Episode Book

EPISODE #5634

Battery Platform Lock-In: Innovation vs Stability

PUBLISHED	29 September 2026 at 14:47 UTC
DURATION	21:34
LISTEN	myweirdprompts.com/episode/battery-platform-innovation-stability/
HOSTS	Corn, Herman, Hilbert
SCRIPT MODEL	deepseek-flash
VOICES	chatterbox-regular (chatterbox-local)
PIPELINE	V5.2
BOOK GENERATED	19 October 2026 at 17:38 UTC

SYNOPSIS

Cordless tool platforms are usually sold on tool counts and cell specs, but the decision that actually lasts twenty years is the battery interface — the latch, the keying, the contacts, the communication pins. This episode works through three lenses: availability, innovation, and stability, and where they collide. It covers why retail exclusivity quietly shrinks "300 tools" to whatever one chain happens to stock, how cross-brand adapters and a Makita LXT 3D-printing community signal which platforms have real aftermarket gravity, what Milwaukee REDLINK PLUS, Makita Star Protection, Bosch CoolPack and DeWalt FLEXVOLT each actually do differently, and why Ryobi ONE+, Milwaukee M18, Makita LXT and DeWalt 20V MAX have kept unbroken compatibility records while Makita's own LXT and XGT deliberately do not connect.

TRANSCRIPT



Corn

What's the thing you're actually buying when you buy into a battery platform? Not the tool. Not even the battery. The thing underneath both of those, that decides everything for the next twenty years.



Corn

That's the question Daniel's poking at this week, and it's a follow-up to what we did on power tools before. His starting point is that choosing a cordless platform is mostly a battery decision, and availability is a big part of that. He also makes a point I hadn't thought about in quite those terms: you can't really enforce raw battery cells. The cells themselves are commodity. So here in Israel, where local prices are high, a lot of people buy batteries locally and match them to bare tool bodies bought online.



Corn

And then he says, explicitly, that he doesn't want the narrow question. Not which ecosystem has the widest availability of OEM tools, non-OEM tools and accessories. He wants three other things. Which ecosystem has the most innovation. Which has the most stability. And why the stability of the form factor matters just as much as the stability of the batteries themselves, for someone buying tools they intend to use for a long time.



Corn

He frames it as settled engineering. The ecosystems that develop around each platform. What actually differentiates them. So let's take those three lenses one at a time, and then see where they collide.



Herman

The three lenses are worth pinning down before we start throwing tool counts around, because they get conflated constantly.



Herman

Availability is a headcount question. How many tools exist on the platform, OEM and third-party and accessory. Innovation is what's inside the pack and the charger. Cell format, cell construction, the management electronics, thermal design, charge speed.



Herman (continued)

Stability is the one nobody asks about at the point of sale. Will this battery shape still be supported in ten years. Twenty.



Herman

And here's the thing I'd put at the top, because everything else hangs off it. The cells are the fastest-changing part of the whole system. We went from 18650 to 21700, then tabless, and pouch cells are sitting there waiting. Meanwhile the physical and electrical interface barely moves. The latch, the keying, the contacts, the communication pins. That part is nearly frozen.



Corn

So people spend their research budget on the part that changes every three years, and commit blind to the part that decides whether their tools work in 2040.



Herman

Exactly that. And for the Israeli buyer it's sharper than for anyone, because you're buying bodies online from wherever's cheapest and batteries locally from whatever's in stock. You're not buying a brand at that point. You're betting on a shape surviving.



Corn

Which is a strange thing to bet on, because nobody advertises it. Nobody puts the latch geometry on the box.



Herman

Nobody. And the US-centric buying guides underweight the thing that actually constrains you, which is retail exclusivity. If a brand only sells through one chain, and that chain doesn't ship to you or doesn't discount, your availability is theoretical. We'll get to that.



Corn

And we'll end on adapters, because that's the workaround the whole purchasing model leans on.



Herman

Start with the easy one. Availability. Who actually has the widest ecosystem, and what does that look like in numbers?



Herman

The counts as of early this year, roughly. DeWalt 20V MAX, over three hundred tools. Ryobi ONE+ over three hundred. Makita, LXT and XGT combined, over three hundred. Milwaukee M18, two hundred seventy-five plus. Then it falls off a cliff. Craftsman V20 around a hundred. Kobalt around eighty. Bosch CORE18V around seventy-five. FLEX 24V around fifty.



Corn

And if you count Makita's 18 volt LXT alone, without XGT?



Herman

Over three hundred and twenty-five tools on LXT by itself. Makita adds twenty to thirty new LXT tools a year. That's the largest single 18 volt cordless system anyone's measured.



