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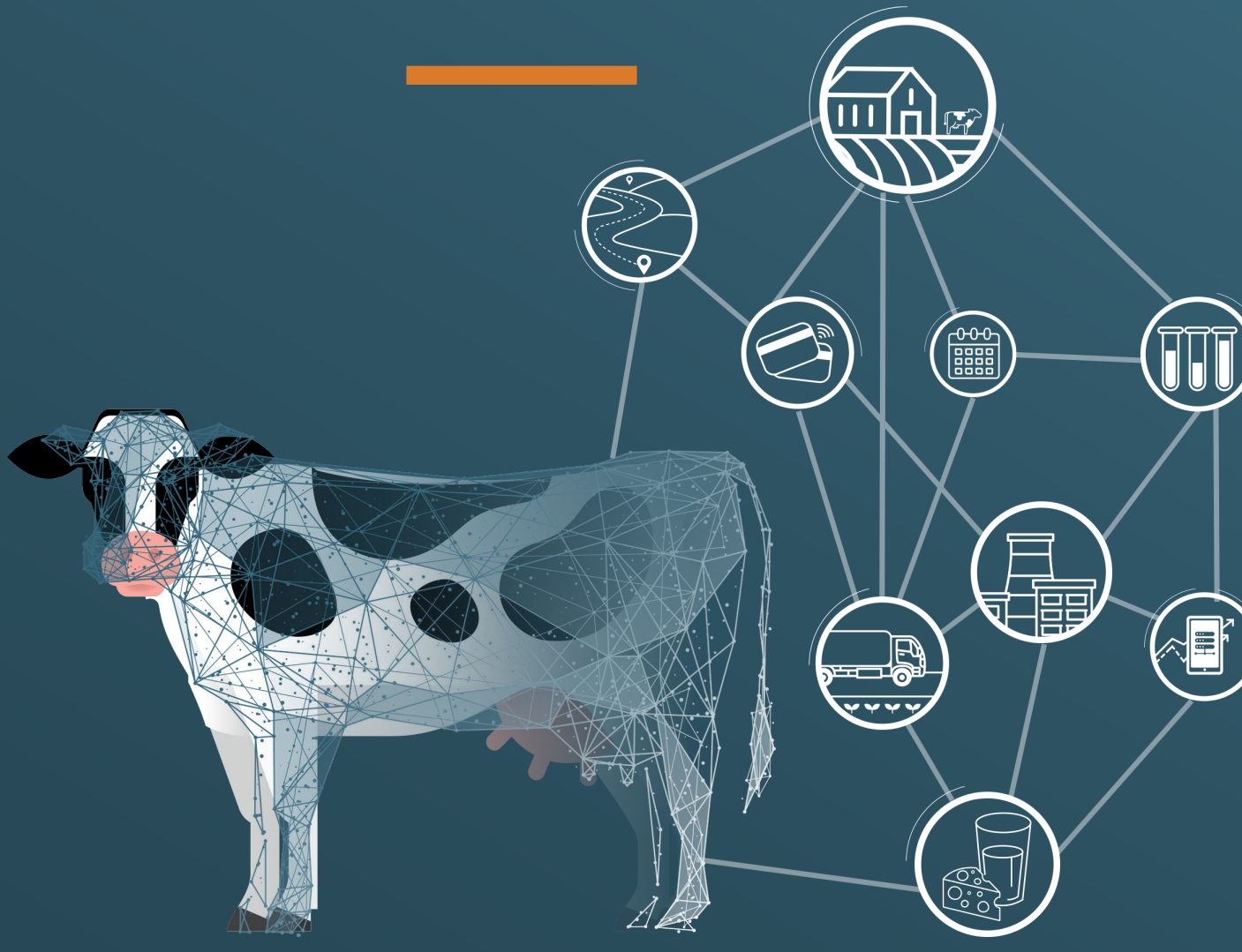
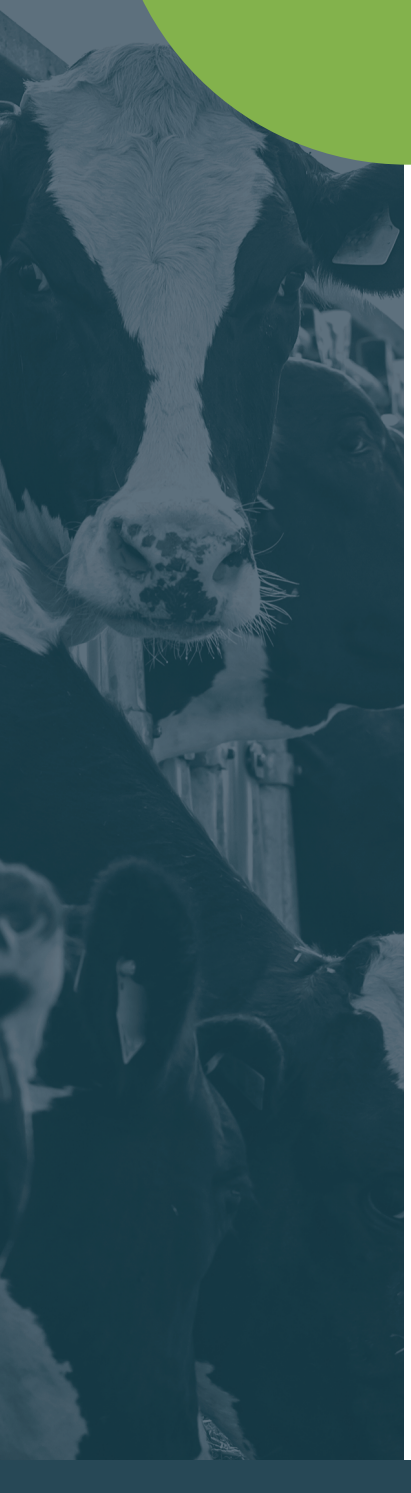
dairy

