

DEGLOBALIZATION

How the global economy is changing, why the contest for skilled labor is more competitive than ever and what our key industrial manufacturers need to do to adapt.

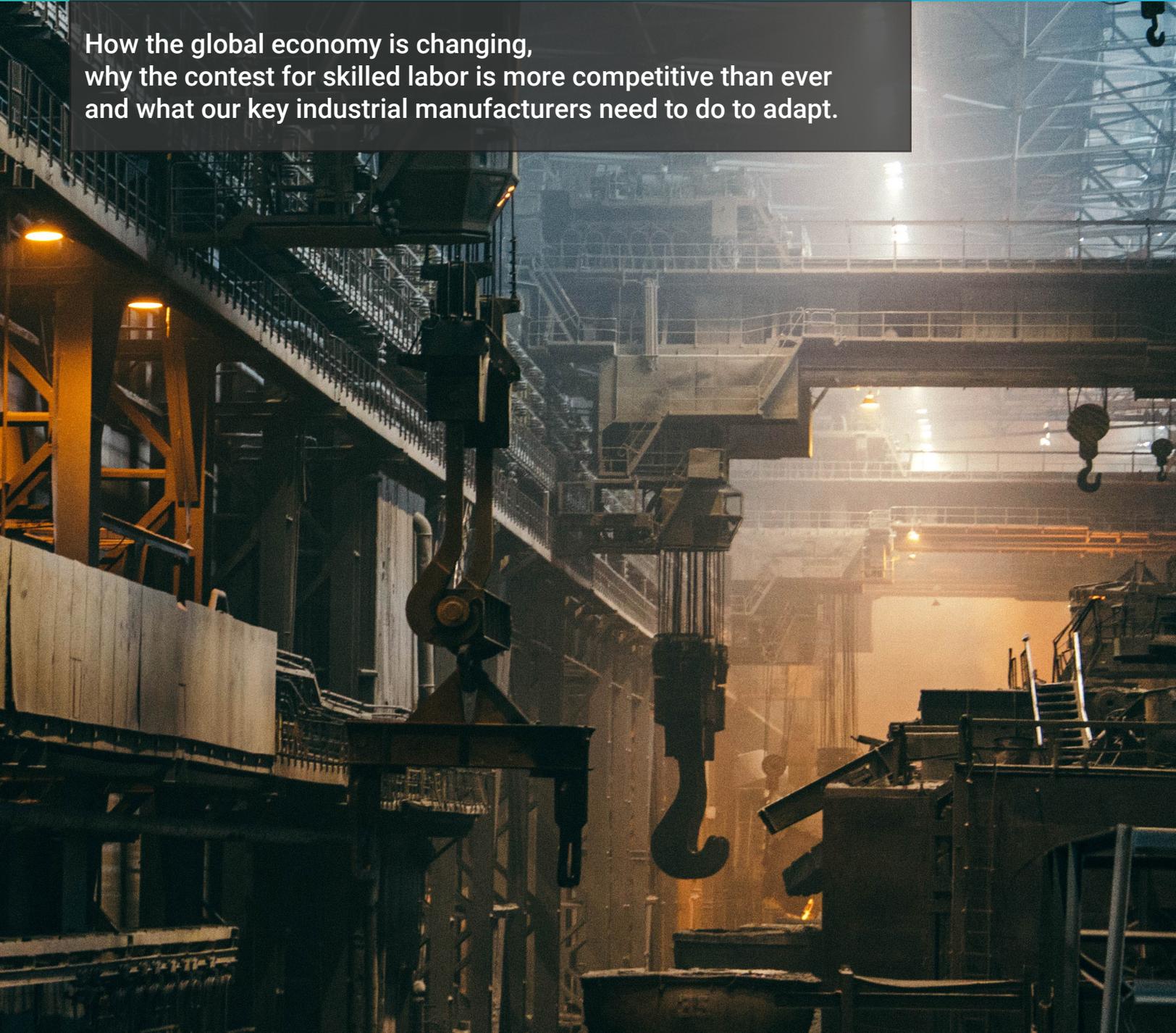


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INTRODUCTION

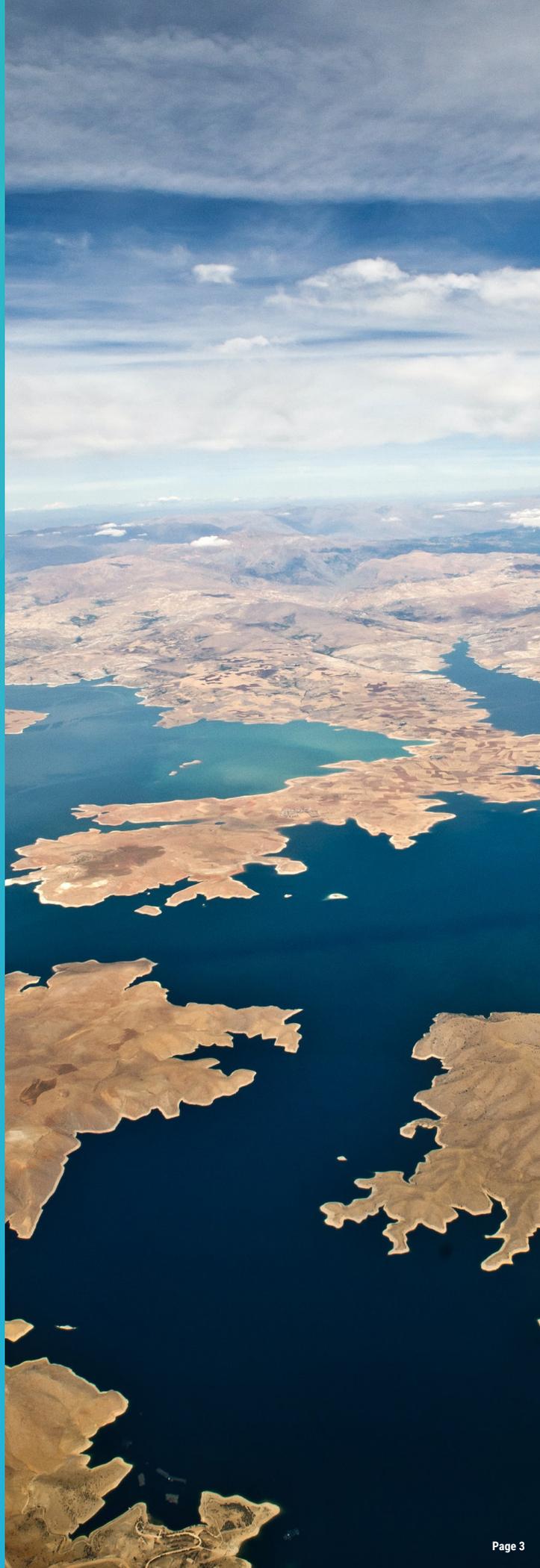
Moments of crisis often bring organizations to emotional responses. “Fight or Flight” is the most classic choice, but when we know that we can neither run nor fight, we often shut down and “slow play” any new initiative or decisions.

In moments like these, concerns about long-term profitability - and sometimes even survival itself - can creep in.

Trade wars, pandemics, lockdowns, bail-outs, social unrest, volatile commodity prices, wavering demand: these aren’t just a new set of challenges. We’re experiencing a lack of certainty in the global business environment that is forcing firms to create certainty for themselves.

Many manufacturers are seeking out security, productivity and resiliency that’s closer to the markets they sell to. However, in doing this, how can you be sure that you’re protected against the risks - geographic, demographic and more - that we all face today?

This white paper doesn’t have all the answers, but it does offer two things: a clear statement of the broad secular trends that every industrial manufacturer must respond to today, and a look at some paradigm-shifting manufacturing technology that has already been commercialized with industrial finishing processes. With this, there come new possibilities for the future of industrial manufacturing as a whole.