Corn

Twenty to thirty a year is the number that matters there, not the three hundred. A platform adding that many tools a year is a platform that isn't going anywhere.



Herman

Right, and that's a stability signal hiding inside an availability number. But the availability picture changes completely when you look at where you can actually buy the thing.



Corn

This is the part the guides bury.



Herman

DeWalt is sold at Amazon, Home Depot and Lowe's. Three retailers, so they compete on price, so you get real discounting. Milwaukee and Ryobi are Home Depot exclusives. No Amazon, no Lowe's, no inter-retailer competition. Bosch is at Amazon and Lowe's but not Home Depot. Kobalt is a Lowe's exclusive, full stop.



Corn

So the two brands with the most enthusiastic online fanbases are the two you can only buy from one shop.



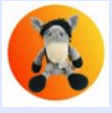
Herman

And for someone in Jerusalem sourcing bare bodies, that's not a footnote. If your only route to a Milwaukee body is a Home Depot exclusive that doesn't ship internationally, your availability is whatever's on the secondary market, at whatever price the seller feels like.



Corn

The tool count says three hundred. The retail structure says good luck.



Herman

Then there's the layer underneath, which is the non-OEM and third-party ecosystem. Adapters. Cross-brand battery adapters showed up on marketplaces in late 2019 and now exist in essentially every direction. Makita to DeWalt. DeWalt and Milwaukee to Makita. Every combination you can think of, sold on Amazon, eBay, and specialist outfits.



Corn

And there's a modding community around this too, isn't there?



Herman

Around Makita LXT specifically. Someone on Hacker News 3D-printed a Makita LXT battery fitting and posted it. Another commenter described it as a bit of a modding community around the LXT system in particular. When people are printing their own fittings, the ecosystem has depth.



Corn

Let me push on that, because "modding community" sounds like a nice thing to have, but does it actually matter to a normal buyer?



Herman

It matters as a signal more than as a service. You're probably not going to print your own battery foot. But the fact that someone else did tells you the platform's geometry is documented, stable, and popular enough that people invest weekend time in it. Compare that to a platform where nobody's ever bothered to model the latch. That's a platform with no aftermarket gravity.



Corn

So it's a proxy for how seriously the ecosystem takes the shape.



Herman

It's a proxy for how seriously the ecosystem takes the shape. And it's a leading indicator of adapter availability too. The platforms that get 3D-printed are the platforms that get adapters made for them.



Corn

Availability is about how many tools exist. Innovation is about what's inside the pack and the charger, and here the brands have different engineering philosophies.



Herman

Milwaukee's the one with the cleanest claim to firsts. First to lithium-ion in power tools, in 2005. First to tabless cells, with FORGE in 2023. And their REDLINK PLUS management is the one people point to as the most sophisticated on the market. It's three-way real-time communication, battery to tool to charger, all talking to each other. Their chargers have active cooling, they call it COOL-CYCLE, so the pack is being actively chilled while it charges.



Corn

Three-way communication. Meaning the tool knows what the battery is doing and the charger knows what both are doing.



Herman

In real time. And Makita's answer to that is Star Protection, which is arguably the most technically advanced management system out there. It runs a UART protocol at ninety-six hundred bits per second, bidirectional, between battery, tool and charger. It's monitoring individual cell voltages. Individual cell temperatures. Charge cycles. Per cell.



Corn

Ninety-six hundred baud. That's a serial link from the era of dial-up modems, doing per-cell telemetry inside a drill.



Herman

It's not about bandwidth. It's about a cheap, robust, well-understood link that never drops. And Makita's fan-cooled rapid chargers are the ones people call best in class for charge speed.



Corn

Bosch went a different direction entirely.



Herman

Bosch CoolPack is structurally unique. The battery housing itself is thermally conductive, and they claim it pulls heat away seven times faster than standard plastic. The EXPERT line adds active thermal monitoring on top and charges twenty-five to thirty percent faster than the standard CORE18V.



Corn

Seven times is a claim I'd want to see tested, but the concept is sound. The housing is a heat sink.



Herman

And then DeWalt did the thing that I think is the single most interesting structural move in the whole category. FLEXVOLT. Dual-voltage packs, twenty volt and sixty volt in the same shell, and the pack switches based on what it's plugged into. Put it in a 20V MAX tool, it runs at twenty. Put it in a 60 volt tool, it runs at sixty. And in select tools, two packs combine for a hundred and twenty volts.



Corn

Which is how you get a full-size table saw on battery.



Herman

Nobody else does that as effectively. That's not a cell innovation, that's a pack architecture innovation, and it's the one that changes what tools can exist.



Corn

And tabless cells, where are we now?