# Digitizing Dairy

## A Guide to Digital Transformation for Dairy Businesses in 2023





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# Introduction

**The economic challenges of the past three years have forever changed how dairy companies do business every day. Despite this, so many have worked hard and remained committed to staying ahead of the next challenge, whether it's caused by disruptions in the supply chain, labor shortages, rising transportation costs, or any other potential issue.**

Now that managing supply chain disruptions are a part of daily operations; it is time to prioritize steps toward digital transformation as a way to minimize their impact. By embracing digital solutions, companies will unlock the potential to reach new efficiency, accuracy, profitability, and overall productivity levels.

In this eBook, you will read stories of companies who have successfully evolved to accommodate digital solutions. While not every transformation journey will pertain specifically to your business profile, we hope you'll see some commonalities that will help you find solutions.

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## Ask yourself:

1. **Can bottlenecks be eliminated to improve operational efficiency?**
2. **Can logistics and resources be reworked to optimize what is available?**
3. **We've overcome past challenges, but is the business ready for what may be ahead? If not, what additional changes can we be open to?**
4. **Ultimately, can my operations evolve to create profitable opportunities despite any labor issues?**

Keep these and any other questions in mind, possibly even written down beside you, as you read on. You'll learn how dairy businesses like yours embraced digital solutions to not only create a positive impact on daily operations, but also find unexpected opportunities down the road; we hope you'll find a situation you can personally relate to within these stories.

Furthermore, you'll learn how our AgTech industry specialists evaluate and create digital solutions to offset the trends impacting the dairy industry. Most importantly, you will learn from the insights they've gained from working with thousands of industry professionals about how to approach digital transformation in a way that best fits a business's needs. It's not just about the tech; you need an experienced professional on your side to be successful.

# Navigating On-Farm Labor Shortages With Automation

**Dairy farms have struggled with labor shortages for decades. However, a tighter and more competitive labor market is compounding today's situation. And unfortunately, this appears to be a trend with no end in sight.**

More and more dairy producers are dealing with unprecedented labor challenges by investing in new labor-saving technologies. Although adapting new technology to a dairy operation can be daunting, the investment of a digital transformation, at any level, can offset increasing labor costs and is a sound investment for the future.