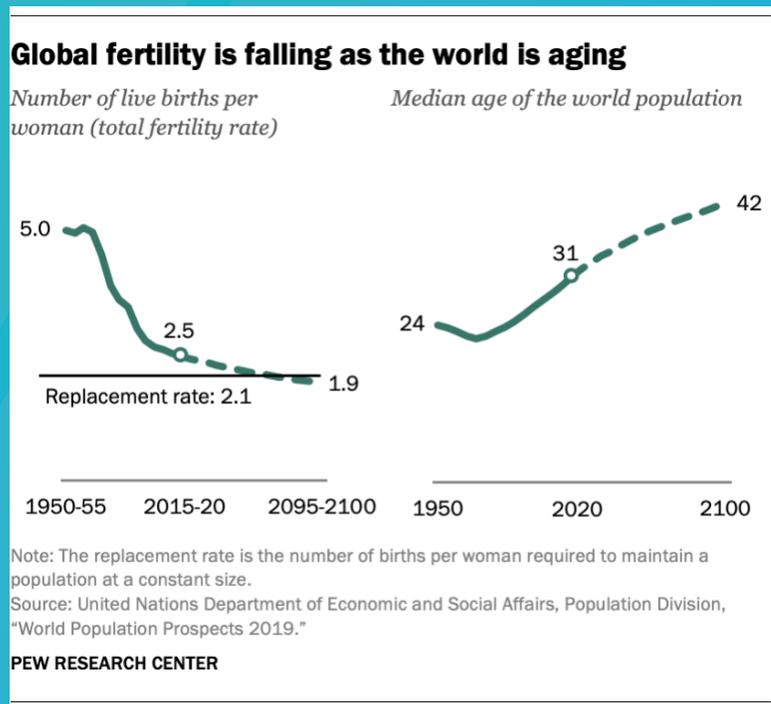
WHAT'S HAPPENING, AND WHY IT ISN'T FINE

If there were five graphs to explain what's going on right now, they would be the ones below. Before you read them, remember one thing above all: without productivity growth, there's nowhere to go but down. Many firms have already quietly hedged against these secular trends, but many more have yet to retrench their operations, leaving them more vulnerable as time goes on. Put most simply, here's the 4 macro trends that every manufacturer is working against right now:

#1: A Demographic Crunch

While doomsayers have long said the overpopulation was going to ruin us one day, the world is actually beginning to turn over. A lack of population growth is threatening to reduce overall consumption, meaning there may soon be global structural deflation somewhat similar to what has been seen in Japan in recent decades. Though the global effect of will be far less intense than the Japanese experience, having industrial manufacturers become more reliant on the backing of central banks and credit facilitators isn't the most inspiring future out there.

Ultimately, anemic growth always creates the risk of unfavorable consolidation. It could also just put a lot of people out of business. As profits and growth become harder to come by, leveraging automation in novel ways will continue to be a key response - much the same, of course, as many leading Japanese firms have done.



Source: [Pew Research](#)

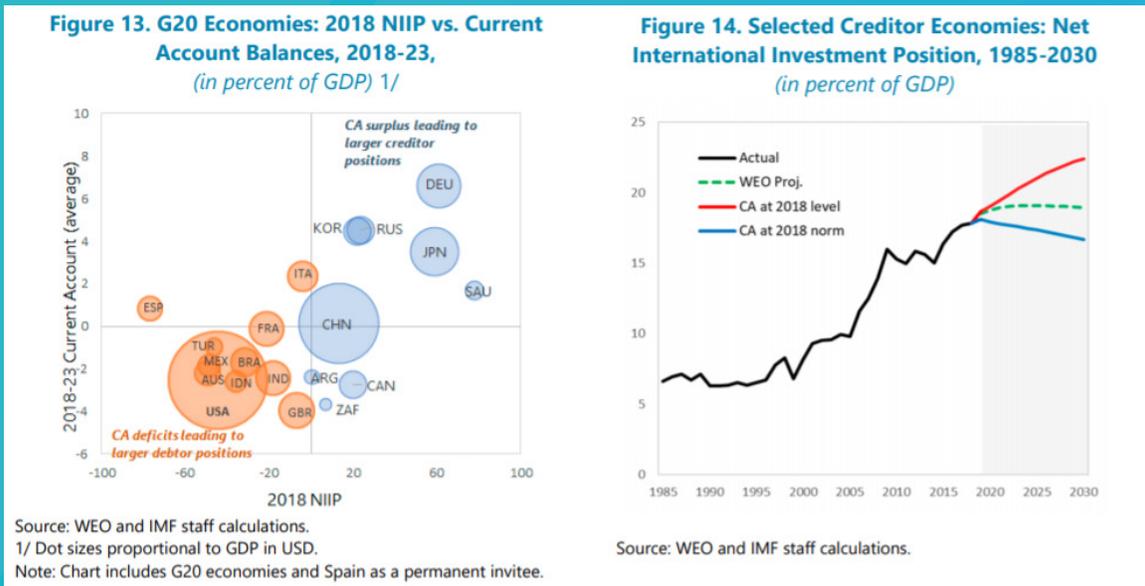
#2: Stalling International Investment

Older populations have a higher propensity to invest than consume. As most regions trend towards higher median ages, however, few will have decisive consumer cohorts there to fuel their growth. This will likely cause international investment to stall, further stifling growth and employment.

