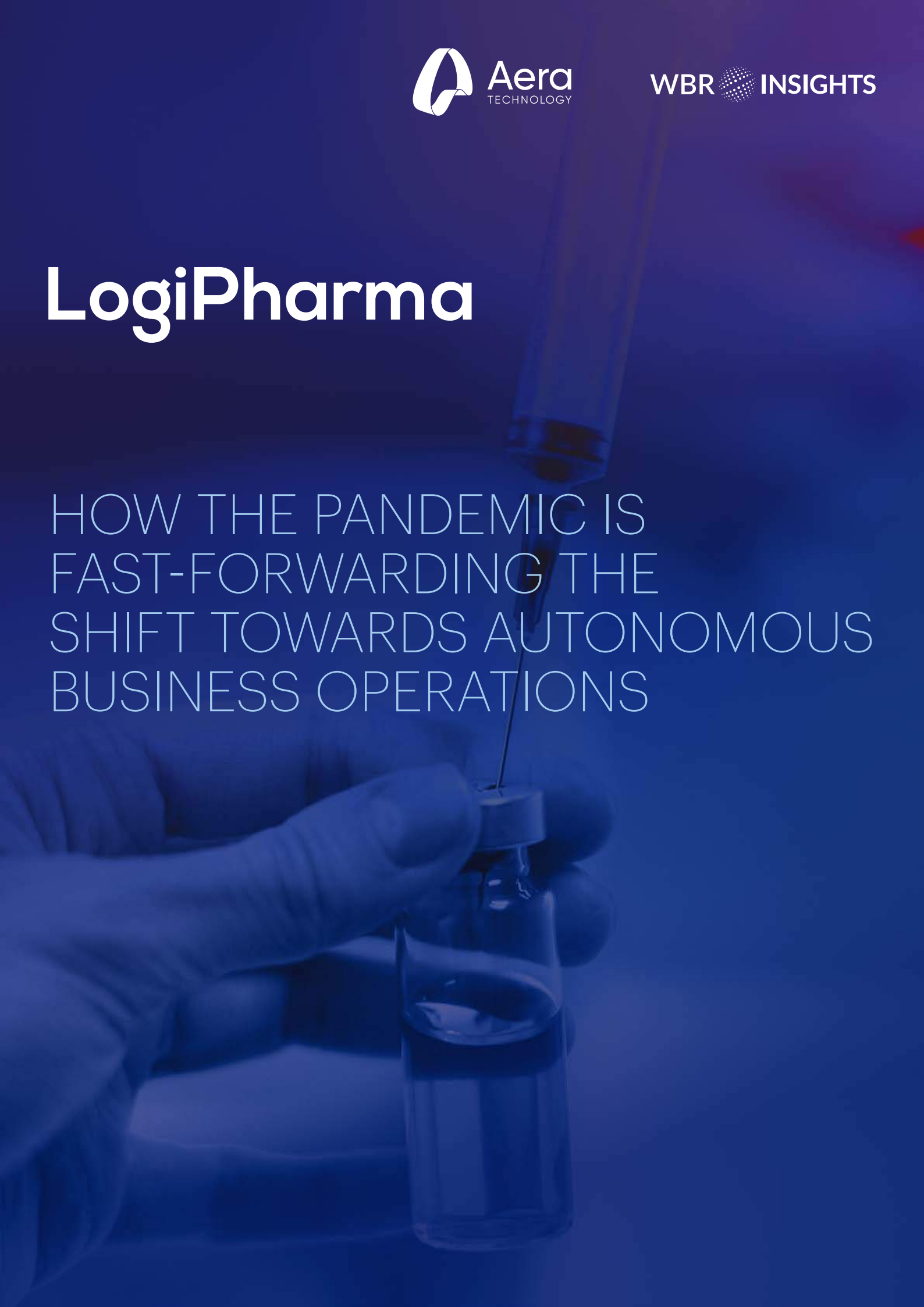
Aera TECHNOLOGY

WBR INSIGHTS

LogiPharma

HOW THE PANDEMIC IS FAST-FORWARDING THE SHIFT TOWARDS AUTONOMOUS BUSINESS OPERATIONS



Pfizer

Novartis

Teva Pharmaceuticals

CONTENTS

CONTRIBUTORS

Markus Koehler, SVP Supply Network Operations, **Merck Healthcare KGaA**

Mohammad Hussain, Demand Forecasting Director EU, **GSK**

Will Robinson, Conference Director, **LogiPharma 2021**

Tom Stephenson General Manager, Americas **Aera Technology**

Declan Supple, Client Partner, **Aera Technology**

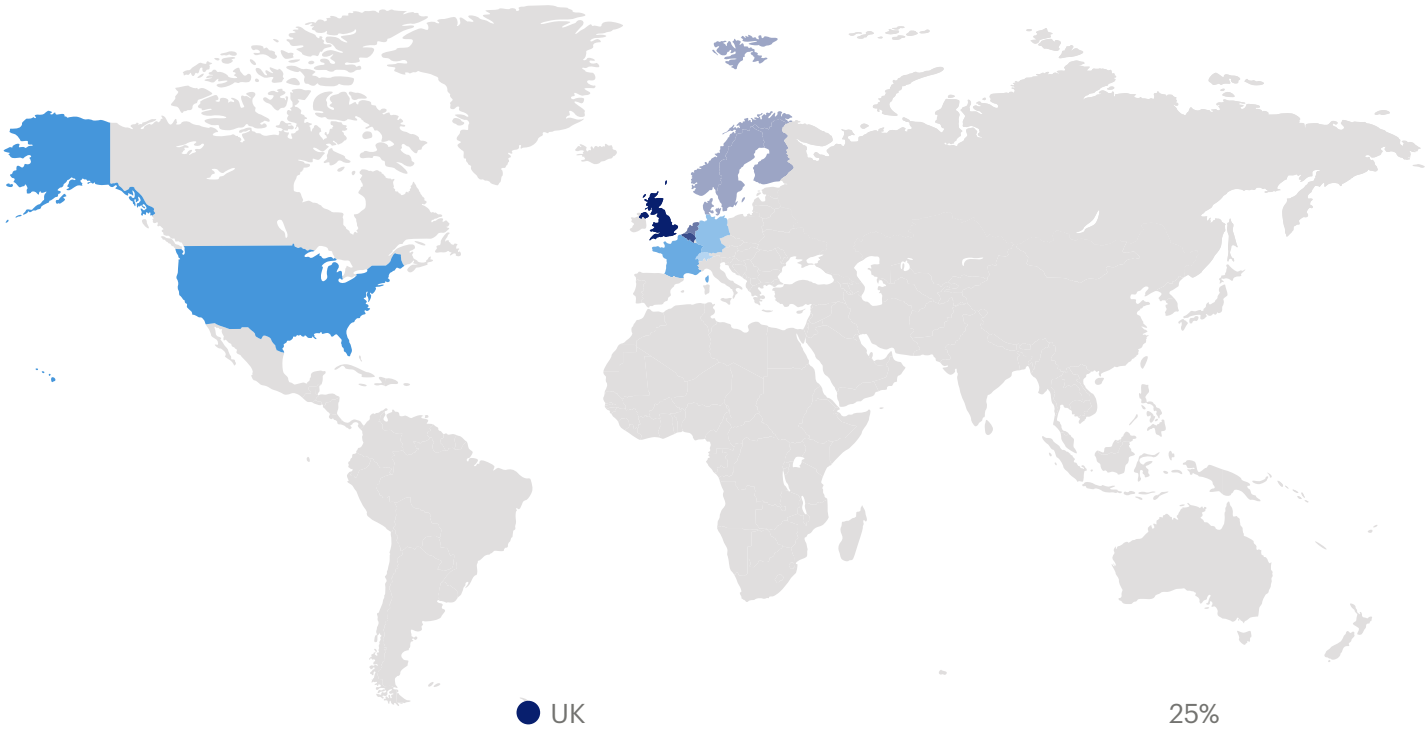
Dean Ocampo, Senior Director, Product Marketing, **Aera Technology**