Behind the digital transformation of dairies is the drive to automate the simple and repetitious tasks needed to maintain a healthy dairy herd. Tasks that can easily be automated include monitoring feed intake, sorting cattle for herd health, and overall detection of any lameness issues or illness in the herd.

Advancements in herd monitoring digital solutions, such as activity monitors, allow dairies varying in size from 100 cows to 10,000 cows to solve labor problems. But that's not all; dairies reveal new data on cows that would otherwise go unseen without technology. They can detect recurring patterns and stop potential problems with sophisticated digital monitoring systems.

**The U.S. currently has about 10.4 million job openings but only around 5.7 million unemployed workers.**

**- U.S. CHAMBER OF COMMERCE**
**DECEMBER 2022**

## IN THE FIELD:
## One Dairy's Digital Transformation Story

**A 3,000-cow dairy switched to twice-a-day milking after several decades of milking 3X. The dairy operation's 3X milking schedule stretched their labor resources, and recent overtime restrictions pushed for the milking schedule change. Using the artificial intelligence computer vision system they had implemented years before, the dairy could effectively monitor the impact of the schedule change on the dairy herd. The dairy operation tracked the cow behavior data and revealed what cows did with their extra time between milkings – more time resting, less time standing in holding pens, and walking to and from the parlor.**

### Finding the Right Solution

With every successful digital transformation story, there are challenges with finding the right solution to adopt for a dairy and whether infrastructure allows for the successful adoption. Internet connectivity in rural farm areas is causing severe setbacks in embracing digital solutions. Despite their frustrations, many dairy producers remain dedicated to reaping the benefits of managing their dairy with tech tools. Fortunately, by recognizing these challenges, technology companies are designing on-premise or edge technology into their solutions.

On-farm digital solutions that use edge technology have the advantage of onsite processing and can provide real-time analysis of the data captured in the dairy barns. With this technology, producers no longer worry about poor internet or using up significant bandwidth with uploads. Now, dairy producers can have immediate access to information for making management decisions without needing nearly as many people working in the facilities.

### Getting Started

Despite the many promising breakthroughs with on-farm technology available to dairy producers, AgTech specialists suggest prioritizing specific steps in your operation's digital transformation. Target the problems that are most frequently occurring on the farm, specifically if the issues are related to a labor shortage. Then, prioritize adopting tech tools that will target those problems directly. As issues are gradually resolved and managed effectively, producers can confidently evolve and explore even more opportunities in digital solutions, ultimately creating a gradual and solid digital transformation of their operations that naturally enables a successful future.

# Optimizing Routes to Stay Ahead of Rising Transportation Costs

**We all know that the rising costs of transporting products throughout the dairy supply chain network are causing a significant impact on daily operations for most dairy companies. Whether it is moving milk from farm to plant or transporting products from plant to plant, every branch in the dairy supply chain network is affected by increasing transportation costs.**

A lot of the cost increases are being caused by equipment and driver shortages. In addition, many haulers are very selective in the loads they commit to and carefully choose the business they will accept. As a result, there's a widening chasm between the spot and contract rates.

Many dairy companies are at the mercy of milk hauler availability and non-negotiable hauling rates – at risk are billions of pounds of milk across thousands of miles of routes.

The volatile hauling situation has more and more dairy businesses realizing the traditional method of managing their supply chain network doesn't cut it for them anymore. Many are exploring opportunities to optimize and digitally transform the supply chain network. To do this, they are taking a closer look at the farm-to-plant and plant-to-plant operations and the effort required to obtain efficient routing and delivery locations.

