

WHAT THE FUTURE: MANUFACTURING

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future-proof their supply chains PAGE 9

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+ Leaders from Caterpillar, Kimberly-Clark Corporation, Universal Robots, and Dearborn Denim share the implications for the future of how we'll source, make, distribute, and sell goods tomorrow

GAME CHANGERS



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How AI, geopolitics, and sustainability are changing how we make things

Imagine it's 2034. Manufacturing in the U.S. looks different than it does today. Output continues to increase; jobs continue to decline.

Today, in a warehouse in Chicago, a room full of workers cut, stretch and sew blue jeans, t-shirts and other apparel. Denim, zippers, rivets and leather patches are sourced from the U.S. and Mexico, but it's all put together here at Dearborn Denim.

On the opposite end of the spectrum, Caterpillar operates on a vastly different scale as a leading U.S. exporter. It has manufacturing or distribution centers in nearly every state and every region of the world. A single unit can take multiple shipping containers to transport.

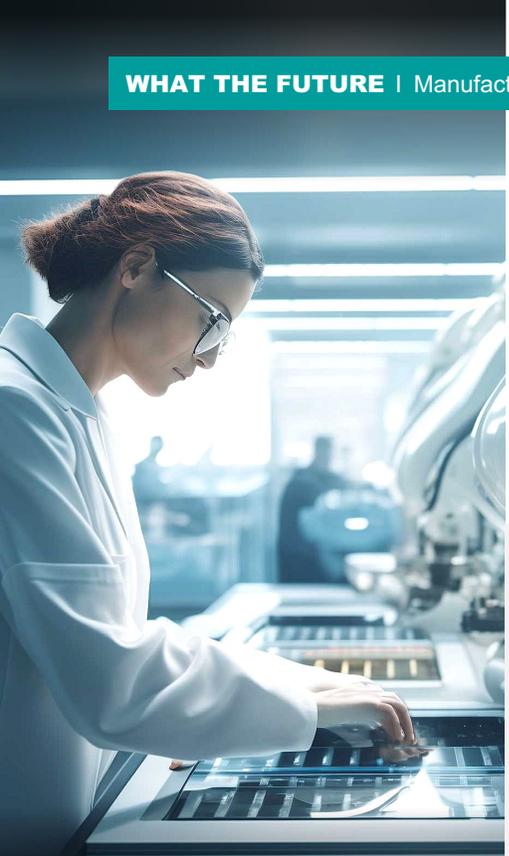
What will those companies look like tomorrow? It's a future that will be shaped by macro forces like increased automation and employee power shifts, but also by attitudes and tensions between nationalism and globalism.

The “death of manufacturing” in the U.S. is one of those tropes that has made headlines for decades.

In truth, it's a huge, steady sector of the economy (give or take \$7 trillion, or [11% of GDP](#)). What people are really talking about is a long decline in manufacturing *jobs* since their peak in the late 1970s, according to the Bureau of Labor Statistics.

Will automation, especially when coupled with new artificial intelligence capabilities, hasten that decline? Or will social media enable more direct-to-consumer manufacturing brands to survive and employ local workers? Or will an increased ability to 3D-print and fabricate goods at home or central “fab labs” further disrupt skilled manufacturing jobs? These futures aren't mutually exclusive by any means.

In the data, we see that we're much more optimistic that we'll be making more stuff at home than we are pessimistic that those technologies will get worse. We're less optimistic that we'll be able to access affordable goods made in the U.S. or that goods will become cheaper, or more sustainable, or higher quality.



68%

of people who 'buy American' say they think American-made products are better quality.

(Source: Ipsos survey conducted September 12-13, 2023, among 1,116 U.S. adults.)

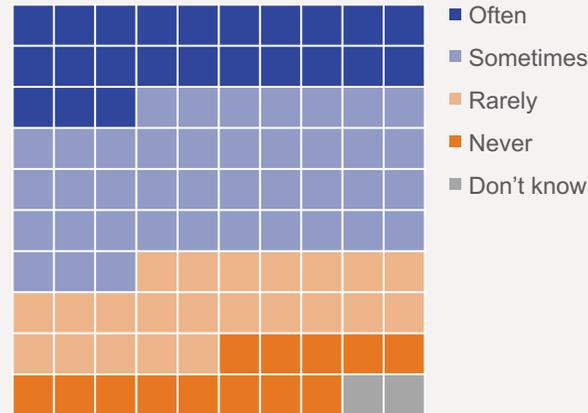
There are a couple of central tensions in any discussion about manufacturing in the U.S. One is the tension between U.S.-made goods vs. those made elsewhere. Sustainability is another key issue as it often comes with a trade-off for price. And price in many global markets, including the U.S., is an ongoing concern as an uncertain economy has people making trade-offs in various line items of their budgets. Price vs. quality. Price vs. brand preference. Price vs. where it's made. In Ipsos Global Trends, we see a shift developing between supporting a brand for its *values* and supporting a brand that delivers *value*. We want to support our values. But we can't always afford to *walk the walk*.

The tension between buying American-made and overseas goods

From my recent tour of China, it seemed that many companies lacked confidence about trying to break into the U.S. market. There's good reason for that hesitation in the data. Americans value American-made goods. Most say they consider if a product is American-made in their purchase decisions. Two in three (68%) associate products being made in America with higher quality.

'American-made' matters

Q. When making purchases, how often, if at all, does whether a product is made in America or produced by an American company factor into your decision?
(% Total)



(Source: Ipsos survey conducted September 12-13, 2023, among 1,116 U.S. adults.)

But if a product is made in China, Americans are more than five times as likely to say they would be less likely to buy it (44%) than more likely (8%).

That said, we buy nearly \$600 billion of Chinese goods every year, often manufactured for American brands we have grown to trust. While Americans see less benefit of globalization compared to other countries (see page 7), they also appreciate all the inexpensive goods and the quality electronics we buy from overseas.

The answer for many foreign brands is to lead with quality, not country of origin. Unless they're German cars, or French luxury goods where that *is* the selling point, of course.

Because quality is something people say they'll pay a premium for. That's unlikely to change in the future.

Context also matters

Ipsos research shows that understanding the context in which people engage with your brand matters. Someone might want to buy U.S.-made jeans if they are willing to pay the perceived premium.

Oftentimes, U.S.-made goods cost more than those made overseas. Or someone might be willing to pay more because they understand there’s often a quality benefit: You might pay more today but save over time because the product won’t need to be replaced as often.

But if people are buying something like a TV, there might not be a U.S.-made product on the market for them to choose from, so they’ll weigh other factors to make their decisions.

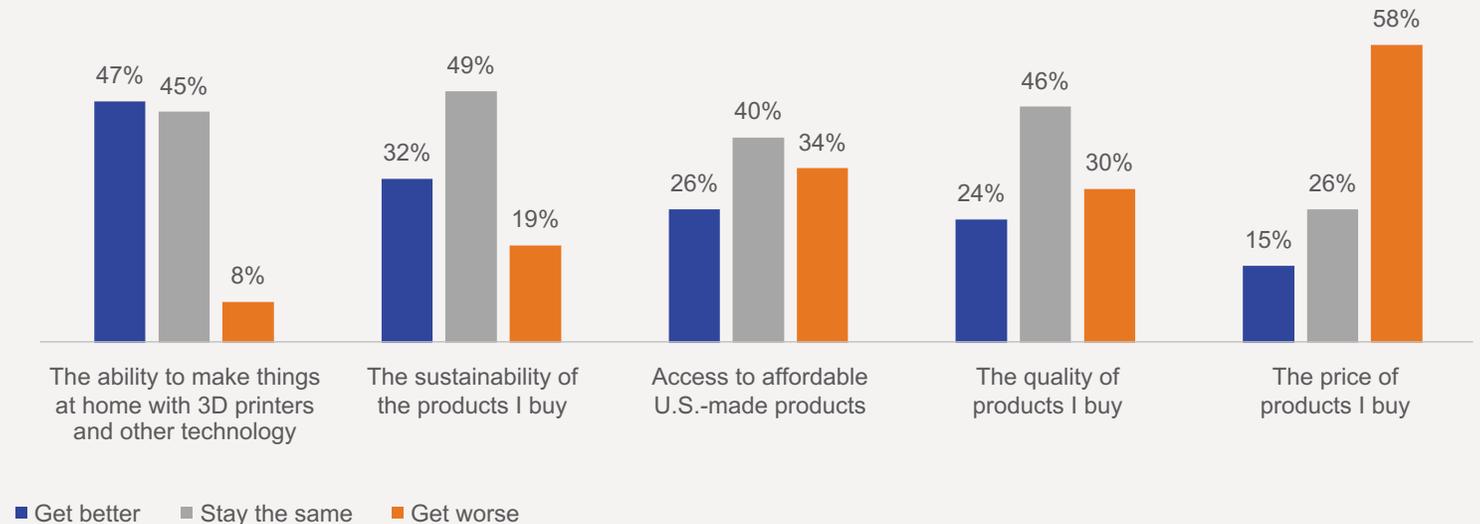
ESG as a USP

Sustainability is another manufacturing-based driver for sales. People are split evenly on whether they’re willing to pay more for sustainably produced goods. Which means that half of the market considers this a valuable selling point. And according to an Ipsos segmentation, about 17% of shoppers across several markets actually walk the walk with no gap between the attitudes they express and their behaviors.

