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MAY–JUNE 2018

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COVER STORY 14

GCCA program provides online assessments and resources to create a culture of energy management.

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The new GCCA Energy Excellence Recognition Program provides tools for qualitative and quantitative assessment of a company's energy management program, resources to support creation of an effective program, and recognition for companies that are proactively managing energy needs. See the article on page 14.

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Protecting Customer Brands

EVERY DAY WE SEE HOW FRAGILE CONSUMER BRANDS CAN BE. A stray comment from an executive, an ill-advised policy, or an accident can lead to situations which can take years for a company to recover from.

For our part, the cold chain industry is well-positioned to help protect the brands of our customers, which is always critical for companies producing products for human consumption.

The IARW-WFLO Strategic Plan that has guided our organizations for the past three years notes that 90 percent of customers believe the cold chain plays a very integral role in food safety. We agree, and as an industry we remain committed not only to the highest level of food safety, but also to consistent food quality, timely and predictable delivery, and other key aspects of superior customer service.

When we do this, customer brands are protected and enhanced. It adds intrinsic value to customers while providing cost savings and access to a level of cold chain expertise that enhances the knowledge of their in-house employees.

This year, IARW and WFLO embarked on a campaign to showcase the role of cold chain companies as brand protectors and value generators through several channels, using powerful messages, customer case studies, videos, and other promotional tools. It strives to articulate our value in new, focused ways.

We're also continuing to concentrate on another important strategic initiative – talent development – to ensure that our industry has a pipeline of well-qualified, fully trained people to provide the services that customers need.

Just as customer brands are critical, so is the cold chain industry brand. We're continually building this brand to attract the best people through education and training programs such as the WFLO Institute, global NextGen Future Leader Program, the Global Cold Chain Expo, and the Online Training Website.

Three years ago our strategic planning research found that more than half of potential employees had a favorable impression of our industry. We also confirmed that more than half of member cold chain companies have succession plans for executives and middle management, and about a third have development programs for high-potential employees.

Thankfully, IARW and WFLO offers many opportunities for cold chain company employees to grow and develop their skills so they can better serve customers and rise to higher-level executive positions. The IARW-WFLO Convention, WFLO Institutes, Global Cold Chain Expo, Assembly of Committees, webinars, and chapter events are just a few of the events and training programs that we encourage employees at all levels to attend. Having participated ourselves, we can attest firsthand to the value they offer.

These programs also lead to new connections within the industry that can open up leadership opportunities on IARW and WFLO committees and other leadership groups. These are experiences that offer broad perspectives on the industry and ways to further enhance professional growth.

Through all these programs, we're building an industry legacy that not only serves the cold chain and its customers today, but has laid the groundwork for a strong, successful future.

DOUG HARRISON
IARW CHAIR

PAUL HENNINGSEN
WFLO CHAIR

COLDFACTS

COLD FACTS magazine is published every other month by the **Global Cold Chain Alliance (GCCA)**, an organization that unites partners to be innovative leaders in the temperature-controlled products industry. The GCCA Core Partners are:

The **International Association of Refrigerated Warehouses (IARW)**, which promotes excellence in the global temperature-controlled warehouse and logistics industry.

The **World Food Logistics Organization (WFLO)**, which delivers education and research to the industry and empowers economic development by strengthening the global cold chain.

The **International Refrigerated Transportation Association (IRTA)**, which cultivates, fosters and develops commercial and trade relations between all those engaged in the transportation and logistics of temperature-controlled commodities.

The **International Association for Cold Storage Construction (IACSC)**, which provides a forum for innovative ideas, promotes standards of practice, and sponsors professional education programs for the cold storage construction industry.

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THE FUTURE OF HFC REFRIGERANT POLICY

While U.S. policy remains uncertain, movement away from HFCs continues.

By Lowell Randel

The regulation of hydrofluorocarbons (HFCs) and their use in refrigeration systems remains a hot topic of debate at the global, federal, and state levels. While the trend towards HFC phasedown is spreading to many countries across the globe, the policy in the United States remains uncertain in the midst of agency actions, court cases, the Kigali Agreement, and proposed legislation.

EPA Actions

The Obama Administration set a clear policy path towards the reduction of HFCs for multiple uses. These policy moves were intended to steer U.S. policy in the direction of global trends towards HFC phase downs. The European Union had already instituted policies to limit HFC use, and negotiations were well underway to include HFCs under the Montreal Protocol.

In 2015, the Environmental Protection Agency (EPA) issued regulations through the Significant New Alternatives Policy program (SNAP) that changed the designation of some refrigerants that have high global warming potential (GWP). High GWP refrigerants including 404A and 134a, which had originally been approved as alternatives to ozone depleting substances such as R-22, were re-designated and their uses restricted. The EPA made additional changes to the SNAP list in 2016, to further restrict the use of high GWP HFCs in the future.

Court Challenges

In the wake of EPA's changes to the SNAP approved list, two HFC international manufacturers (Mexichem and Arkema) sued challenging the validity of the requiring manufacturers to replace HFCs with refrigerants that have a lower global warming potential. The companies argued that the EPA exceeded its statutory authority under Section 612 of the Clean Air Act, which was initially designed to address ozone-depleting substances. The court's three-judge panel agreed, by a margin of 2-1, that the authority given to EPA under the Clean Air Act is limited to restricting ozone depletion and does not cover global warming potential. While the court was clear that Section 612 of the Clean Air Act does not authorize EPA to regulate HFCs, it did offer the agency some options for addressing the use of HFCs, including the use of alternative authorities such as the Toxic Substances Control Act (TSCA), National Ambient Air Quality Standards Program, and the Hazardous Air Pollutants program.

EPA
United States
Environmental Protection
Agency

While EPA defended the SNAP rule before the court panel, it did not choose to pursue a rehearing or appeal to the Supreme Court. Instead, two chemical manufacturers (Honeywell and Chemours) and the National Resources Defense Council (NRDC) sought to have the full court reconsider its previous ruling and reverse the decision that EPA cannot use SNAP to regulate HFCs. On January 26, 2018, the United States Court of Appeals for the District of Columbia Circuit denied the petitions requesting a rehearing by the full court. The court's denial creates additional uncertainty for the future of HFC regulation in the United States.

In the wake of the court's refusal to rehear the case, Honeywell has indicated that it will pursue an appeal to the Supreme Court. While it is not certain the Supreme Court will agree to hear the case, such an appeal signals how strongly some companies feel about reinstating the EPA rule. These companies argue that large investments have already been made in alternatives to HFCs and that not allowing EPA to regulate HFCs through SNAP creates uncertainty in the market. Chemours and NRDC are likely to join Honeywell in the Supreme Court effort.

Kigali Agreement

While U.S. HFC policy has been challenged in the courts, global momentum continues to grow towards the phase down of high-global-warming-potential HFCs. The Kigali Agreement, approved by 197 countries in late 2016, brings HFCs within the parameters of the Montreal Protocol and calls for global reductions. Over 20 parties to the agreement have already ratified it, which was the number needed to trigger the agreement going into effect. As a result, the phasedown targets under the Kigali Agreement will go into effect on January 1, 2019.

The United States signed the agreement during the Obama Administration in 2016, but it has yet to be ratified by the U.S. Senate. President Trump has not articulated a formal position on the Kigali Agreement. Despite concerns over the Paris Climate Agreement, and climate change policies in general, there are some indications that the Trump Administration may not oppose the Kigali Agreement and ultimately present it to the Senate for ratification. Administration officials have acknowledged that some U.S. companies have made investments based on the Kigali Agreement and that the Administration is evaluating the potential impact ratification may have on U.S. jobs.

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Federal and State Legislation

Bipartisan legislation has been introduced in the U.S. Senate that would clarify the U.S. policy on HFC reduction and the Montreal Protocol. The American Innovation and Manufacturing Act (S. 2448) directs EPA to issue rules to phasedown HFCs through an allowance allocation and trading program and the advancement of environmentally friendly technologies. It also specifically requires that the new rules conform to the Montreal Protocol and the Kigali Agreement. The bill has been referred to the Senate Committee on Environment and Public Works.

Some states have also indicated that they are planning to move forward with their own HFC restrictions. Eleven states joined the petitioners in requesting the Court of Appeals to reconsider the ruling. The chair of the California Air Resources Board (CARB) has stated that regulations have already been drafted that would implement the EPA SNAP rule at the state level. In addition, California State Senator Ricardo Lara has introduced the California Cooling Act, which would place state-level restrictions on high GWP refrigerants. The Senator's legislation also includes incentives to help businesses make the transition away from high GWP HFCs. Should California and other states implement their own HFC restrictions, it would create a patchwork of rules that will make it more complicated for manufacturers and end users to understand and manage their refrigerant choices.

While uncertainties remain about U.S. federal policies related to future HFC regulation, including a potential Supreme Court challenge regarding use of the SNAP program by the EPA, the overall movement away from HFCs continues.

While uncertainties remain about U.S. federal policies related to future HFC regulation, including a potential Supreme Court challenge regarding use of the SNAP program by the EPA, the overall movement away from HFCs continues. This is evidenced by global policy such as the Kigali Agreement, state policies such as those being considered by California, and investment by industry in natural refrigerants and other HFC alternatives.

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By Sheryl S. Jackson

TAKING ENERGY MANAGEMENT TO THE NEXT LEVEL

GCCA program provides online assessments and resources to create a culture of energy management.

Cold storage operators face myriad challenges that affect their bottom line, and most companies are continually looking for ways to reduce costs, improve productivity, and attract new customers. With energy representing the second highest cost of operating in the cold storage industry – second only to labor – it makes sense that many cost-cutting initiatives focus on reducing energy consumption.

Installing LED lighting systems, exploring solar power, and using automation or sensors to optimize the use of energy are a few ways that warehouse owners have attempted to control energy costs. While these efforts are proven to be effective, the only way to create a sustainable program to improve energy efficiency is to take a holistic look at the issue and create a culture of energy excellence, says Stephen Neel, Ph.D., Senior Technical Director at the Global Cold Chain Alliance. "Energy management is not predicated on investment in new technology such as lights or solar," he explains. "These programs are effective, but they are one-offs that might create an immediate savings but won't address the entire issue."