This is critical as offshoring hasn't only enabled manufacturers to access cheaper foreign labor, but also to serve growing foreign markets. This process has been going one way for so long that it seems to either be attenuating or going in reverse.

Even as unemployment rates exceed 10% due to the broader effects of COVID-19, what will be the broader effect of increased capital flows domestic markets in Europe and North America? As firms all trickle, and then perhaps rush, to base their production and sales growth closer to home, a huge labor crunch could hit that would drive up costs astronomically.

As the charts below show, these stagnatory trends have been percolating long before COVID-19 began its worldwide spread. Though few industrial manufacturers had begun responding to these trends, the trend to relatively lower international investment by leading creditor nations - along with its potential after effects - may have only been exacerbated by the current health crisis.



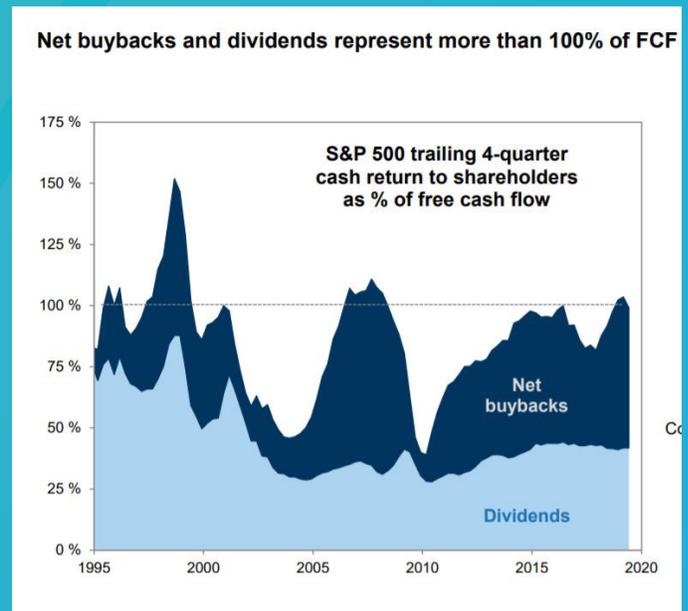
#3: The Absence of Profits

While economic growth has persisted on paper, few of our biggest firms have reinvested those profits into new avenues for growth. With those profits placed in the pockets of investors, they've done little to drive continued growth and consumption, and the velocity of money has actually continued to diminish.

Broadly speaking, this high rate of return with low relative rate of reinvestment has simply meant stagnating growth opportunities overall. For industrial manufacturers, this means the markets for their goods will continue to slow and their already tough margins will suffer a result.

You don't need another person to tell you "this economy isn't the best". However, understanding that very little reinvestments has taken place since the 1990s - as the chart to the right shows - may be an indicator that your playbook needs to change in earnest.

