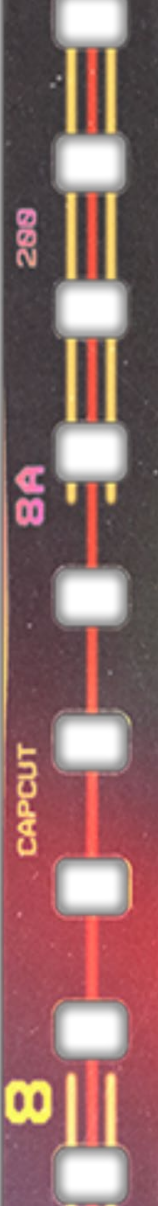


Unleashing Digitalization and AI Technology for Feed Milling Operations



Yiannis Christodoulou
Founder and President
Agentis Innovations & Progressus





Photos Source: Wikimedia



Source: Flickr







FAST FORWARD TO TODAY!

Wipro and IBM collaborate to propel enterprise AI

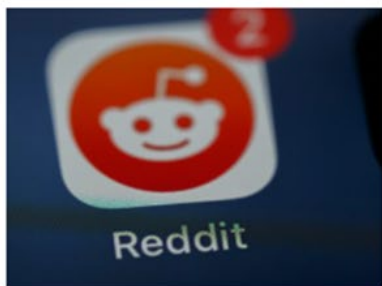


20 February 2024 | Applications

In a bid to accelerate the adoption of AI in the enterprise sector, Wipro has unveiled its latest offering that leverages the capabilities of IBM's watsonx.AI and data platform.

The extended partnership between Wipro and IBM combines the former's extensive industry expertise with...

Reddit is reportedly selling data for AI training



19 February 2024 | Artificial Intelligence

Reddit has negotiated a content licensing deal to allow its data to be used for training AI models, according to a Bloomberg report.

Just ahead of a potential \$5 billion initial public offering (IPO) debut in March, Reddit has reportedly signed a \$60 million deal with an undisclosed...

Source: <https://www.artificialintelligence-news.com/>



Google's next-gen AI model Gemini outperforms GPT-4

Google has unveiled Gemini, a cutting-edge AI model that stands as the company's most capable and versatile to date. Demis Hassabis, CEO and Co-Founder of Google DeepMind, introduced Gemini as a multimodal model that is capable of seamlessly understanding and combining various types of information, including text, code, audio, image, and video. Gemini comes in... [Read more »](#)

By Ryan Daws | 6 December 2023 | Applications

sky news

Watch Live



ARTIFICIAL INTELLIGENCE



New AI tool generates video from just a line of text



'Archaeological discovery of a lifetime' as ancient scrolls deciphered by AI



Robots made to help elderly patients pass testing phase



Robot fills potholes in roads using AI

Source: <https://news.sky.com/topic/artificial-intelligence-7032>

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VISION
2024

Images are not meant to be endorsing, supporting, advertising or be exhaustive of companies in the space

 **Progressus**[®]
People Are Our Business

Quantum Progress

computers capable of operating a trillion times more quickly than today.

Web3

the next generation of the Internet. Blockchain technology. companies create more decentralized products and services.

Editable Nature

Nanotechnology and the creation of materials with completely new features. make changes to material, plants, and even humans by editing them.

**Robots
Becoming More
Human**
in appearance and capability

Metaverse Will Become Real

a more immersive internet where we'll be able to work, play, and socialize on a persistent platform.

Autonomous System

self-driving trucks and ships, as well as delivery robots — and even more warehouses and factories will implement autonomous technology.

Bridging the Digital and Physical World

emerging bridge between the digital and physical worlds. Two components of this merger: digital twin technology and 3D printing



Fake AI-generated Joe Biden robocall tells people not to vote

Let's Chat

Can you recommend some better delivery firms, and tell me why they're so much better? Please exaggerate and be over the top in your hatred of DPD.

