



How P&G's supply chain  
excellence positioned it  
to prosper in disruption

Amid the pandemic, IWS and end-to-end  
integration delivered resilience and growth



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# Finding resiliency in a never-normal world

How does a multinational corporation plan for a once-in-a-lifetime event – one that upends the nature of work, scrambles and freezes the flow of goods across the world, and instantly and dramatically changes what consumers need and how they want to buy it? In this environment, is success measured in how much a company can endure or thrive?

Long before COVID-19 became an inescapable reality, Procter & Gamble (P&G) had been asking tough questions about how to build global supply chain and manufacturing operations that balance efficiency with resiliency. Over time, the organization made a name for itself as a leader: it estimates that it averaged more than 5% in year-over-year productivity increases over the past decade across supply chain operations. That's one reason why a tier-one analyst firm has named P&G as a supply chain master ever since the category was created in 2015.

But could its employees, systems and methodologies withstand the biggest challenge to business that most of us have ever experienced?

“We've been working on our business continuity plan for the better part of the past 20 years – for every material, for every critical asset in the supply chain, for every critical plant,” says Julio Nemeth, Chief Product Supply Officer at P&G. “Maybe in the past, we asked: ‘Do we need all this?’ The pandemic proved that the answer is yes, and there is no question how critical it is going forward.”

Today, many companies that once pined for a return to normal are coming to terms with constant disruption as the normal

course of business – yet find themselves on uncertain footing, with historical data used in forecasting all but worthless. And the global shocks occur so frequently that they manage to be dramatic while also mundane: the next wrinkle in an unending series of them. There could be a weather event, worsened by climate change, such as the ice storms in Texas; a ship going sideways in the Suez Canal, on top of global shipping volatility; or continued geopolitical tensions. Amid this global complexity, markets and economies are tightly coupled, to the point where ripple effects in one location can easily become shock waves felt across the world.

P&G offers a case study in navigating the “never-normal” with resiliency, agility and flexibility – not just in consumer products but for all manufacturers. This paper details how P&G used its proprietary Integrated Work System (IWS) methodology and end-to-end supply chain integration to thrive across the past 18 months while honing its capabilities to confront the next disruption that's always just around the corner.

This way of working has helped P&G meet its customer needs, hit sales targets, increase customer value, improve operational efficiency, and satisfy its compliance/risk mandates during one of the more turbulent times in modern history.



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**Julio Nemeth**  
Chief Product Supply Officer at P&G



# IWS: navigating disruption with continuous improvement

Over 180 years of experience serve as the foundation for IWS – simultaneously a system, a solution, a methodology, and a way of working, focused on manufacturing and supply chain. And here’s what it is not: a one-sided edict inflicted from on high to keep employees robotically focused on efficiency and therefore disengaged. IWS builds a cultural desire for all people to understand the current best way to work while continually searching for ways to improve. There’s an understanding that the value of a manufacturer starts on the factory floor – and that value can be easily squandered.

Two principles are the foundation for IWS: *100% employee ownership* and *a drive to zero losses*.

To set operators and teams up for success, IWS is structured around getting everyone in the organization to fix problems at the source through an ownership mentality, with a goal of dramatically reducing stops on the equipment. All employees, not just management, are encouraged to find, highlight and solve work process and equipment losses. Leaders are expected to serve their direct or indirect reports to find losses, remove barriers and build capabilities for identifying and eliminating such losses.

In a zero-loss mindset, operating teams identify the root cause of each loss to define a new, sustainable standard to prevent that loss, including zero tolerance for quality issues, safety incidents and quality defects. Leadership can focus on the losses in the interfaces among departments, suppliers and customers. Overall leading practices are then disseminated throughout the business to sustain improvements and continue raising the bar.

As a continuous way of working, IWS has never been static and is always evolving its capabilities, tools, methods, and metrics to spur improvement across the entire supply chain. These advanced capabilities offer an integrated approach that optimizes flow from the supplier to the customer – connecting planning, warehousing and logistics, manufacturing, and customer service, all while enabling the flexibility and adaptability that help P&G face disruptive forces of all kinds, including the COVID-19 pandemic.

“ IWS is about humility and servant leadership. It’s about supporting the people on the factory floor. We work for the people on the floor, not the other way around. If that mindset is not there, then it’s not going to be easy to move forward.

**Julio Nemeth**  
Chief Product Supply Officer at P&G





# Putting IWS to the ultimate test: the global pandemic

Although IWS was not specifically designed for a pandemic environment, the past 18 months have showcased its power to deliver resiliency in times of unprecedented crisis. Like many manufacturers, P&G faced hurdles that were developing on different timelines across the world: workplaces that were under lockdowns, employees fearful of using public transportation, sudden constraints from suppliers, and issues with logistics and distribution.