METHODOLOGY

In Q1 of 2021, WBR Insights surveyed 100 supply chain and procurement decision makers from pharmaceutical companies across Europe, to find out about the challenges they are facing in 2021, due to the impact of the COVID-19 pandemic, and the innovative solutions they are putting in place.

The survey was conducted by appointment over the telephone. The results were compiled and anonymised by WBR Insights and are presented here with analysis and commentary by Aera Technology and theLogiPharma community.

IN WHICH COUNTRY IS YOUR COMPANY HEADQUARTERS LOCATED?



UK	25%
Switzerland	24%
Nordics (Denmark, Finland, Norway, Sweden)	11%
Germany	10%
France	10%
USA	10%
Netherlands	7%
Belgium	3%

Interview with Tom Stephenson, General Manager, Americas of Aera Technology on Cognitive Automation in the dramatic year that was 2020

Tom Stephenson
General Manager, Americas
Aera Technology

Now that 2020 is behind us, what were your biggest takeaways from last year in Cognitive Automation?

Well there is the obvious fact that it impacted so many organisations deeply around the world, and for most of us at a deeply personal level. But for me it was the absolute steadfastness of the executives I was working with that stood out. In particular in the healthcare and pharmaceutical industry, our discussions were absolutely flipped - the discussions weren't about fear of the challenge but rather a strong determination to fundamentally rethink all the assumptions in their business to tackle the problem. We rolled up our sleeves and accomplished more in Cognitive Automation in one year than would probably be done in five.

What were some examples of that innovation you saw in 2020?

When the crisis first hit, the executives I talked to were struck at just how dated the response plans were. The playbooks and plans in 2020 looked identical to the ones in 2010. War rooms, tiger teams, a lot of brute force. But pretty quickly my colleagues completely flipped the script. Rather than obsessing about the outside world, the best organisations focused on their core abilities. We saw pretty quickly how Cognitive Automation turned towards material assurance (stock-out prevention, supply management, etc.), that melded together machine learning in demand forecast; inventory prediction; logistics predictions and production predictions in single cognitive processes. We started seeing the business turning on Cognitive Automation to anticipate and self-heal faster than they could have ever done with brute force methods. All this in 2020!

Has this changed how you look at Cognitive Automation?

The entire topic matured in 2020. Before, we used to debate a lot between what a fully automated world would look like and what people were going to do. What 2020 taught us is there is an incredible amount of grey area, that in the end it isn't a black and white question of where Cognitive Automation is going to be used. A lot of our clients started to figure out that you really have to treat it as a dial-up, dial-down situation and you really have to do it at the product and regional level. What we learned was to set business boundaries for automation and then let the system come back to you outside those conditions. For example, there are times when the market or supply conditions are so bad you start having to make a choice from the least of bad options. But that's ok; that's what humans are great at. And it's the automation of the rest that gave them more time to actually think through these tough choices. Cognitive Automation definitely got more nuanced in 2020.

Where do you see Cognitive Automation going in 2021?

Scale. We saw a lot of organisations pretty quickly and pretty creatively figure out how to make Cognitive Automation work despite all the traditional legacy and data problems. We saw a number of organisations systematically rolling out Cognitive Automation to more parts of their business and more regions. I expect 2021 to accelerate this trend. I have a few executives in the healthcare space already looking to experiment more. To use the business abstraction to try out different decision methods and approaches in different parts of the business in an agile model, and figure out where they can take those lessons back into mainstream processes. It's almost like Cognitive Automation is abstracting the old legacy systems and constraints away from the day-to-day and allowing them to think like innovators again. 2021 could be the year the legacy companies learn how to use their size to work for them and yet behave like a startup.

What quick advice would you give for leaders who are about to embark on the journey of Cognitive Automation or are considering it?

Be bold. Set an aggressive objective about the end goal but be super cognizant on how to scale on top of your existing infrastructure and legacy systems. It's easy to be incrementalist and end up with just another decision support tool. Really think what you can get out of Cognitive Automation. But don't ever forget that you'll have to scale this on top of legacy systems. Don't just sequester a small experiment: run a project against your infrastructure from the get go. Be bold but be wise.

PART ONE

Real-time Supply Chain Management Opportunities

Pharma procurement is already dramatically different to how it was even a decade ago. Technology now controls more of the procurement processes to the end user. Pharma companies are now able to track operations in real time and make better and faster decisions.

But new technology has also heaped the pressure for agility on Tech Ops. Businesses have higher expectations of speed and efficiency of supply. So it is encouraging that our survey shows how early movers are tapping into the potential of AI to automate demand and supply planning.

Many European pharma companies are seizing opportunities to reduce costs and cut risks in the supply chain. By fast-forwarding the automation of supply chains, they are dialling up their competitive advantage on their journeys towards autonomous business operations.

A supply chain ecosystem powered by virtual control and cloud-based information architecture can lead to powerful business benefits. Humans, machines and resources can communicate better across all stages of the operations value chain. That is through from planning, sourcing and manufacturing to delivery.

Two thirds (67%) of our respondents said they were using Cognitive Automation at scale across their supply chains. This is a move that for many will have been fast-tracked by COVID-19. The pandemic has provided a digital push towards making supply chains smarter and more responsive.

While humans are not yet taking their hands off the wheel, our survey shows they are getting nearer. One third (33%) of our respondents said their companies were at the scaling up stage of their self-driving supply chains.

These companies are getting closer to production and distribution adapting automatically to meet changing demand. In so doing, they are not only removing manual processes; they are lowering risk of human error.

One element of procurement has not changed in supply chain management. That is the need to be alert to sources of risk, be it natural or human-derived, i.e. exceptional weather or political unrest.

End-to-end visibility means having data available across the supply chain in real time for better decisions on risk management and performance improvement.

Real-time technology is not eliminating unpredictability but it is, certainly, mitigating it. It is also enabling pharma companies to pivot and shift when needed.