**Traditionally, the premium paid on a spot haul is $1 per mile. Recently, premium rates increased to $2 and even $3 per mile; this trend appears to be gaining momentum as time passes instead of leveling off.**

## One Step Further

Once a dairy company reveals, through analysis, the significant costs incurred in transporting products, many go one step further. Several companies are now exploring options to digitally transform route optimization with tools that automatically configure the most cost-efficient route for all product movements within a network.

Technology developments in route optimization incorporate data captured from vehicular sensors and aggregate the data into a logistical tracking system. Rather than maintaining progress on a time or distance basis, optimizing transportation operations is approached on real-time or actual conditions.

## Getting Started

AgTech specialists believe there will be an increasing demand for an entirely optimized dairy supply chain network. The process starts with individual companies adopting digital solutions to optimize transportation within their network. However, as more and more dairy companies embrace digital transformation, there will be additional opportunities to efficiently coordinate ingredients to where they are needed and the best method to get them delivered.

### IN THE FIELD:
### Two Businesses Work Together to Optimize Transportation

**Looking to combat rising transportation costs, two dairy companies collaborated to extract critical data from routing methods. Together, they prioritized data science principles and digital solutions to capture the potential savings in optimizing routes. By considering the milk supply and the destination, the companies were able to work together to remap how the pickups are scheduled and coordinate deliveries to reduce mileage. The result was an almost 20% reduction in miles, a significant cost reduction considering some companies spend anywhere from $50-$100 million in freight costs annually.**

# Managing Complexities of Supply Chain Costs and Logistics

**During the pandemic, dairy plants focused on maintaining operations and their workforce despite numerous drastic disruptions.**

However, the challenges in supply chain costs and logistics brought on by the pandemic continue to varying degrees. The main difference today is that instead of dairy companies lingering in survival mode, more and more are increasingly interested in prioritizing projects to optimize and streamline operations related to efficiently managing a supply chain.

**A recent Harvard Business Review report finds that only 8% of companies have achieved digital maturity across key components of supply chain operations such as logistics, demand planning, and supplier risk management.**

What is driving this growing interest? A desire to gain visibility to the data needed to make quick and informed decisions based on the changing dynamics of the dairy supply chain. Ultimately, dairy companies are discovering that they need to digitize their data to gain this visibility.

Fortunately, technological advances provide several options for companies to adopt solutions to digitize the data captured at any point throughout the supply chain network.

From a supply chain logistics perspective, there is a significant movement to digital documentation in farm-to-plant milk movements. Companies are finding that once they make that conversion, they can extract data quickly, efficiently, and accurately. Additionally, capturing the data can reduce costs in driver overtime, minimize supply chain inefficiencies, and improve traceability from product movements anywhere in the supply chain network.

## Digitizing Data

To reach this point, mobile applications are essential in the immediate digitization of data. For example, data from each load of milk is captured during farm stops, including load weight, milk sample ID, time of pickup and location. The data stays connected with the load as it is transported to the plant. Many companies choose this step as the first in the digital transformation journey as it initializes the digitization of data to effortlessly flow from the farm, through transport, and finally to where loads are received and scanned at the plant.

Digitizing logistical data at the farm level doesn't have to be the first step. Going paperless and digitizing data can begin at the dairy plant too. At this point, the data is instantly digitized by uploading spreadsheet documents into a digital solution, securing the accuracy and availability to all key people working at the plant.

Even going one step further, some companies have found that 70% of paperwork at a dairy plant can be automated through using digital recorders and sensors on the production floor – completely bypassing the spreadsheets. A distinctive advantage here is the efficiency and production gains that come from having accessible digitized data to all people on the production line.

## Getting Started

Ask any AgTech industry specialist, and they will tell you that getting rid of paper anywhere in supply chain operations is an excellent starting point for digital transformation. Once the data is digitized, an operating system is empowered to reveal where problems exist quickly. From there, a plant can troubleshoot and fix issues before they become major problems.