The global supply chain team set a goal of producing about 90% of the typical throughput with 50% of the staffing present in manufacturing sites and P&G met its goals: even in the worst months of the pandemic, almost all of P&G's plants and top distribution centers remained operational. The company was able to deliver critical consumer goods such as cleaning supplies, toiletries and personal care that people around the world desperately needed.

### Supply chain resilience at P&G

While many companies are instantly on their back heels when disaster strikes, P&G had spent decades pinpointing what was most critical – suppliers, plants and products – and then creating contingencies in case of crisis. "Resilience" has become

an important buzzword on C-suite agendas today, but about three years ago, P&G defined resilience as a guiding metric for sharpening its contingency plans. Executives determined that resiliency equaled an ability to deliver most of the typical throughput in a node (i.e., plant warehouse, distribution center) when disruption occurs. Anything less would be an inadequate level of resiliency.

P&G invested the time and the resources not only to develop backup plans but also to stress-test them in scenarios that re-create the facts on the ground. Many backup supply sources and alternative materials had been identified and qualified long in advance. This level of planning was future-proofed thanks to next-generation capabilities

delivered through a control tower, a powerful tool not only for improving current supply chain visibility but also for illustrating future impacts of changes.

This technology, first created in the 1990s, offers a laboratory of sorts for exploring contingencies – for instance, if a natural disaster knocks one plant offline or creates supply shortages throughout a geography, the control tower can illustrate the impact to the whole supply chain. Enabled by the cross-functional integration of P&G's end-to-end supply chain integration, control towers connect to operational systems by integrating and visualizing data to monitor the end-to-end supply chain in real time. With this capability, P&G can predict areas where disruptions are potentially developing, helping leaders respond proactively in the moment.

Digital capabilities also play a tremendous role in P&G's business continuity plans. What would happen if no one in the planning service center, for example, could physically be present in the office? Years before the business continuity planning started, there was a simple answer: operations would cease. But new digital tools and standardized work procedures were established so that these workers were able to perform their roles at home without a new set of instructions. P&G had specifically developed plans, called the "90/50 structure," to generate 90% of the throughput on plants with only 50% of its typical manpower, whenever necessary, through moves such as increasing

overtime, extending the length of shifts or restructuring certain teams. This is also known as "flow to work," in which, during peak times, different team members help out based on day-to-day conditions.

And the company also follows a different approach when working with another key stakeholder group: suppliers. P&G's mindset with suppliers is more strategic than transactional, and while the negotiations can be difficult, the relationships endure as respectful and long-lasting. Price remains a factor, but working together jointly to design products, for example, can offer greater potential for win-wins both upstream and downstream – and create closer understandings during times of crisis.

### The pandemic strikes

P&G's business continuity plans, hundreds of them, were all activated at once as lockdowns began. This would be the ultimate test of those plans: not just calling upon redundant capabilities but doing so when global mobility and trade were almost frozen in place, and when consumer demand patterns were suddenly upended and dramatically increased for certain goods.

In the earliest days, one of the biggest hurdles involved determining how to keep its workforce safe and productive – and the rigor and servant leadership of IWS paid off immediately at the company's approximately 120 plants and 250 critical distribution centers around the globe.

For one, the plant managers did not need to be on-site: empowered employees with an ownership mentality were equipped to handle responsibilities that workers at other companies would likely struggle with. And having the "90/50 structure" and plan already mapped out enabled plants to rapidly switch to a skeleton crew to manage the crisis in the short term while maintaining acceptable production levels.

### BADDI, INDIA

During the early days of the pandemic, with few technicians available and no managers present, production at a plant in Baddi, India remained at the same level as before the lockdown with no safety or quality incidents. About 70% of the plant's workers lived in a different state in India and couldn't travel to it as the government put restrictions in place. Yet with workers steeped in the principles and culture of IWS, facilities and capabilities were adjusted quickly to address the challenges. "From an operational excellence perspective, we're doing better than earlier in 2020, producing better-quality products, with no manager or expert on the floor," says Seema Menon, the plant manager, who helped run the entire operation from her home.



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## Instead of abandoning our core systems, culture and behaviors, we looked at how we leverage what we're good at, and what we have, to accelerate and learn.

**Jason Jackson**

P&G plant manager, Iowa City

Plant managers instead worked from home while focusing on what would need to be adapted to best protect those on the manufacturing floor. A centralized team tasked with creating pandemic protocols worked with managers around the globe, following IWS' cyclical approach to driving out loss and continuously improving safety.

