

Trust and Technology: The Links in a Sustainable Cold Chain

Navigating capacity challenges and external economic factors for better product integrity

Reuters Events in cooperation with Maersk



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Christopher Caulfield | Vice President of Temptime Operations | Zebra Technologies

Introduction

Against a backdrop of post-pandemic recovery and rising energy costs, the cold chain logistics industry is feeling the strain. With renewed interest in cold chain storage thanks to vaccines and tighter regulations, we are seeing more demand for tech advancements in the industry.

While this spells a challenging time for cold chain, it also spells an exciting one. With insights from Maersk, as well as the Cold Chain Federation and representatives from FMCG, this report explores the wealth of opportunities ahead.

Looking at the state of the cold chain right now, we note the merits of data capture, and how this can improve operations across the whole supply chain. But data alone is not enough – it also requires human intervention and collaboration to make key decisions. Used efficiently, data such as humidity, location, and product quality can reduce costs and improve customer relationships.

Better still, by leveraging data, organizations can take a long-term view and commit to more sustainable practices. Not only will this reduce the cold chain's impact on the planet; it will also bring commercial benefits such as



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cost savings. As our contributors note, what this needs is a forward-thinking, collaborative approach, rooted in cultural change.

In Chapter 2, we move on to the establishment of a comprehensive, end-to-end cold chain. Our contributors discuss the holistic ecosystem of the cold chain; it does not take a linear approach but instead requires co-operation from all sides. Within this, we discuss the best practices for maintaining product integrity, including standardization around record-keeping and consolidation at the port.

Naturally, logistics teams need to balance an efficient cold chain with financial constraints and long-term sustainability goals. We turn to standards such as the United Nations' Sustainable Development goals for guidance, aided by the advent of ever-improving technology. While there may be initial financial struggles with investing in this technology, the long-term benefits speak for themselves. Lower energy costs and a better impact on the planet are two key considerations for the cold chain.

In our final chapter, we examine the role that tech has to play, focusing on three core areas. Advancements in technology such as the Internet of Things continue to help prevent breaks in the cold chain. Further, they help to automate manual processes and improve uptime of devices – resulting in better productivity and lower costs.

Once again, leveraging technology to its full potential requires a culture of collaboration. As our contributors note, this kind of remote monitoring technology must be used across the whole chain, from warehouse storage to logistics partners. This places additional challenges on teams to source the best IT systems, as well as strong Wi-Fi connections and well-maintained devices. Likewise, the technology must be customizable to work with all stakeholders.

This wave of new systems spells a bright future for cold chain logistics. Using cloud-based systems and even smartphone apps can help keep all stakeholders informed, while meeting increased customer demands. In tandem, we can use this to work together towards reducing our environmental impact – uniting road, rail, sea, and air with full transparency and improving product integrity in the process.

The cold chain may be facing unprecedented challenges, but we are also at a point of momentous change. As illustrated by our interviewees' insights, we can leverage this change to improve operations, keep customers happy, and contribute to the protection of the planet.



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Chapter 1:

The State of Cold Chain Logistics

One of the unforeseen consequences of the COVID-19 pandemic was the renewed interest in cold chain logistics. As the world's attention turned towards low-temperature Pfizer vaccines, the cold chain took center stage.

This comes against a backdrop of steady growth. In 2018, the market volume was estimated at \$160 billion, and this is now predicted to reach **\$600 billion by 2026**. However, countering this upward growth trend, we continue to see the perfect storm of post-COVID demand, energy crises, and the invasion of Ukraine.

The challenges facing the cold chain

The economic effects of the conflict in Ukraine have not gone unnoticed. Inflation is affecting every industry, and cold chain logistics is feeling the pinch. Shane Brennan, Chief Executive at the Cold Chain Federation, comments: "Rates and costs are the two biggest challenges for cold chain logistics right now. We're seeing inflation post-COVID, and scarcity which is pushing everything up.

"Different countries are facing different consequences – but we're at a tipping point with the high costs of shipping." With higher costs, warns Brennan, we are seeing a drop in demand, and forecasting is more challenging than ever.

Stein Van Est, Head of Cold Chain Logistics Europe at Maersk, notes the impacts of these rising costs on forward planning. "There is an ongoing concern with energy prices. Suppliers are now working these into their contracts. Previously, we might have seen a clause for diesel adjustment factors. Today, these clauses involve adjustments for energy prices."