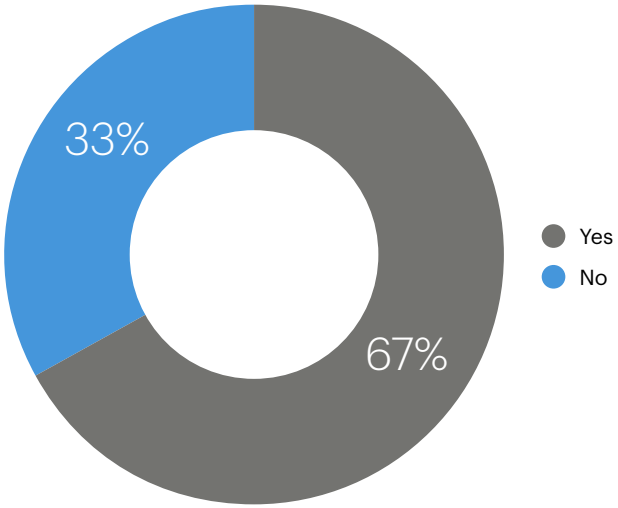
The majority of our respondents said geopolitical (60%), environmental (53%) and temperature excursions (42%) were the top three risks their organisation was currently monitoring with real-time technology for their supply chains. Transport (41%) and logistics (40%) were also cited.

The normal methods for monitoring environmental excursions use proprietary devices and sensors, siloed data sets, and manual processes.

Artificial intelligence (AI) and the internet of things (IoT), are changing that. AI, with its ability to scan massive amounts of data and spot patterns invisible to the human eye, is playing an ever-increasing role in forecasting and risk management. This is increasing confidence in capabilities for end-to-end supply chain visibility.

67% of respondents, firms are currently using cognitive automation at scale across their supply chains

Are you currently using Cognitive Automation at scale within your organisation supply chain?



"There is no question that Cognitive Automation is hot in the healthcare and pharmaceutical industries. These industries have some of the smartest operators in the world and 67% using it shows that. The question for most organisations is how much of the business is being run using Cognitive Automation and is it being used to its full potential."

Dean Ocampo,
Senior Director, Product Marketing,
Aera Technology

"We have seen a big increase in recent years in the adoption of new technologies along the supply chain in the pharma industry (temperature control, serialisation, artwork, order management, etc.). This has led to higher efficiency levels and improved analytics in those areas.

What is not yet widely adopted, apart from by a few leading "lighthouse" companies, is the use of Cognitive Automation, or automated decision-making along the value chain and for a wide range of different business challenges. This technology is driving a transformation towards the self-driving enterprise, and is redefining the human-machine interface, releasing previously untapped potential."

Declan Supple,
Client Partner,
Aera Technology

"We've seen similar adoption within our own medicine supply chains – we have found that a step approach works best, and we ourselves have now 'walked' our first 'kilometres' successfully. For us, our first use case was with forecast and the planning piece with our manufacturing sites then expanded into calculating more reliable delivery times. Now we are finalising the roll-out of what we call the integrated master plan, which includes Cognitive Automation of some of the planning processes and parameters between sites, our planning group and customer fulfilment."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

"I am not surprised by this; it is evident that automation with machine learning and AI is the way forward for the pharma industry supply chain. Patients needs are getting more specific and the therapies to treat them are becoming more targeted. Supply chains need to adapt, with agility as a cornerstone. Automation, if executed correctly, is the key driver to having an agile supply chain that can reflect the changing needs of the therapies."

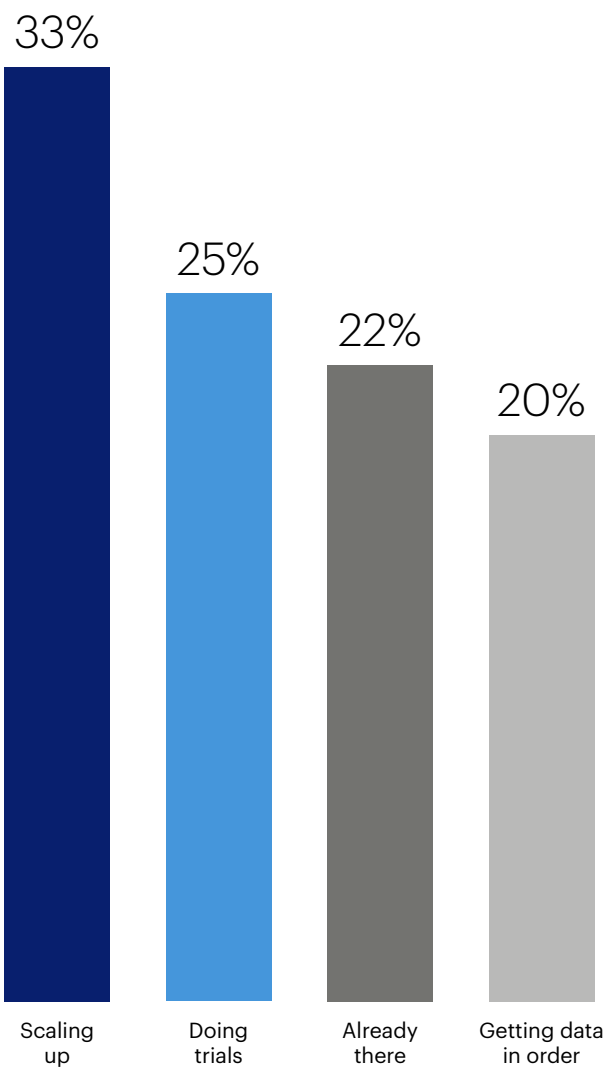
Mohammad Hussain,
Demand Forecasting Director EU,
GSK

"This shows a significant uptick in the number of pharma producers who are actively using this kind of technology in their supply chain activities. Only three or four years ago these figures would have told a very different story, with intelligent automation considered an aspirational technology for the majority."

William Robinson,
Conference Director,
LogiPharma 2021

33% of respondents' organisations are at the scaling up stage of their self-driving supply chain

What level of readiness for self-driving supply chain does your organisation have?



"While there is a high level of interest to get started on the journey towards self-driving supply chains, many companies are still at an exploratory stage. As the survey shows, only 1 in 5 companies say that they are "already there". Most players are still concerned with piloting new technologies or getting their data in order.

Moving to autonomous decision-making will remain a challenge as long as the focus is driven only by achieving technological readiness. There is often uncertainty around how to leverage latest technologies in combination with existing enterprise-wide ERP systems. While this is understandable, it may be distracting firms from making quick progress. The true value of the self-driving supply chain is realised quickly when the focus is moved towards automating as much of the "noise" in day-to-day decisions as possible. It is also beneficial for leveraging the capabilities of latest cognitive automation technologies to drive fast and efficient decision-making in highly complex environments for specific business challenges."