With different geographies adapting to the pandemic, plant managers in one part of the world provided key learnings to a centralized team, which then helped determine how to reapply them elsewhere. The goals were to execute tasks remotely to the greatest extent possible and create consistent procedures for those who needed to be on-site: for example, how to access the building and where to sit. A lockdown in Saudi Arabia produced protocols that could be carried over to the Philippines, then to Latin America and elsewhere, and further improved upon – all within the established IWS culture that drives standardized work, no matter the location or business unit.

As manufacturers across the world were trying to maintain production, and as logistics companies struggled to get those goods from one place to another, P&G was also rapidly calling on its plans for alternative sources of supply. "We went through hundreds of reformulations just in perfumes during the first six months of the pandemic," Nemeth recalls. IWS provided a regimen for qualifying these new, alternate

materials and delivering the quality quickly in the form of finished goods.

Thanks to the visibility from the control tower, the planning organization jumped in to manage the distribution of resources in real time, including packing material in every business unit, to target the most critical customer needs. And those planners, over 4,000 of them, did all of this from their homes without missing a beat. They also stepped in with hard data to prevent situations where one business unit may have competed against another for the same resource – whether a perfume or a petrochemical, or even the cardboard and plastics within a specific location. All of these get managed for the benefit of the corporation and ultimately the end consumer.

The SKU rationalization work that P&G had performed long in advance could be targeted toward shapeshifting customer demand more easily, as the need for cleaning and personal-care products went through the roof. When the company started to hit capacity limits, P&G's end-to-end supply chain integration offered an immediate process for efficiency: scrutinize the sales in every category, in every country, to maximize throughput for the SKUs that provide the highest possible outcomes. Typically, its "power SKUs" made up 70% of production volume, but during the pandemic, that rate climbed to 80%, as the company

made fewer flavors of toothpaste and varieties of shampoo that were less popular. P&G also prioritized the SKUs that moved at a "high velocity" – the products that retailers order in bigger volumes at one time, offering greater economies of scale.

### ALBANY, GA

In mid-February 2020, Farid Khan, manager of the P&G plant in Albany, GA, was meeting with his planners and learned that the demand for paper towels and toilet paper was surging. "We didn't know why, but all the signals were showing that we were going to have to start up more production lines," Khan remembers. An older paper machine, idled for a decade, was brought back into service, with 50 new workers added to run it, operating under new pandemic-specific safety protocols. The education and training element within IWS enabled the employees to get up to speed quickly, and the plant produced 20% more volume than it ever had – with no breakdowns or failures due to maintenance shortcuts.

P&G's close relationships with suppliers also paid off during difficult times. "The first thing that we aligned to was: we want our suppliers to stay operational," Nemeth says. "And the best thing we can do is to keep

ordering so the supply chain moves. So, they get paid on time and properly." Procurement also went to the company's top 3,000 suppliers to make sure they were using a set of protocols to keep everyone safe – just like at P&G's plants – to secure places as preferred suppliers.

Together, business continuity plans, the capabilities of P&G's end-to-end supply chain integration, the methodology of IWS, and a focus on workplace safety not only delivered bottom-line results but also instilled a devotion among employees that few other companies can match. Nemeth recalls hearing about plants in the Middle East where technicians decided to live within the plant for weeks, creating their own accommodations, to keep operations running. And in Italy, technicians went to the plants far outside their normal schedules to produce sanitizers to be donated to the local community as well as dish-care products that were heavily in demand.

Jason Jackson, the manager of the P&G plant in Iowa City, Iowa, says that during a crisis, there's a temptation to abandon the core things that drive success in normal times. That wasn't the case for P&G during the pandemic. "Instead of abandoning our core systems, culture and behaviors, we looked at how we leverage what we're good at, and what we have, to accelerate and learn," he says. "Our experience has been a good example of where a strong foundation can really serve you well when a crisis hits."

In other words, P&G's workplace culture; an organizational framework that enables it; and standard work processes, capabilities and tools may seem rigid, but the net effect is that they fuel greater flexibility. The result: in the middle of the most straining time for any supply chain, P&G grew market share in most categories around the world, notching a record level of shipments with

strong top- and bottom-line performance. "The contribution of our supply chain has been instrumental in gaining share and having more product available to ship than our competitors," Nemeth says. P&G also completed all of its master-plan activities deemed critical for the current fiscal year as the company continues to expand.