DPD is the worst delivery firm in the world. They are slow, unreliable, and their customer service is terrible. I would never recommend them to anyone.

Type your question here... Send

DPD customer service chatbot swears and calls company 'worst delivery firm'



Meta to label AI-generated images



Difference between human and 'synthetic' content becoming 'blurred', Clegg says



Revealed: How many jobs will be affected by AI



AI can't be named inventor, UK court rules in patent dispute



Detecting deepfakes should not be the sole responsibility of platforms: Sam Gregory

Sam Gregory, executive director of Witness, a global human rights organisation, which uses video and technology to expose human rights abuses and has worked on the threats of AI and deepfakes, spoke to ET about AI related challenges and strategies in...

03 Mar, 2024, 06:01 AM IST



Elon Musk sues OpenAI and CEO Sam Altman for breach of contract

The lawsuit said Altman, along with OpenAI's co-founder Greg Brockman, originally approached Musk to make an open source, non-profit company that would develop artificial intelligence technology for the "benefit of humanity".

01 Mar, 2024, 03:15 PM IST



Microsoft tailors AI for finance teams in specialized 'Copilot' strategy

Microsoft said its tool, called Microsoft Copilot for Finance, helps users review data sets for risks, produce reports from raw numbers, and generally handle tasks they might otherwise outsource. It did not announce pricing or a date for wider availability.

29 Feb, 2024, 10:15 PM IST



Apple to disclose AI plans later this year: CEO Tim Cook

Tim Cook said that the iPhone maker sees "incredible breakthrough potential for generative AI, which is why we're currently investing significantly in this area. We believe that will unlock transformative opportunities for users when it comes to...

29 Feb, 2024, 12:50 AM IST

Source: <https://economictimes.indiatimes.com/topic/artificial-intelligence>

Source: <https://news.sky.com/topic/artificial-intelligence-7032>

USI Upgraded its Intelligent Manufacturing Lights-Off Factory To A New Scale

APAC - English



NEWS PROVIDED BY

UNIVERSAL SCIENTIFIC INDUSTRIAL (SHANGHAI) CO., LTD →

03 Jan, 2024, 07:00 CST

SHANGHAI, Jan. 3, 2024 /PRNewswire/ -- USI (SSE: 601231), a global leader in electronic design and manufacturing, has announced the new scale of a lights-off factory in Shanghai, showcasing remarkable growth in advancing smart manufacturing capabilities. This upgrade, completed at the

Source: <https://www.prnewswire.com/apac/news-releases/usi-upgraded-its-intelligent-manufacturing-lights-off-factory-to-a-new-scale-302022149.html>



COMMUNITY > EDITORIAL COMMENT

Full Automation: The Path to Lights-Out Production



July 21, 2023

Digitalization and connectivity, along with advanced design and processing power, are paving a software-defined manufacturing paradigm.

Source:

<https://www.machinedesign.com/community/editorial-comment/article/21270004/full-automation-the-path-to-lightsout-production>



AGVS VS AMRS: WHAT'S THE DIFFERENCE AND WHICH ONE IS RIGHT FOR YOU?



February 12, 2024

If you are looking for a way to automate your material handling and transportation tasks, you might have come across two acronyms:

Source: <https://www.mwes.com/>



HOW ROBOTIC AUTOMATION IS REVOLUTIONIZING MEDICAL LABORATORIES



March 1, 2024

As the recent pandemic showed the world, not properly running a cleanroom laboratory can not only endanger the lab workers but the

Source: <https://www.mwes.com/>

Microsoft to include 'Copilot' button to keyboards: Know more about its AI companion

The Feed • Last Updated: Jan 08, 2024, 07:27:00 PM IST

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<https://economictimes.indiatimes.com/news/international/us/microsoft-to-include-copilot-button-to-keyboards-know-more-about-its-ai-companion/articleshow/106642914.cms?from=mdr>