But despite ongoing advances in manufacturing techniques, only one in three people think the products they buy will get more sustainable in coming years.

Americans see tech improving products but prices getting worse

Q. Thinking about the next five to 10 years, do you think the following will get better, worse, or stay the same? (% Selected)



(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)

Every day we read new headlines about the ways AI is changing the job market. Robots have already been a factor in the decline of manufacturing jobs. The next evolution of robots is collaborative robots, or cobots. With mechanisms that enable greater performance in humans, will we need as many humans to work in cobot-enabled factories?

Maybe we'll need all the robotic help we can get. The Manufacturing Institute estimates that millions of manufacturing jobs could be vacant in 2030 if more people don't get inspired to pursue manufacturing careers.

Of course, that's a dangerous spiral of fewer jobs, leading to less interest, leading to more automation, leading to less interest.

A small example

Let's close with a brand story that gives some inspiration for manufacturing on the smaller side. Bellroy is an Australian maker of backpacks, phone cases, wallets and the like, founded in 2010. The founders also started Carryology.com, to write about the things people carry and the packs and slings they carry them in. That led to a Facebook group, now 30,000+ strong. That led to co-branded collaborations with a host of small manufacturers and artisans in the space. Those product drops typically sell out in minutes or

even seconds. It's a great example of creating an ecosystem within a niche that is both collaborative and consumer-ish but also a community of collectors. It's helping support all the businesses involved. It's also almost entirely direct-to-consumer and socially driven (there is a store tied to the community in Hong Kong).

Manufacturers large and small face similar business questions that we'll address in this issue:

- Will small business manufacturing survive?
- Will U.S. manufacturing be able to compete?
- Will global brands be able to enter the U.S. market? Or will anti-globalization sentiment make that challenging?
- Will we get to a more sustainable future?
- How do you staff from a shrinking talent pool, but also a more automated workforce?

The future we make together will hinge on those answers.



Matt Carmichael is editor of *What the Future*.



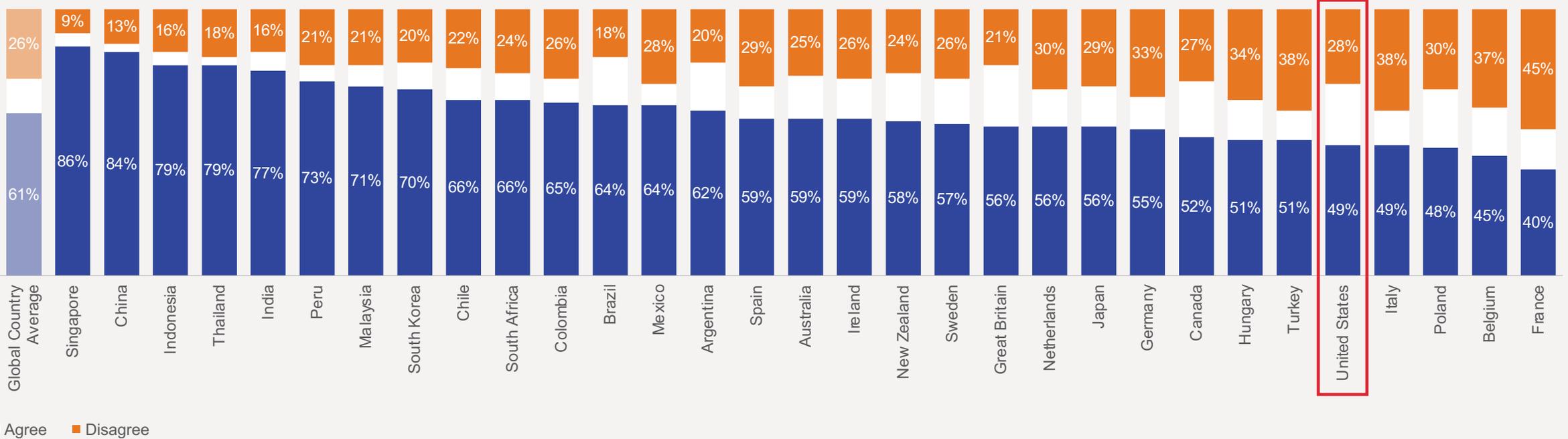
39%

of Americans think small businesses starting up in the U.S. for manufacturing is happening too slow.

(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)

Americans are less likely to see benefits of globalization for their country

Q. To what extent do you agree or disagree that ... globalization is good for my country (% Total)



(Source: Ipsos Global Trends 2023, conducted online Sept. 28–Oct. 6, 2023, among 24,220 participants across 31 countries.)

Shifts: The changes in people, markets and society that will shape the future

Sustainability, globalization and empowered employees



Trevor Sudano is a principal at Ipsos Strategy3. trevor.sudano@ipsos.com

A zero-waste future: The global shift towards sustainability and zero waste is steering manufacturing towards circular economic models. This approach emphasizes resource efficiency, where materials are reused and recycled, reducing waste and environmental impact.

Manufacturers are adapting by redesigning products for longer life spans, incorporating recycled materials, and embracing sustainable production methods. This transition not only caters to increasing consumer demands for eco-friendly products but also can lead to cost savings and resilience against resource scarcity. However, it may require substantial capital expenditures and investment in new technologies and processes, which can be a big hurdle to overcome.

Nationalism v. globalism: As protectionist policies rise, manufacturing may see a shift towards domestic production bolstered by governments favoring local industries. Concerns around job loss, resource scarcity, and intellectual property theft have focused more attention on reinvestment in local economies.

This could lead to job growth and economic stimulation within national borders but may also ignite trade tensions and supply chain disruptions. Multinational companies might face increased operational barriers requiring supply chain “proofing,” while domestic manufacturers could gain from a consumer preference for local goods. The long-term effects could include market inefficiencies, quality control issues, and a potential dampening of innovation due to reduced global cooperation.

Changing employee dynamics: Labor shortages, coupled with stronger employee bargaining power, are poised to significantly affect manufacturing. Manufacturers may face challenges in meeting production demands, leading to potential delays and increased costs. To attract and retain workers, companies might have to offer higher wages, better benefits, and improved working conditions.

This shift could accelerate automation and the adoption of advanced technologies to mitigate workforce gaps. Additionally, heightened employee bargaining could reshape workplace dynamics, emphasizing job quality and stability, potentially leading to a more skilled and satisfied workforce, but also higher operational expenses for manufacturers.

How tech is helping companies future-proof their supply chains



Scott DeGroot

Vice president of Global Distribution and Planning at Kimberly-Clark Corporation

Until the recent pandemic, few probably gave much thought to supply chains. But that changed as people hoarded toilet paper and shopped empty shelves. Now, consumer goods companies are making their supply chains more consumer-centric, faster and data-driven, says Scott DeGroot, vice president of Global Distribution and Planning at Kimberly-Clark Corporation. With business now returning to a more normal cycle, DeGroot has been applying new technologies and processes to make the company's supply chain more resilient, responsive, and renewable for the future. What's next is to help make the company's hygiene products more recyclable.

96%

of larger companies are using or considering using digital solutions or monitoring tools to mitigate supply chain risks over the next year.

(Source: Ipsos poll conducted April 17-May 22, 2023, on behalf of the U.S. Chamber of Commerce, among 105 decision-makers ages 18+ at multinational manufacturing companies in the Americas.)