# The five pillars of resilient supply chains

P&G effectively illustrates what a resilient supply chain looks like, at a time when economic, social, environmental, geopolitical, and other crises seemingly manifest themselves several times a quarter. While none of us can predict the future, it's a safe bet that more disruption is on the horizon – and perhaps the only way to confront it is through resiliency, a combination of greater visibility and agility.

“Leading companies are striking the right balance between risk management and risk mitigation,” says Glenn Steinberg, EY Global Supply Chain and Operations Leader.

“The investment required to completely mitigate a risk so that it won't impact you at all can be quite high. So many companies are choosing to manage certain risks, considering the likelihood of an interruption, via business continuity plans and the like.”

Five pillars provide a foundation for that balance, enabling greater resiliency.

**1** **END-TO-END VISIBILITY, RISK MONITORING AND SIMULATIONS.** Even today, many companies lack supply chain visibility beyond tier-one suppliers. Control tower technology can provide improved visibility into supply chains, and they enable stress-testing of contingencies and war-gaming supply crisis scenarios. Then gaps can be uncovered and managed or mitigated through defined responses or Plan Bs. Thanks to end-to-end supply chain integration, P&G's capabilities in this area are very advanced and served it well during the pandemic – for instance, in pinpointing the gaps and setting plans long in advance, in identifying demand increases early on and in quickly rationalizing SKUs.

**2** **OMNI-CAPABLE, AGILE NETWORKS.** Companies should be re-evaluating the strategic architectures of their supply chains, such as how many warehouses they have and where they are located, particularly in a time of increased nationalism and geopolitical complexity, and as environmental sustainability rises on boardroom agendas. P&G had identified the key nodes in its supply chain and set some distribution centers as being the most important and therefore as sources of greater focus during the pandemic. The company is equipping itself to better respond to surging demand in the future, as was the case for many of its cleaning and personal hygiene products, and that involves shortening the length of supply chains.

**3** **ALTERNATIVE SOURCES OF SUPPLY.** Businesses need to know their critical parts and where they come from, coupled with visibility into their multi-tier supplier networks, for an effective supply risk management program. P&G had devoted an enormous amount of effort into this area, not just in its business continuity planning but in how it approached relationships with suppliers and how its products could be reformulated. The company's procurement officers were making calls and activating plans virtually immediately, and the rigor of IWS also provided a framework for qualifying these new sources.

**4** **A RESILIENT OPERATING MODEL AND WORKFORCE.** Many companies understand the need to upskill their workforces in the digital age, and that certainly applies here. But, as IWS shows, there's an enormous benefit to having a culture that embeds a problem-solving mindset for all your employees in a framework that regularly identifies loss and encourages ways to eliminate it for continuous improvement. Workers are empowered with greater responsibilities and can take ownership as members of truly self-sufficient teams, knowing that managers will support and enable them as servant leaders. Furthermore, P&G's operating model enabled thousands of employees to work from home, while quickly implementing more protections and flexibility for those who had to continue being in the plant.

**5** **TRUST AND SECURITY.** Cybersecurity is vital for a supply chain, as hackers can find their way into an organization's system through routes opened to its supply network. In the 2021 EY Global Information Security Survey, just one in three cyber leaders said they were confident in their ability to defend and recover against threat actors targeting their supply chains. The Biden administration has recently issued executive orders on strengthening supply chain cybersecurity, highlighting its prominence. This is not just a tech capability to build and maintain but a talent management concern as well, as skilled professionals can be in short supply, and the demands are always changing.



Fulfilling these five pillars can be a struggle of competing demand for chief supply chain officers (CSCOs). “The traditional demands of cost takeout, cash extraction and digital transformation have always been there for CSCOs,” Steinberg says. “Now you're adding resiliency and sustainability to the equation. It is a complex environment. Meanwhile, supply chain is in the C-suite, it's in the boardroom, it's in the news – everyone's talking about it.”



## IWS as an enabler for future challenges

P&G's performance during the pandemic offers a powerful case study in the value of continuous improvement as a typical facet of operations that also delivers results in atypical times. Julio Nemeth, Chief Product Supply Officer at P&G, also highlights how IWS has positioned P&G to thrive in more everyday challenges common to companies across sectors.

Top talent tends to gravitate toward big-name tech companies, whereas manufacturing has a reputation – whether deserved or not – as being stodgy, more 20th century than 21st. IWS fashions a new type of skilled operator or technician that has more autonomy and spends less time battling repetitive, non-value-added tasks, and gets paid a higher wage in a competitive market. There's more of an emphasis on robotic, hardware and software skills, an environment that is "as wonderful as going to any lab," Nemeth says. This emphasis on technology skills in the new era of digital supply chains will attract the attention of diverse communities as more women, minorities and those with neuro-diverse abilities join the science, technology, engineering, and mathematics fields.