Declan Supple,
Client Partner,
Aera Technology

"Scaling up Cognitive Automation is one of the trickiest parts of this new domain. That 33% are currently there and 45% about to get there is reasonable. The easy part is Cognitive Automation has hit the maturation point where it's simple to test it and try it. The tough part is getting it to operate at scale across complex data sets and legacy systems that represent the chasm companies have to cross achieve the benefits of Cognitive Automation."

Dean Ocampo,
Senior Director, Product Marketing,
Aera Technology

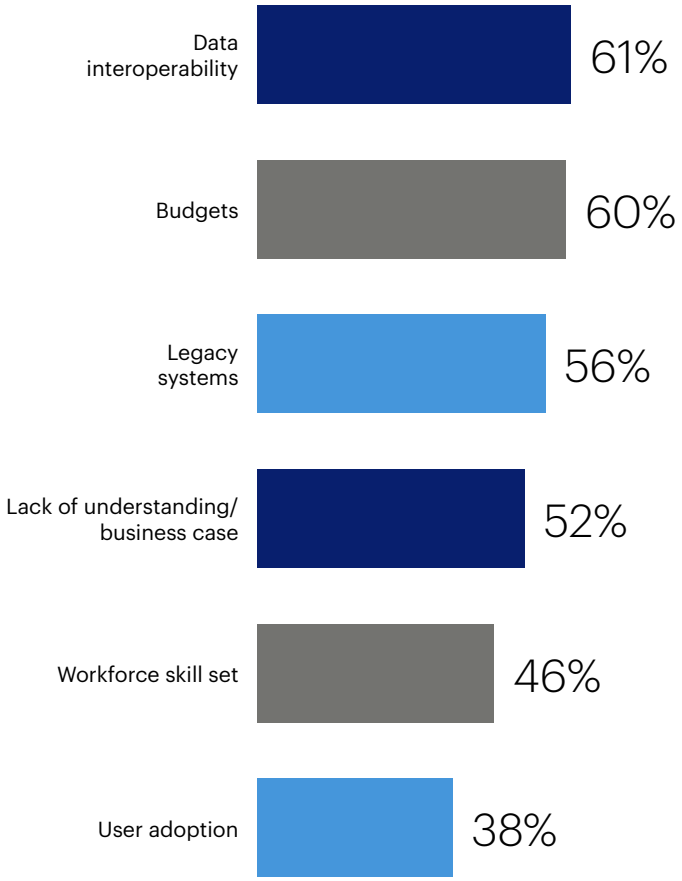
"The maturity of a range of producers here further demonstrates the progress that the industry is making, with only 1/5 producers that we spoke to not actively engaging with the technology in some way. That said, getting one's data in order isn't something that can be rushed, as it provides the foundation for all further development in this space."

William Robinson,
Conference Director,
LogiPharma 2021

"Improving readiness for self-driving supply chain is all about identifying use cases, pilot projects and lighthouse initiatives that are scalable. From there the biggest challenge finding broad applicability across the supply chain for these early efforts. We think operationalisation at scale is the key to success here."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

The majority of respondents said that data interoperability, budgets and legacy systems were their organisations' top three challenges when using automation supply chain management tools



"To see data interoperability and legacy systems in the top three challenges is hardly surprising, as automation in this space requires high quality and translatable data and systems in order to drive actionable insight. Budgets and the lack of understanding or business case could also be seen as linked, as a strong business case and understanding of the ROI driven from intelligent automation would be required from senior management in order to release budgets."

William Robinson, Conference Director, LogiPharma 2021

What are the top three challenges your organisation is facing with using automation supply chain management tools?

"When thinking about supply chain automation, one immediately thinks of tools and systems that automate existing transactional processes. This is where we have seen most 'digitisation' effort and investment to date. As the old saying goes, "an automated bad process is still a bad process", so it is no wonder that the challenges encountered in using automation tools are similar to day-to-day operational challenges. In the pharma industry, these can include everything from poor data quality and completeness; inconsistent product or customer codes across systems; a lack of cross-functional integration of key information, such as launch and transfer data; MA's, sourcing contracts; pricing; product, and artwork data and so on.

Finding a business case that will be approved for yet more automation in the face of these challenges is daunting and will often fail. A new approach to leveraging automation technologies is needed."

Declan Supple, Client Partner, Aera Technology

"Our organisation echoes the finding here as we are tackling two major challenges; first data interoperability, focusing on the excellence level of our master data and secondly, building the business case identifying which key processes we want to run in a scalable and automated way."

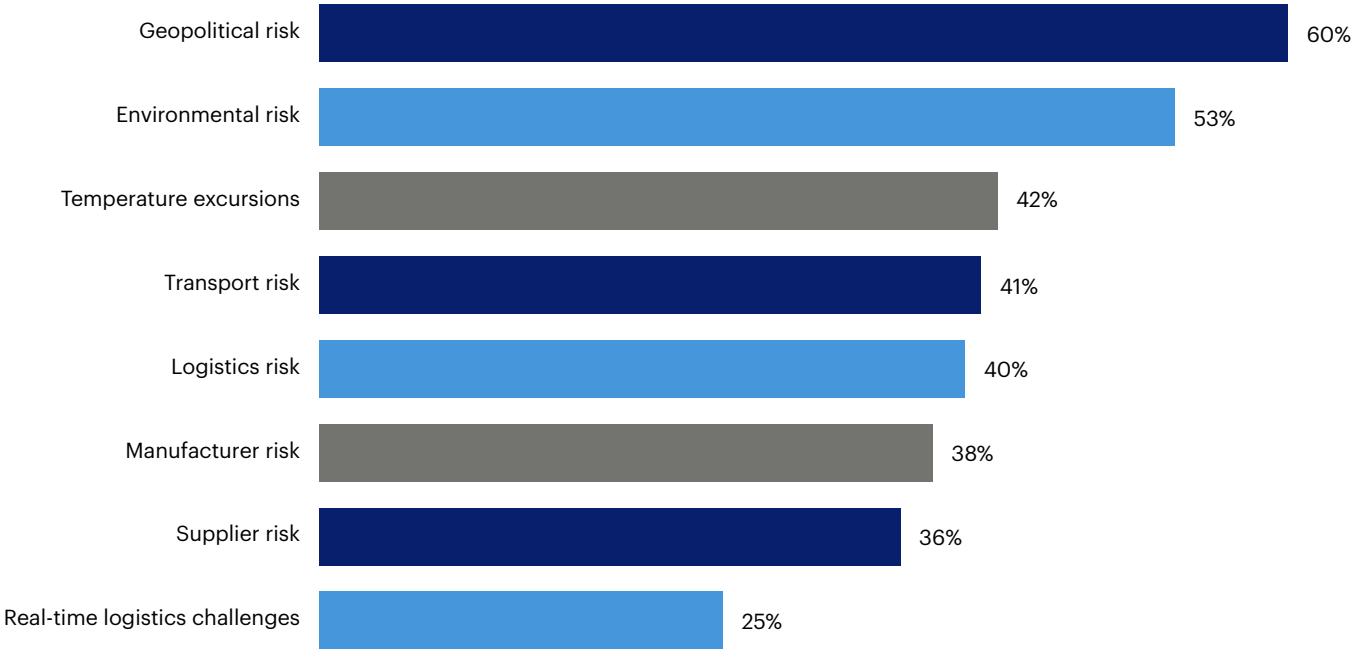
Markus Koehler SVP Supply Network Operations Merck Healthcare KGaA

"Using targeted data to drive the right decisions. With the abundance of data available, it is important to understand what the end goal for that business is; what it is trying to drive and how it can select the right data stream to help drive those decisions. The cost benefit case for automation has to be made within the organisation. Automation tools are no longer a 'good to have', they are very much a 'need to have' to stay competitive. A holistic strategy identifying the key areas where automation can bring the biggest benefits like demand forecasting, line scheduling and real-time supply chain benefits need to have buy-in from all areas of the business. We should not be in the mind-set that we are the maintainers of data, rather data needs to serve and assist us to make timely decisions."