GCCA's new Energy Excellence Recognition Program addresses the need for a comprehensive energy management program in cold storage facilities by providing the tools for qualitative and quantitative assessment of a company's efforts, resources to support creation of an effective program, and recognition for companies that are proactively managing energy needs.

This first-of-its-kind program developed specifically for the cold storage industry by the International Association of Refrigerated Warehouses (IARW) and GCCA, provides a web-based tool for the qualitative assessment that allows warehouse owners and operators to self-assess across 12 categories. By answering a series of questions that reflect strategies that become progressively more sophisticated, the warehouse owner and operator can determine the strengths and weak-

nesses in their facility's energy management program but can also see helpful hints on how to improve in areas that need improvement.

For example, one topic is management commitment to energy management, explains Neel. The first question asks if the manager or owner has verbalized intentions to become more energy efficient. If the answer is "yes," the next questions ask if the commitment has been written, such as meeting minutes, memos, or other forms of written communication. When respondents answer "needs improvement" to a question or two in the category, they are not asked higher level questions on that topic, and they move on to the next topic. "This ensures that only questions that are relevant to the warehouse owner are presented and reduces the time it takes to complete the assessment."

Each positive answer leads to a next step that requires more planning and effort, Neel explains. The value of the self-assessment is that it not only enables warehouse owners and operators to see where they are in the progression of developing an energy management program, but it serves as a template for what steps to take to create or strengthen an existing program. "Once the assessment is complete, a gap assessment in the form of a spider graph identifies areas for improvement and recommends the next steps to create a comprehensive, effective program," he says. "The recommendations also include links to online resources such as sample policies or websites that include more detailed information."

Because the qualitative assessment questions begin with basic requirements for an energy program and move up to more comprehensive strategies, every cold storage company – regardless of size and resources – can take advantage of the program, Neel says. Once warehouse leaders have established goals for energy savings and submit qualitative proof of savings – such as energy bills – they earn recognition at the bronze, silver and gold level of energy excellence, he explains.

Create A Culture of Management

Overall, the Energy Excellence Recognition Program is designed to help cold storage owners and operators create a culture of energy management that supports sustainable, continual management of energy use as opposed to identifying one-time projects that produce one-time savings, Neel says. At a minimum, the management at each facility identifies an energy champion to create and train an energy team that is responsible for developing and implementing programs to better manage energy use. "Programs could include energy waste walks, suggestion programs, and recognition for innovative actions taken by employees."

Americold has focused on continual management of energy use for many years and has invested in tools to help improve efforts, but the company is committed to the GCCA Energy Excellence Recognition Program, says Ted Royals, Manager of Energy at Americold. "We measure and evaluate how much energy we use every day," he says. "Each facility reviews its own information, and we review it centrally as well."

Even with the level of sophistication in Americold's energy program, Royals says the GCCA program will be beneficial to them. "The qualitative assessment helps focus an organization on creating a culture of energy management that includes all employees, not just one department or one group of people," he explains. An effective program doesn't put energy management on the back burner until budget meetings or monthly reviews, he explains. "To successfully reduce energy use, people have to talk about it every day at every level," he says. "It also must be driven from the top down – with the CEO and other company leaders looking at each site and warehouse managers and employees to identify ways to better manage energy costs."

The information gathered by Americold can be viewed in real-time at 15-minute intervals, explains Royals. This immediate look at what is happening is important. To manage energy use, you need to know where and when unusual usage levels occur to identify ways to reduce energy, he says. "Ongoing, real-time monitoring is important because you can't evaluate performance if you don't measure it," he says. "This data provides visibility into your facility's energy performance so that you know if you are moving the needle in the right direction."

Look Beyond the Numbers

"A common mistake is that people often drive their energy reduction program by looking in the rearview mirror, which means that they react to an increase in energy use that occurred several months or a year ago," Neel says. The better way to approach energy costs is to capture and review energy usage on an ongoing, real-time, or near-real-time basis. The review should not just focus on whether energy use is up or down but should also include a look at what situation is responsible for the higher or lower usage, he says.

For example, are the higher usage levels due to a customer who now requires the warehouse to blast freeze hot product? Are customer changes affecting the type of service and energy needs for the near or ongoing future? Are costs up due to an increase in energy rates versus increased use?

In addition to the qualitative self-assessment tool that helps cold storage facility owners and operators determine what they need to do to strengthen their overall energy management program, set goals for energy savings, and create a culture of energy management throughout their organization, a quantitative tool that facilitates data collection and verification to determine the level of recognition earned by the facility is also available. The tool allows for data input related to energy use, product throughput, facility utilization, and weather, and then relies on analytical models to normalize variations over time to report the estimated energy efficiency over time.

The qualitative assessment tool is the first step for most companies, points out Neel. It can be used to evaluate an existing program and strengthen it or to create a program. Once the facility has a program in place with policies, energy champions, and goals for energy use reduction, the quantitative tool can be used to measure progress, he explains.

"There is no pass-fail for either the qualitative or quantitative assessments," Neel points out. "This program is designed to support ongoing evaluation of a facility's performance over time." As the program grows and reaches a large enough group of participating facilities, there will be an opportunity to benchmark against similar facilities, but that is in the future, he adds.

Both the qualitative and quantitative tools required for participation will be available on the GCCE Energy Excellence website page.

"The qualitative assessment is easy to access, and participants in the Energy Excellence Recognition Program can retake it as many times as they want as they progress through the steps to establish a facility-based energy management program," Neel says. There is a cost to participate in the program, with actual fees determined by the level of recognition achieved, he adds.

"Progressing to the next level of recognition and the higher goals of energy efficiency may require investment in automation or monitoring systems, but it is not required," says Royals. "This program is not about my facility being better than yours, it is about my facility being the most energy efficient it can be." This is important, because there are many differences in age and type of structures, type of product handled, or services provided, and weather, that affect a facility's energy efficiency capabilities.

Royals has a favorite analogy to explain the concept. "This is not about making a hot rod Barracuda perform the same way a new Prius performs – it is about making the car the best Barracuda it can be."

Benefits Extend Beyond Cost Savings

The obvious benefit to participating in the GCCA Energy Excellence Recognition Program is long-term, sustainable control of energy costs, Neel says. "Cold storage facility owners and operators will see bankable savings that continue over time," he explains.

As sustainability becomes a cultural norm, the cold storage industry, which is a huge consumer of power, can become a leader in green initiatives, says Neel. "Legislative, regulatory and consumer mandates for greener warehouses also match the industry's objectives to be good stewards of our communities and environment," he says. "This program offers a roadmap to prove to all of our stakeholders that we are putting long-term plans in place to manage our energy consumption."

Another business-related benefit is the ability to differentiate your company in the marketplace, Neel suggests. As customers become more environmentally conscious and put green initiatives in their own strategic plans, they want to partner with cold storage companies that have the same philosophy, he says. "Participating in an ongoing program that ensures that a comprehensive program is in place and validates results shows customers that your company is serious about energy management."

Americold is participating in the GCCA Energy Excellence Recognition Program even though they have a solid program and a culture of energy management in place, says Royals. "No matter how good you are doing, you can always improve."

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An Overview of the Qualitative Energy Management Assessment

A new resource to help cold storage facility owners and operators create and better manage a comprehensive energy program will launch in June 2018. The easy-to-access, easy-to-complete online self-assessment that is the gateway to GCCA's Energy Excellence Recognition Program is a series of questions asked in 12 different modules.

The areas assessed are:

- Management commitment
- Resources (human and financial)
- Energy review and analysis
- Energy KPIs
- Action plans
- Operations and maintenance
- Monitoring and analysis
- Employee engagement
- Reporting, review and reassessment
- Procurement and design
- Documentation and records
- Energy management system audits

Participants answer questions that get progressively more detailed and specific. Once a participant answers "no" or "needs improvement," the assessment tool moves to the next module. For example, in the "management commitment" module, the progression of questions asks about each of these actions within the company – moving on to the next step if all answers in each section are positive:

- Verbal support for energy management
- Written commitment to improve energy performance
- Written energy policy
- Regular (annual) policy review
- Commitment to utilize energy efficient technologies, products or services
- Policy shared at all levels within facility
- Top management at the facility is committed to the policy
- Senior management performance evaluations tied to energy
- Senior management communicates site management about energy performance
- Senior management at the site has committed to long term goals

Although there are 111 questions in the total assessment survey – with the number of questions per topic varying between one and three – the use of progressive questioning minimizes the time needed for assessments when companies have programs at different points in maturity and complexity. Participants do not have to spend time on questions that do not yet apply to their companies.

A quantitative assessment tool that allows for data input related to energy use to support a company's progress toward goals set for the facility is also available, with energy use and facility data submitted online.

More information about the program will be available on the GCCE Energy Excellence website page, or contact Stephen Neel, Ph.D. at 703.373.4300 x211 or sneel@gcca.org.

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BLOCKCHAIN:

WHAT IS IT AND ARE WE READY FOR IT?

Experts separate fact from fiction and look at promising applications for the cold chain.

By Alexandra Walsh

The title of this article asks if the cold chain industry is ready for blockchain. Perhaps a presumptuous question considering most folks are probably not sure exactly what blockchain is…or isn't. And even if you do understand the technology, you still have to wade through the river of rumors swirling around how the technology may, or may not, be applied to the cold chain.

Let's start with what blockchain is.

What Is Blockchain?

According to Marc Blubaugh of Benesch, Friedlander, Coplan & Aronoff, a law firm with many clients in warehousing and logistics, blockchain is a decentralized database or spreadsheet, often referred to as a digital ledger, that is maintained and updated by a network of participating computers.

