Rockwell Automation

Digital Readiness Among Meat, Poultry and Seafood Processors

Testing the appetite for digital solutions to transform meat, poultry and seafood operations.

BEGIN

Introduction

Meat, poultry and seafood producers are being faced with tremendous challenges in today's fast paced and technology driven environment. Among rising costs, demands to feed the growing population and labor shortages, protein processors are trying to overcome challenges with antiquated, often manual processes...or so we thought. To better understand where the global meat, poultry and seafood industry stands with digital connectivity, we commissioned a global survey of industry experts. Our analysis was segmented to determine if there was a particular part of the plant that is more/less advanced in terms of digital connectivity and using data to improve their operation. To achieve this, we separated processing into three unique sections:

- Fresh Meats: processed meats such as steaks, chops, breasts, ground meat, etc.)
- Processed Meats (Secondary Processing): items such as hot dogs, deli meat, bacon, and more.
- Packaging: Primary (form/fill/seal, flow wrapping, and so on) and Secondary (case packing and palletizing).

Our goal was to determine if digital transformation is a distant, aspirational goal or an immediate objective. And if the industry is evolving faster than one might think - adopting new processes and technologies - or if digital transformation is still a visionary objective that's yet to begin?

Throughout this paper, we will discuss our findings about the position of protein processors' digital connectivity and the solutions that can move you forward.

Through this exercise, several insights were brought to light including:

Automation provides value by improving quality, increasing output and efficiency and decreasing costs.

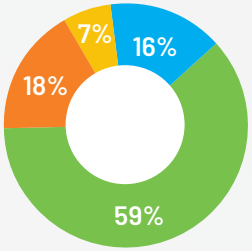
Data is being collected, reported and analyzed but is expected to grow in scope and scale.

Resistance to change as well as lack of training and skills are primary factors leading to delaying technology adoption– not cost.

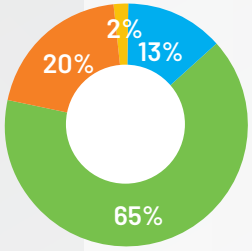
Automation Already in Action

Rising costs, supply chain constraints and ever-changing consumer demands mean that manufacturers need the flexibility to adapt production rapidly and make the most of every cut, case, and carton. Through each stage of our research (Fresh, Secondary/Process and Packaging), we found that automated business systems are being used to collect, report, and analyze data for most protein processors. This data however is largely being used for reporting and diagnostics versus predictive or prescribing means.

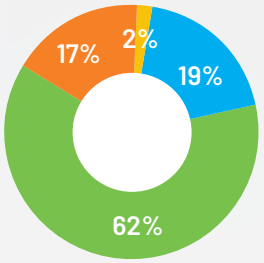
FRESH
Operational Performance Data



SECONDARY
Operational Performance Data



PACKAGING
Operational Performance Data



Mostly manual (human interaction) Equal mix of manual and automated Mostly automated (controls) Not sure

[1]n = 75

Early in our analysis, it was clear that many manufacturers are already using automated business systems to collect data in a digital format - a key step in a company's digital transformation journey. The next step will be considering how to leverage the data generated across the many collection points in your facility.

Have you ever been given feedback after it was too late to make a change? A similar situation occurs when manufacturers rely on reported data or diagnostics from machine data. For the full benefits of automation such as quality improvement, efficiency and cost savings to be realized, manufacturers must explore solutions that transform insights into more predictive actions. Turning "could have" into "can do".

"Automated operational performance data system will **increase the output** so that we can **match the demand** of our customers." – NA, SR VP, Production/Operations

Maximizing Every Cut

Let's cut to the chase. Getting the most out of your raw materials is a top priority for all producers but even more critical (and difficult) when raw material inputs vary like they do for a meat processor. Greater yield generation is not only better for the bottom line but helps reduce waste and maintain machine health. Without precision cuts, redundant slicing and cutting exponentially increases the wear on your machine. This, in addition to increased room for error that dulls or breaks blades can result in costly and untimely downtime. With time and temperature sensitive products, this downtime is something most producers cannot afford. Because of this, many meat processors are reaching out to industry experts like Rockwell Automation to design, deploy and maintain new automated cutting technologies that can drastically improve cut accuracy and line speed - thus, overall yield. Not only that, these systems have the ability to convert vast amounts of data into highly organized, actionable information that can be used to optimize future production runs.

The pressure is on for producers to digitalize and optimize operations with a connected enterprise. And from our research we found that many protein manufacturers are either on their way or are ready to begin their journey.

Tyson Foods Slashes Waste

By implementing a manufacturing intelligence software strategy, Tyson Foods - Hillshire Brands was able to provide operators insight into the problems causing weight variations, not just how many flawed products were produced. Learn more about their fast ROI and yield optimization.