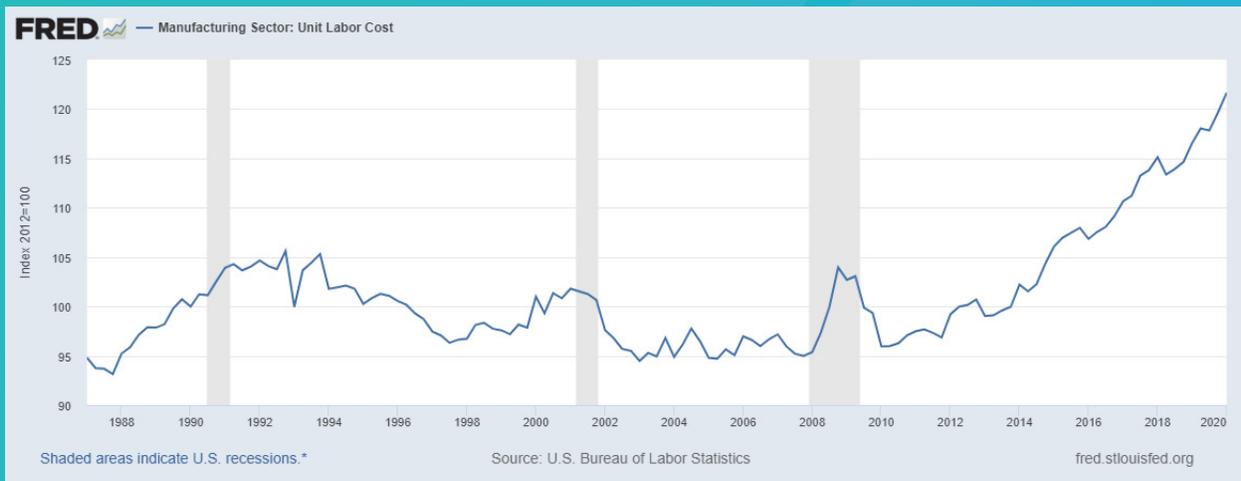
"Save more, sell more" is always the easy way out. But, given the other trends we've seen, you don't just need to continue finding unique opportunities to sell, but also new ways to save on your biggest existing and future cost centers. With a hedge against competition for labor - along with increased productivity through automation - the answer to the "save more" question is going to have to be more aggressive than ever.



Source: [MarketWatch](#)

#4: Increasing Labor Costs

Amidst the short term challenges industrial manufacturers have faced, rising labor costs have been a persistent reality since the Great Recession of 08-09. *If* COVID-19 is in any way sequestered, *if* private and international investment keep stalling, *if* demographic trends don't miraculously reverse - if all of these trends hold up, the already outrageous growth in Unit Labor Cost among manufacturers will only continue to skyrocket over the next few years.



Source: St. Louis Federal Reserve

There are a few caveats to the above case, although they can't be considered entirely reassuring. If COVID-19 isn't sequestered, few businesses will be able to continue on after a year or more of lingering restraints. If private and international investment grow, how are you going to meet demand when you've already struggled with labor costs? If demographic trends reverse, well... maybe you don't want to wait 25 years to figure out if that's happening or not.

On its face, you would think rising labor costs in the US would cause *greater* globalization. But, each unit grown more expensive? Every leather couch, every dump truck, every landing gear more costly to get humans to make? This isn't a trend against deglobalization - it's a sign that no matter where you place your production, you may not be able to stave off the effects of secular decline.

So what can industrial manufacturers do to respond? In the end, productivity growth is needed, but not in ways that we've known in so far. Automation has helped mass manufacturers simplify huge productions, but today's environment demands more responsiveness. Incorporating automation that responds to needs in real-time is critical to this. In contrast, relying exclusively on skilled labor to reach production goals - particularly in the context of a pandemic - will only become a greater and greater liability.

WHO BENEFITS FROM DEGLOBALIZATION?

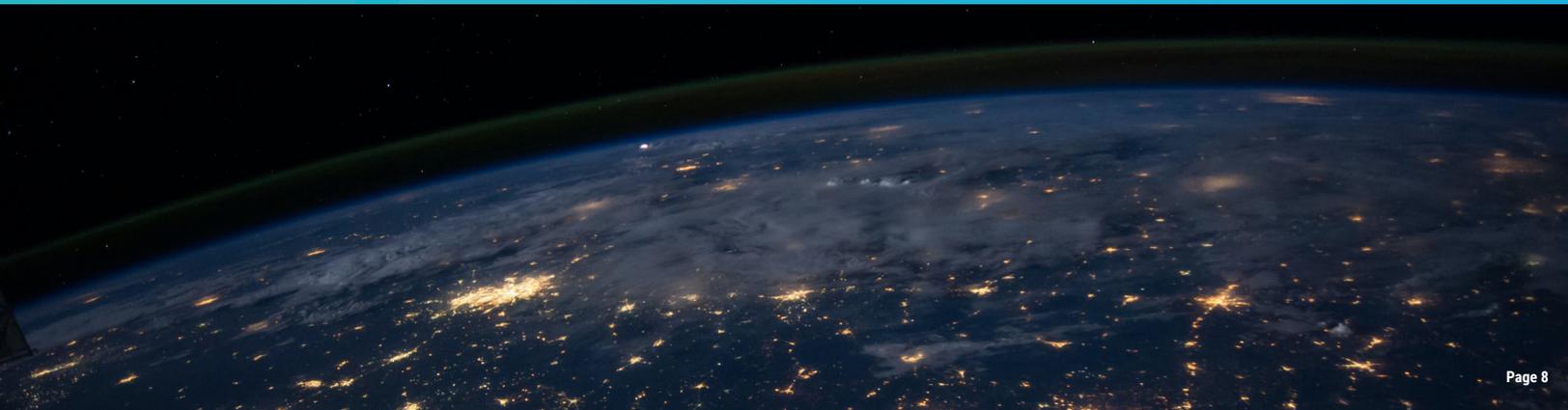
How you spend and invest is more important than ever. You need projects that return as soon as possible - you'll take full payback within one financial year wherever you can get it.