What The Future interview with Scott DeGroot

Kate MacArthur: How are supply chains evolving for the fast-moving consumer goods business?

Scott DeGroot: There are three major words that are important here. One is consumer-centric. The second is speed. We have to make decisions faster and better, which is driving us to become much more agile, resilient and data-centric. Because of the speed, the third word is talent, which is making sure that the talent and capability within the supply chain are upskilled to the point where we can achieve our mission, which is providing better products and services at a faster pace so that product availability is there.

MacArthur: What do these changes in supply chains mean as you look ahead?

DeGroot: Let's talk about it simply as plan, source, make, and deliver. We have oceans of data, and we're bringing in tools and technologies to better see and understand all that data. As we bring on new systems, it's vitally important that we fully leverage the benefit they bring. Some of that's through process, and technology, but a lot of it is through continuing to ensure that Kimberly Clark's people are among the best in the industry.

Most people will go out of their way for satisfaction on purchases

Q. Have you ever done any of the following? (% Yes)



81%

Searched for a lower cost version of the same item



78%

Returned a product to a store when it broke or didn't meet my expectations



72%

Returned a product from an online purchase when it broke or didn't meet my expectations



50%

Kept or sold a product when it didn't meet my expectations because it cost too much to return it

(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)

MacArthur: How are you exploring foresight to figure these things out?

DeGroot: We are intentionally staying very connected to the industry and academia, either

through peer groups and industrial groups, universities and the best thinkers in the academic space to understand how quickly things are changing and to ensure we're making intentional decisions.

MacArthur: How could that evolve over the next decade?

DeGroot: One learning from COVID-19 is that the traditional lean manufacturing thinking likely was carried a bit too far in that we just applied one approach across the entire enterprise. What we're learning now is that we have to be much more comfortable thinking in ranges, thinking about the actual variability of any process or sub-process, and how they connect across the network. It's this idea that all the foundational concepts of lean are 100% valid, but we need to be, and are now, applying them in ways that are bespoke or segmented.

MacArthur: What would create the most dramatic shift for the future?

DeGroot: Toilet paper moves through the customer-to-supplier stream in a different way than, say, feminine care products or adult incontinence products. So how we apply our manufacturing technology, our inventory policy and our supplier policies need to be adjusted for the fact that those are distinctly different from a consumer point-of-view.

MacArthur: How much of this will be driven by AI?

DeGroot: We have many cases of AI applications that, for example, smooth out volume at our distribution centers and our transport capacity by looking across multiple systems and then moving freight that can be moved without disrupting the customer. When we tie together both the physical automation of robotics, which is a labor-quality issue, and AI, we're starting to build interconnected ecosystems.

MacArthur: Is there a holy grail or pinnacle of manufacturing sustainability or profitability?

DeGroot: Part of the holy grail is exploring what innovations we can apply to make and promote circularity within the business model. In that sense, we and the industry have more work to do, changing consumer perspectives and creating sustainable business models that allow for the recyclability of hygiene products.

Kate MacArthur is managing editor of What the Future.

“What we’re learning now is that we have to be much more comfortable thinking in ranges, thinking about the actual variability of any process or sub-process, and how they connect across the network.”

How to align ESG with what matters most to Americans

Recent research from Ipsos' Corporate Reputation team suggests that visible and concrete action on environmental, social, and corporate governance remains a competitive advantage for brands — though some actions are more impactful than others.

ESG is often flattened to environmentalism alone. But people take brands' social footprint very seriously, with 42% of respondents in Ipsos research saying that social impact should be prioritized above protecting the planet and practicing good governance.

Within the subset of social concerns, citizen-consumers think the most important actions that brands can take are improving working conditions (51%) and improving worker health and safety (47%). Still, the most important thing is to act in the first place. Such actions to support workers can also create a halo effect for manufacturers, distributors and suppliers when dealing with their business-to-business customers and clients.

Nearly three in four Americans say too many brands use the language of ESG without committing to real change. It's on the C-suite to change that perception.

42%

of people believe that multinational companies should make improving society their top priority when it comes to corporate responsibility.

(Source: Ipsos Global Reputation Monitor, April 2023.)



Trent Ross is executive vice president and chief research officer of Ipsos' Corporate Reputation practice. trent.ross@ipsos.com

How we can keep small manufacturing 'Made in the USA'



Rob McMillan

Founder, Dearborn Denim

Small business manufacturing has seen a resurgence in the U.S. in the last decade or two. A lot of that is fueled by direct-to-consumer and social media trends. Much capitalizes on the “Made in the USA” or “designed locally” labels as selling points. But can the momentum continue? Rob McMillan runs a small, blue jean d-to-c manufacturer in Chicago. He says it’s a constant struggle, but he hopes that people will continue to place a premium on good products, made locally, that last.

42%

of U.S. adults say trusting the quality of the brand is most important in their decision for small consumables or purchases like clothing or packaged goods.

(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)

What The Future interview with Rob McMillan

Matt Carmichael: How important is the role of “Made in the USA” and how do you see that changing in our polarized world?

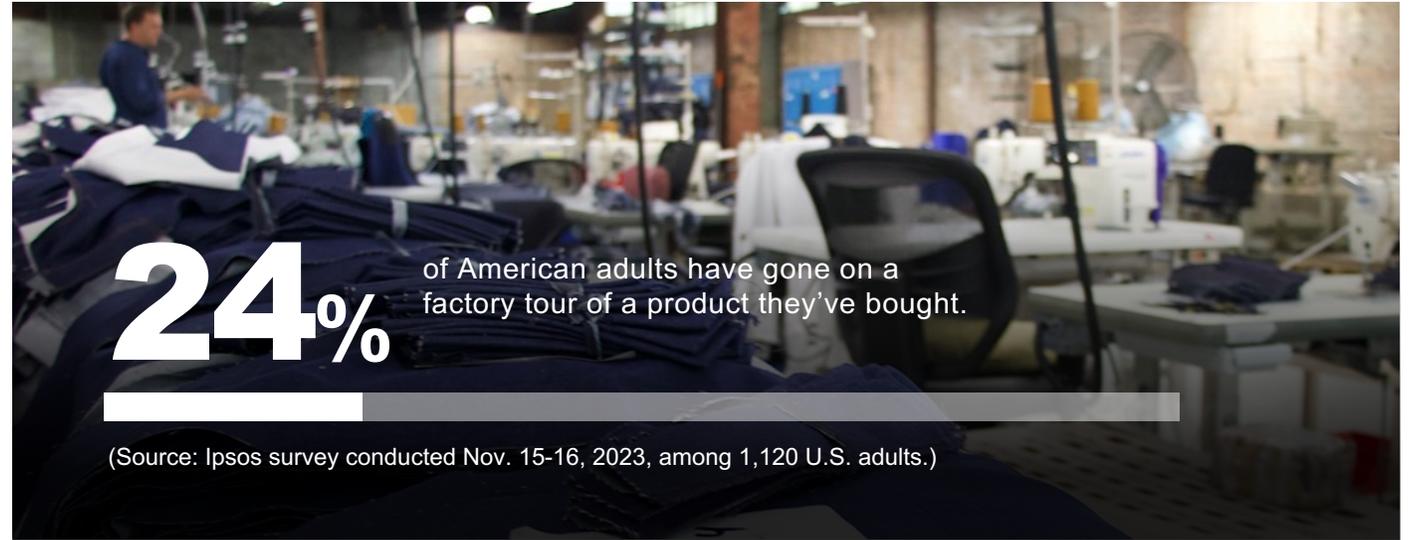
Rob McMillan: “Made in the USA” is always important. It isn’t just nuts and bolts. It’s another source of jobs for U.S. workers; we need more options than desk jobs or the service industry. I know there are some fancy economists who say you can get the same product overseas for cheaper and you’re supporting wages in, let’s just say, Bangladesh, and there’s truth to that. But I think it’s okay to say as an American, I prefer to support jobs in the USA, I align with this person more just by living in the same area as them.

Carmichael: Does the sustainability of a shorter supply chain also play into the appeal?

McMillan: I’m always concerned when people are making greenwashing statements of “this is more sustainable than that,” but there is something to having goods move fewer miles, right? Freight is a significant source of CO₂ emissions. Yet, I don’t know if I’m fully convinced that that’s an argument I would make as to why you should buy local. I haven’t done any studies on whether our jeans have a lower carbon footprint than imported jeans.