Capacity and labor shortages

This perfect storm of economic turmoil is compounded by a shortage of staff and capacity. Nigel Welsh, Implementation and Standardization Manager at Maersk, says: "There is an industry-wide labor shortage that brings inner dynamic challenges. It's difficult to attract staff to work in sub-zero temperatures, which is driving labor costs within certain locations. Similarly, we're seeing many more mergers and acquisitions since the pandemic, which affects availability of labor."

While this may be a broader recruitment challenge, it is not the only obstacle that has long plagued cold chain logistics. Equally, the industry is grappling with capacity issues. The entire industry, though mature in some sectors such



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as food, was operating at storage capacity before the pandemic. Today, the challenge is greater.

The [EU Agricultural Outlook](#) for Markets, Income, and Environment 2020-2030 noted the increased demand for fruit and vegetables, led by growing health awareness and the need for convenience, such as e-commerce. Likewise, data from the [CBI Ministry of Foreign Affairs](#) highlighted the effects of COVID-19 on organic food demand. In 2020, the organic market share in Europe was 4.7%, but was predicted to rise particularly as consumers turned to local suppliers.

Van Est notes the impact that this increased demand is having on capacity. “There is a higher demand for fresh fruit and other chilled foods. In tandem, we’re seeing stricter quality requirements for pharma, and this has spilled over into other goods like protein. Much of this is driven by regulators, which puts extra pressure on storage capacity.”

Consumer dynamics

Consumers are not only concerned about the impact of cold chain products on their health. We are also seeing more end-consumers making ethical buying decisions, which impacts the entire supply chain.



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A pertinent case study comes from the team at Unilever. Sandeep Desai, Chief Product Supply Chain Officer at Unilever Ice Cream Business Group, notes that consumers are “voting with their wallet.” With the average American consuming 16lb of ice cream per year, it’s evident that there is still a market for less health-conscious foods – but now, consumers are concerned about ethics.

According to a McKinsey study on ice cream and yoghurt, seven in 10 consumers would pay more for products made by producers who pay fairly, operate locally, and emit less carbon. As such, the onus is on these companies to prove that they’re making a change.

Desai says: “We believe that brands that can demonstrate to consumers the steps they are taking to minimize their footprint and improve the health of the planet will be well-positioned to succeed.”

The risks of standing still

As the cold chain continues to navigate these challenges, there is a clear argument for investment. Christopher Caulfield, Vice President of Temptime Operations at Zebra Technologies, says that we are at an “interesting point” in cold chain development. For one, we now have access to data in a multitude of places, including on our smartphones.

Secondly, there is the climate imperative. Crucially, we need investment in sustainable alternatives. According to a [2022 survey by Ernst and Young](#), 57% of companies have public-facing sustainability goals for the supply chain. Better visibility can help to achieve this. Not only does this support enterprises’ sustainability goals; it can also satisfy fluctuating demand and support product integrity.

There are also health risks to a break in the chain, as evidenced throughout Brexit and during the pandemic. In 2018, [The Pharmaceutical Journal](#) reported that there was not enough cold-chain storage in the UK, thereby affecting the availability of medicines. Compounded with the demand for temperature-controlled vaccines throughout COVID-19, the whole supply chain came under pressure.

“The customer reaction to declining reliability was to order more,” says Brennan. What actually needs to happen is to stop and reset, to realign supply chain with demand.” He notes, however, that there have been significant improvements throughout 2022, and that the food sector is a mature earned authority.

Regulatory risks

While availability of food and medicine should be a priority, there are also regulatory concerns to consider. Transparency is key here, which necessitates



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a blend of technology and data to meet compliance targets.

This includes tools for visibility, such as a dashboard with energy statistics and information from the service provider. This can link through to productivity statistics. Without standardized documentation processes, parameters are compromised.

Likewise, there are risks at origin to consider. Van Est warns that cargo doesn't always get loaded into the truck at origin, which could lose up to two days between harvesting and moving it to a facility. He adds that we need to build more solutions at origin to mitigate this.

"Similarly, added cutover points increase risks, for example, if we have eight different grape suppliers coming from India. The industry is quite mature in Europe but there are risks further afield." Regulators continue to become stricter, he warns, citing barriers such as citrus fruits coming into the EU from South Africa. Welsh adds that external accreditations such as the British Retail Consortium or ISO can put customers' minds at ease.

Solutions to cold chain challenges

Both regulatory risks and capacity shortages can be addressed through a culture of collaboration. Caulfield at Zebra Technologies comments on the importance of electric data logging systems such as environmental control systems to keep on top of temperature requirements.