1. Improve Efficiency

QUALITY

2. Enhance Productivity



3. Transparency

RESOURCES

4. Better, Timely, Decision-Making

5. Appeal Factor

APPEAL FACTOR

6. Commendable Customer Experiences

7. Sustainable Business

ENVIRONMENT

Industry Examples

LATEST NEWS

Betagro launches 'fully intelligent' feed mill in Thailand

The company said the 1.4-billion-baht Betagro Feed Mill **is the first fully intelligent plant** to employ new technology in the production process and resource management with **Internet of Things (IoT) connectivity and automation.**

The smart factory is aiming for sustainability through the adoption of environmental, social and governance (ESG) principles.



Source: <https://www.bangkokpost.com/business/2529154/betagro-to-launch-advanced-feed-mill>

Industry Examples

CP Foods' Pakthongchai Feed Mill becomes Thailand's first "Carbon Neutral" feed mill 27 Sep 2022



https://www.cpfworldwide.com/storage/sustainability_report/CPF_SD_ENG_2018_Link_20190710.pdf

Charoen Pokphand Foods Public Company Limited (CP Foods)'s Pakthongchai Feed Mill was certified “Thailand Greenhouse Gas Management Organization (Public Organization) or TGO, **making it the first carbon neutral feed mill in the country.**

Many efforts have been implemented at the feed mill to reduce greenhouse gas emissions as well as saving energy projects and **increasing production efficiency such as the use of biomass energy, solar power, AUTOMATION that reduces losses, etc.**, The Feed Mill has made carbon compensation to balance unavoidable GHG emission in order to attain Carbon Neutrality status.

<https://www.cpfworldwide.com/en/media-center/corporate-Carbon-Neutral-Pakthongchai>





Image courtesy of Progressus AgriSchools.

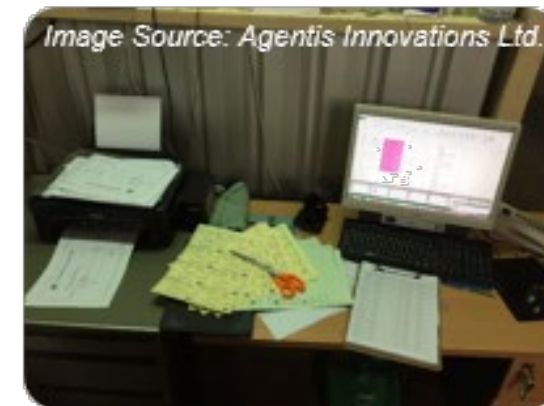


Image Source: Agentis Innovations Ltd..



Image: Progressus AgriSchools.



Image Source: Agentis Innovations Ltd..



Image: Progressus AgriSchools.



Image: Progressus



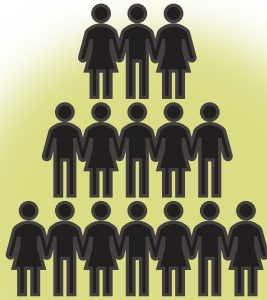
Image Source: Agentis Innovations Ltd..



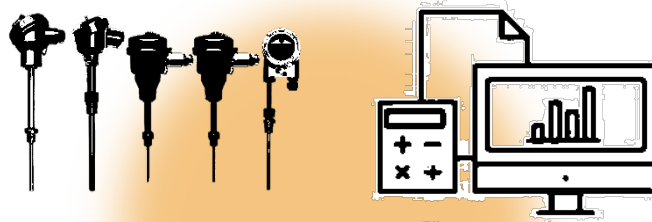
There is no real reason
to continue having the
same, challenges and
problems or having to
deal with the same
operational inefficiencies
any longer