In this case, robotics has been one of the key growth drivers for OECD countries, contributing 10% of economic growth in GDP per capita between 1993 and 2016. Existing holders of capital can benefit, but only if they deploy it in selective ways. Finding more places to drive profitability means taking advantage of new, advanced technologies is essential. This is particularly true when faced with rising labor costs and slowing demand.

As firms consolidate and look to the future, on-shoring (or reshoring is an emerging priority for many leading manufacturers. This is a global trend. For example, Australian firms have been using automation to increase their rate of on-shoring for months, having been among the first countries to suffer the trade consequences of COVID-19.

While North American manufacturing has been primarily High-Mix since the 1980s, that manufacturing segment has faced challenges in automating its highest value-added processes. While resiliency - both for firms and their supply chains - has become more critical than simply finding the lowest price for each part. However, it simply won't be achievable if it serves to do nothing but explode your labor costs.

Firms that can find ways to automate skilled labor are the ones who stand to benefit most from the risks of deglobalization that approach. High-mix manufacturers that do this effectively will win out most of all.



TAKING ADVANTAGE, NOT GETTING “LEFT IN THE RUST”

Self-Programming, autonomous industrial robots are the most essential tool that manufacturers can use to introduce greater productivity, along with flexibility and resiliency, into their production processes.

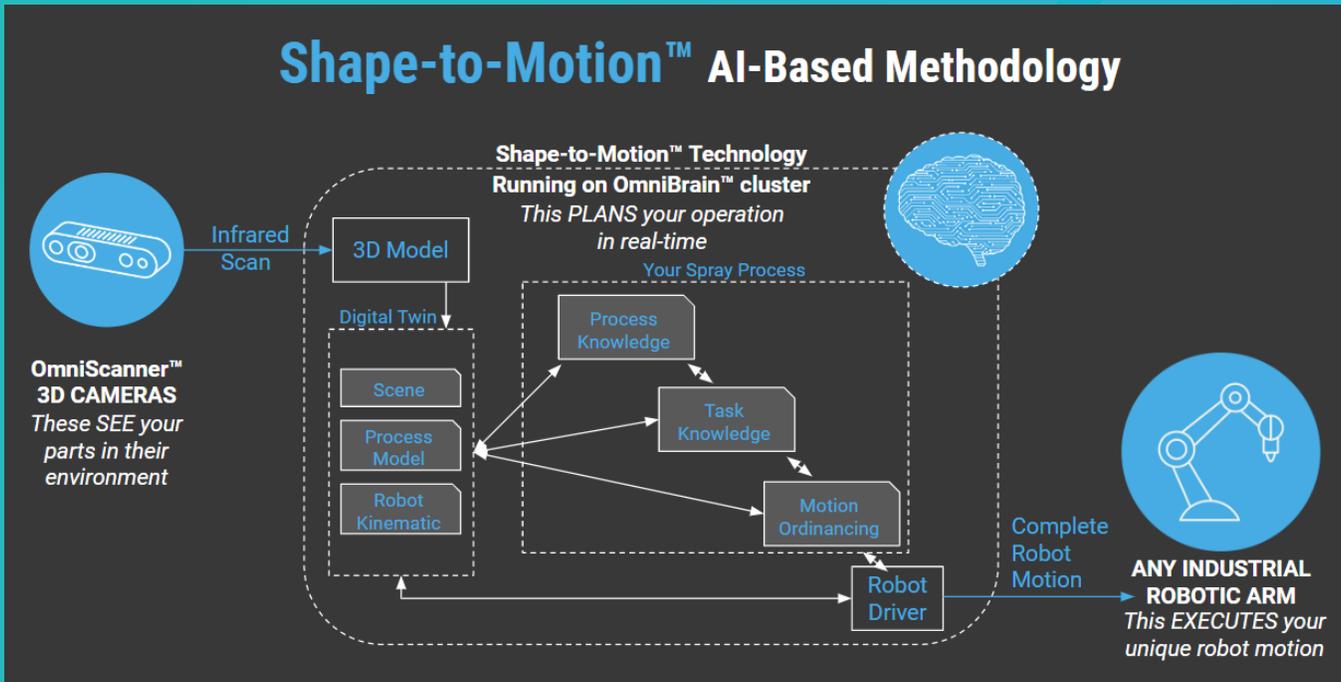
Autonomous, self-programming industrial robots use 3D vision, Digital Twin environments and AI to see, plan and execute the given process that's needed in the same way a skilled employee does.