This helps to overcome the challenges posed by multiple players in the cold chain, looking at factors such as humidity, location, and overall product quality. From temperature and humidity monitoring devices to handheld apps, we can all keep a free-flowing stream of data to monitor product quality.

In a data-driven supply chain, cold chain professionals have the means to identify and mitigate risk. The real challenge is overcoming barriers such as cultural change, finances, and investments in technology. By combining all of these, we can move towards a comprehensive, end-to-end cold chain solution.



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Chapter 2: Establishing a Comprehensive, End-to-End Cold Chain Operation

Product integrity is the driving force for any cold chain operation, whether it is to reduce waste or to maintain high standards. To achieve this while balancing sustainability needs and financial constraints, we turn to two things: technology and personnel.

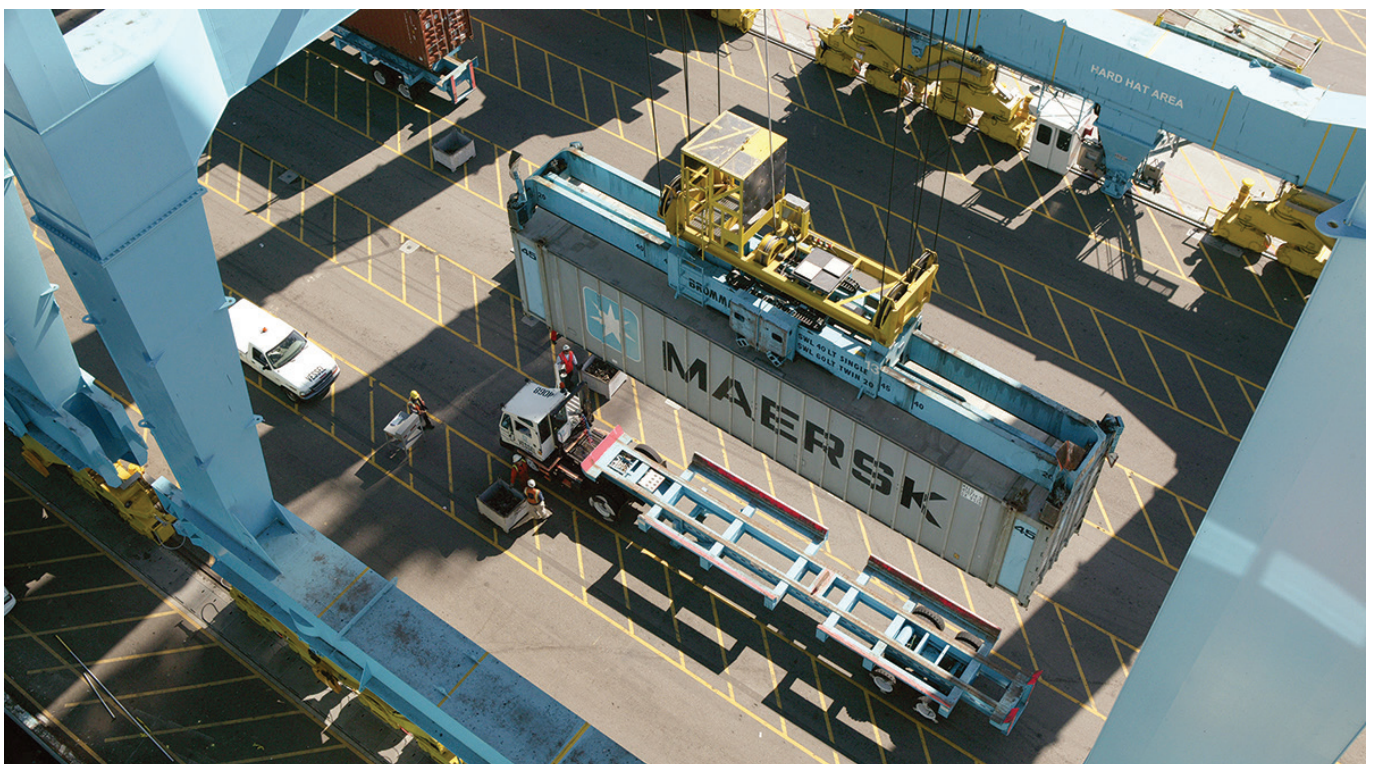
To overcome the difficulties of assigning roles, the cold chain should be viewed as an ecosystem, not a linear process. With products moving backwards and forwards, visibility is needed across the whole chain. Commercial factors therefore need to move away from operation in a fragmented data universe.