"This highly secure technology permits parties to create a record, known as a block, that is time stamped and linked to the previous block so that it cannot be altered retroactively without the alteration of all subsequent blocks," explains Blubaugh. "The digital ledger is typically available to the public but can also be made private."

Blubaugh points out that while blockchain is the technology infrastructure for cryptocurrencies like bitcoin, just as the Internet has many uses beyond email, blockchain has many uses beyond cryptocurrencies.

The Potential of Blockchain

Anna Johnson, Director of Corporate Development and Marketing for United States Cold Storage points out, "People are saying blockchain will be great for the supply chain, but how we translate what we currently know about blockchain into technology the supply chain can use, is a challenge. A whole lot of people are trying to figure that out, and there is a lot more speculation than research at the moment."

Johnson would know something about that – she's conducting qualitative case studies on the readiness of the cold chain industry for blockchain and other disruptive technologies for her dissertation for an executive doctorate in business.

"I hope my research proves that how we are dealing with the challenges of e-commerce and changes in the food retail market means we are figuring out omni-channel distribution, and that is the way we are evolving," Johnson says.

"I see the blockchain being used to facilitate the movement of goods internationally in the supply chain, but its applicability goes way beyond that," Johnson reasons. "I think its great value will be in provenance – in helping to ensure the quality, safety, and security of product in the cold chain and being able to consistently track the origin of product that consumers are eating, from farm to fork."

Melanie Nuce, Senior Vice President of Corporate Development for GS1 US, the global organization that develops and maintains global standards for business communication, the best known of which is the barcode, says from a purely technical capability, blockchain is people combining business applications with a ledger and its great value is that data can not be deleted or changed.

"What excites me most about blockchain is sharing data from one endpoint to another," Nuce acknowledges. "Consumers, more than ever, are driving innovation and blockchain is going to increase consumer trust by providing the transparency they are asking for. If the consumer wants this information, let's get ahead of data visibility and transparency and deliver to the consumer. As an industry, isn't this what we've been pining for?"

Nuce adds that blockchain will impact regulatory auditing and trading partner efficiency and trust by adding automation and reducing human effort. "Blockchain is managing the supply chain on an exception basis, so everything else just follows without a hitch. Exception management is how the supply chain will evolve because to put it in cold chain shelf-life terms – you don't want your product spending days on the road only to be rejected because you missed something in the data."

In the supply chain and logistics industry, exception management is often defined as a process that is set up to capture information that sits outside the normal parameters of doing business – exceptions to the normal flow of the supply chain. Any interruption, issue or unexpected change can be flagged under exception management processes so that a manager can intervene, see what the issue is, and immediately correct it. The effectiveness of this process is entirely based on having connected systems and a real-time information flow in e-commerce and logistics operations.

"The potential of blockchain and smart contracts (see sidebar) to lessen human effort in the supply chain is a huge investment in time saving, and automating certain repetitive tasks is using computers for what they're good at," Nuce contends. "What they're not good at is relationships. Unlike bitcoin, the supply chain will always be about relationships with partners – you're not going to sell food to someone you don't know."

Blubaugh adds that in addition to track and trace and minimizing claims, proponents of blockchain identify other potential applications for the supply chain including foiling imposter carriers, accelerating load tenders, expediting payment, and leveling the playing field. "Many of these examples of potential applications illustrate how blockchain technology can benefit smaller logistics companies with limited resources by providing them faster payment, more expeditious claims handling, more and easier bid opportunities, and the like. By empowering smaller companies, blockchain promises to make the logistics market more competitive."

Smart Contracts

Blubaugh defines smart contracts as a series of business rules that two parties may agree to adopt that implement a series of if-then rules that will be performed, at least in part, by computers without the need for third-party intervention. He also notes that a smart contract does not perform its own reasoned analysis, unilaterally write or modify itself, or eliminate the possibility of disputes.

Blubaugh cautions that blockchain is not a solution to every problem and suggests that anyone considering using the technology should ask certain questions to see if it will be the right fit. "You want to ask yourself first, do I need to get numerous parties to work together, second, do those parties trust each other, and third, how important is it to have a tamper-proof record of transaction, and I think the latter is where the technology will be most important."

What It Isn't

Nuce recalls that one of the first things she heard about blockchain was that it was going to replace electronic data exchange (EDI). "EDI in the supply chain is based around information on orders, shipments, and payments. Blockchain is a distributed ledger that allows us to get very granular, tracing a package of strawberries from this packer to that store, but it can't do it on the same scale as EDI."

"However, companies that are using globally standardized business processes like EDI already have a head start in the blockchain game, since their internal systems can communicate data with their trading partners' systems in a uniform way. This interoperability is going to be key for blockchain's success in the future," Nuce adds.

"Blockchain is not a panacea for all data and visibility that anyone can access anytime," Johnson says. "And, it's not for illegal black

market transactions, it's not nefarious, it doesn't live on the dark web, and it's certainly not a technology that will fall by the wayside."

Johnson adds that another myth about blockchain is that there is only one. "In fact there are many blockchains – public ones, private ones, open-sourced and closed. It will not completely remove all human intervention, and it won't completely eliminate food fraud and recalls."

Mango Pilot Project

Since 2016, Wal-Mart has been working with IBM to develop software that uses blockchain to track products through its supply chain, from the farm to the consumer. In 2017, Wal-Mart traced a package of sliced mangoes back to their source. It took six days, 18 hours, and 26 minutes. After Wal-Mart used the blockchain software developed with IBM to track mangoes from a farm in Mexico to U.S. stores over a 30-day period, the same exercise took 2.2 seconds.

Hurdles to Cross

Blubaugh notes that blockchain, like any other technology, has its fair share of challenges.

"At present, no uniform standards govern blockchain technology, which means it's going to be some time before most members will be able to adopt the technology in a meaningful way." But Blubaugh points out that the Blockchain in Transport Alliance (BiTA), formed by tech and transportation executives to create a forum for the development of blockchain standards and education for the freight industry, expects to develop broad standards for the transportation industry within the next 18 months.

A second significant obstacle to adoption of blockchain, notes Blubaugh, is that even if a robust set of uniform standards is developed, the success of blockchain turns on how many parties adopt it. "Specifically, the utility of blockchain technology depends on maximizing the number of network participants. Therefore, the value proposition for early-stage users is not necessarily evident."

Johnson acknowledges that the cold chain industry is not super innovative and in terms of organizational readiness, is not yet ready for blockchain. "It is a chain, after all, and as distributors, we are in the middle of the chain. So if we're not ready, we're the weakest link. We have to figure out our state of readiness and how to move it forward."

"This is my caution, and my enthusiasm: if we don't have good business processes in place – accuracy, completeness and consistency in our business and in the data we would trade with one another – it will just be more garbage in and more garbage out," Nuce warns. "That's what they've uncovered as blockchain applications have come to market."

It's Coming!

"I think if blockchain is adopted in our industry, we are only a year or two out," Johnson suggests. "With autonomous transportation, we're looking at maybe 10 years, but blockchain will be much faster because there's no need for infrastructure."

Nuce agrees. "I think we're looking at a year and a half to three years for blockchain to be fully, industry scalable, and then 10 years to full adoption. With any technology, it's a major uphill battle to adoption, but blockchain is inevitable. The cost of not investing could mean irrelevance."

Nuce adds, "Now is the time to educate yourself, know what's going on, and mentally prepare yourself for the possibility of blockchain. You can't afford not to."

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"The technology likely to have the greatest impact on the next few decades has arrived. And it's not social media. It's not big data. It's not robotics. It's not even AI. You'll be surprised to learn that it's the underlying technology of digital currencies like bitcoin. It's called the blockchain. Now, it's not the most sonorous word in the world, but I believe that this is now the next generation of the Internet, and that it holds vast promise for every business, every society and for all of you, individually."

—DON TAPSCOTT

author and co-founder of the Blockchain Research Institute, a think tank conducting 70 projects about blockchain opportunities and challenges, speaking at the TEDSummit, June 2016.

THIRD ANNUAL GLOBAL COLD CHAIN EXPO

The most valuable and comprehensive business-to-business networking event serving the perishables industry.

By Alexandra Walsh

The Global Cold Chain Expo and Conference is the only event where businesses gather to find solutions and share best practices for managing the complexities of the perishable supply chain. It is the premier destination for innovation, education and B2B networking for the entire food industry.

Held in Chicago, Illinois, June 25-27, 2018, the Global Cold Chain Expo and Conference features a cutting-edge exposition of the tools, technologies, and services needed by all partners throughout the cold chain, and an educational conference that brings together innovators and experts with senior management and rising managers from all sectors of the industry.

Co-located with consumer-packaged goods in the healthy food segment, fresh produce brands, and the floral industry, the Global Cold Chain Expo delivers unparalleled opportunities for businesses in the cold chain industry.

Individual attendees will include operations management, engineering, plant managers, transportation directors, construction and others who buy or lease cold chain services.

Companies attending will include growers and other food producers who own or lease cooling equipment, cold storage or handling facilities; food manufacturers, fresh processors, wholesalers, distributors and retailers who own or lease frozen and/or temperature controlled logistics and facilities; retailers who own or lease refrigeration equipment for maintenance of the cold chain at point of sale; and all parties throughout the supply chain who specify refrigerated transportation services from local to global needs.

The Trade Show

The Global Cold Chain Expo is the premier destination for innovation, education and B2B networking for the entire food industry. With 40,000 square feet of trade show space featuring hundreds of exhibitors from every

sector of the cold chain, the Expo is a one-stop-shop for all cold chain needs.

Together in the South Hall of McCormick Place in Chicago, the Global Cold Chain Expo will share the exhibit floor with:

- United FreshTEC featuring breakthrough innovations in mechanical harvesting, robotics, packing and packaging, and more
- United FreshMKT featuring the latest in fresh produce innovations, including the new Organic Produce Showcase
- International Floriculture Expo featuring the most outstanding suppliers of floral and horticulture products
- SmartFood Expo featuring a wide variety of consumer products including natural foods, plant-based foods, fresh and healthy, organics, raw foods, products with clean labels and limited ingredients, and a wide variety of items that appeal to consumers' demand for "better-for-you" foods.