Mohammad Hussain, Demand Forecasting Director EU, GSK

The majority of respondents said geopolitical, environmental and temperature excursions were the top three risks their organisation is currently monitoring with real-time technology for their supply chain

What are the top three risks to your supply chain that your organisation is currently monitoring with real-time technology?



"Although real-time technology is often used for the monitoring of weather events, global transportation risks, geopolitical risks, as well as for more practical purposes such as tracking and tracing (often a legal requirement within the industry), an area that has not really been tackled to any great extent so far is the automation of decision-making processes. In our risk management exercises, we tend to focus on the unusual, the abnormal, the unexpected. And less so on the mundane, the operational, the repetitive. However, due to the increasing complexity of executing at those transactional levels, a significant risk in our supply chains is often overlooked. And that is that we are no longer able to focus the necessary bandwidth and attention on the volume of decisions that need to be taken day-to-day. We end up focusing our attention on the top 20%. The potential for misguided decisions, or a lack of informed decisions for the large volumes that our teams face every day is immense. We end up being caught off guard by something we should have seen and jump back into fire-fighting mode.

With the right architecture, decision frameworks, the application of AI & and machine learning (ML), these decisions can be supported, and even taken by a system. They can be guided, where necessary, by the user. That makes additional headspace available for our planners, buyers, customer service managers, etc. to manage the risks and concentrate on the important stuff. Welcome to the world of cognitive automation."

Declan Supple,
Client Partner,
Aera Technology

"Like many of the respondents, we see top risks as those which would come from unexpected events worldwide, such as another pandemic, an earthquake, a major fire or any other imaginable interruption. On top of this, we recognise that an automated process is only as good as its input data – so we must maintain human intelligence and intervention possibilities along the chain to address real-time logistical challenges and other types of potential risk."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

PART TWO

Leveraging Machine Learning and Artificial Intelligence

Like many industries, pharma operates on the fundamental principle of supply and demand. Digitised operations are now allowing companies to measure this. They can also track market forces and respond in real-time to unexpected events.

Digitised operations are empowering the procurement function with new insights into customer and supplier accounts, pricing, trade agreements, inventory and much more. That is bringing huge efficiency benefits.

AI is transforming supply chain and manufacturing through real-time data processing and decision-making. This means supply chains are more data-driven, reducing the need for human and the old paper input.

The pharma chain involves a complex set of steps to produce a drug. This is from sourcing and supply of materials, through manufacturing and distribution, to delivery to the consumer.

Our respondents told us they were using AI for the following: "to guide the distribution of our products accurately in the market"; "make quick decisions in product"; "to keep replenishing our products to the ones in need" and "to predict and work on our production according to the consumption".

When it comes to managing inventory, many respondents felt positive about the benefits of AI. They said: "It helps us manage the shelf-life of certain products better than before"; "manage predictive purchasing" and is being used for "cost avoidance analysis".

Others had not reached this sophistication of adoption. They said: "We need more time to manage our inventory through AI"; "the inventory environment is not set for AI" and "AI and ML could take longer due to the legacy systems that we use".

Speed is of the essence for non-adopters. Demand forecasting plays a critical role in logistics and supply chain management. Accurately adjusted inventory levels are vital for unlocking supply chain value and providing medicines to patients when they need them.

ML forecasting combines decision variables. These include historical shipment and sales data, market intelligence and other external data inputs that can affect inventory levels, such as external meteorological and human risk factors.

This was highlighted by respondents. They said that: "AI provides risk management agility and solutions" and "It's used to analyse the risks associated in delivery".

But hurdles remain. There's still a significant gap in the actual capabilities of many enterprises. Plus, heavy compliance and regulation is another complexity to factor in. All this and good manufacturing practice (CGMP) standards depend on smart instruments to extract data that is accurate, real-time and complete.

To deliver value, new technology requires new skills. CPOs are finding their teams don't have the skills needed to deliver on their procurement strategies. Improving interoperability to establish connectivity and secure communication of data between disparate platforms is a further challenge.

Many companies are grappling to create true end-to-end visibility across the network. Visibility can be even harder to achieve among supply chain partners due to disconnected systems and data incompatibility.

This was borne out in our survey. The majority of respondents stated that interoperability of data sources (61%), lack of specialist staff (57%) and the overall interoperability of data (51%) were the biggest data analytics challenges their organisation was currently facing.

Also highlighted as a challenge by 45% of respondents was their struggle to set up their 'command centre'. This control tower is essential to facilitate their coordinated network, manage complexity, and execute at levels that cannot otherwise be easily people-managed.

We asked our respondents how their organisations are using machine learning (ML), artificial intelligence (AI) and data analytics to get products to patients on time. Here is what they told us.

"AI helps us remain connected to all the supply chain operations from one location."

"To pinpoint the demand and supply in the market of any given geography."

"AI provides risk management, agility and solutions in the process of delivering products."

"Only data analytics is being used in our organisation to determine the demand in the market."

"We analyse the demand in the market and carry out our production operations as per the analysis."

"AI is being used to make the whole process smarter and accurate to handle demand at any point."

"We are using analytics to understand the exact needs of patients so that we can deliver the right products to right locations."

"Data analytics guides the decision-making process of distribution."

"It's used to analyse the risks associated in delivery and the solutions that we have on hand."

"Analytics creates enough insights that guides the distribution of our products accurately in the market."

"We have been able to standardise distribution and the supply chain with AI."

"We are using AI in product supply and consumption tracking so that we can, in real-time, predict and work on our production according to the consumption."

"It's used to boost global supply chain so that we make quick decisions in product."

"We can, in real-time, view positions in the market so that we keep replenishing our products to the ones in need."

"There are many ways companies are making use of new technologies to improve the efficiency and effectiveness of their supply chains. These range from demand sensing, demand planning and forecasting capabilities, through to scenario modelling, predictive analytics, decision support, order fulfilment and network modelling for many combinations of data sets - from global down to the individual patient level. Of course, there are many challenges associated with developing these solutions, such as mentioned before.