In a 2020 global supply chain study, [McKinsey](#) identified the biggest challenges to the planning transformation journey. They included change management, implementation and systems integration, and unclearly defined value.

This puts additional emphasis on personnel, as Caulfield notes. All staff must be on board with shifts in tech, but they must not rely on it alone – it also requires transparent data exchange. “Cold chains, like all supply chains, are made up of a series of hand-offs to be managed from beginning to end. In



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the current ecosystem, you have those hand-offs and people are responsible. Each player is deploying different mechanisms to make sure that the product is handled appropriately."

The case for collaboration

With more emphasis on personnel, there is a greater cause for collaboration. Cold chain professionals need a standardized approach to control product integrity, which comes down to consistency with operational routes. In addition, they benefit from rigorous record-keeping practices and trained personnel to offer added knowledge and awareness at every stage of the supply chain process.

While standardization and accreditations are essential, so too are collaborative partnerships, notes Welsh. "At Maersk, we want to work with likeminded supporting providers. We're looking at due diligence for carbon capture and carbon footprint: long-term partnerships for decarbonization. This will consider a lot of factors, from looking at the age of facilities to working with service providers who share our vision."

Connecting the dots

Another key consideration is storing cargo close to the final consumer. This is particularly pertinent as more cargo transitions from air travel to boat. There are inefficiencies in bringing shipping containers inland, with higher delivery, demurrage, and detention costs. Van Est at Maersk adds: "We need more consolidation around the port, and capacity to serve that need."

He adds that this is important from an exporter's perspective, too. "We can add sustainability to our value proposition by using dense fridge truck networks for port-centric consolidation centers. As the product is so close to the vessel, it guarantees quality."

Standards for sustainability

While port-centric centers may improve sustainability credentials, we also need to consider emissions reporting. According to the [Carbon Trust](#), the global food cold chain is responsible for 1% of all greenhouse gas emissions, but these are set to rise significantly. In India, for example, GHG emissions are set to double by 2027 if there is no active intervention.

Brennan says: "We would be further ahead on sustainability had we not had the issues of recent years. Strong sustainability credentials affect the choices we make for suppliers. At present, there's not enough understanding of things like measuring emissions performance. We need a universal set of standards. Many major brands are moving towards this. They can satisfy Scope 1 and 2, but when it comes to Scope 3, they struggle."



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Brennan is not alone in this view. Deloitte categorizes Scope 1 emissions as direct greenhouse gases and Scope 2 as indirect emissions, but [classes Scope 3 emissions as “tricky.”](#) When it comes to evaluating the carbon impact of the value chain, many organizations may struggle.

Strong environmental, social, and corporate governance strategies can guide these organizations in their mission to be more transparent. Unilever, for example, follows its Climate Transition Action Plan. This involves achieving net zero greenhouse gas emissions by 2039. The team have outlined full strategies to reduce energy consumed by their refrigeration systems, including investing in green technologies and using Renewable Energy Certificates.

A strong strategy will apply to the whole cold chain, from storage through to transport. Desai says: “We have deployed new designs in our refrigeration systems and changed agricultural practices by using plant-based products. We are also working to decarbonize transport and testing electric vehicles, whilst being guided by the UN Sustainable Development Goals.”

The benefits of improving sustainability standards

Of course, every industry is different, and the pursuit of greener practices may have taken a back seat in light of global events. With costs, labor, and capacity challenges to consider, sustainability may be an afterthought right now – but it should be a driving force. In the long term, it can complement the growth of the industry, while mitigating these crises.



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Welsh says: “We can keep energy costs down by investing in renewable fuels. Cold stores need constant attention, so we need real commitment. A great place to start is with submetering, which lets you know exactly where energy is being consumed.”

There may be inherent issues within the facilities themselves, from choice of refrigerants to power generation. Synthetic refrigerants such as Freon have shown a [global warming potential](#) rating of up to 8,500. Likewise, cooling is extremely energy-intensive, with around [15% of all global carbon emissions](#) linked to heating and cooling technology.

Even the buildings themselves may present challenges, wherein poor insulation or non-airtight doors may lead to energy loss. In each of these cases, there is an argument for greener alternatives. For example, well-maintained and well-designed buildings can mitigate this, as can management control over airtight doors. Equally, we may seek renewables in the long term to overcome the energy-intensive nature of the cooling industry.