Carmichael: Other apparel companies totally make that claim.

McMillan: There are questions of economies of scale for manufacturing. Is a big manufacturer going to make a pair of jeans in a more efficient way than a small manufacturer? Yes. We also try and do stuff as efficiently as possible, But there’s a lot more to it.



Carmichael: Like what?

McMillan: Like, how efficient is your fabric cutting? Do you have 80% or 90% cutting efficiency and is that 10% waste? Is that being recycled? Is that going to a landfill? Maybe the most important one is how long does your product last, right? If you have to buy a pair of blue jeans once a year, or a pair that will last three years, you’re consuming less. You’re saving money and there’s going to be less waste. I’m much more convinced by that argument. There’s a ton of waste in the apparel industry primarily driven by fast fashion.

Carmichael: How do you balance efforts toward quality and sustainability with profitability?

McMillan: If we don’t operate profitably, we go out of business. We don’t have venture capital backers or anything like that. Our approach has been to make sure our customers come first. We are competing with the Levi’s and the Wranglers, but also Costco jeans, and premium brands.

Carmichael: To what extent do you think “Made in the USA” and sustainability, etc., matter to your customers vs. they just want a nice pair of jeans?

McMillan: A huge portion of the U.S. is just constrained by price. Our jeans are too expensive at \$75 for a whole bunch of people. That’s one of the reasons why we tried the SVR jean at \$39. But it was too low a price point for us at the time to make it work. I want to be able get a product to market at a lower price, but for now we have to stay in the premium tier.

Carmichael: What holds you back?

McMillan: It’s not the jeans, it’s the shipping. We subsidize too much. We’re not Amazon. We also offer free exchanges. So that’s another \$9 out, another \$9 back.

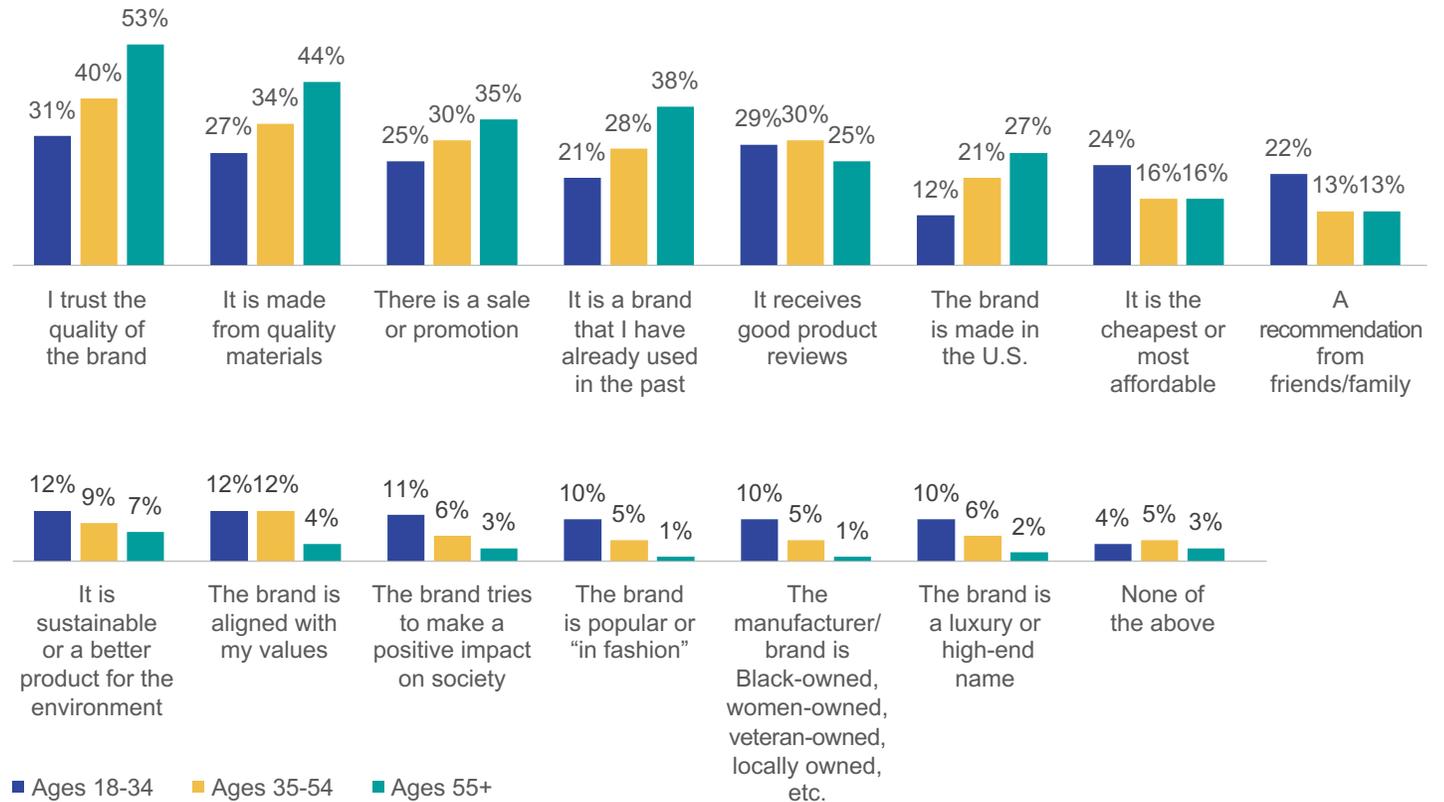
Carmichael: That’s a downside of the d-to-c model. But to what extent does that model and social media enable companies like yours to exist?

McMillan: Many other d-to-c brands don’t do their own manufacturing. The idea that d-to-c was going to be more affordable than traditional retail is flawed because shipping costs are very expensive. Also, online customer acquisition has become very expensive, because in large part, it’s replaced traditional media. I don’t know if someone starting a business in 2024 will reliably find a lot of success.

Matt Carmichael is editor of What the Future.

Quality and trust drive small purchases

Q. When choosing which brands to purchase products from, which of the following factors are most important in your decision for consumable or small purchases like clothing, packaged goods, etc.? (% Selected)



(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)



Why Americans' attitudes on globalization are in flux

Consumers are no longer in the dark about how products are made: they look beyond the “Made in” label to scrutinize the entire supply chain, demanding transparency from source to shelf.

While many consumer opinions on globalization are rooted in political ideology, economic circumstances have a strong impact as well. For example, “Made in the USA” resonates with Americans who are worried about job security and their industry’s ability to compete in a global marketplace. And these attitudes are continually influenced by stories about manufacturing labor and impact, both in the news and on social media.

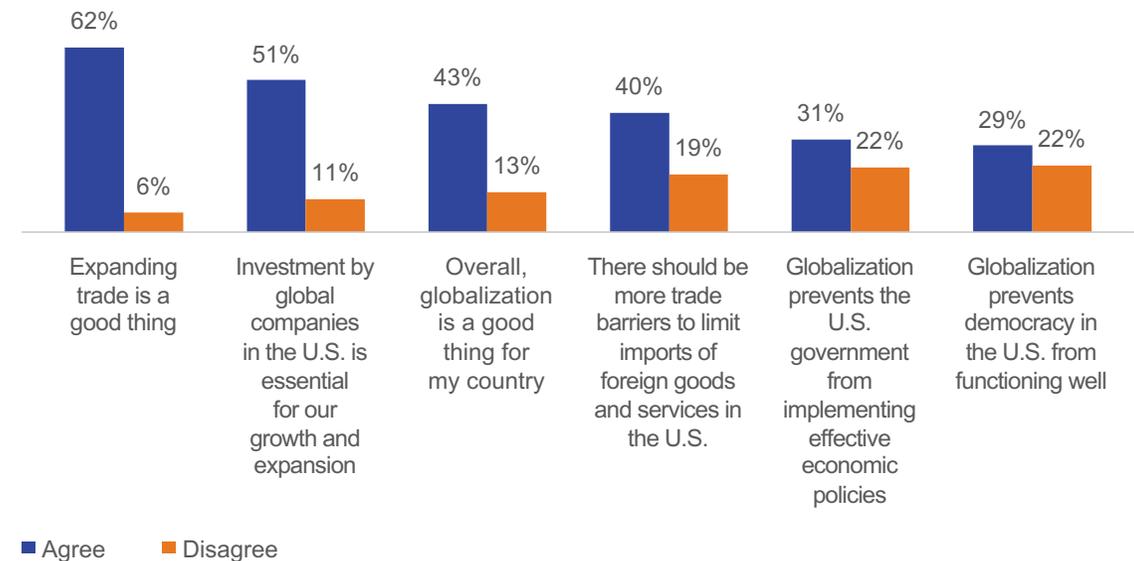
With headlines and social media driving sentiment around globalization, brands need to monitor and get ahead of potential issues at each step of the supply chain.