What is clear is that the willingness to apply new technologies, from basic process digitisation through to cognitive automation and beyond, is apparent. Even more so as we have sought new ways of working in dealing with the challenges of the pandemic over the past 12 months. As predicted by many, adopting AI and such new technologies will quickly move up the adoption curve and no longer be a source of competitive advantage, but will become a necessity."

Declan Supple,
Client Partner,
Aera Technology

"It is fascinating that while 67% of respondents report using Cognitive Automation at scale, reviewing responses would indicate the majority are operating at Autonomous Level 2-3. The majority of deployments are operating in decision assist with ML/AI helping in prediction in demand and logistics. It's not unlike a car using AI/ML for condition responsive suspension or crash detection but relying on the driver to operate the vehicle. To get to level 4-5, organisations are going to have to move AI/ML into mimicking true cognitive decision processes beyond standard prediction and classification."

Dean Ocampo,
Senior Director, Product Marketing,
Aera Technology

"Reading how others are utilising ML, AI and data analytics to deliver products on time echoes our own efforts. For a single example, we have advanced demand analytics which utilises predictive capabilities to establish the 'crystal ball' of our supply for the next 12 months. All our efforts are supported by a high level of automation and a fully automated integrated business planning process which leads to a highly reliable supply of our medicines for patients."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

We asked our respondents how their organisations are using machine learning (ML), artificial intelligence (AI) and data analytics to manage their inventory levels. Here is what they told us.

"We use it for real-time analytics that influence certain decisions in procurement."

"Automated order placement is now being tested with the help of AI and robotics."

"This technology could take a little longer to hit inventory management."

"The inventory environment is not set for AI."

"There are certain routine tasks that are taken over by AI. There has been no loss of labour in this process."

"We are allowing AI to provide us live information about the capacity and usage across the organisation and production."

"The end-to-end production and supply chain process is well connected now with AI and this has brought increased levels of automation to the inventory process."

"We need more time to manage our inventory through AI."

"We may take longer to upgrade to AI for inventory management."

"Predictive purchasing is now managed by AI."

"AI has eliminated the over-reliance on certain processes of inventory management."

"I believe that AI and ML could take longer due to the legacy systems that we use."

"It's now being used in cost avoidance analysis within the inventory department."

"Inventory is more data-driven than before with AI in the picture. With end-to-end internal tracking, we are in a better position with AI in inventory management."

"The inventory is hyper connected to the production line and we have better predictability with AI."

"We now have a state-of-the-art inventory management system that even helps us manage the shelf-life of certain products better than before."

"From the answers, we can derive that approximately 10% of the respondents are happy to be making good or full use of ML, AI or data analytics to manage inventory levels. Approximately 65% are making some use of these technologies, mainly benefiting from improved, real-time analytics and integrated reporting systems to support decision-making around inventory management and replenishment. Of the approximately 25% of the respondents that do not yet use enhanced technologies to manage their inventories, over two thirds intend to do so within the next year or so.

Inventory optimisation has long been viewed as an expertise that was often placed in the hands of a few. With changing demands, reducing lead times, increased calls for dynamic inventory strategies, a continued demand on strict working capital management and a recalibration of local, regional and global sourcing strategies, this skill and the pace of decision-making needed will continue to place higher demands on support from advanced technology."

Declan Supple,
Client Partner,
Aera Technology

"Consistent with the response to the previous question, most organisations are using AI/ML to predict inventory levels and consumption forecasts. Only 4 responses show the use of AI/ML to higher order multi-option decision-making needed to achieve full self-driving inventory management. Such operations have to integrate data sets all the way up through production and supply and weigh inventory balancing against business constraints and objectives."

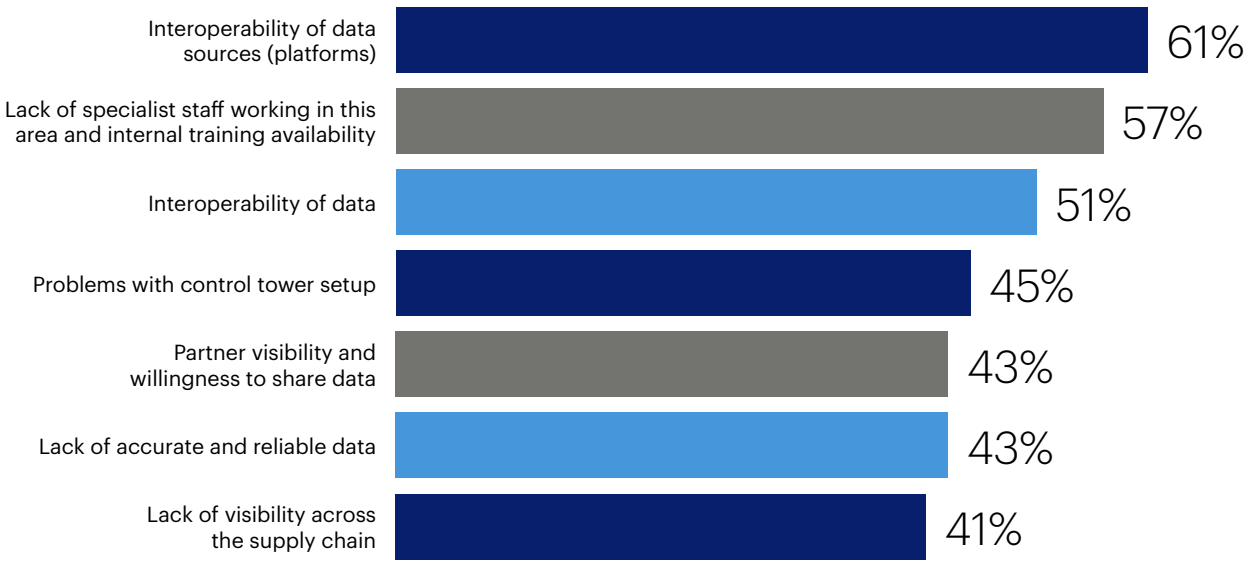
Dean Ocampo,
Senior Director, Product Marketing,
Aera Technology

"Like some of the respondents, we're similarly using machine learning aspects and especially predictions - we call them "inventory glidepaths"- to optimise cash and inventory, allowing us to anticipate deviations and determine the best course of action to steer to resolution. We treat inventory aspects with a similar approach as our order management, demand forecasting and supply planning – they are interlinked and supported by data from our lakes or ERP system."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

The majority of respondents said that interoperability of data sources, lack of specialist staff and the overall interoperability of data are the biggest data analytics challenges their organisation is currently facing

What are the biggest challenges your organisation has faced when integrating data analytics across your supply chain management systems and operations?



"The responses from this question reflect what challenges practically every supply chain practitioner and leader - the sheer effort, complexity and challenge involved in accessing and combining data to provide a meaningful basis for analytics and decision-making.