For such an energy-intensive industry, renewables such as wind turbines or solar panels provide greener alternatives. Brennan at the Cold Chain Federation says we need to think about sustainability from a long-term point of view. “With transport and equipment failures, we’ve lost focus in recent years. By investing in storing energy, we can create a more resilient infrastructure. It’s a big risk for businesses, but we need to invest in new technologies.”

The importance of visibility

To get back on track and continue measuring emissions effectively, visibility is paramount. While there are more farm-to-fork transparency schemes than ever before, there is still the need for collaboration across the whole supply chain.

Van Est says: “The biggest challenges are those that affect transit time. Cargo owners or customers purchase with different suppliers, so they have no visibility. For example, they may know where an ocean carriage is, but they may not be able to notify the right parties.

“Tech plays a crucial role in making this data accessible to all parties in the supply chain: owners, carriers, customs authorities, and the final receiver.”

The events of the pandemic catalyzed significant investment in supply chain visibility technology. In Q3 2021, supply chain tech start-ups saw a year-on-year increase of 124% in venture capital investment, including supply chain risk management platforms and digital warehouse and distribution providers. [Reports from PitchBook](#) showed continued investment throughout 2021 as supply chain issues called for more sophisticated technology.



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The case for tech

When it comes to product integrity, then, all stakeholders can mutually agree on a culture of collaboration. Improving visibility, as well as monitoring product quality and improving efficiencies, all comes down to a strong investment in tech.

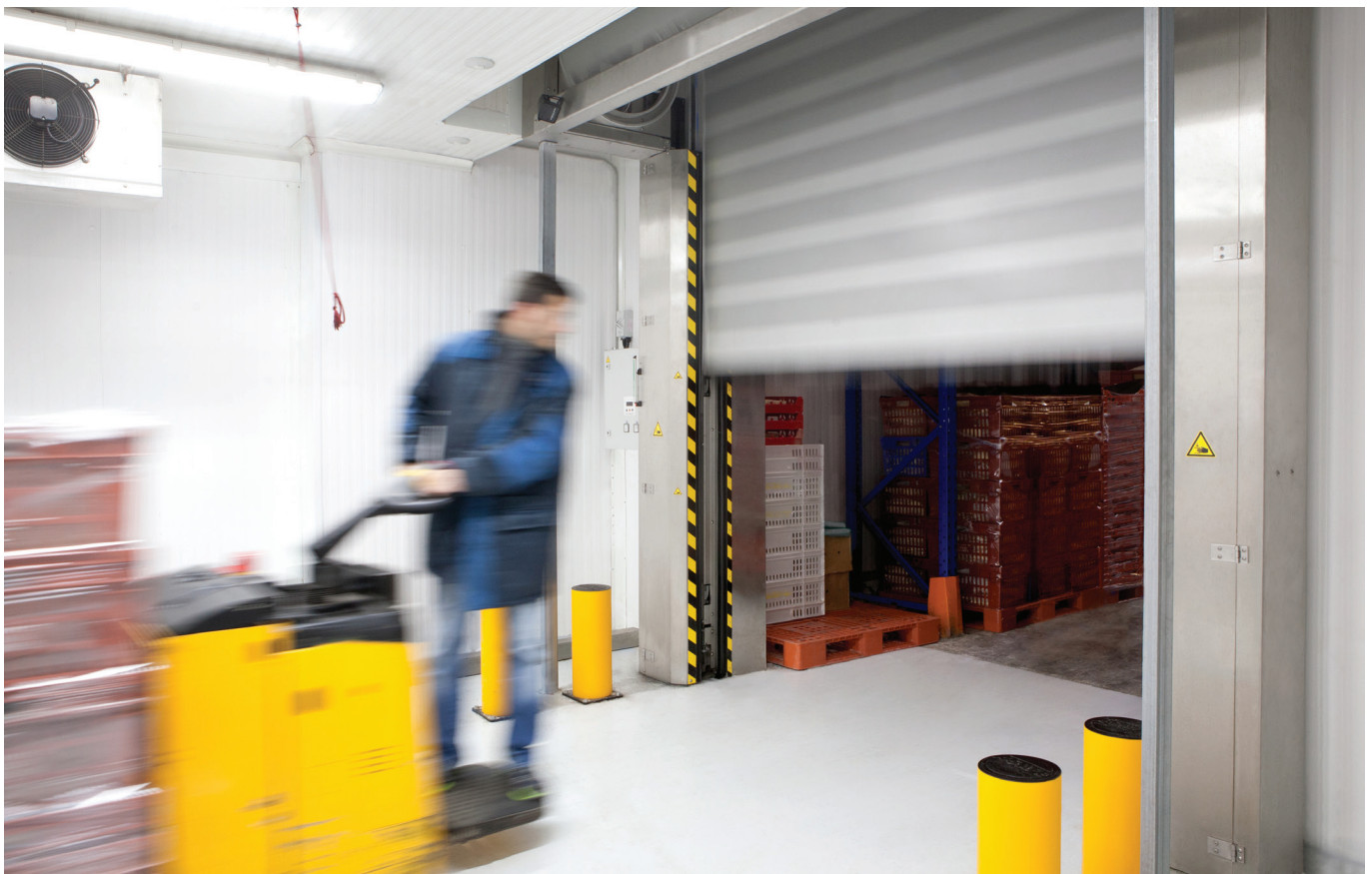
Findings from [Research and Markets](#) highlighted the key issues supporting a strong investment in cold chain logistics technology. The growth of the smart food logistics market alone is projected to more than double by 2025, while changes in consumption habits and tighter regulations on packaging and storage have put more pressure on packers and retailers.