For instance, an aerospace manufacturer may need to switch from one type of landing gear to another. If you're using a traditional robot, you'd need to spend hours or days program-

ming every aspect of a robot motion, tool path and application process. Then, you would need to take the next step and jig your parts and environment around the robot so that everything is structured to meet the exact specifications of your process.

This isn't practical, but an effective self-programming system allows for this process to be skipped entirely. In this case, such a system would SEE and PLAN around your parts and environment as they are, and then execute the process using the right kind of AI-based planning and process parameters to get the job done better than even your most skilled workers.





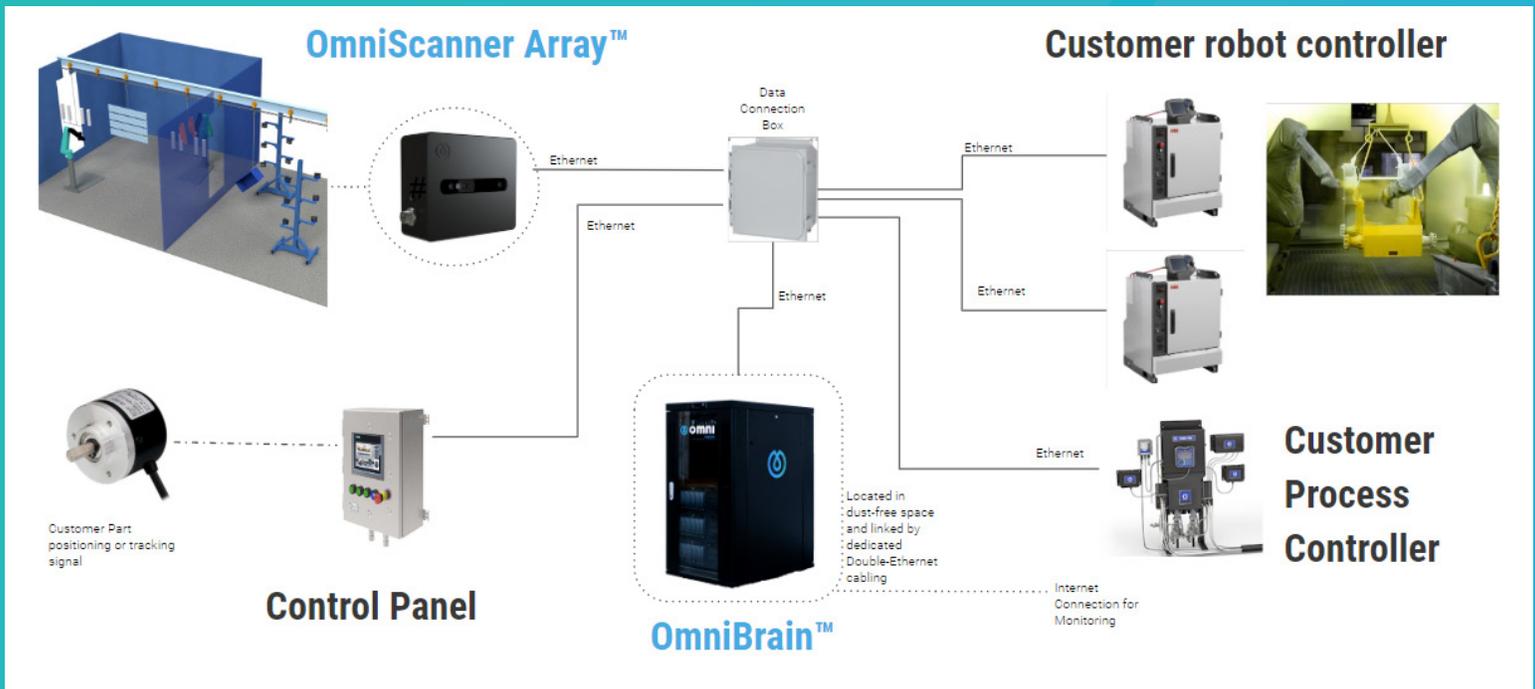
Above is a basic outline of how AI methodology can be used in the context of self-programming robotics. Firstly, with 3D perception, a Digital Twin environment can be used to identify tasks and goals and generate strategy, iterating each task in parallel to find the most optimum outcome for the entire operation and subsequently translate that in a robot motion program.