Designed specifically for managers who make purchasing decisions, the Global Cold Chain Expo is the place to connect with solutions providers and learn about the latest technology and trends all under one roof. This destination is a can't-miss event for anyone looking to optimize their frozen, refrigerated, ambient and fresh supply chain and/or improve facility operations.

Exhibitors will include companies that provide equipment, tools, and technologies that support the infrastructure and operations of the global cold chain; design and build services for cold storage, warehouse and processing facilities; all forms of refrigerated transportation; import/export facilities and services; and companies that provide third-party cold storage and refrigeration logistics.

92% of attendees

with purchasing power have already, or are planning to, make a buying decision in the future based on their experience at the 2017 Global Cold Chain Expo.

Education Sessions

With more than 10 hours of education, the Global Cold Chain Expo is the place for all sectors of the cold chain industry to learn about industry trends in the temperature-controlled supply chain.

Educational programming is designed for operations management, engineering, plant managers, transportation directors, and others who buy or lease cold chain services including growers and other food producers who own or lease cooling equipment, cold storage or handling facilities; food manufacturers, fresh processors, wholesalers, distributors and retailers who own or leases frozen and/or temperature controlled logistics and facilities; retailers who own or lease refrigeration equipment for maintenance of the cold chain at point-of-sale; and all parties throughout the supply chain who specify refrigerated transportation services from local to global needs.

There are multiple types of educational programming offered:

- The Global Cold Chain Conference is a half-day education event that kicks off with the Opening General Session Luncheon. Attendees can immerse themselves in the trends, best practices and inspirations presented by industry thought leaders prior to the trade show opening. Gain insights during keynote presentations from food industry leaders, and breakout sessions tailored to cold storage warehouse general managers, supply chain logistics decision makers at food companies, and engineers from across the cold chain.

- Show Floor Education includes a "takeaway" for each attendee that they can implement into their operations.
- Innovation Showcase Spotlight highlights new products and technologies in a casual setting with quick, focused content.
- Construction X-Change is an informal, discussion-based series of sessions for construction professionals to discuss trends, technologies, and challenges. Sponsored by the International Association for Cold Storage Construction (IACSC).
- Ask An Expert provides answers to your most pressing cold chain questions at the "Ask an Expert" Consultation Center. An eminent group of food scientists, logistics, and packaging experts from around the world will be stationed at the center, ready to discuss your cold chain challenges.
- Regional Roundtables tackle the important issues relevant to your area of the world. Regional meetings will

take place for six regions in the United States. For our global attendees, we will have separate Regional Meetings for Latin America and Europe.

Education Session Topics

The educational content offered includes sessions about:

- Blockchain in the Temperature-Controlled Supply Chain
- Becoming a Shipper of Choice
- Automated equipment in 3PLs
- Onboarding for Increased Retention
- Facilities New Technology for Food Safety and Temperature Stability
- E-Commerce and E-Fulfillment
- KPIs for the Cold Chain
- Cold Chain Logistics Trends Around the Globe
- Construction and Food Facility Design
- Temperature Monitoring in Transportation
- Food Processor Perspective on the Cold Chain
- Understanding Your True Energy Efficiency
- Transform Unused Storage Space to Revenue Power
- Designing the Modern Warehouse
- Food Maximization Across the Cold Chain

The 2018 Global Cold Chain Expo is the premier event for mid-level managers in the temperature-controlled logistics industry to come together in a space created just for them. Nowhere else will the general managers, facility managers and supervisors of cold storage companies find educational programming on operational and technical subjects tailored so specifically to their needs, as well as the opportunity to visit so many exhibitors that serve their businesses.

To learn more and to register, visit www.globalcoldchainexpo.org.

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86% of attendees

said that the 2017 Global Cold Chain Expo was worth their investment – both in time and money.

A CHANGE IN CULTURE

Working to improve relations between truck drivers and warehouse operators.

By Karen E. Thuermer

Warehouses and trucks are critical links for all cold chain operations. Simply put, warehouses could not exist if it were not for trucks and truck drivers, and trucking firms would not exist if trucks and drivers did not have a place from which to pick up shipments and make deliveries. "It's a symbiotic relationship. Warehouses need trucks and trucks need warehouses," says Todd Lanter, Director of Transportation at Henningsen Transportation Services.

Truck drivers and warehouse operators function, however, on two opposite spectrums. "Truck drivers wish they could show up whenever the timing is good for them and get loaded quickly. Warehouse operators want everyone to show up at their appointed time so they can plan labor properly," comments Keith Mowery, Vice President of Transportation and Logistics for United States Cold Storage. "They want to operate in opposite perfect-world environments. The warehouses want a very structured schedule. Truck drivers want to show up when they can, load up quickly, and get out."

Consequently, relations between the two have not always been good. In fact, truck drivers are frequently viewed negatively and treated with little respect. Meanwhile, the trucking industry appears to be on a collision course given the critical shortage of truck drivers and skyrocketing trucking costs. On top of that, trucking capacity has tightened significantly with market rates reflecting as much.

Driver Shortages, High Volume and Regs

The American Trucking Associations' (ATA) data indicates that since the Great Recession, freight volumes have been going through the roof. For 2017, ATA's seasonally adjusted (SA) For-Hire Truck Tonnage Index, compared to 2016, was up 3.7 percent – the largest annual gain since 2013 (6.1 percent). ATA reports that annualized driver turnover rates have

recently been as high as 95 percent, adding that the shortage falls between 35,000 and 40,000 drivers.

The reasons for the shortage are many: age, gender inequality, life style issues, long hours away from home, cost of obtaining a commercial driver's license, and mounting regulations. To attract drivers, some trucking companies are offering sign-on bonuses upwards of $10,000.

Compounding the issue, for reasons of safety and to avoid fatigue, drivers are restricted by law from driving more than 11 hours per day without taking an eight-hour break. To ensure more drivers follow the law, a mandate went into effect December 18, 2017, under the Federal Motor Carrier Safety Administration (FMCSA) that requires truck operators to use electronic logging devices (ELDs) to keep records of duty status.

"The federal regulations are about how many hours a driver can operate in a day and how many hours they can be on duty in a day," comments Mowery. "That's why truck drivers are always asking how long it will take to get loaded and when they will be able to leave the warehouse. They are regulated by the federal government on how much they can work a day. Warehouse operators aren't. It would be good for warehouse operators to understand how truck driver hours of service work."

The ELD mandate particularly applies pressure on driver efficiencies, which effectively squeezes available capacity. Carriers that implemented ELDs prior to the mandate date have reported a 5 to 10 percent loss of productivity. On a manual log, drivers generally knew when they were beginning their bulk drive time. Automatic logs are based on accuracy, depending on how you look at it.

Two Perspectives on Delays

Most carriers have been collecting data on shippers/receivers for some time. This can include data on truck turn times, reasons for delays, late fee risk, and facility driver accommodations. The reason for collecting the data is because carriers need to know details concerning truck routing origins and destinations to assess accurate lane costs and whether or not drivers can recover their costs. Such factors are critical in ensuring drivers are treated properly by the trucking company.

"A lot goes back to warehouse operators planning their labor according to a schedule," Mowery remarks. "When the schedule doesn't happen the way they had planned, it can cost the warehouse more money. One way warehouses offset that cost is by charging late fees to the carrier for showing up late."

But from a truck driver's perspective, there may be a lot of reasons for being late: bad traffic, weather or road conditions, a longer than expected loading at a previous warehouse, equipment breakdowns, or other factors. "From a truck driver's perspective, why should he or she be penalized for showing up late when the reasons are out of his or her control," Mowery says.

"Remember that one of the largest challenges for a carrier is hiring and retaining drivers," Lanter emphasizes. "If drivers are not happy, they leave, so trucking companies want to take care of their drivers."

Consequently, in an effort to both maintain drivers and remain efficient as a trucking company, many carriers are placing a premium on shipper/receiver points that indicate a track record of exorbitant driver delays or are simply choosing not to handle the freight and utilize the driver's services elsewhere in their network.

With capacity and increased rates at stake, Lanter suggests that warehouse operators explore those factors that contribute to driver delays and work to reduce the impact of those factors or eliminate the root cause to reduce truck turn times.

"Late fees that are especially punitive should be reviewed for necessity and effectiveness," he says. "High volume carriers should explore drop and hook agreements to maximize a driver's time hauling freight as opposed to waiting for a live load/unload at the distribution point."

Mowery suggests taking advantage of drop and hook as much as possible. "That is one way to avoid having drivers sitting around and also for the warehouse to unload when labor is available," he says. "This is probably the number one solution for how warehouse and trucking companies handle this."

Bottom line: warehouses that can readily load/unload a truck in place of a notified missed appointment, gain efficiency through flexibility.

Try a Little Respect

Warehouse operators should also plan ahead on how they will handle late trucks. "It's going to happen, so it's good to think about what's right for the warehouse facility rather than making them sit for a day," Mowery says.

Reasonable communication is particularly helpful when an appointment is going to be missed and those expectations need to be communicated to the carrier community. Mowery suggests communicating with the drivers up front.

"Do not lie to them," Mowery says. "If the warehouse is backed up and they are going to be there for six hours, explain that to them. Share as much information as you reasonably can. A lot of times, the way you present information can result in how someone reacts. Driver interaction is no different than that with any other person. As a society, we need to realize that truck drivers are human."

Lanter agrees. "Simply treating drivers – and their time – with respect will increase the job satisfaction for an already difficult job," he says. "That starts with understanding the pressures they and their companies encounter in an industry that must manage many unknown variables out on the road and at prior shipping/receiving points. There are numerous factors out of the driver's control that can contribute to unforeseen delays in route."

After all, everyone's goal in the supply chain is to deliver goods to market safely, in good condition, and on time. It takes all parties working in conjunction to achieve this goal, each and every day.