The concept of “zero contamination,” as well as improved storage and faster retrieval operations, has strengthened the business case for AI-powered predictive planning. This can help to overcome the financial losses of food waste: logistics insurer TT Club reported that temperature control issues were the third-largest of all supply chain issues, with 30% linked to miscommunications.

Backed up by legislation such as the US Food and Drug Administration’s New Era of Smarter Food Safety blueprint, the need for technology has never been stronger. From data capture to analytics, IoT and maintenance systems, tech is instrumental in the protection of goods in the cold chain.



The growth of the smart food logistics market alone is projected to more than double by 2025.



Chapter 3:

Maintaining Product Integrity Through Technology-Enabled Necessities

According to [Gartner](#), more than 75% of commercial supply chain management application vendors will rely on tech by 2026. This includes embedded advanced analytics, artificial intelligence (AI), and data science.

In practical applications for the cold chain, tech is used in three key areas. Primarily, it is used to remove the risk of breaks in the chain through advanced monitoring. It can also automate manual processes to increase productivity, and improve uptime of vital equipment.

Eliminating breaks in the chain

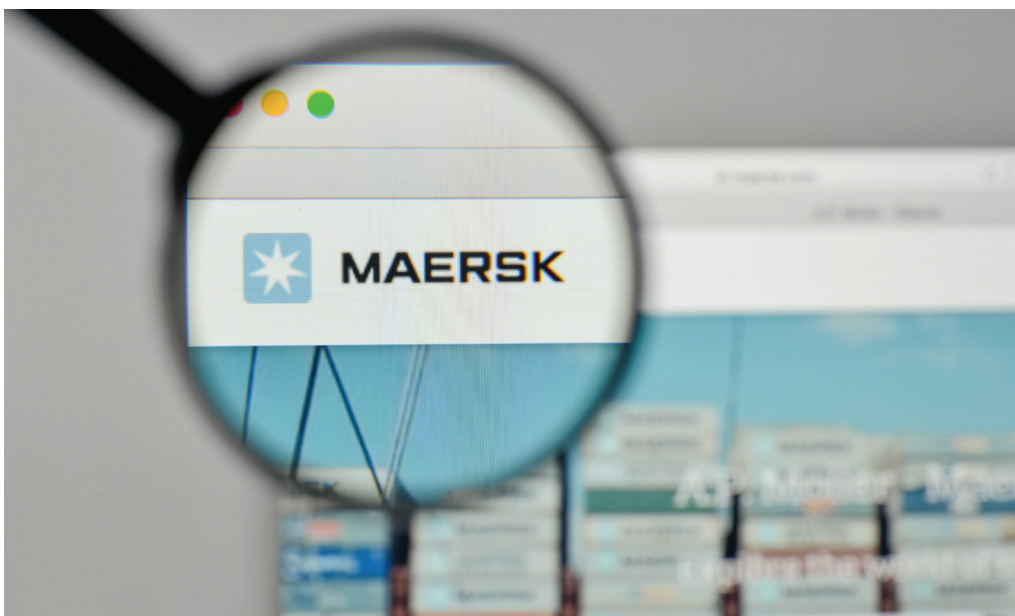
Data capture is essential for eliminating risk of breaks in the cold chain. Brennan at the Cold Chain Federation notes: “We can capture more data now than ever before. It’s all about how we use it, how we link to each other while maintaining competitive advantage.”