Herman

Table stakes. Milwaukee FORGE in 2023. DeWalt POWERPACK in 2024. Ryobi HP Edge in 2024. Makita's XGT tabless pack in 2025. Bosch EXPERT in January of this year. Craftsman announced a tabless V20 pack claiming up to ninety-six percent more power, but as of May it wasn't shipping yet.



Corn

Ninety-six percent more power is a big claim to announce and not ship.



Herman

It's a big claim. And Makita's newest XGT pack, the BL4080H, delivers thirty-five percent more power and runs thirty-two percent cooler than the previous XGT pack.



Corn

So innovation is real, it's distributed, and every brand is now doing the same tabless thing. Which means the cell layer is converging.



Herman

That's the setup for the hard part. All of that is about what you can buy today. The harder question is what you'll still be able to buy in fifteen years, and that's where stability comes in.



Corn

Here's the paradox, and I want to state it plainly because it's the whole episode. The cells inside the battery are the fastest-changing part of the system. The interface is the most stable part. And buyers do the exact opposite of what that implies. They obsess over cell specs and ignore interface longevity.



Herman

Completely backwards. And the numbers back it up. Ryobi ONE+ is the stability champion, and it's not close. A battery you buy today works in a Ryobi ONE+ drill from 1996. That's roughly thirty years of backward compatibility. It's the single biggest reason their DIY base is as loyal as it is.



Corn

Thirty years. The drill from 1996 is older than most of the people buying batteries for it.



Herman

Milwaukee M18 launched in 2008, and every M18 battery ever made works in every M18 tool. No exceptions. The original pack from 2008 and the latest FORGE pack share the same connection. Makita LXT launched in 2005 and has maintained perfect backward and forward compatibility since introduction. Even the earliest LXT tools accept the newest batteries, and Makita has publicly committed to keep developing LXT alongside XGT.



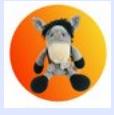
Herman

We will. DeWalt 20V MAX launched in 2011. All 20V MAX batteries work in all 20V MAX tools, and FLEXVOLT packs are backward-compatible with 20V MAX tools, running at twenty volts when they do.



Corn

So four platforms, four long unbroken records. And then the counter-examples, which is where it gets ugly.



Herman

Makita runs two incompatible platforms. 18 volt LXT and 40 volt XGT. There is no adapter between them. And the reporting is explicit that this is intentional. Makita also sells a separate entry-level 18 volt line, G-Series, which does not fit LXT tools despite looking similar and running the same nominal voltage.



Corn

Same voltage. Same size. Doesn't fit. That's not an accident, that's a trap.



Herman

Milwaukee has M12 and M18, which aren't interchangeable, plus MX FUEL as a separate equipment platform. DeWalt has 20V MAX and FLEXVOLT plus the new PowerShift high-voltage platform they announced this year. Kobalt's Gen 3 is not compatible with Gen 1 or Gen 2 batteries. Craftsman V20 and V60 are separate, incompatible platforms.



Corn

Kobalt Gen 3 is the one that should scare people. That's not a new tier above the old one. That's the same product line, rebooted, and your old batteries don't fit.



Herman

That's abandonment, and it's the real risk. Here's the insight I'd want a buyer to take away. Within a platform, the interface is stable even as the cells change. A 2008 M18 pack and a 2026 FORGE pack share the same physical and electrical connection. The cells inside are completely different generations. The connection is identical.



Corn

So the thing that degrades isn't the risk. The cells degrade, you replace them, the platform carries on. The risk is the manufacturer walking away from the shape.



Herman

Which brings us to Makita, which is both the hero and the villain of this episode. LXT has twenty years of perfect backward compatibility. That's a genuine achievement. And yet Makita deliberately built XGT as an incompatible wall, with no adapter, and they've got the G-Series trap sitting underneath LXT.



Corn

So a buyer can be loyal to Makita 18 volt, be completely correct that they're on a stable platform, and still get burned. By the shape.



Herman

And that's the second-order consequence of closed ecosystems. If the platform is closed, the only way to move between platforms is adapters. And adapters are where this gets contested.



Corn

Lay out the official position.



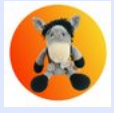
Herman

The Power Tool Institute, in a guidance note revised in the spring of 2021, warns that adapters bypass the battery management elements contained in tools or chargers. Their argument is that the battery, charger and tools of different manufacturers don't communicate with each other. So you've got a pack that can't tell the tool what it is, and a tool that can't tell the pack what it needs. Overheating, overcharge, fire.



Corn

That's the manufacturer's position. Now the reality.