With advanced data crawling capabilities, these challenges can be and are being addressed and resolved. The challenge becomes then, not one of accessing the data, but of using it in the right way and deriving the correct course of action. We need to ensure that we move beyond the short-term challenge of accessing and being able to combine and interpret the data as quickly as possible and with as little effort as possible, so that we can focus our efforts on how we reconfigure our organisations and teams to spend all of their time on the actual decisions required and the strategic consequences of those decisions."

Declan Supple,
Client Partner,
Aera Technology

"Like most of the respondents, our biggest challenge was, and probably still is, the interoperability of data sources. We knew the information we needed was available in our data lake, but the capacity to use it correctly and build models was elusive. Working closer with data science from our digital and IT groups has helped us better integrate data analytics across the supply chain."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

"Big organisations with varied business platforms and companies that have expanded via acquisitions have this challenge, where the number of systems and their interoperability can cause real issues in the long-term. The key to unlocking this is to have a clear roadmap and defined strategy that has buy-in from all parts of the business. Alongside this, you need to have a well-defined short/medium and long-term implementation map with measurable outcomes at every step."

Mohammad Hussain,
Demand Forecasting Director EU,
GSK

"Much as with the challenges more specifically with intelligent automation and real time visibility, the platforms, legacy systems, data, and levels of operability and translation between these are causing the biggest headache for producers. Added to this, the skills gap caused by the digitalisation of E2E supply chains."

William Robinson,
Conference Director,
LogiPharma 2021

PART THREE

Overhauling Legacy Supply Chain Processes for New Vaccines

With the pharma industry in the midst of a systemic shift, there's still plenty to iron out.

Pharma's portfolio is reorienting towards therapies with more complex manufacturing and distribution processes, such as bio-engineered vaccines and biologics. This means the supply chain is, in turn, becoming more important.

But many companies continue to respond reactively to supply chain disruptions. They are also slow to adjust inventory and production levels.

With the pandemic exposing the fragility of supply chains and the complexity of logistical requirements, weak links have been laid bare. Not least is the need to adjust fast to the crisis and associated changes in global supply chains.

The majority of our respondents cited C-suite buy-in (61%), IT software integration (54%) and the impact on end-to-end supply chain visibility (54%) as the top three challenges their organisations were facing when overhauling their legacy supply chain processes.

Spreadsheets are still commonplace. Data is often buried in ERP, MES, LIMS, and other external sources. This raises the likelihood of manual error and reliance on guesswork through fragmented data and data latency. Real-time data is never static. So even if decisions get made with the best legacy tools available, better results could be catapulted via full automation.

Reducing dependency on document-driven and human-driven decision-making means adoption of advanced software and technology. But to upscale procurement organisation, a company must put in place the right enablers.

This can't happen without support from the top and serious CapEx. Over the coming years, investment in updating legacy IT infrastructure, digital skills and the onboarding of specialist data scientists will be vital so AI solutions get harnessed to full potential.

COVID forces are clearly dictating the need for a different sort of supply chain and the ability to scale up or down rapidly. Although 60% of our respondents said they were confident in their supply chain processes to deal with the disruption caused by distributing the COVID-19 vaccine, 40% were not.

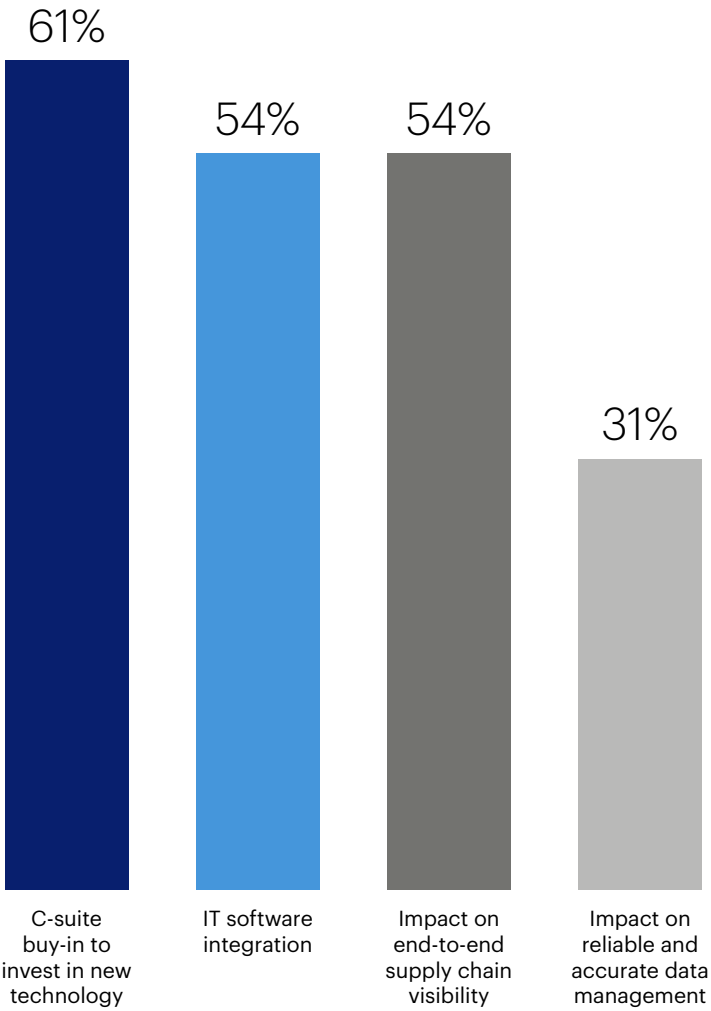
They told us they were apprehensive about their capacity issues associated with COVID-19 vaccine production and distribution.

Reasons included: "the impact it would have on our legacy supply chain processes" or "we've not yet found a solution to COVID-19 as yet to begin production and change the supply chain process."

Others stated they had had to "sign new contracts and partnerships for distributing purposes" and "create a whole new supply chain operation."

This underlines a pharmaceutical supply chain not fully prepared for the rapid global fulfilment of hundreds of millions of doses of brand-new vaccines.

The majority of our respondents said C-suite buy-in, IT software integration and the impact on end-to-end supply chain visibility are the top three challenges their organisations are facing when overhauling their legacy supply chain processes



What are the top three challenges your organisation has faced with overhauling legacy supply chain processes?

"We all know the discussion: "the system we implemented decades ago has been heavily modified and can no longer be modified or upgraded without considerable effort". Faced with the prospect of having to ditch a system that has been reliable and covers, let's say, 85% of the global scope of the business in favour of a new, unproven technology is not always pleasant. Some AI- and ML-based solutions can be complementary to existing enterprise management systems. Using the capability of being able to access and interpret data from multiple internal and external sources, while running specialised business functions and using a real-time integration into the back-end can provide a short-term solution that will yield immediate business value."