The team at Maersk rely on Captain Peter™ to monitor chilled and frozen foods from the point of loading through to their final destination. Welsh says: “The cold chain needs constant remote analysis. We use telemetry, tracking and tracing temperatures through data analytics.”

He notes that there are some caveats to using this technology. From a warehouse perspective, there is an internal dependency on strong Wi-Fi and



Data capture is essential for eliminating risk of breaks in the cold chain.



well-maintained battery devices. In tandem, these devices need to be handled with discipline to avoid breaks in the chain and maintain product integrity.

From a logistics perspective, Welsh adds: “Third-party logistics operators need customizable software that suits all customer challenges, including traceability, data capture, and anything from the inventory.”

The benefits of advanced monitoring

Beyond the temperature tracking merits of Captain Peter™, Maersk also stress the importance of other technologies, such as the tools they use with customs authorities. Van Est says: “You can use specific retailers or customers to start a dialog. Customs authorities use algorithms to assess risks like contamination, which reduces the likelihood of goods being held at port.

“We also work with an open carrier platform that has transformed our whole ecosystem. It’s ideal for digital and electronic billing, and speeds up processes, traceability, and visibility.”

At Unilever, the team rely on advanced temperature control systems, which monitor operations and cooling installations 24 hours a day. Desai says: “Many of our logistics partners operating in the cold chain already use a wide set of technology to ensure there are no breaks. Likewise, we have worked over the years to improve product resilience to minimize these breaks.

“Advanced monitoring is holistic – we see it in transportation, where truck drivers can see trailer temperature systems and use telematics. In offices, teams can be alerted to temperature breaches anywhere in the world.”

Naturally, there will be some opposition to new technologies, and as such, this digital transformation should be seen as a cultural change. Visibility may expose vulnerabilities, which supports the findings in PWC’s 2022 report on [raising digital IQs](#). The survey revealed that executives’ opinions were misaligned with IT’s, and just 56% had expanded their training on new tools and processes.

The case for automation

Automation can help firms better monitor their real-time position. Likewise, it can further prevent risks to product integrity. From a human perspective, automation also addresses labor shortages.

In a 2019 McKinsey report on driving impact with automation and AI, the term “zero FTE back office” was discussed. Findings from the McKinsey Global Institute suggested that 30% of tasks in a range of occupations could be automated through robotics. In particular, the report drew attention to repetitive, low-judgment, high-error-prone, and compliance-needy tasks. Welsh notes that this is perfect for fulfillment centers, where manual labor may present risk, as well as human error.



Automation can help firms better monitor their real-time position. Likewise, it can further prevent risks to product integrity.

“Robotics and flexible automation are increasing due to the volatility of labor. This helps to overcome repetitive strain injury or manual handling risks, which means there’s less dependency on execution. This is ideal for fulfillment centers, which are also benefiting from automated storage retrieval systems when dealing with high volumes.”

Brennan adds that automated data capture improves connectivity even more. “It’s a combination of the software programs you invest in, and the way in which you put data capture into your operations at every level. The more automated you make that, the more seamless it can be.” He adds that this makes operations cost-effective, but may require cultural change.

Likewise, both customers and other stakeholders are becoming more demanding. Customers may want constant updates, while those in the supply chain may wish to check on the status of their goods remotely. To meet these peaks and troughs, we can rely on automation through web and mobile applications.

Maintaining equipment

The seamless operation of a cold chain requires optimum machinery uptime. Advancements in the Internet of Things (IoT) have pushed this forward in leaps and bounds. For example, predictive maintenance minimizes disruption and caters for essential upgrades.

We are also seeing the benefits of cloud-based computerized maintenance systems, and the connectivity of smartphone-enabled apps. In some cases, technicians are even turning to augmented reality to maintain machinery remotely.



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Shane Brennan, Chief Executive, Cold Chain Federation



The benefits of IoT

“It is impressive and astounding how much IoT has become the standard,” says Brennan at the Cold Chain Federation. According to a [2019 Gartner supply chain survey](#), 59% of respondents had deployed IoT across their organizations. This has significantly impacted downtime, reducing disruption and supply issues.

With this visibility of potential problems and more responsive maintenance approaches, teams can reduce costs. IoT therefore brings down the lifetime cost of equipment while maintaining uptime. It is also essential for stock management, as noted by Desai at Unilever.

The ice cream manufacturers use smart freezer cabinets to capture out-of-stock products and send a message to the store automatically. This helps to keep shelves stocked, while IoT also provides location and temperature control data for better asset management and quality control.