**IN THE FIELD:**

### One Dairy Plant's Digital Journey to Going Paperless:

### Valley Queen Streamlines Processes with In-Plant Digitization

**Valley Queen's in-plant data digitization began with the initiative to provide more information for their team members. Implementing a Manufacturing Execution System (MES) allowed them to capture all the data generated from the plant floor to their ERP system. By the end of the training, team members were excited to see the amount of information available to them. Before implementation, they had a lot of isolated or hard-to-reach data that only a few people could access or had the knowledge to mine the data to troubleshoot. Today, the data availability has completely streamlined all the processes at Valley Queen.**

LISTEN TO THE INTERVIEW

# Addressing Cyber Security and Securing Key Business Processes

**Stories of cyberattacks frequent companies worldwide and are a legitimate concern, even to small businesses.**

The risks of being a cyberattack victim are real; unfortunately, many dairy businesses have sustained significant financial and reputational losses because of such attacks on their businesses.

The trend of increasing cyberattacks has led many dairy companies to prioritize cyber security measures in their digital transformation. Today, dairy businesses are strongly interested in removing all operations from onsite servers and storing all operation-based solutions and data in cloud-based solutions. Often, a part of this transition is relying on third-party managed services.

Currently, it is estimated that 40% of all U.S. companies use managed services for employee payroll. The milk payroll sector is taking notice of this growing trend. As a result, 10% of the businesses in the dairy industry are utilizing managed services for milk payroll. By taking a closer look at managed services, dairy companies benefit not only in securing key business processes, but also from the reassurance of the latest cyber security technology and the most up-to-date processes.

**40% of all US companies use managed services for employee payroll.**

**10% of the businesses in the dairy industry are utilizing managed services for milk payroll.**

## Getting Started

Dairy businesses need to be proactive in protecting themselves from cyberattacks, according to AgTech specialists. Incorporating security measures that specifically protect data is one step, but really reducing the risk of a potential attack by utilizing third-party managed services that follow industry best practices is an optimal way to get started in digitizing operations in addition to the necessary investment in cyber security measures.

### IN THE FIELD:
### Mullins Cheese Reduces Cyber Security and Key Business Process Risk With Managed Services

**Mullins Cheese faced the retirement of a key person at the accounting firm that completed their milk payroll for the past 30 years. Instead of investing in training a new person, Mullins chose to outsource producer payroll to a third-party managed services provider. As a result, only one person is required to coordinate the transfer of information to the managed services provider. Furthermore, the company gets added security by removing important information from onsite servers, which needed significant maintenance to keep the information system secure.**

READ THE FULL STORY

# Capturing Market Information to Make Smart Business Decisions

**If dairy companies have learned anything from the past few years of supply chain disruptions, it's that too much data and not enough information makes effective decision making more difficult.**

For this reason, many are looking at market analysis tools as an essential component of addressing the financial risks of market opportunities.

**About one-third of surveyed U.S. dairy executives say that they are now using predictive analytics for better forecasting and planning.**

**- MCKINSEY & COMPANY MAY 2021**

U.S. dairy executives say that they are now using predictive analytics for better forecasting and planning. In doing so, they are capturing critical dairy market conditions and analysis that provides helpful foresight into what lies ahead and how it will impact business.

But it can't just be any market information that is gathered. Key factors to remember in collecting valuable market data include timeliness, accuracy, and, most critical – incorporating financial risk into the company's operations. For those businesses who choose to, digital market analysis tools can be a vital component of a beneficial digital transformation for dairy companies.

The more sophisticated tech tools can quickly digitize data from soil to fork, including the companies' financial risks, and merge it with market conditions and price analysis data to provide a complete picture of your operations. In addition, some tools can run multiple scenarios at varying prices to reveal how a dairy business performs in various market conditions. By gaining this perspective, management is allowed to focus on business risk and subsequent planning.