Declan Supple,
Client Partner,
Aera Technology

"We're fortunate to have C-Suite buy-in, which has been a major challenge for many respondents. For us, as previously discussed our big challenge is scaling from pilots to wider use across the organisation and product portfolio."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

"That C-suite buy-in and the level of understanding around the technology's impact upon end-to-end supply chain visibility are shown to be the biggest challenges in this space once again shows that further education and evidence is required at the very top of the organisation around ROI. Significant disruption caused by COVID-19 may have also diverted attention and efforts, meaning buy-in, budgets and opportunities for impact assessments are not as high as they might have been outside a period of crisis."

William Robinson,
Conference Director,
LogiPharma 2021

We asked our respondents how their organisations have adapted their legacy supply chain processes to deal with the capacity issues associated with COVID-19 vaccine production and distribution. Here is what they told us.

"We had to sign new contracts and partnerships for distributing purposes."

"The response to COVID-19 hasn't been burdensome enough to make changes to the legacy system."

"We haven't found a solution to COVID-19 as yet to begin production and change the supply chain process."

"This was a whole new situation that we are facing globally and it has affected the lives of a lot of people. With the production capacity needing assistance, the supply chain had to undergo a whole new change."

"With the size of consignments amplified, we had to create a whole new supply chain operation that remains compliant to the pandemic rules first."

"We are not involved in the production but still carry out testing. We did not have to realign any supply chain process apart from the COVID-19 distancing regulations."

"There has been a whole new set-up that has been created to manage the production of supporting products like syringes for the vaccine. Although we do not manufacture our own drugs or medicines."

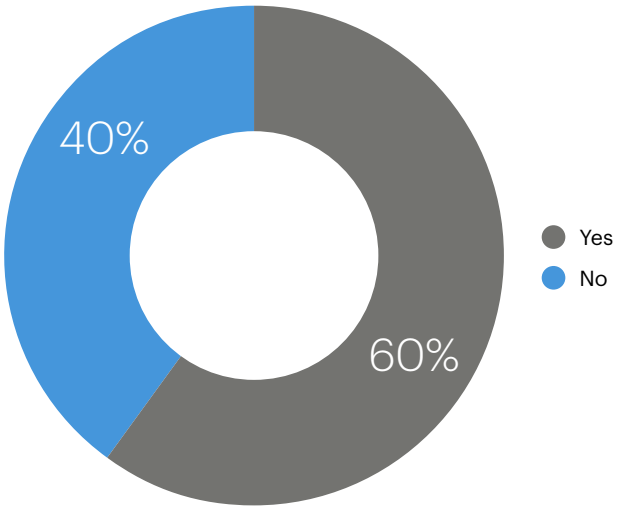
"It would take us a while before we plan to enter into COVID-19 territory because of the impact it would have on our legacy supply chain processes."

"Legacy supply chain hasn't been affected because of our non-participation in vaccine production or distribution."

"From the answers received, only approximately 15% were impacted in some way due to their involvement in COVID-19 vaccine production and distribution. All of those that are involved have heavily adapted their supply chains to fully comply with advice and control from regulatory authorities and to provide the necessary flexibility and agility."

Declan Supple,
Client Partner,
Aera Technology

60% of respondents said they are confident in their supply chain processes to deal with the disruption caused by distributing the COVID-19 vaccine



"We echo the confidence of the majority of replies. We have been able to ensure equal or improved customer service levels for our customers and patients since the start of the pandemic. COVID helped us focus on the correct priorities and confirmed that adopting and embracing digital technologies to support our processes was the right decision."

Markus Koehler
SVP Supply Network Operations
Merck Healthcare KGaA

Are you confident in your supply chain processes to deal with the disruption caused by COVID-19 vaccine distribution?

"That 40% of the respondents here are not confident is probably more likely to be an indication of discontent with their overall level of supply chain maturity and responsiveness when facing uncertainty.

Overall, it is clear that we are facing extraordinary challenges, but also extraordinary opportunities in these times."

Declan Supple,
Client Partner,
Aera Technology

"This is not surprising. In my experience, the pharma industry is driven by ensuring that patient needs and access to medicine triumph above all other factors. What this pandemic has shown us is the resilience within this sector and the collaborative efforts to overcome bottlenecks is really having a positive impact overall for the majority."

Mohammad Hussain,
Demand Forecasting Director EU,
GSK

"To see the majority confirming their confidence here is representative of the operational resilience we've seen across the industry over the course of the past 12 months, the contingency that's been built into producers' supply chains, and the sheer amount of work that has been seen across the industry to ensure continuity of supply to patients. Nevertheless, API supply challenges, logistical complications and huge shifts in demand patterns have shown that this confidence is not universal and ongoing challenges are significant."

William Robinson,
Conference Director,
LogiPharma 2021

CONCLUSION

COVID-19 has pressed home that innovation within the pharma supply chain is more critical than ever to ensure a smooth process from manufacturing of products to delivery to patients.

State-of-the-art technologies like artificial intelligence (AI), machine learning (ML) and Radio Frequency Identification (RFID) are increasingly non-negotiable for the upgrading of the pharma supply chain and visibility and insight across all channels.

Despite its ground-breaking innovation in new drug therapies, pharma as an industry has not yet seen the same speed of change with adoption of manufacturing technologies. Looking ahead, end-to-end supply chain visibility will be the game-changing differentiator for pharma companies. The pandemic could be the spark of innovation.

Addressing supply chain visibility is a holistic intra- and inter-organisational challenge for pharma companies. They will have to understand their own needs and those of their suppliers and customers, before defining their business problems and putting in place the best advanced technologies or the future.

Pharma leadership teams can no longer remain in siloes. Companies need to see automation as a strategic change initiative. One that dictates that everyone understand each other's departments, with all their respective challenges and strengths.

For new procurement to be successful, this means collaboration – and operating within a network rather than in isolation. The pandemic has accelerated change across the entire supply chain. And this impetus could benefit health systems, providers and patients now and in the future.

Big tech giants such as Amazon, Apple and Google have already proven what can be achieved through adoption of end-to-end digital supply chains with the availability of reliable data.

There is no reason why pharma cannot do the same but it requires bold moves and investment. The rewards – efficiency and cost reduction – are worth fighting for.

About Aera Technology

Aera Technology is the Cognitive Automation company that makes business agility happen. We deliver the first scalable digital platform that integrates with your existing systems to make and execute business decisions in real time. In the era of digital acceleration, Aera helps enterprises around the world transform how they respond to the ever-changing environment.

About WBR Insights

We use research-based content to drive conversations, share insights and deliver results. Connect with our audience of high-level decision-makers in Europe and Asia from industries including: Retail & eCommerce, Supply Chain & Procurement, Finance, as well as many more. From whitepapers focused on your priorities, to benchmarking reports, infographics and webinars, we can help you to inform and educate your readers and reach your marketing goals at the same time.

Contact us to find out how your business could benefit from:

- Year-round access to our network of decision-makers and industry-leaders
- In-depth research on current fast-moving issues and future trends
- Lead generation campaigns that fit your priorities
- Promoting your organisation as an authority in your industry

To find out more contact:

Alexander Williamson
Managing Director - Insights
T: +44 (0)20 7368 9784
E: alex.williamson@wbr.co.uk