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STRENGTHENING THE COLD CHAIN IN VIETNAM

Technical expertise and advice will help reduce post-harvest losses.

By Alexandra Walsh

With a focus on wasting less food and reducing greenhouse gas emissions from food loss through a strengthened cold chain, Carrier hosted the 2018 World Cold Chain Summit to Reduce Food Loss in Ho Chi Minh City, Vietnam, in early March 2018.

While this was the fourth World Cold Chain Summit organized by Carrier, it was the first to focus on cold chain development efforts in one specific region. According to Carrier, Vietnam was chosen because there is a huge opportunity to cut food waste in the country and improve food distribution by implementing cold chain technology.

Vietnam's cold chain capacity has quadrupled in the last 10 years and nearly all cold chain logistics facilities are

above 90 percent capacity

Vietnam's food supply chain loses an estimated 5.75 million tons of food per year, accounting for 60 percent of the country's entire municipal solid waste, according to a the 2011 Vietnam Environmental Report.

At the summit, food supply chain stakeholders, academics, and policymakers were asked to collectively identify significant opportunities in the Vietnamese food supply chain, diagnose root causes leading to losses, and evaluate different cold chain solutions for Vietnam and potentially other developing countries in the fast-growing Southeast Asia region.

The Marketplace

Located in Southeastern Asia and bordering the Gulf of Thailand, as well as China, Laos, and Cambodia, Vietnam is about three times the size of the U.S. state of Tennessee.

Vietnam is a densely populated, developing country that has been transitioning since 1986 from the rigidities of a centrally planned, highly agrarian economy to one that is more industrial and market based, and the country has raised incomes substantially. In 2016 and 2017, Vietnam reached annual GDP growth of 6.3 percent, reflecting the strengthening domestic demand and strong manufacturing exports.

Vietnam has a fairly young population of 90 million citizens who increasingly speak English as a second language. Although it has one of the highest population densities in the world, the population is not evenly dispersed.

The country has a stable political system, is committed to sustainable growth, relatively low inflation, stable currency, strong FDI inflows and a strong manufacturing sector. In addition, the country is committed to continuing its global economic integration. Vietnam joined the WTO (World Trade Organization) in 2007, and since then, has concluded several free trade agreements.

"Vietnam has experienced a cultural and economic shift after joining the WTO and opening up to foreign investment," observes Jeff Hogarth, President Asia Pacific for Emergent Cold, a leading provider of temperature and humidity-controlled warehousing with capacity for more than 40,000 pallets in Ho Chi Min City, and a recently opened LEED Gold-standard 8,200 pallet warehouse servicing Hanoi. "The growth in the food sectors around retail and QSR (Quick Service Restaurant) are increasing rapidly, driving the need for the cold chain sector to support this growth. Indications are that food spending is expected to increase on average by 10.5 percent annually to reach over $31 billion by 2020 in Vietnam."

Hogarth says that traditionally, the Vietnamese eat fresh food products with a fragmented chilled and frozen food sector. "As retailers roll out their supermarket models, there has been a change in eating habits with small-format convenience stores offering a limited chilled and frozen range with ready to eat and ready to cook type products growing in popularity."

Hogarth points out that American food and beverage franchise brands have become big players in the market as Vietnamese consumers associate Western brands with quality and lifestyle and these consumption preferences are emerging with 70 percent of the population aged between 15 and 64 years of age.

Jon Shaw, Director, Global Communications & Sustainability, Carrier Transicold & Refrigeration Systems, notes that Vietnam's modern retail penetration is currently around 25 percent, with a five-year compound annual growth rate of around 20 percent. He says with increasing disposable incomes, rapid urbanization, and rising living standards, Vietnam is one of the most dynamic emerging economies in the APEC (Asia Pacific Economic Cooperation) region, and retail giants have been investing in the country to target its young consumers.

"Mom-and-pop stores and wet markets are prevalent throughout the country, as is fresh food consumption, which is estimated at more than 60 percent as compared with Western Europe at 35 to 40 percent," Shaw says. "With urbanization increasing, completion of the cold chain is critical to ensure the safety and quality of fresh food."

Jon Shaw (far right) at the Carrier World Cold Chain Summit to Reduce Food Loss in Ho Chi Minh City, Vietnam. (Photo courtesy of Carrier.)

Hogarth notes that the type of storage required in Vietnam is similar to that of Indonesia, and is heavily weighted towards primary storage of raw materials. "However, recent developments have trended towards higher SKU levels with increased touch processes and faster turnaround of FMCG (Fast Moving Consumer Goods) commodities as retail supermarkets are opening up to a higher percentage of the population."

Of Vietnam's cold chain capacity, Shaw says it has quadrupled in the last 10 years and that according to cold chain experts in Vietnam, nearly all cold chain logistics facilities are above 90 percent capacity.

Hogarth adds that according to the Vietnam Cold Storage Market Report, the total designed capacity of Vietnam commercial cold storage was estimated at 450,000 pallets in 2017. "There are up to 20 professionally managed commercial cold storage facilities in the south of Vietnam and between 40 to 50

in the north, with many smaller, independent cold storage facilities across the country."

Cold Chain Challenges

In emerging markets like Vietnam, notes Hogarth, the need for improved infrastructure of roads, surety of power supply, and the need for improved food safety processes are critical for economic growth as both a major food exporter and to meet the increasing FMCG growth across retail supermarkets and QSR segments.

"Most developing countries' cold chain costs are challenged by expensive in-land freight costs compounded by high fuel costs and, in Vietnam's case, obsolete vehicle fleets," Hogarth explains. "Therefore, companies are highly susceptible to non-compliant cold chain distribution, including overloading of vehicles and usage of non-refrigerated transport modes breaking the cold chain in the last mile distribution."

"Traditionally, the cold chain logistics sector in Vietnam has been fragmented with small and medium service providers that provide localized services that do not cover the end-to-end food supply chain," Shaw explains. "Broken cold chain logistics is a common occurrence in Vietnam's food retail market, especially the general trade channels, which comprise traditional wet markets, family grocery stores, and street food shops, accounting for 86 percent of total retail value."

"While investment in pre-cooling – getting perishable fruits and vegetables into a controlled environment as quickly as possible after harvest – helps to reduce food loss, perhaps the biggest challenge we see in developing economies like Vietnam's, is a shortage of refrigerated vehicle resources compared to refrigerated warehouse space," Shaw says. "This is the result of several factors: lack of roads, lack of technical skill to maintain equipment, lack of funding to support the purchase, lease, operation, and maintenance of refrigeration equipment, and, in many cases, there are hurdles that must be overcome such as a lack of understanding about the advantages of refrigeration."

Opportunities and Solutions

The application of existing cold chain technology can make a substantial impact on reducing food waste and feeding more people, provided it is well suited to the conditions.

According to Shaw, transport refrigeration equipment in a country like Vietnam needs to be:

- Able to withstand high ambient temperatures (over 100 degrees F)
- Able to withstand the jarring and vibration of rough roads
- Able to go for long intervals without service
- Affordable – around 10 times less than the least expensive equipment available today

"Carrier Transicold is working to develop solutions for road transport and will start field testing very soon," Shaw acknowledges. "We also see tremendous opportunities in developing economies to train technical staff and increase awareness about the advantages of the cold chain, and that's an area we are focusing on in Vietnam. It is why we signed a memorandum of understanding with The Viet Nam Institute of Agricultural Engineering and Post Harvest Technology (VIAEP), an agency under the Ministry of Agriculture and Rural Development of Viet Nam, to cooperate on developing the country's cold chain."

Hogarth indicates that every category of transportation infrastructure has improved since 2011, though the quality of roads and the overall quality of the transport infrastructure remains very low. "Emergent Cold is monitoring the state of domestic infrastructure capabilities, and we believe this is a key barometer to how the government seeks to provide strong demand for foreign construction investment. Although retailers have expanded in Vietnam in recent years, the distribution networks remain underdeveloped and Emergent Cold will continue to develop great trading partner relationships to provide a safe and efficient last mile distribution service. This complete cold supply chain capability will require future investment in new facilities to maintain the levels of growth experienced across Vietnam."

Hogarth points out that not unlike a number of developing countries like Laos and Cambodia, food waste on farm, and farm to primary markets, provides opportunities for the cold chain industry to contribute to the economy into the future.

"Investment in transport and improved infrastructure will require greater governmental focus and support to ensure further cold chain investment in developing the 'farm to fork' safe food supply chain," Hogarth notes. "There is also a gap in supporting the primary markets, and small regional facilities tend to accommodate the aquatic industry sector, and the larger scale cold chain resources service the consumption end in Ho Chi Min and Hanoi markets. Having said that, Vietnam is ranked 48 out of 160 countries in The World Bank's 2014 Logistics Performance Index (LPI). The LPI indicator for Vietnam's logistics performance, including Customs, infrastructure, international shipments, competence, track and trace, and timeliness has shown improvement in almost every category of the Index since 2007, which is a very positive trend for companies investing in the logistics and cold chain industries."

Hogarth believes the Vietnamese Government is doing its utmost to improve the underlying challenges to support a more cost-effective and compliant cold chain that will ultimately deliver safer food to the community. He adds that World Bank Doing Business Ranking has Vietnam at 90, just behind China at 84 and compared to India at 130.

"I guess with individual company experiences it will vary to whether you agree or not, but the Emergent Cold business in Vietnam is very strong and we have seen tremendous growth as the retail and QSR markets continue to expand rapidly," Hogarth points out. "Our new facility in Hanoi was completed in 2017, and we are already pleased with the occupancy growth experienced by offering and following HACCP-certified food safety handling requirements. In fact, in January 2018, the Bac Ninh facility in Hanoi received the LEED 2009 New Construction And Major Renovations Platinum Award after fulfilling the requirements of the LEED Green Building Rating System. We are very proud of our General Manager, Ngo Quang Trung, and his team's achievement in receiving this award."