How technology improves customer relationships

With enhanced transparency comes better relationships between stakeholders. Trust and visibility are essential up and down the chain, due to the risks involved, such as low temperatures and high energy consumption.

While Maersk benefit from open carrier platforms and reefer visibility assistants, the team are taking a continuous improvement approach. Welsh says: “Tech is pivotal in relationships. There is a demand for information at your fingertips. With supply chains that cross boundaries, including road, rail, sea, and air, better data brings us comfort.”

Driving sustainable change

Once again, sustainability and customer relationships go hand in hand – as aided by tech. Desai at Unilever says: “We know that food is responsible for up to 30% of all global carbon emissions, meaning we have the chance to drive real change. At Unilever, we foster partnerships with the future in mind, performing eco-innovations with technology at the forefront. This impacts how we review and collaborate with our partners.”

Achieving these goals

For better relationships and better impacts on the environment, transparency is a must. Information technology takes center stage here. Welsh adds: “All parties must have timely, accessible information. This puts the onus on strong IT. We have a heavy dependence on tech, and our next goal is to reach a single invoicing solution. We’ve set ourselves ambitious objectives, but it will drive deep trust in customer relationships.”



Sustainability and customer relationships go hand in hand – as aided by tech.

Conclusion

Cold chain logistics continue to go through a period of seismic change as they navigate the challenges of the world right now. While the effects of the pandemic may be slowing, new obstacles such as rising energy costs are causing logistics teams to reconsider their priorities.

In addition, we are seeing changing consumer habits as demand for fresher products increases. Coupled with changing regulations and staff shortages, this has put enormous pressure on the cold chain to make change. As noted by our contributors from the Cold Chain Federation, this has resulted in sustainability taking a back seat.

However, all of these problems can be addressed with technology – including turning our focus back to our environmental impact. Turning to renewable fuels and better-maintained warehouses will keep energy costs down. Meanwhile, robotics and IoT can address staff shortages and manual handling issues, while simultaneously reducing human error.

Encouraging a culture of visibility across the whole cold chain will mitigate regulatory risks, addressing factors such as temperature and overall product quality. This calls for a collaborative approach across the whole supply chain, wherein each partner uses customizable technology to monitor product integrity and keep stakeholders informed.



Encouraging a culture of visibility across the whole cold chain will mitigate regulatory risks, addressing factors such as temperature and overall product quality.



Naturally, there will be some pushback from some internal teams as we look towards a culture change. We have seen evidence of opposition to digitization, as illustrated in PWC's 2022 report on digital IQs, where executives' opinions were misaligned with IT's.

The new challenge for the cold chain will be convincing all stakeholders that these investments are worthwhile. As our paper sponsors Maersk note, an investment in renewable fuels will keep costs down, while shifts towards automation will mitigate staffing issues.

Hearteningly, we are beginning to see these organizations partnering with stakeholders who share their forward-thinking values, particularly around sustainability. We note the role of "eco-innovations" and the importance of collaborating with like-minded partners.

This also illustrates the need for strong stakeholder relationships. Technology such as remote tracking is helping to improve visibility, thereby increasing trust among stakeholders throughout the chain. In tandem, this helps us push towards our ultimate goal: to maintain product integrity.

The whole purpose of the cold chain is to protect the welfare of our end-consumers, be they consuming fresh fruits or life-saving vaccines. By combining technology such as the Internet of Things with a collaboration-first mindset, we can continue to serve this mission.

We are at the forefront of technological change within the cold chain, and advancements such as augmented reality may soon become the norm rather than a novelty. Technology has a role to play in product integrity and compliance – meeting regulatory expectations wherever products are shipped.

Likewise, technology helps us to be more reactive to external changes, for example, the shift from air to sea, or evolving customer demands. The change will not happen overnight, and logistics teams will need to strike a fine balance between financial constraints, regulation, and sustainability.

Thanks to the wealth of data now available, we have the power to make these changes. Driving down costs and greener practices may impact decision-making, but product integrity will always take precedence.

About Maersk

Maersk's mission is to integrate all container logistics, connecting and simplifying supply chains through global, end-to-end cold chain solutions. Maersk currently operates in 130 countries, driving efficiency gains for fresh produce by reducing complexity, handovers, and waste. By combining physical assets, digital platforms, and insights-driven advice, Maersk leverages its unique industry expertise to help operators develop their cold chain logistics, maintain product integrity, and meet regulatory requirements.

Find out more about [Maersk Cold Chain Logistics in Europe](#).

Find out more about [Maersk's Global Cold Chain Logistics](#).