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Most Americans support globalism up to a point

Q. When it comes to globalization and international trade, how much do you agree or disagree with the following statements? (% Selected)



(Source: Ipsos Global Trends survey conducted online Sept. 28–Oct. 6, 2023, among 1,000 U.S. adults.)

How companies can mine technology for the energy transition



Denise Johnson

Group president, Resource Industries, Caterpillar

Caterpillar makes massive things. Things like earth-moving equipment and other machines that must be broken down and reassembled from 15 cargo containers full of parts at places like hard-to-reach mines after being shipped around the world. That big. Denise Johnson, group president of Cat's \$12 billion Resource Industries segment, oversees automation and innovation, product and operations, engineering and component development, and global strategic procurement. As the transition to electric energy requires more mined minerals, Johnson says the nearly 100-year-old infrastructure company is leveraging technology to help its customers do that work sustainably, efficiently and with purpose.

100%

of larger companies are using or are likely to multi-source products to reduce reliance on any one supplier to mitigate supply chain risks over the next year.

(Source: Ipsos poll conducted on behalf of the U.S. Chamber of Commerce April 17-May 22, 2023, among 105 decision-makers age 18+ at multinational manufacturing companies in the Americas.)

What The Future interview with Denise Johnson

Kate MacArthur: What signals are you watching to help identify future scenarios for the business?

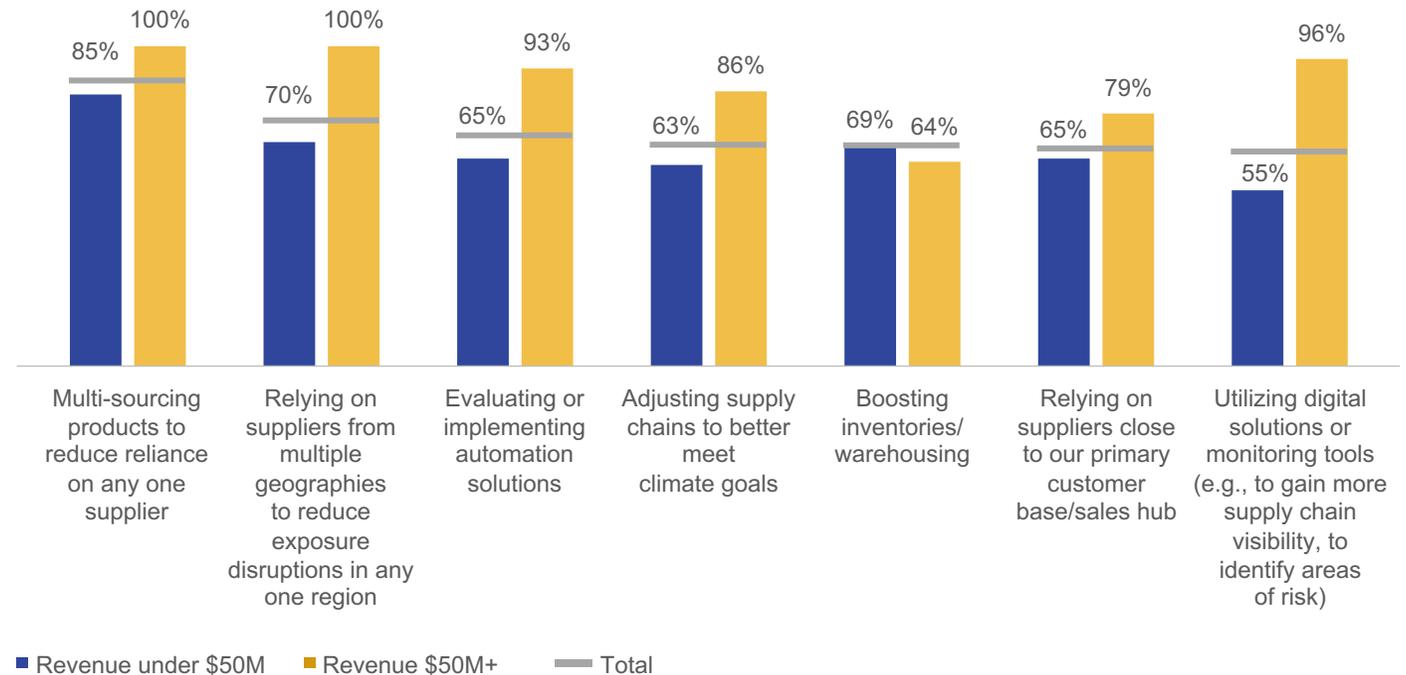
Denise Johnson: We talk directly to our customers; from mining to heavy construction companies. A lot of mining takes place in very remote locations throughout the world. They need to have very productive equipment that has a maximum amount of uptime. They are struggling in many locations throughout the world with labor. They're pushing for more automation for when they do have workers on site to make the work more consistent. There's also a training element, and in many cases, it's taking people out of the equation because that makes the mine more productive and safer. When we listen to their feedback, it's for equipment that works flawlessly, that's very reliable and that requires fewer touch points from a human intervention perspective.

MacArthur: Do you have a foresight organization?

Johnson: We have a number of venues where we leverage data and analytics to be able to plan and predict what's going to be needed in the future. Certainly, we're taking a lot of the analytics that would be associated with future demand for commodities, and we're leveraging that to understand the demand for our equipment moving forward. It's leveraging all those signals, those direct interactions, and then staying close to them along the way to know exactly what they need.

Larger companies are more likely than smaller companies to have completed or considered supply chain resilience strategies

Q. Please rate how likely your company is to implement the following supply chain risk mitigation strategies over the next year. (% Already in place or are very/somewhat likely to)



(Source: Ipsos poll conducted April 17-May 22, 2023, on behalf of the U.S. Chamber of Commerce, among 105 decision-makers ages 18+ at multinational manufacturing companies in the Americas.)

MacArthur: What is the lead time that you work with?

Johnson: Right now, many mining companies are making very strong ESG statements and commitments for greenhouse gas reductions in various steps and time horizons. Some are looking for 20% to 30% reductions by 2030 and 100% by 2050. That's 30 years of planning where they're saying they need to take all the diesel-powered equipment out of the equation, and they're looking for something that is zero-greenhouse gas emitting. That gives us a pretty wide range of a horizon to hit, and it sets us on our trajectory of what we're going to invest in from a research and development perspective. We're having to do things much sooner than we've ever had before. Many mining companies are asking for electrified equipment by 2027 and 2028. Well, that's a really tight timeline to develop brand new equipment. And we're having to develop very differently than we ever had before to hit those timelines.

MacArthur: What considerations do you think about to manage risk?

Johnson: Customers are first and foremost concerned about the safety of the people on site. When you're bringing in new technology and there are a lot of unknowns, you have to build in redundancy in the safety measures that you're putting in place, so a process or technology failure doesn't create any kind of safety issue.

Next, the last thing that a mining company wants is a technology that breaks down or doesn't work. Their lifeblood is production. There's a real risk that the whole site infrastructure and Wi-Fi network and connectivity goes down such that everything comes to a halt all at once. Again, you need to have multiple layers of redundancy built in.

MacArthur: How do you work through training issues?

Johnson: We're doing a lot with machine learning, with AI, with even automated virtual reality tools. Certainly, nothing's going to substitute for the mechanics on the ground that are repairing the machines. We can leverage our technical experts, even though they're working in our facilities around the world. We can leverage tools like VR goggles on a call and walk through how to repair something virtually.

MacArthur: With the electric and digital transition, how will technician skill sets change?

Johnson: The diversity of skills sets needed will increase. In the past, a mechanic skill set worked. Now and into the future, it will require the combination of mechanical, computer and electrical competencies to support the automated, autonomous and even electrified products.