Hogarth also notes that the international standards introduced by market entrants like Emergent Cold have provided ongoing leadership in training and development, cold chain compliance, food safety standards, and international construction techniques and standards over the past 10 years. "The further development of warehouse management systems has enhanced the ability to track and trace and provide customers with online vision of their inventory."

Hogarth says Emergent Cold is determined to offer the solutions to tackle the perishable food waste issues associated with poor cold chain practices by continuing to grow its network in Vietnam and across the company's expanding global reach, and into emerging markets. "Training, development, and retention of key staff in the industry as a whole will enable the progress of improved food safety and a generally safer work environment in these developing locations."

Looking to the future of Carrier Transicold in Vietnam and the agreement signed with VIAEP, Shaw says, "Going forward, Carrier Transicold will provide expertise and advice on cold chain technology that can help Vietnam reduce post-harvest losses and the associated carbon emissions, increase food safety, maximize potential for small-holder farmer revenues, and feed more people."

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ALL IN THE FAMILY

Strategies for success with your multi-generation family business.

By Jeremy Lurey

Family business is often described as the oldest and most common model of economic organization. In the United States alone, there are roughly 5.5 million family businesses. Maybe more importantly, these businesses account for more than 50 percent of the U.S. gross domestic product and about 75 percent of all new jobs that are created every year.

While there has been significant consolidation in the cold storage industry over the past several years, it is estimated that more than 90 percent of GCCA member companies are still privately held. Of those, the overwhelming majority are also family-owned and operated, so creating a sustainable multi-generation family business remains a critical concern across the cold chain. However, only about 30 percent of all family businesses successfully continue from the first to the second generation. The success rate for transitioning to the third generation, and especially maintaining a viable fourth-generation family business, drops dramatically from there. That's frightening given that these family businesses are the backbone of our industry.

Family businesses by their very nature are complex. It is not just about managing and operating a sustainable business with a family business. It is about the leadership and governance practices required to keep any family drama and unproductive relationships away from work. In multi-generation family businesses, you may have 50 or even 100 plus years of history running the company. On the personal side, that's multiple generations of family members living and growing up together who need to work together to operate that business. That can create a lot of added stress and anxiety that doesn't exist in other business settings and that many family business leaders are poorly equipped to handle.

"There is a natural divide between the older generation in family businesses that tend to be risk averse and less comfortable with change and the younger generation that often have new ideas for the business and want to grow," according to Ken Ude, Director of the Family Business Program at the University of Southern California. "The key to success with family businesses is effective communications. Open, honest, transparent, and respectful communications. At work, and at home." He continues, "Healthier families simply talk to each other and communicate more effectively."

How else can you increase the likelihood for success with your multi-generation family business? The following are some proven strategies for success that GCCA members have shared to help any family business leader secure his or her legacy from generation to generation.

Reinforce Family

Reinforce that family-like culture versus more formal corporate culture at work. Many family business owners across the cold storage industry pride themselves on creating positive work environments for their employees where they treat everyone like family. Reinforcing this point, Mike Henningsen, the fourth-generation Chairman and President of Henningsen Cold Storage, says they "have created a company culture based on how we'd want our family to treat others." This is not nearly as common with larger corporations.

Draft a Family Business Charter

A family business charter serves as the family's constitution to define their mission, vision, and values and document key business practices, like employment policies, for future generations. The charter is a living document that can be refined over time, but it clearly communicates the strategic intentions and operating guidelines for a family and its business ventures from one generation to the next. It also provides a strong foundation for future decision-making and conflict management well before any issues arise between or within generations.

Convene Family Council Meetings

Once the charter has been drafted, it is important to share the content of that charter with any family members who have an interest in, or might otherwise be impacted by, the business. This might include establishing a family council comprised of only active business managers to meet monthly or holding an annual retreat for all family

shareholders/owners and their immediate families, or anything in between. The point is to establish the governance required to run the family's business, continually monitor its performance, and keep everyone informed about how it is doing.

Separate Business from Family

Business focus at work, family focus away from work. Some family business members regularly talk about personal matters at work and business matters at home. While this may be effective for some, it regularly creates problems for others, so avoiding this blurring of the lines is recommended wherever possible.

According to Henningsen, "The key to success is to run your family business like a publicly traded company. We have outside directors on our board, and we don't wear our family hats at work. We treat our family members like business colleagues, no different than our professional managers."

If nothing else, referring to people by their individual names at work rather than familial terms like "Mom" or "Uncle Joe" is strongly encouraged just as if these individuals were non-family professional hires.

Distinguish Ownership from Management

Depending on the terms of your family business charter, it is quite common for family members to be "passive owners" of the family business rather than "active managers." Passive owners might receive a monetary distribution when the company does well, but they have no say in the day-to-day management of the business. Active managers, on the other hand, have some level of operational authority whether they own equity in the business or not. This means that family members can be peers in the boardroom but direct supervisors and direct reports at the management conference table, so it is important to make sure family members know when they need to defer to their higher-level, more senior relatives, like the CEO, versus when they may have an equal vote.

Define Management Responsibilities

It is imperative to determine who does what in the business. In less diversified family businesses, that often means assigning functional responsibilities (operations, finance, human resources) to one relative or another. In larger entities, that might mean assigning separate business units to different family members like Tony Leo and his brother Russell do at RLS Logistics.

According to Leo, who is the third-generation President and CEO of RLS' Warehousing Group, "My brother and I grew up in the business beginning when we were 12 and 13 years old. We moved up the organization through all roles and naturally evolved into our areas of passion and interest

in warehousing and transportation. Our employees need a clear boss, so at the end of the day each of us makes the final decision about our part of the operation."

The obvious benefit of this is that it minimizes any overlap or potential conflict between family members. It also enables you to put a trusted partner in charge of running other critical areas of the business, so you don't have to.

Plan for your Leadership Succession

Family business succession planning facilitates the handoff between generations and enables the transfer of management responsibilities and ownership from one leader to the next. Successful family businesses support their next generation in pursuing their individual passions, but they also prepare for their businesses to be multi-generation legacy businesses before their current family business owners move on.

"Our succession plan was unique in that our father believed you had to be in or out as the owner," Leo says. "He always thought that if you have a son or daughter who is capable, then you must be willing to step aside. He didn't keep my brother Russell or me from critical meetings with our major customers or bankers, for example. Instead, he got us involved in these big meetings during the transition."

Executive coaching and other leadership development programs can be invaluable to helping next-generation family members develop the functional skills and executive presence needed to run the family business.

Family First Mindset

Remember, family always comes first. The business, many would argue, is simply a means to an end. And if the end is taking care of, and providing for, the family, many family business leaders believe that takes precedent over pure business results. This can put undue pressure on the business, though, if it means hiring a family member who isn't well qualified simply because he or she needs a job. To be clear, that isn't the suggestion. What this really means is that family business owners will convene family dinners and other social gatherings outside of shareholder meetings or whenever else the family can come together so that family members can prioritize both the family and the business. If you take this "both/and" rather than "either/or" approach to your family business, perhaps you too can maintain an unwavering focus on nurturing your family while still honoring your primary commitments to the customers you serve and employees you hire.

Family businesses offer family members a rich foundation for whole-life experiences and tremendous wealth-generating potential. They are, however, often ripe with relational chaos that can create emotionally charged environments that don't exist in other business settings. No wonder it is so hard for these companies to continue from generation to generation. These strategies from GCCA members, though, can lay the foundation for greater success and enable any family business across the cold chain to create a more sustainable future for future generations.

DR. JEREMY LUREY is the President and CEO of CHIEFEXECcoach, a Plus Delta Consulting company, is a member of the WFLO Institute Faculty, and his firm serves as the GCCA Talent Management Service Partner.

EMAIL: jeremy@chiefexeccoach.com

NEW MEMBERS

NEW MEMBER COMPANIES OF GCCA CORE PARTNERS

IARW-WFLO WAREHOUSE MEMBERS
John Keells Logistics (Pvt) Limited
Jayathilake, Colombo, Sri Lanka

IARW ASSOCIATE/SUPPLIER MEMBERS
Bulldog Battery Supplier
Wabash, IN, United States

IACSC PROCESSOR/ MANUFACTURER MEMBER
Brucha Corp.
Denver, CO, United States

IRTA MEMBERS
John Keells Logistics (Pvt) Limited
Jayathilake, Colombo, Sri Lanka

Nirotrans bvba
Vissenberg, Malle, Belgium

COLD CHAIN INNOVATIONS

TIPPMANN INNOVATION

TECH COMPANIES APPLY IoT TO THE COLD CHAIN

IT Services and consulting company T-Systems was looking for innovative IoT (Internet of Things) partnerships when it met its partner, Roambee, three years ago. The technology company, owned by Deutsche Telekom, was looking for a fresh direction in the IoT space that served its existing customers' needs. Logistics solutions were a natural fit, and cold chain solutions spoke directly to the needs of several of their enterprise-level customers. Those customers were experiencing loss of goods due to lack of visibility, temperature excursions, serialization challenges, and the need to know and verify independently that specific conditions were met throughout their global supply chain.

T-Systems found partner Roambee and they began solving those challenges together. Using Roambee's innovative devices and robust platform and analytics, T-Systems added valuable pieces, such as hosting and world-class security, to create an end-to-end solution for its customers. Now, shipments and goods can be monitored throughout the entire supply chain, while making sure that temperature thresholds (along with humidity, light, tilt, altitude, impact shock, and tampering) are monitored and documented.

"In partnership with Roambee, T-Systems has been able to deliver technology for the cold chain that has significantly reduced costs and improved operational and logistic processes for our valued customers, while showing them additional benefits of IoT technology as applied to their industry," says Bertus Cilliers, Chief Financial Officer of T-Systems, North America.

By monitoring shipments in real-time and instantly flagging issues such as temperature excursions, hardware/coolant malfunctions, or deviations from handling protocols, customers can take measures to prevent damage in transit.