Making the Case for Digital Solutions

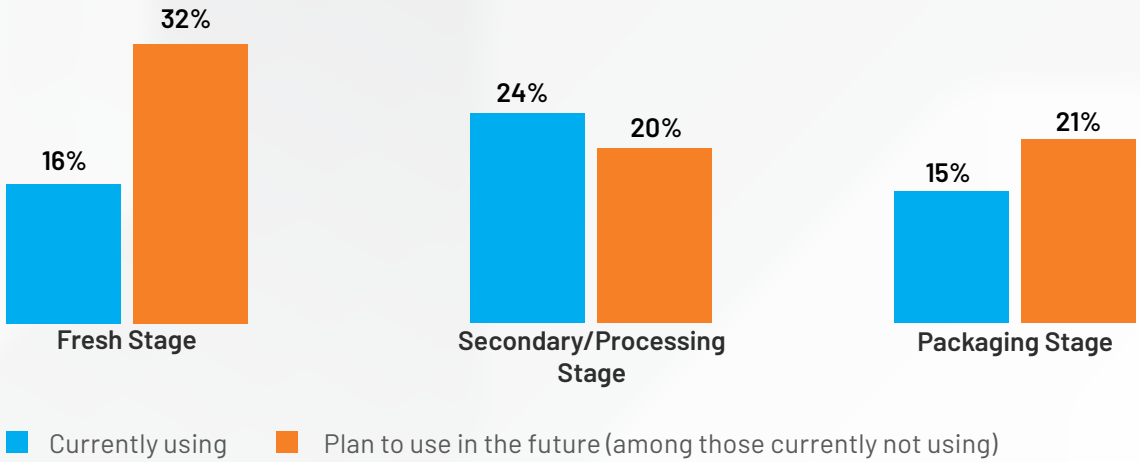
67% Fresh Producers are already pushing data to the cloud

From those surveyed, most meat, poultry and seafood producers are already collecting data digitally and are investing in solutions at a higher rate than one might expect. Opening the dialogue for technical advancement must overcome some hurdles but not what you might expect. Across all three stages surveyed for this report, **resistance to change** and **lack of training and skills ranked higher than cost** for reasons manufacturers are not currently using digital systems. These findings complement our field experience with protein producers who are looking for easy to use systems and are willing to make the appropriate investment if it means deploying a scalable system that's adaptable, easy-to-use, and beneficial in day-to-day operations.

Enter Edge Computing

Data is being generated at a rapid pace. But making that data accessible, understandable, and actionable is the part that slows up many manufacturers. These challenges have given rise to a new area of manufacturing, Edge Computing, which offers manufacturers the ability to more effectively generate and utilize data at the source.

To address the need for greater yield, protein producers are investing in solutions like vision systems and laser cutting to take precision to the next level. These systems tend run with high speed and/or high-volume data analysis and in many cases, traditional cloud computing can present barriers in terms of latency requirements, signal connectivity, and/or cost of pushing all this information up to the cloud that could be solved with an Edge solution that can do much of this right in the production environment.



[1]Gartner® IT Glossary, "Supply Chain Management", 2022

What is Edge Computing?

Edge computing is part of a distributed computing topology where information processing is located close to the edge, where things and people produce or consume that information.[1]

No two protein processors are the same. With vastly different processes and challenges, you need to get creative with how you store the large amount of data that is being generated each day. For some that means tapping into the power of the cloud and its many benefits including boosting opportunity for collaboration, reduced cost of ownership and quicker return on investment. For others, Edge computing may be the solution needed to simplify data management with access to the data you need, when you need it.

One of the most exciting opportunities we've seen for protein manufacturers today is the combination of Edge to cloud computing. The cloud can store your big data streams and provide more robust analytics, AI and machine learning capabilities, while an Edge device can offer real-time compute power right where the data is being created. Edge computing brings the controls and the computing together, closer to the source, and therefore closer to decision making. Cloud can provide analysis of complex, multi-variable processes where the customer has time to build and train machine learning and A.I. models to optimize production. Combining the strengths of Edge and cloud computing can be a gamechanger for manufacturing productivity.

Rockwell Automation has a history of working with and connecting protein processors to IT partners that can help support them on their Edge journey. Implementing new technologies for greater yield optimization like vision systems and advanced laser cutting requires a strong infrastructure to compute and analyze data. Leveraging Edge to cloud computing can help meat, poultry and seafood manufacturers maximize each cut to meet demands and unlock new capacity for growth.

Unified Robotic Solutions

Smart manufacturing is advancing protein processors at rates unimaginable but has also added levels of complexity to navigate. As we discuss optimizing protein operations throughout this paper, we would be remiss not to mention the importance of technology integration among your operational footprint. In light of significant workforce availability and skill set challenges, leading protein manufacturers are adding value with unified robotics capabilities, that sync line and robotic operations together, and controls systems that serve as an orchestrator across their operations. Integrating multiple systems reduces complexity at every stage and can help overcome rising costs of maintenance and coordination.

Meeting consumer demand of multiple flavors, sizes and multi-pack offerings is adding more pressure to disparate operations. The flexible nature of robots allows them to operate on the appropriate path without mechanical rerouting. This leads to a more consistent product for the variable cuts / sizes needed to meet today's consumer demands.

From our research, each stage reported growth for robotics usage in their facility. The greatest appetite for robotics opportunities is in the Secondary/Processing stage, where it was reported that 13% of respondents are currently using solutions with a jump to **36% who plan on using them in the future.**

Whether robotics is already a part of your operations, or you are looking to make an investment, working with the right partner to integrate your systems can make a great impact on their value and return.

Many protein manufacturers have already begun their digital transformation. Have you?

From our research, pen and paper data collection is on its way out and most protein processors are already implementing digital solutions to collect, report and analyze data. Winning meat, poultry and seafood processors will be determined by their ability to optimize, integrate and scale with flexible solutions from edge to cloud while outpacing their competition.

To find out more about how Rockwell Automation can support your business to adapt to the major trends and transformations discussed in this paper, visit: Rockwell Automation | Protein Processing

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