Kate MacArthur is managing editor of What the Future.

“Many mining companies are asking for electrified equipment by 2027 and 2028. Well, that’s a really tight timeline to develop brand new equipment. And we’re having to develop very differently than we ever had before to hit those timelines.”

How human-robot partnerships will remake manufacturing



Anders Billesø Beck

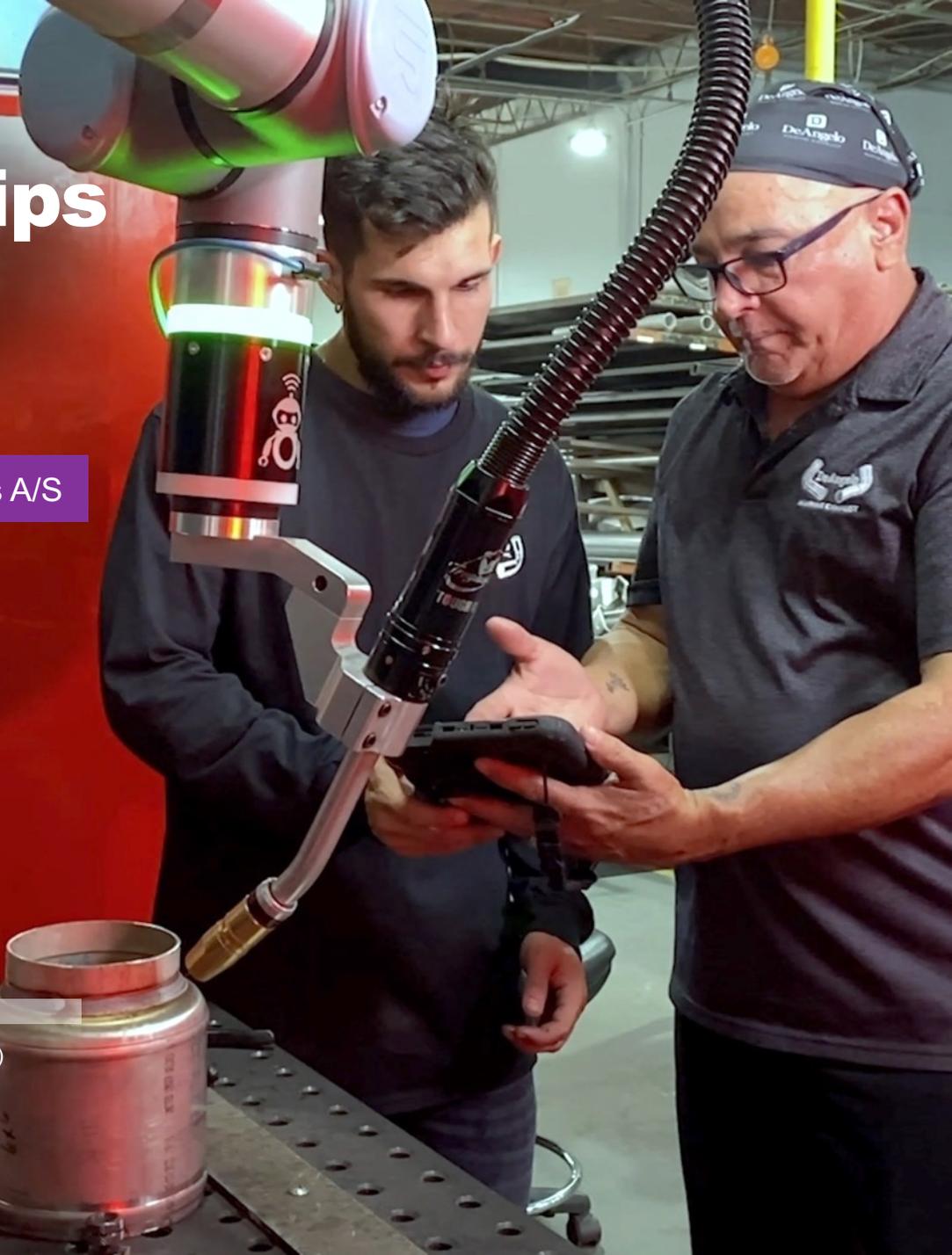
Vice president, Strategy and Innovation at Universal Robots A/S

Industrial robotics have been a pillar of mass manufacturing for decades now, but recent breakthroughs in human-robot cooperation are taking productivity to another level and transforming factory jobs. Robots can make manufacturing safer and more efficient, but they also make human work more stimulating and rewarding, says Anders Billesø Beck, vice president of Strategy and Innovation at market leader Universal Robots. That'll be crucial for inspiring and hiring the next generation of talent.

60%

of Americans believe that robotics technology will have a positive impact on the the warehouse and industrial sector.

(Source: Ipsos KnowledgePanel survey conducted Oct. 6-9, 2023, among 1,204 U.S. adults.)



What The Future interview with Anders Billesø Beck

Christopher Good: Put simply, what is the advantage of using robots in manufacturing?

Anders Beck: At heart, robotics brings us the opportunity to leverage human capital in a different way. It gives us the opportunity to leverage people where people work really well — managing the hard tasks, the ones where you need creativity and problem-solving — while still getting the efficiency required for manufacturing to be profitable, in 2023 and beyond.

Good: Industrial robotics have been on the scene for decades. How are breakthroughs in AI changing the ways they function?

Beck: One example of where we’re seeing progress is quality inspection. Doing that is really hard for an engineer in the classical way, because you have to physically look at [the product] or engineer all that stuff in. When you’re doing quality inspection based on AI, you just need to show it what “good” looks like. So, it lends itself well to be adopted by the non-specialists and the non-experts, because the actual problem-solving becomes more intuitive.

Americans say job automation and off-shoring are happening too fast

Q. The following topics are related to innovation in manufacturing. When thinking of these developments, do you feel they are happening too fast, too slow or at the right pace? (% Selected)

Small businesses starting up in the U.S. for manufacturing



Custom or on-demand manufacturing techniques



3D printers available for home use to make your own goods



Automation of jobs and tasks with robotics



Automation of jobs and tasks with AI technology



Manufacturing jobs moving to other countries



■ Too slow ■ The right pace ■ Too fast ■ Don't know

(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults.)

Good: What benefits do collaborative robots, or “cobots,” bring to human employees?

Anders Beck: Right now, we’re struggling to find people that are willing to do manufacturing work. And we need to be making manufacturing an interesting place to work, so that in five years, young people will aspire to seek a career within manufacturing. It doesn’t mean that every person who works in a company needs to be a trained engineer. It’s more like investing the time in growing the right skills. We have a lot of evidence showing that it also will bring a happier, more engaged workforce and, ultimately, growth both for the employees and the employer.

Good: A cobot doesn’t have body language or speech. So how do workers get used to working with these robots?

Beck: Cobots sparked these ethical discussions around man and machine. Some of our early competitors even experimented with putting a face on their robots. But the way we always thought about it is that a cobot is just your ideal tool. It’s the tool you like using when you get up in the morning, that you appreciate working with on a daily basis. But we don’t necessarily see it as a colleague. Of course, a lot of our customers name their robot, because they like the value that it brings, but it’s not something you would talk to on your coffee break, right?

Good: When it comes to productivity, how do robots change the amount of people you need to complete tasks?

Beck: It varies quite a lot from task to task, but the general trend is that single employees will be able to manage a broader amount of work. Welding is a good example, where you can have an experienced welder program the robot, initiate the weld, and then start on the next task. And on top of doubling productivity, the type of work that’s done is the more meaningful work.

Good: How do you see cobots becoming a consumer or DIY technology in the future?

Beck: It’s a market we are looking at. We’ve done a lot of work with educational institutions around robotics. It’s a very creative way of teaching, though I don’t know if we will have a robot in every house. My take is that technologies often materialize in ways we don’t really expect. There’s no doubt that AI and robotic capabilities are going to spread to many of the things that we use today. The interesting part is going to be in which ways.

Christopher Good is a staff writer for What the Future.

“At heart, robotics brings us the opportunity to leverage human capital in a different way. It gives us the opportunity to leverage people where people work really well — managing the hard tasks, the ones where you need creativity and problem-solving.”



Americans have mixed feelings about automation in the workforce

Broadly speaking, people are optimistic about AI — but a recent Ipsos study indicates that there is less confidence when it comes to the labor market, with Americans worrying that robotics and automation may decrease job security and increase layoffs across sectors.