Active tracking through logs and real-time alerts about temperature breaches gives shippers and 3PLs enough of a heads-up to contain problems before the damage is irreparable – making this technology very valuable. In addition to the apparent benefits of using this type of technology, there are less obvious but equally compelling benefits like reducing legal liability, better maintenance of equipment, instant audits and verifications, reduction in delays, reduction in working capital, reduced shipping (and packaging) costs, and reducing damage due to bad handling.

Cold Chain Innovations, a column brought to you by Tippmann Innovation, features the latest technologies, cutting-edge solutions, and innovative practices that the cold chain industry has to offer. Featured in each issue of COLD FACTS Magazine, the Cold Chain Innovations section gives readers thought-provoking ways to optimize their supply chain and improve operational efficiencies. The information presented in the Cold Chain Innovation section is sourced from GCCA members. To feature your news, press releases or submit your idea for a future Cold Innovation article, contact Laura Poko at lpoko@gcca.org or call 703.373.4300.

COOL SOLUTIONS

SCIENTIFIC ANSWERS TO COLD CHAIN CHALLENGES

This column highlights a cold chain question and answers submitted through the GCCA Inquiry Service to the team of experts on the WFLO Scientific Advisory Council (SAC).

To get instant advice from a private, online community of over 4,000 cold chain professionals, simply post your inquiry in the GCCA Online Community. All GCCA Members and their employees can access the GCCA Online Community at community.gcca.org/home. There are active forums for Construction & Engineering, Government Affairs, and Third Party Logistics.

If you are not a GCCA member, or are unsure how to post in the GCCA Online Community, contact the GCCA Inquiry Service at www.gcca.org/resources/industry-topics/gcca-inquiry-service. GCCA Members can also browse the full archive of inquiries and responses in the GCCA Inquiry Service Archive. Access to previous inquiries is restricted to members of GCCA core partner organizations.

Background on the Question

A GCCA member recently won a contract to store green coffee beans, but is concerned about odor-transfer issues. Some of the beans will be delivered in sealed Grainpro coffee bags, which are a jute bag with an airtight hermetic liner, therefore no aroma transfer. Bagged pallets are stacked on a slip sheet using the interlock method. Each pallet is shrink-wrapped top to bottom, no gaps with a minimum of four wraps to secure the load. Each pallet is then topped with a plastic cover sheet. Pallets are either 16 x 59-70kg/pallet or 32 x 30kg/pallet, depending on the bag size.

Other beans will be delivered to store in large bulk bags that have not been properly sealed. These bulk bags are approximately 1.5m in height and the standard 1.2W x 1.2L/pallet. Bulk bags are not fully sealed but the top is folded down. This mean the product can be prone to aroma transfer. A 20ft FCL holds 20 bulk bags and is unloaded by fork truck.

Q: The WFLO Commodity Storage Manual recommended storage temperature of 35-40°F with RH of 40-60 percent. However, our client has advised that they would be happy with a storage temperature of not warmer than +20°C or (68°F) and low RH. Can you confirm that reducing the storage temperature to your recommended 35-40°F will not have any adverse effect? I am concerned that the odor transfer is a two-way street! Can you advise me of any products that must not be stored in the same chamber as the coffee beans?

The SAC member responded with follow-up questions for clarification and the GCCA member's answers follow:

- Are the beans fresh?
  The coffee beans are shipped direct from a warehouse in Brazil, with transit taking between 28 and 33 sailing days, therefore, beans are normally between 40 and 50 days old when we receive them.

- Do you know the humidity content?
  Our facility is in a sub-tropical climate, so humidity throughout the summer can be a problem, even for products usually stored at ambient. It is the transfer of odor that we are really concerned about. The relative humidity at the storage warehouse (prior to shipping) is between 60 percent and 71 percent. However, being a sub-tropical location, we can have days where the RH can exceed 85 percent.

- What quantity is to be stored?
  At present not greater than 200 tons at any given time.

- How long do the beans need to be stored?
  Beans will be stored an average of three months before being sold to local coffee roasting companies.

- What else will be stored in close proximity?
  We currently have a variety of nuts and cartons of chilled meat held in our chillers. The focus of my query is to ascertain what combinations of products need to be avoided.

A: Unfortunately, there are no ideal conditions for all of the variables mentioned because of the diverse factors involved (variety of beans, source, type of drying/processing, the fate of the beans after storage, the storage infrastructure and conditions to be used, and the requirements of the bean owner). Nonetheless, here are some things to consider:

Temperature Controls: Many variables, including temperature, affect bean quality. Recommendations for ideal storage temperatures for coffee varies from as low as 5°C (40°F) to 22°C (70°F). In the end, the ideal conditions depend on the climatic conditions of the region in which the coffee is stored, the storage duration, etc. A continual monitoring of ambient conditions of the storage, especially humidity, and protection against fluctuations in temperature and humidity are very important.

Relative Humidity: Humidity is much more important than temperature during coffee bean storage. Coffee beans are sensitive to moisture. When storage conditions are too humid, coffee beans acquire a moldy, fermented flavor and a darker color.

Humidity control in coffee bean storage facilities allows the beans to retain the appropriate moisture content and flavor profiles. The water content of the beans required for secure storage is between 10 and 12 percent. Therefore, it is very important for safe storage to ensure that beans accepted into storage are sufficiently dry. Relative humidity recommendations range between 50 percent to a maximum of 70 percent. Coffee beans stored at RH less than 70 percent are maintained stable for most, if not all quality criteria.

In cases where the surrounding air is at high RH, as I understand from the conditions noted in the inquiry, it is recommended to build tight-fitting stacks of coffee bags to minimize moisture exchange with the air. If the surrounding air is dry (RH <78 percent), then the stacks of coffee should facilitate passage of air as much as possible.

Bags should be piled on pallets or similar structures to prevent any possibility of re-wetting from the floor and, more importantly, to permit better air circulation. Bags should be

piled away from walls to avoid re-wetting by condensation and the storage area should be well ventilated.

It is important to reiterate that stable conditions with proper ventilation and insulation are the best because temperature and humidity fluctuations result in condensation and bean fermentation. If the beans get wet, they are likely to experience mold growth if they are not dried or roasted within a couple hours.

Packaging: Among the other diverse important factors is packaging. It is important to make sure that the packages used are adequate with relation to the environmental conditions of the storage system used (especially temperature, relative humidity and air circulation). Traditionally, green coffee beans have been stored in jute sacks. Jute is most frequently used because it is readily adaptable, especially to small-scale commerce, and because it is easily sampled for lot inspections. However, elevated operational costs that result from the need for manual handling represent one disadvantage of storage in jute sacks. Another disadvantage is rapid deterioration in quality when the beans are stored in warehouses without good ambient air control.

Containers called "big bags" represent another form of storage used in Brazilian warehouses. The ease of mechanized handling, along with operational economies of scale, represent the principal advantage, but "big bags," like jute sacks, have the disadvantage of being permeable to water vapor and to gases present in ambient air.

Woven polythene bags are also widely used, and while they still do allow some gaseous exchange with the external environment, it is more difficult for humid air from within the bag to escape.

Impervious plastic bags should not be used to store coffee. Storage in hermetically sealed systems that permit atmospheric modification or control represents a viable alternative for preserving coffee bean quality.

Certain additional costs are acceptable for the preservation of quality in select coffees of higher value. Plastic sacks impermeable to CO_2 have recently entered the market in response to the growing demand for new methods of storage for coffee beans. These bags, sold under the name "GrainPro,"are used to line jute sacks in which green coffee is stored.

(continued on page 42)

MEMBER NEWS

NEWS FROM MEMBERS OF GCCA CORE PARTNERS

CATHAY PACIFIC CARGO entered a new partnership with **VA-Q-TEC**. va-Q-tec's advanced passive thermal containers are designed to maintain a constant temperature during transportation for more than five days. This will be a strong addition to Cathay Pacific Cargo's Pharma LIFT portfolio by providing customers with an solution for moving pharmaceuticals by air freight.

COLDBOX BUILDERS, INC. completed phase one and two projects for VersaCold Logistics Services, and launched phase three, which is scheduled to be completed by December 2018, bringing total operational space to over 19.1 million cubic feet.

COLMAC COIL MANUFACTURING introduced its new Shell and Helix heat exchanger intended for use in Ammonia/CO2 cascade refrigeration systems.

DANFOSS is accepting entries for its ninth annual EnVisioneer of the Year award competition. Launched in 2010, the competition recognizes North American original equipment manufacturers, building owners, municipalities, contractors, and end users that have introduced a new product, opened a new facility, or invested in a building or system upgrade in the past 18 months using Danfoss products or solutions to realize significant energy and environmental savings. The application deadline is June 1, 2018. For more information, visit www.danfoss.us/news/envisioneer-of-the-year/.

HANTEMP CONTROLS released its Stainless Steel Flange Bulletin FL 612h, which includes the newly available size 050 flanges. The flanges are compatible with size 050 flanges from other manufacturers, making them an ideal choice when upgrading to stainless steel piping.

PIONEER COLD LOGISTICS promoted Bryan Hedge to President. Hedge joined Pioneer in 2007 as Vice President of operations and was promoted to Chief Operating Officer in 2012.

RLS LOGISTICS facilitated donations of over 16,000 pounds of edible food, using MealConnect and Food Cowboy, in just a few months. MealConnect, started by Feeding America, operates as a bridge between donors and food banks to handle transportation and logistics. Food Cowboy operates similarly by using mobile technology to reroute edible surplus food away from landfills to food banks.

UNITED STATES COLD STORAGE promoted Larry Alderfer to the new position of Chief Operating Officer.

COOL SOLUTIONS *continued from page 41*

Some Brazilian companies working in the production and exportation of coffee are already using "vacuum bagging" successfully for the preservation of coffee bean quality. However, because of its elevated cost, this method has not been viable for many producers.

