with seamless connectivity** between the tools and the cloud.



Turning Data Into Business Value

Once uploaded, stakeholders anywhere – onsite, in the office or even at home – can use this captured jobsite data to measure project success, uncover hidden costs or **make business decisions that improve productivity, enhance safety and make tool management more efficient.**

Some construction management apps use equipment data to steer jobsite quality, compliance and safety by documenting tool usage. Project managers can generate reports that demonstrate the accuracy and progress of their team's work to inspectors or superiors. They can proactively keep on top of certification paperwork by receiving alerts when workers need to renew tool qualifications or attend training. And they might get notified when a worker is approaching the maximum allowable trigger time on a tool.

Asset management software uses jobsite data to enhance control over inventory and costs by providing real-time transparency into equipment.

For example, the software can proactively alert stakeholders when an underperforming tool or battery needs repairing or replacing, or when equipment needs testing, maintenance or calibration. Combine these notifications with a tool management program, and **otherwise time-consuming processes become seamless or even automated.**

Operations managers can also do **live inventory checks** at storage locations such as warehouses and jobsite tool cribs and gather last-known location information. When a worker requests a tool, the manager can **quickly identify idle equipment** and get it onto the jobsite straightaway (see "Destroying Downtime With Data" on page 8). **And if a tool goes missing, the manager can locate it** and remotely lock its functionality if necessary – just like with your smartphone, but with tools.

Big Data's Role in the Future of Construction

The benefits of collecting jobsite data and putting it to work can be profound:

Merely adopting a cloud-based platform that can process information in real time can increase onsite productivity by 50%.[3]

Sounds unlikely? For many, **collecting jobsite data and analyzing it in a meaningful, actionable way on the back end** is the first step toward achieving those kinds of numbers.

Of course, all that data is useless – or worse, misleading – if not appropriately analyzed and presented. That's why **the best data-driven services have flexible cloud-based dashboards that are easy to understand and use by everyone.** They also offer more reliable customer support teams to address any complex questions that could arise.

Some service providers can arrange consultations to **assess raw data and provide insights** into whether businesses have the best-equipped, most productive tools for their projects. They can help **calculate the real cost of the equipment and identify wasteful spending** on duplicate or unnecessary tools. And armed with industry knowledge, they can help **establish meaningful benchmarks** by comparing a company's tool usage data with that of its competitors.

Investments in future-proofing a business with IoT-equipped cordless tools and data-driven services **can return huge dividends in the near and long term,** and some providers even offer implementation services. Contractors already using cordless tools are likely just **an upgrade away from unlocking major productivity gains with IoT.**

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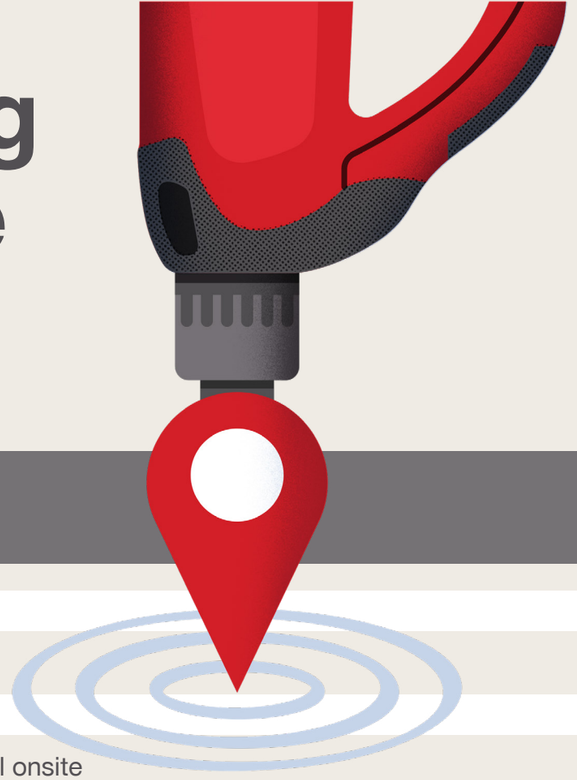
Destroying Downtime With Data



A recent study by Hilti found that a typical construction company can save around 90 hours a month using its cloud-based asset management software, ON!Track, to locate missing tagged equipment and get it where it needs to be. Let's see how that works.

TO DO LIST	Without data-driven services	With just one data-driven service
Worker needs a tool	✓	✓
Worker asks foreman	✓	✓
Foreman searches jobsite, no luck	✓	
Foreman searches asset management app, but no tool onsite		✓
Foreman calls warehouse manager		✓
Foreman asks superintendent	✓	
Superintendent calls warehouse manager	✓	
Warehouse manager searches inventory, no luck	✓	
Warehouse manager searches for similar tool, no luck	✓	
Warehouse manager calls another superintendent	✓	
Superintendent 2 searches for tool, no luck	✓	
Superintendent 2 tells warehouse manager he can't find one	✓	
Warehouse manager calls purchaser manager to repair/replace	✓	
Purchase manager calls vendors for pricing	✓	
Purchase manager buys or rents replacement	✓	
Purchase manager coordinates delivery	✓	
Warehouse manager searches inventory on app, locates idle tool elsewhere		✓
Warehouse manager transfers idle tool to worker		✓
Worker gets back to work	✓	✓
TIME:	**2 HOURS**	**MINUTES**
PARTIES INVOLVED:	**7**	**3**

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To learn about Hilti's data-driven services, please visit:

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