The consensus is that change is coming, whether we're ready for it or not. People see warehouse and industrial workers as particularly vulnerable to these shifts: Nearly half believe that they will have a difficult time adapting to robotic and automation technology. That means brands need to anticipate and communicate about the opportunities this technology presents for industrial workers, from reskilling to retraining.

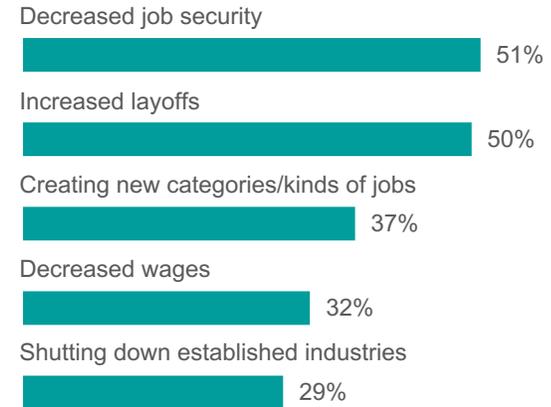
Two in five Americans expect the AI revolution will create new categories or kinds of jobs. Managers need to help workers see themselves in those roles.



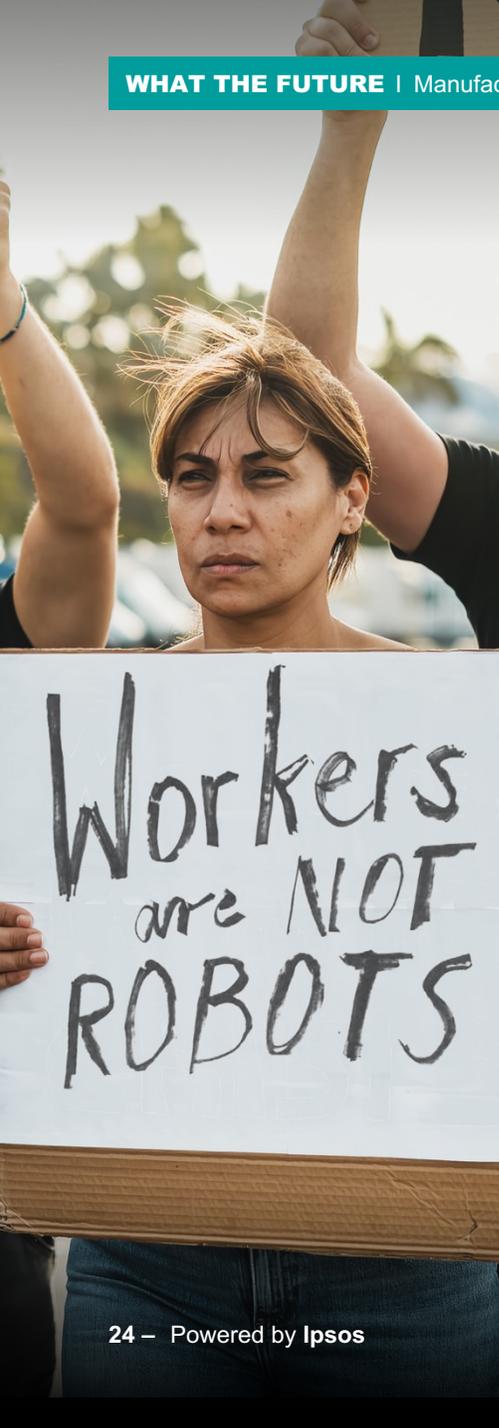
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Americans see downsides for workers from robots and automation

Q. How will implementing robotics and automation technology in the workplace affect your local community and economy? (% Total)



(Source: Ipsos KnowledgePanel survey conducted Oct. 6-9, 2023, among 1,204 U.S. adults. Data reflects top five responses.)



How organized labor will fit into a reorganized economy

After decades of declining union membership, 2023 saw strikes in both traditional labor strongholds (like heavy industry) and the white-collar sector. Although Ipsos polling shows strong support for organized labor overall, fewer Americans see the value of unions for themselves. How could this play out?

The labor actions of 2023 signal a tipping point that some workers again feel they need the protections that unions are supposed to offer. This is especially true where CEO pay growth has ballooned to [hundreds of times](#) that of the average worker and as artificial intelligence changes the nature of jobs and pay equality. It's an issue that's top of mind for American workers: 66% agree that if a CEO receives a 25% raise, the average worker should get a 25% raise, too.

As the pay gap widens and automation transforms traditional industries, trade unions could gain new importance. But their blue-collar image may be holding back their relevance in a world that is increasingly digital, entrepreneurial and fragmented.



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Americans are supportive of labor unions overall but less interested in them for themselves

Q. Please indicate how much you agree or disagree with the following statements. (% Agree)



70%

Organized labor still has a place in the American economy



61%

Labor unions have improved the quality of life for all working Americans



46%

Labor unions have improved the quality of your life



46%

I would be willing to go on strike to improve compensation and working conditions even if it mean lost wages to me personally



38%

My personal economic situation would be improved if I were represented by a labor union

(Source: Ipsos/Reuters survey conducted Sept. 19-20, 2023, among 1,005 U.S. adults.)

Tensions that will drive change:

Pay for quality or care more about where made?

Typically, there's been a *belief* that U.S.-made goods are better quality than those that are made overseas. Think back to the emergence of Japanese automakers in the U.S. markets. It took decades to build a reputation for quality craftsmanship. That's led to a tension with our desire for goods that will last longer. What happens if those tensions shift?

I WOULD RATHER PAY MORE FOR A PRODUCT THAT WILL LAST LONGER

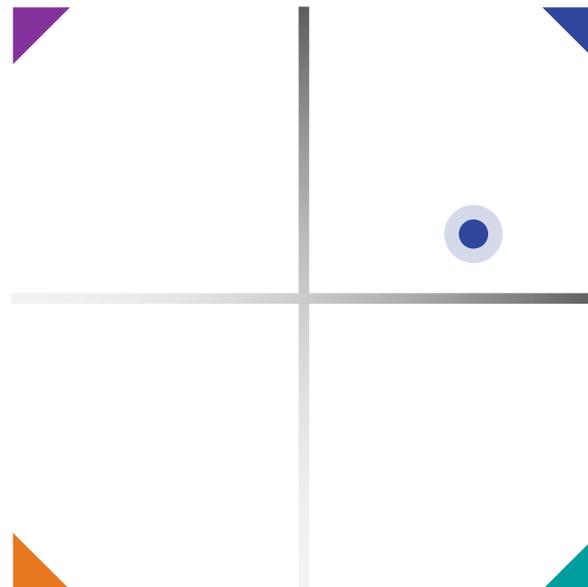
In this world,

where goods are made matters less. But people still want them to last longer. Quality, workmanship and the materials matter. If quality is seen as geographic-agnostic and this tension shifts, it opens opportunities for global brands, especially from China, to enter or expand in the U.S. marketplace.

I DON'T CARE ABOUT WHERE PRODUCTS I BUY ARE MADE

In this world,

inexpensive, low-quality goods proliferate. In some sense, despite what Americans say in the data, this is the world we actually live in. (see: fast fashion). But it's at odds with our desires for sustainability and therefore it's a future that isn't particularly... *sustainable*. So, there's hope that our actions and our attitudes will meet more toward the middle.



Here's where we are today:

We care a lot about where products are made and say we are willing to pay more for longer lasting goods. If these tensions don't shift, we can expect to continue to see premium, American-made goods be somewhat niche as luxe goods, and cheaper goods made overseas be more mass market.

I CARE ABOUT WHERE PRODUCTS I BUY ARE MADE

In this world,

U.S. manufacturers lean into automation, sacrificing the air of 'hand-made quality' for the ability to produce "American-made" at scale. That's not great for workers. The patina of "luxe" and "durability" fade. Brands lean more into nationalism as a selling point. ESG becomes more about "short supply chain" rather than "creating jobs" or "keeping products out of landfills."