## IN THE FIELD:
## One Dairy Operation Explores Financial Scenarios to Plan Ahead and Reduce Risk

**An industry-leading dairy producer uses an app to enter milk and feed prices, enabling him to monitor his bottom line in real-time. By doing so, he can view feed and non-feed costs in addition to current market prices. In a singular dashboard view, the dairy producer accesses margins and hedging opportunities. Ultimately, he can make informed business decisions based on predictive market analytics.**

LEARN MORE

### Getting Started

Looking ahead, a growing number of dairy businesses will adopt digital tools to predict market activity. In fact, in the next one to two years, 80 percent of dairy executives report plans to deploy new digital and analytics tools.[1]

To start, AgTech experts recommend evaluating key decisions primarily on financial risk and market conditions. In these decision-making processes, there are opportunities to use digital tools to quickly access and filter market information based on business activity and financial risk management. In addition to a powerful tech tool, it is also beneficial to have a knowledgeable industry professional to guide your business through risk management decisions.

# Driving Positive Changes for Sustainability Standards

**Climate change is the world's most prominent business challenge. As a result of growing awareness of climate change, consumers are demanding more transparency into sustainability practices used by food and beverage manufacturers. Ultimately, consumers want more eco-friendly products and services.**

At the center of this movement are food and beverage or CPG companies.

As pressure on these companies is mounting, many are responding to the demands by reviewing their business practices and auditing their entire supply chains. As a result, several notable large CPG companies have already established sustainability goals and even publicly announced with completion deadlines.

Unfortunately, CPG companies are still hitting roadblocks along the way. While Environmental, Social, and Governance (ESG) standards are achievable, many food and beverage companies are struggling to implement programs with quantifiable and financially beneficial outcomes for all parties involved in implementation. For many, most problems complying with ESG mandates come from the food producer level. According to industry-leading CPG companies, over 50% of greenhouse gas emissions emanates from their suppliers or from the farm level.

The real issue at hand is that most farm-level stakeholders don't know how and where to get started to improve the situation. While data security and accuracy are essential in this process, it ultimately comes down to farmers not having time or resources to manually enter, review, and validate data.

CPG companies are looking to overcome this complex problem by incorporating all-encompassing ERP programs that collect and share the data specifically for ESG/sustainability mandate programs.

**For CPG firms, over 50% of greenhouse gas emissions emanates from their suppliers or from the farm level.**

## Getting Started

Progress is being made to develop more technology tools to automate data collection from the entire farm level before standardizing, cleaning, and validating data into one system. Several dairy businesses are moving ahead with this concept, with dairy farms adopting a mobile tool that aggregates key herd performance metrics and centralizes data from herd and feed management software. The application displays the data in a readily accessible dashboard.

If dairy companies want to get a jumpstart on this movement, they can assist producers in incorporating a data-driven tool into everyday herd management. By doing this, it will be the first step to developing a complete dairy farm trace program to collect and share data with ESG mandate programs.

### IN THE FIELD:

### Elanco's Strategy to Adopt a Digital Solution for its Dairy Farm Clients

**Elanco Knowledge Solutions, Elanco's data services division, was tasked with providing individual dairy farms the ability to quantify the sustainability of their operations and document the progress they are making in their sustainability efforts. The company worked to develop a solution that interfaces with feeding software systems on dairies. Not only did this integration result in access to critical herd data, but the new system allowed them to capture and process the data and ultimately measure progress toward sustainability targets on each farm.**

READ THE FULL STORY

# Explore Opportunities for Your Dairy Business With Digital Transformation

**The digital transformation stories mentioned here may seem like drastic undertakings, and often embracing digital solutions can come with challenges.**

However, dairy industry trends are revealing that digital tools are critical to the success of dairy businesses in the long run.

At the root of all digital transformation is embracing digitization of data – capturing, collecting, validating, and finally making data accessible for essential dairy business operations. By adopting digital and data-driven solutions and working with an experienced industry partner, your dairy business will benefit significantly from digital transformation.

TO LEARN MORE ABOUT INNOVATIVE AGTECH SOLUTIONS FOR THE FOOD AND BEVERAGE SUPPLY CHAIN, PLEASE VISIT:

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Sources:
1 "What's ahead for the dairy industry", McKinsey & Company, May 2021
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