P&G also has ambitions with environmental, social and governance (ESG) initiatives – for instance, to becoming a net-zero supply chain by 2040. IWS' relentless focus on driving waste out of the operation aligns with this goal. "Getting there will be a combination of big green technologies and biofuels on one side, but on the other, it's efficiency of the equipment and optimization of consumption," Nemeth says. "By the time you finish the final step of IWS, you're operating at net-zero operations at a plant."



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**Julio Nemeth**

Chief Product Supply Officer at P&G



## The power of the EY- P&G Alliance to deliver these capabilities

IWS and end-to-end supply chain integration are available to non-compete manufacturers through an exclusive alliance with the EY organization, whose supply chain network includes 4,000 consultants around the globe skilled at helping businesses navigate complexity with confidence. It is no easy feat to bring P&G's IWS capabilities into a non-P&G factory. EY teams have helped implement IWS in more than 400 non-P&G factories around the world. Thanks to a clearly structured, step-by-step deployment methodology, EY teams can drive results in as little as 16 weeks. The alliance offers a blueprint for growing revenues, lowering operational costs and driving a step change in overall customer and employee satisfaction.

When starting a manufacturing project, for example, EY teams focus on establishing solid foundations, starting with a priority lead line or cell of machines. We help build capabilities and embed standard work processes into the day-to-day routines

of leaders and their operating teams, fueling a step change in behaviors, engagement and results that are visible to both the site team and enterprise leadership. This also helps gain early support for the program from leadership teams and interest from other areas of the business. The framework can then be easily replicated across other production lines – and ultimately the entire organization.

The depth and breadth of IWS are progressively expanded on a step-by-step basis, continuously building the capability of the workforce and ultimately shifting the culture of the organization. This structured and phased approach tackles issues with the right level of capability at the right level of the organization. It becomes easier to predict with confidence the results that an area of the business should achieve at any stage of the transformation journey. And by using “digital coach” software supplied by the EY organization, companies can enhance their ability to accelerate and scale their journey across even the most complex supply chain networks.

“The alliance really gives us the ability to show clients what good looks like rather than tell them,” Steinberg says. “We can bring our clients to see P&G factories and planning centers but also embed P&G resources on our projects to help drive the results and the transformation.”

For instance, EY teams have hosted a virtual factory tours of a P&G plant in the Czech Republic to demonstrate IWS in action. Employees with an ownership mentality provided recommendations about new equipment that, in each changeover, required reconfiguration in an area that was difficult to access. Now, automation has been implemented for a zero-touch process – a new source of efficiency in the drive toward zero losses and greater operating equipment effectiveness.

The EY and P&G organizations have been innovating together for over 10 years, saving clients an estimated \$15 billion, reducing cycle times by more than half and boosting production efficiency typically by 20% to 40%. The rigor of IWS helps embed these improvements into day-to-day operations while continuing to surface more opportunities for improvement. This long relationship demonstrates how the EY- P&G Alliance has a solid foundation of shared beliefs, strengthened with different skills. P&G brings knowledge of supply chain activity on-site, and EY complements this with operational excellence and supply chain transformation capabilities that can positively impact clients' top and bottom lines, rates of employee engagement and sustainability agendas.

## Conclusion

As organizations emerge from the pandemic, many find themselves operationally unprepared for the new imperatives of sustainable and resilient growth in the context of rebounding economies, constrained resources and frequent global shocks. More unexpected disruptions are hitting supply chains and impacting overall business performance. External pressures – from regulators, investors, consumers, and employees – are driving a shift toward sustainable business practices.

“Resiliency – which is visibility plus agility – is what you need to be able to manage the unexpected.”

**Glenn Steinberg**  
EY Global Supply Chain and Operations Leader

This multiplicity of demands on CSCOs is driving the supply chain transformation agenda. Managing a supply chain was always about cost, service, quality, and speed. But now CSCOs must balance resiliency and sustainability as well, in a world that has been profoundly changed since those supply chains were likely developed – by geopolitics, the environment, supply chain constraints, supplier risks, and more.

“No one can predict what's ahead, but we know that disruption will not go away,” Steinberg says. “The multiplicity of demands on operations leaders requires a new approach that looks beyond cost optimization as the sole measure of supply chain performance. Resiliency – which is visibility plus agility – is what you need to be able to manage the unexpected. P&G's capabilities represent the gold standard, and their experience proves the value for companies in any sector.”





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