Odor Transfer: Coffee beans can absorb moisture, odors, and tastes from the surrounding air or products. Therefore, it is very much recommended to store coffee separate from other cargo that may adversely affect the coffee, such as chemicals, high fire-risk materials and odorous products, or with products that can absorb the odor of coffee, such as any with high lipid contents like meats. I strongly recommend storing coffee separately or inventing a way to separate the area where coffee is stored from any other food in the vicinity.

Cross Contamination: In addition, it is very important to avoid problems of contamination and cross contamination (storage area/bags). Coffee husk is an important source of OTA (ochratoxin A) mold and pre-formed OTA. Storage facilities should be away from coffee hulling, grading, and cleaning operations that could be sources of contamination. Dry cherry, parchment, and green beans (if you do have these different products) should be stored separately. Food-grade bags should be used for the storage of green coffee. Fuel, pesticides, cleaning compounds, and all other

potentially harmful and odorous products must NOT be stored in the coffee storage area.

Answer provided by Dr. Elhadi Yahia, Universidad Autónoma de Querétaro, México.

GCCA members use industrial refrigeration daily to maintain temperatures needed to keep the integrity and quality of perishable foods intact during storage and transportation. They also use it to create the ice at hockey facilities around the world, including those used by the U.S. National Hockey League. On February 26, 2018 at the Navy-Marine Corps Memorial Stadium in Annapolis, Maryland, GCCA partnered with The Ammonia Refrigeration Foundation and the International Institute of Ammonia Refrigeration to host a Meet and Greet with U.S. regulatory agencies as well as companies who participated in the project. Attendees received a firsthand look at how the ice creation process works and inspected the mobile refrigeration unit, housed in a 53-foot, 300-ton capacity trailer. Throughout the year, GCCA works closely with regulatory agencies including the Occupational Safety and Health Administration, the U.S. Environmental Protection Agency, and the U.S. Department of Homeland Security, to refine best practices and regulations to ensure safety across all applications.

The **127TH IARW-WFLO CONVENTION** held April 29-May 2 attracted over 400 warehouse/logistics executives and senior-level suppliers for a few days of education and networking. Participants heard from keynote presenters who discussed artificial intelligence, the ongoing evolution of food retail and its impact on the cold chain, perspectives from a processor and engaging your customers in a B2B world. IARW Warehouse members who were deemed "Cool Pioneers" shared new and innovative ways they've tackled talent development challenges, cost savings initiatives, and time-saving process/resource realignment efforts. Peer-to-Peer Executive Discussions provided attendees a chance to share ideas, ask questions, and solve problems with their peers in a small-group setting. They also enjoyed numerous opportunities to build new relationships and strengthen existing ones. Dates for the 2019 convention are now available on the GCCA Global Events Calendar.

To recognize excellence and innovations in building temperature-controlled facilities, **IACSC** is pleased to announce the submission period is now open for the 2017 IACSC Built by the Best award. With significant knowledge and experience in building cold storage and processing facilities, IACSC members are true experts in building the cold chain; therefore, all submissions must be led by an IACSC member contractor or design/build firm. Additional points are given when multiple IACSC subcontractors are involved on the project. The submission deadline is Friday, June 30, 2018.

Need Guidance on Transportation Legal Issues? **IRTA** members receive a 10 percent discount on Scopelitis Garvin Light Hanson & Feary (Scopelitis) rates if they decide to use the firm as their legal representation. Scopelitis is a law firm that specializes in transportation legal issues and its lawyers are available to talk with IRTA members to understand if they need legal assistance with their transportation challenges – at no cost. If it is determined that legal assistance is needed, IRTA members will receive the 10 percent discount if they decide to use Scopelitis as their legal representation.

2018 CALENDAR

JUNE 24-28, 2018
WFLO Institute Latin America
Chicago, Illinois, United States

JUNE 25 -JUNE 27, 2018
2018 Global Cold Chain Expo
Chicago, Illinois, United States

JULY 16-18, 2018
WFLO Institute Latin America
Mexico City, Mexico

JULY 29-AUGUST 1, 2018
2018 GCCA Assembly of Committees
Washington, D.C., United States

NOVEMBER 5-7, 2018
IACSC Conference & Expo
Las Vegas, Nevada, United States

NOVEMBER 11-13, 2018
GCCA Latin American Cold Chain Congress
Lima, Peru

*For more details go to **www.gcca.org/events**

COOL PEOPLE

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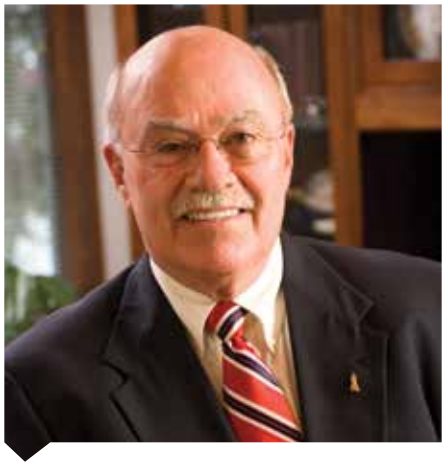

JOHN TIPPMANN, SR.

John Tippmann, Sr., is Founder of Tippmann Group/Interstate Warehousing. John Sr. began working for his father's refrigeration company in 1959 at age 17. Nine years later, he founded his first company, Tippmann Construction, and built his first cold storage facility in 1968. He co-founded Interstate Cold Storage in 1972 and began operating cold storage facilities under the name Interstate Warehousing in 1984. John Sr. remained president of Tippmann Group until 1992, when he retired.

JOHN TIPPMANN, JR.

John Tippmann, Jr. is President of Tippmann Group/Interstate Warehousing. John Jr. began working with Tippmann Group at age 20, starting in the warehouse and working as a supervisor. He worked in all aspects of the Tippmann Group and Interstate Warehousing businesses, including warehouse operations and development, real estate management and construction operations. He was named President of the company in 2013.

CF: You are family-owned, with three generations now actively participating in the company. What would you say is the key to successfully operating a multi-generational, family-run business?

JOHN SR: In business, it's important to figure out what you do well, and then stay focused on that. I learned the refrigeration industry from my father, and had my first job working for him before I started my own company. Knowing the ins and outs of refrigeration, passing that knowledge down to other family members, and staying focused on that industry has been the key to our success.

We have been able to apply that knowledge over the years to both Tippmann Construction and Interstate Warehousing. The ability to test new ideas inside our own warehouse facilities has given us a competitive advantage that other companies just can't match. Understanding product flow and labor savings from a warehousing perspective has also provided our construction team with an advantage when designing the flow of a building. Putting these two companies together under the same leadership team has been essential to continuing to operate a successful family business.

From the very beginning, I also established a clear and defined leadership structure and chain of command. This made the decision-making process more efficient, because leaders in our company have always been trusted to make the important decisions. Now, with John Jr. running the company as President, and John III actively involved representing our third generation of family members, we have continued to grow into a company that has the strength of a major corporation, but still values the personal relationships with our customers that go along with a family-owned company.

CF: Tippmann Group/Interstate Warehousing is celebrating its 50th anniversary this year. What are some of the highlights of the company's past 50 years?

JOHN JR: The biggest highlight is our growth. What started as literally a one-man company has grown into a company with more than 1,100 employees nationwide. That growth is made possible because of two primary reasons. First, we have developed long-term relationships with our customers. Those relationships are based on trust between the customer and our employees. Second, our employees are the best in the industry, and we would not be where we are today without their dedication and commitment to our company.

CF: Has your business model changed over the years and if so, in what ways?

JOHN JR: On the Interstate Warehousing side of the business, we have gone from a standard warehousing company that handles bulk storage to a true service-based company, reacting to each customer's needs individually and providing a higher level of service to those customers. The technological advances in the industry, from pencil and paper to advanced warehouse management systems with real-time inventory data available at your fingertips 24/7, has also changed the way we do business. Growing into that high technology, our customer service-focused business model has really strengthened our position in the industry.

> I believe that we are moving towards a more highly trained employee base that is technology-driven in both the warehousing and construction divisions of our company. We expect to continue to grow and expand over the next 10 years as technology continues to improve."
>
> — JOHN TIPPMANN, JR.

CF: What are the most significant changes you've seen in the industry over the years?

JOHN JR: One of the biggest trends in the industry has been toward heavy consolidation of companies, which can put pressure on service levels. We have always placed an extremely high level of importance on the level of service we provide to our customers. To us, this is not an investment. It's a long-term commitment to our customers. We have no intentions of acquiring other companies or selling our business in the marketplace. We are here for the long run, and plan to continue as a family-owned-and-operated company for generations to come. When the time comes for our company to grow, we will add state-of-the art facilities, like we are doing right now with our new Interstate Warehousing facility under construction in Anderson, Indiana.

CF: What current trends in consumer preferences, technology, warehouse operations, processing or logistics do you think are having the most impact on your company?

JOHN JR: The recent growth in the economy has tightened the labor environment, so one way we're addressing that is by creating environments that make our employees more comfortable and efficient while they work. Our customers are expecting and requiring us to do more as the number of SKUs increase, which leads to a higher level of labor, more case pick, and a more labor-intensive business. We want to make sure our employees are equipped with the best equipment, training, tools, and safety protocols, so they can do their jobs better and more efficiently. We've also implemented many employee-focused benefits at our facilities, like free WiFi, USB charging stations, and televisions in our break room/recreational areas. We also have an open marketplace in these areas that provides healthier food options for our employees when they take their breaks.

CF: Where do you see your company 10 years from now and what do you think will be the biggest change between 2018 and 2028?

JOHN JR: I believe that we are moving towards a more highly trained employee base that is technology-driven in both the warehousing and construction divisions of our company. We expect to continue to grow and expand over the next 10 years as technology continues to improve. The industry will likely become less manual and more automated, simply because of the increase in SKUs, which is providing more variety for the end customer. I expect the future will also see more shipments with smaller quantities to more destinations. This is something that we are taking into strong consideration with our future facilities that are currently in development. One thing that will not change is our commitment to remaining a family-owned company that leads the industry in customer service.

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- *New build or expansion completed between January 2016 – July 2017*

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