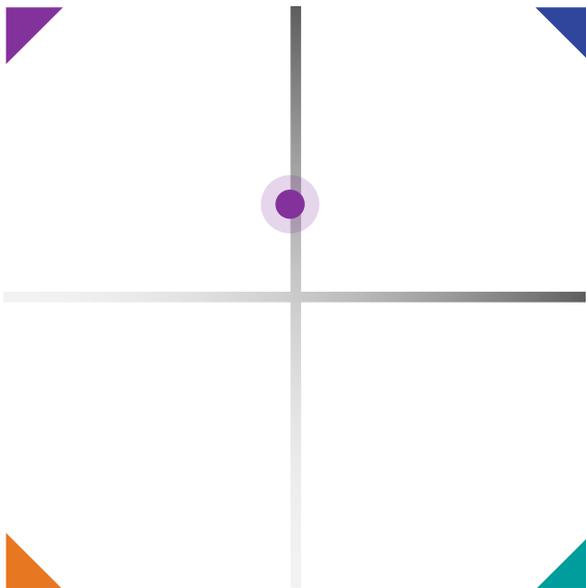
I WOULD RATHER PAY LESS FOR A PRODUCT NOW, EVEN IF I MAY NEED TO REPLACE IT SOON

Tensions that will drive change:

Price or sustainability?

Cost, origin and sustainability are a very real-world tension, beyond just public opinion. But our opinions shape our actions. What if we prioritized sustainability?

WHEN I'M BUYING A PRODUCT,
I CHOOSE HIGH QUALITY OVER LOW PRICE



If this tension persists as-is,

we'll stay in a world where we're on the fence about how much we care about sustainability, but we'll prize quality over price. But as manufacturers move to meet their own ESG goals, opinions might not matter. They can still make goods sustainably but will need to message around quality to command a premium price.

A LOWER-PRICED PRODUCT IS A TOP PRIORITY FOR ME

In this world,

we've likely seen persistent inflation driving people to make brand trade-offs and check down to lower-priced goods across categories. That forces people away from their own sustainability goals, and brands also will have a hard time prioritizing ESG on their side of the equation. We're already seeing shifts in this type of tension in Ipsos Global Trends.

This world is close to where we are today,

we'd just need to nudge ourselves to be more open to paying a premium for sustainably-made goods. As we become more aware of the environmental costs of the goods that are made, this seems a plausible quadrant to wind up in, if consumers are willing to pick up some of the tab, or manufacturers find innovative ways to be sustainable *and* cost-effective.

I PREFER SUSTAINABLY MADE EVEN IF IT COSTS MORE

This world seems a little scary.

For consumers to prioritize sustainability but not quality, we've probably seen various environmental *and* economic crises. Manufacturers will need some serious innovative processes, perhaps with assists from AI, which are already proving capable of imagining new materials.

WHEN I'M BUYING A PRODUCT,
I CHOOSE LOW PRICE OVER HIGH QUALITY

Future optimism gaps

When it comes to the future of manufacturing, we think we'll get most of the future we want.

As we've tracked the futures people want vs. the futures people expect, we mostly agree on the future we want. We also think that future most likely will happen. But *how likely* we think that future will be has varied.

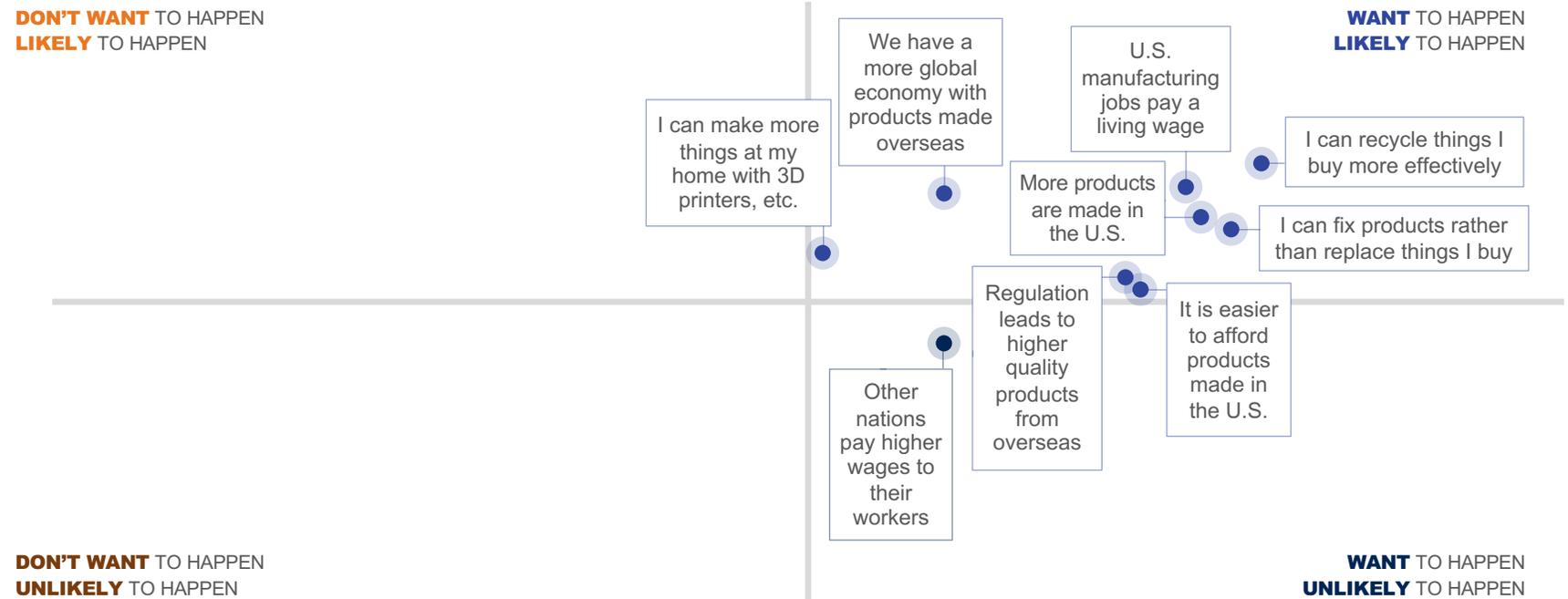
For the future of manufacturing, we see *nearly all* the futures we want to happen as being likely, again, to varying degrees.

Leading the gaps, 72% of Americans want it to be easier to afford American-made products. But only 52% think it will be likely. 71% of us want regulation to lead to higher quality products from overseas, but only 54% think it will happen.

Closing these gaps will require policymakers and business leaders to balance regulations and pricing schemes better.

Americans feel largely optimistic about the future of manufacturing

Q. Thinking about each of the following future scenarios, do you want them to happen, or not? / How likely, if at all, are they to actually happen?



(Source: Ipsos survey conducted Nov. 15-16, 2023, among 1,120 U.S. adults).

Future Jobs to Be Done



Ipsos spins the traditional “Jobs to Be Done” framework forward with *future Jobs to Be Done (fJTBD)*. This builds on the theory that people buy products and services to fulfill certain needs or accomplish specific tasks. For example, we don’t buy a computer; we hire it to help us communicate, complete tasks, and be entertained. We don’t buy a jacket; we hire it to be fashionable, express ourselves, and keep warm.

To bring it into the future, we envision powerful and plausible scenarios through strategic foresight. While many needs are enduring and do not change over time, the context of that job will change along with the potential solutions and alternatives. These scenarios help us define the circumstances in which people may find themselves, like considering whether to pursue a full-time corporate job with traditional benefits or spearhead a personalized career path that provides more flexibility. We use fJTBD to tie these scenarios to actions that organizations can take to help people meet future needs.

While it’s typical in foresight to create fJTBD clusters, we’re sharing one scenario here as an example.



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Help me own and access things at the right price so I can express myself

In a world where most people are active consumers experiencing economic difficulties and tribalism, there is a large opportunity to help them feel empowered by their choices while contributing to the good of the whole.

Potential fJTBD:

- Help me live out my values (e.g., sustainability) and create less waste without being taxed in price
- Help me become a “prosumer,” a consumer who also is a producer, to shorten the supply chain
- Authentically give me the confidence to know that the goods I buy have been produced ethically and responsibly
- Help me afford what I need so that I don’t accumulate debt

Imagine a world where ... due to dwindling resources and demand for corporate cost reductions, the supply and manufacturing costs of using waste/recycled/used ingredients (e.g., textiles, hardware, etc.) are cheaper than extracting virgin materials, ultimately making products more affordable for the consumer.

For full results and methodology, visit future.ipsos.com
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GAME CHANGERS