Omnirobotic's AI-based methodology involves a variety of parallel processes functioning in a Digital Twin environment that emulates the known structure of your existing paint booth, production line or factory floor. This involves all the process needs, constraints and characteristics of your unique task that then go into generating a suitable, unique robot motion.

This capability prioritizes tasks in such a way that the process can become as efficient as possible. By using AI to test these processes in a Digital Twin environment before they ever take place in the real world, the quality and reliability of the output can be assured like never before.

This process happens so fast that, on your floor, it can appear as if it is taking place in real-time. While it provides a level of adaptability that compares favorably to a skilled, experienced worker, the consistency, reliability and repeatable process execution it provides reaches levels a human being simply can't - nor should be expected - to match.

[Check out this video to understand more of what goes into a self-programming robot](#)



An overview of example equipment required for a self-programming manufacturing process.

The system for deploying this actually requires very little additional technology to the industrial industrial control systems and robots you may already have in place. Understanding your environment to the extent which it might already be structured enables these robots to account for more variables faster. From there, you'll see higher productivity, precision, reliability and RELIEF from the existing bottle-necks and challenges faced in your finishing department.

While the opportunities for autonomous industrial robots are widespread, the challenges faced in most high-mix finishing departments has meant that these are the first applications for which the technology has gained traction. However, as challenges faced by a few proceed to become universal, what new processes will one day see autonomous industrial robots take hold?

Robots that are able to respond to and fulfill the needs of dynamic manufacturing environments, all in real-time, will become indispensable. With their further introduction, individual firms won't just see higher profits either. As OECD data has already shown, the global economy will be far better off, while the workers who do seek out manufacturing jobs will have greater flexibility, ingenuity and creativity at their disposal than ever before.

MAKING FINISHING BOTTLENECKS A THING OF THE PAST

Many high-mix manufacturers had already been facing uncertainty, a dwindling supply of skilled labor and bottlenecks in their finishing department long before the outbreak of COVID-19. Finishing - whether it requires painting, powder coating or another spray process - is tedious and repetitive, as well as a classic quality control challenge.

Everyone can benefit from automation, but if you have frequent changeover or just confront issues with mixing your parts on a conveyor line, your ability to incorporate more automation has been minimal.

For these kinds of challenges, self-programming robots represent a fundamental transformation. The limit on robotics up to this point has been in their ability to function without intensive structures and programming. This has kept high-mix manufacturers from benefiting, as their environments are relatively unstructured when compared to the production lines built out by mass manufacturers.

Whether you need to achieve more production output and flexibility, or just a matter of achieving certainty about the quality of work your team achieves, self-programming robots offer the return on investment you need to better position your business for the world that's coming next.



On the left, a 3D mockup of a self-programming finishing line. On the right, a self-programming robot painting an aerospace part as defined in CAD software.



ABOUT OMNIROBOTIC

Omnirobotic's Shape-to-Motion™ technology is turning industrial robots into self-programming industrial robots. This kind of solution allows High-Mix manufacturers to access the power of robotics, no matter their volume. The same way AI is automating the most mundane, dangerous and labor-short tasks across industries, these autonomous robots only need to be told WHAT to do - not HOW to do it - a game change for anyone with variable SKUs in production. Finally, manufacturers of any size can run with the same efficiency as the world's biggest mass industries!

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