Herman

The reality is that adapters are sold in essentially every direction, on Amazon, on eBay, on specialist sites, and they are widely used. Both of the major compatibility resources generally recommend against them, for safety and warranty reasons. And yet the market exists and it's not small.



Corn

Because the ecosystems are closed. The adapter market is a symptom, not a cause.



Herman

It's the same tension you see with phones and printers. Right to repair, interoperability, closed systems that push users toward workarounds the manufacturer says are dangerous. And for the Israeli buyer specifically, the adapter is the thing that makes the whole buy-bodies-online model work. You buy a bare DeWalt body, you've got Makita batteries, you buy an adapter.



Corn

And you've just voided the warranty on both, and you're running a pack that can't talk to the tool.



Herman

You are. And people do it anyway, because the alternative is buying a whole second platform.



Corn

Let me steelman the manufacturer for a second, because I think people dismiss the warning too fast. If the pack can't communicate, the tool can't derate itself when the pack is hot or nearly empty. The tool just keeps pulling. So the failure mode isn't hypothetical, it's the exact scenario the management electronics exist to prevent.



Herman

That's fair. It's a real risk, not a scare tactic. The honest version is that a well-made adapter used within the pack's limits is probably fine, and a cheap adapter used to run a small pack hard in a big tool is exactly the fire the PTI is describing. The problem is you can't tell which one you bought.



Corn

There's a quote from a Hacker News commenter that I think is the emotional truth of this whole episode. He's got about half a dozen Makita cordless tools on LXT. And he says, I do kind of feel like I'm trapped using whatever Makita offers from now on. Changing brands for a particular tool would mean the price of the tool plus the price of a charger plus the price of however many batteries. And he says, I'm kind of stuck with supporting the blue team now, even when they occasionally get outplayed.



Herman

Even when they get outplayed. That's the sentence. That's what lock-in feels like from the inside. You're not loyal because you love them. You're loyal because leaving costs more than staying.



Corn

One honest negative finding, because we looked. There is no universal battery standard across the major brands. Nothing. The closest thing is a universal pack with brand-specific adapter mounts, and Metabo's alliance system, which we couldn't verify. So there's no escape hatch. The interface is the commitment.



Herman

Which brings us back to where we started. The interface, not the cell, is the thing you're actually buying.



Hilbert

Sixteen dollars and forty cents.



Corn

For what?



Hilbert

A battery foot. The molded base of a pack, the part that seats into the tool. I had one in my hand at a counter once, and the man behind it was explaining that the little plastic tab on the front of it, the keying, is the whole thing. That one molded feature decides what the pack will and won't go into.



Herman

The keying is the lock-in made physical.



Hilbert

It's a piece of plastic you can feel with your thumb. If a pack almost seats and won't click, you know you're holding the wrong generation. That's the entire decision, and it's about four grams of plastic.



Corn

All of this, the tool counts and the cell generations and the chargers, comes down to whether a tab lines up.



Hilbert

I'd agree with you that the interface is the commitment. But I'd push on the Ryobi part. The 1996 drill still works, sure. The 1996 drill is also a terrible drill. A battery working in it is a party trick. What matters isn't whether the platform keeps making the shape. It's whether it keeps making tools you'd actually want to put the shape into.



Herman

That's a refinement, not a counter. Stability of the interface only pays off if the platform keeps producing tools worth attaching to it.



Hilbert

That's it. The shape is necessary. It isn't sufficient.



Corn

The question isn't which platform keeps the shape. It's which platform keeps the shape and keeps giving you a reason to care.



Hilbert

I hadn't put those two together. But yes.



Herman

Which is exactly the Makita problem, isn't it. LXT kept the shape for twenty years and kept filling it with tools. XGT kept the shape too. It's just a different shape.



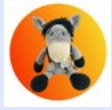
Corn

There's no adapter between them. On purpose.



Corn

Where do the three lenses collide? The ecosystem with the most innovation is not the one with the most stability. Milwaukee and DeWalt are pushing cells and pack architecture hardest. Ryobi is the one with thirty years of backward compatibility and the least exciting engineering. And the one with the most stability isn't the one with the most pro-grade tools either.



Herman

The thing that ties it together is that tab Hilbert was holding. The interface is a physical object, and it's the thing you're actually buying. The cells are converging anyway. Every brand is doing tabless now. So the cell layer stops being a differentiator, and the competition, and the lock-in, move entirely onto the shape.



Corn

Which means the decision you make at the counter is about a piece of molded plastic, and you won't find out if you chose right for about fifteen years.



Herman

That's the whole thing. Thanks to Hilbert Flumingtop for producing. This has been My Weird Prompts.



Corn

If you want to send us something, email us at show at my weird prompts dot com. We'll be back soon.