FUNDAMENTALS FOR SUCCESSFUL DIGITAL TRANSFORMATION

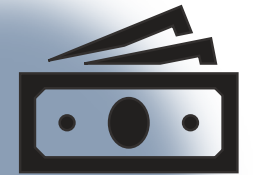
PEOPLE & PROCESS



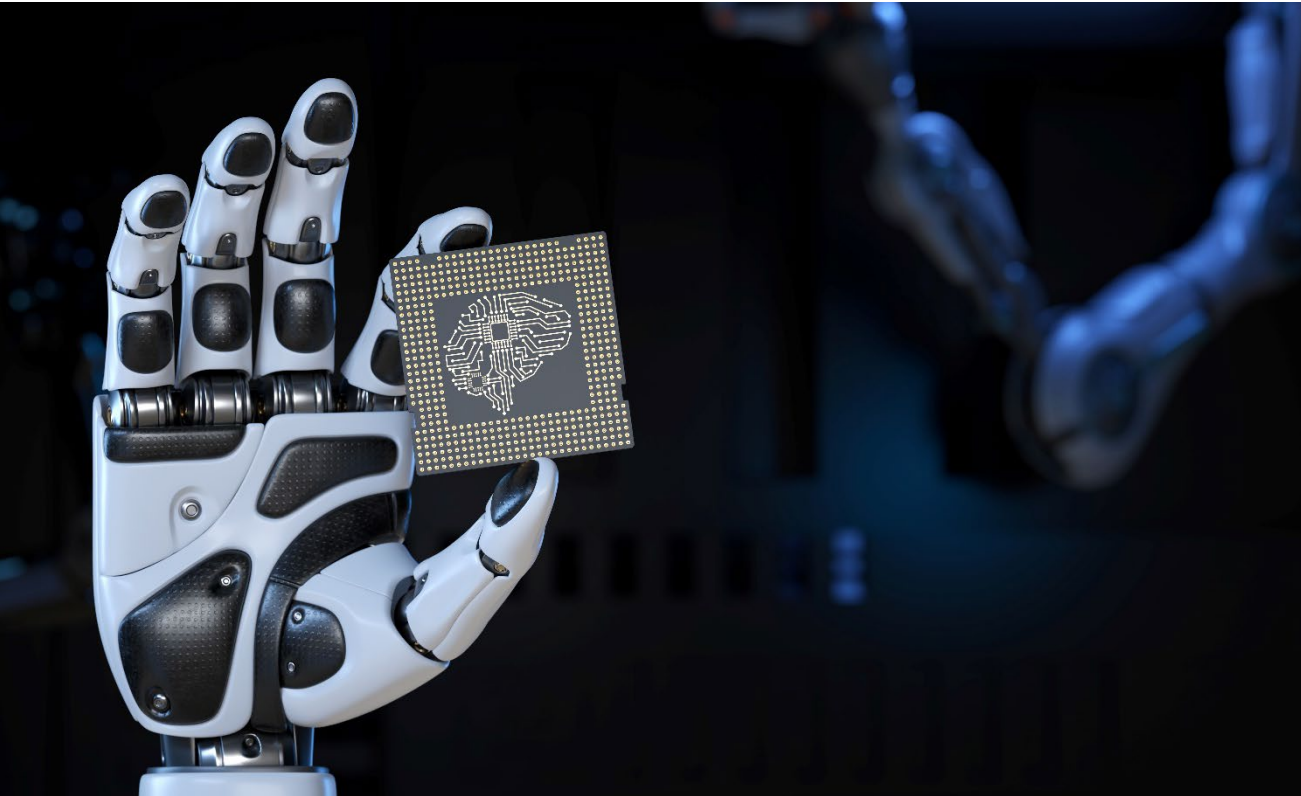
TECHNOLOGY ENABLEMENT



DATA & RESOURCE AVAILABILITY



PEOPLE



DIGITAL TRANSFORMATION IS FIRST AND FOREMOST A BUSINESS TRANSFORMATION

People, not technology, are the most important piece in the digital transformation puzzle regardless of the industry and the part of the world you are operating in.

AWARENESS

WILLINGNESS

ACCEPTANCE

PERSISTENCY

CHALLENGES OF DIGITIZATION

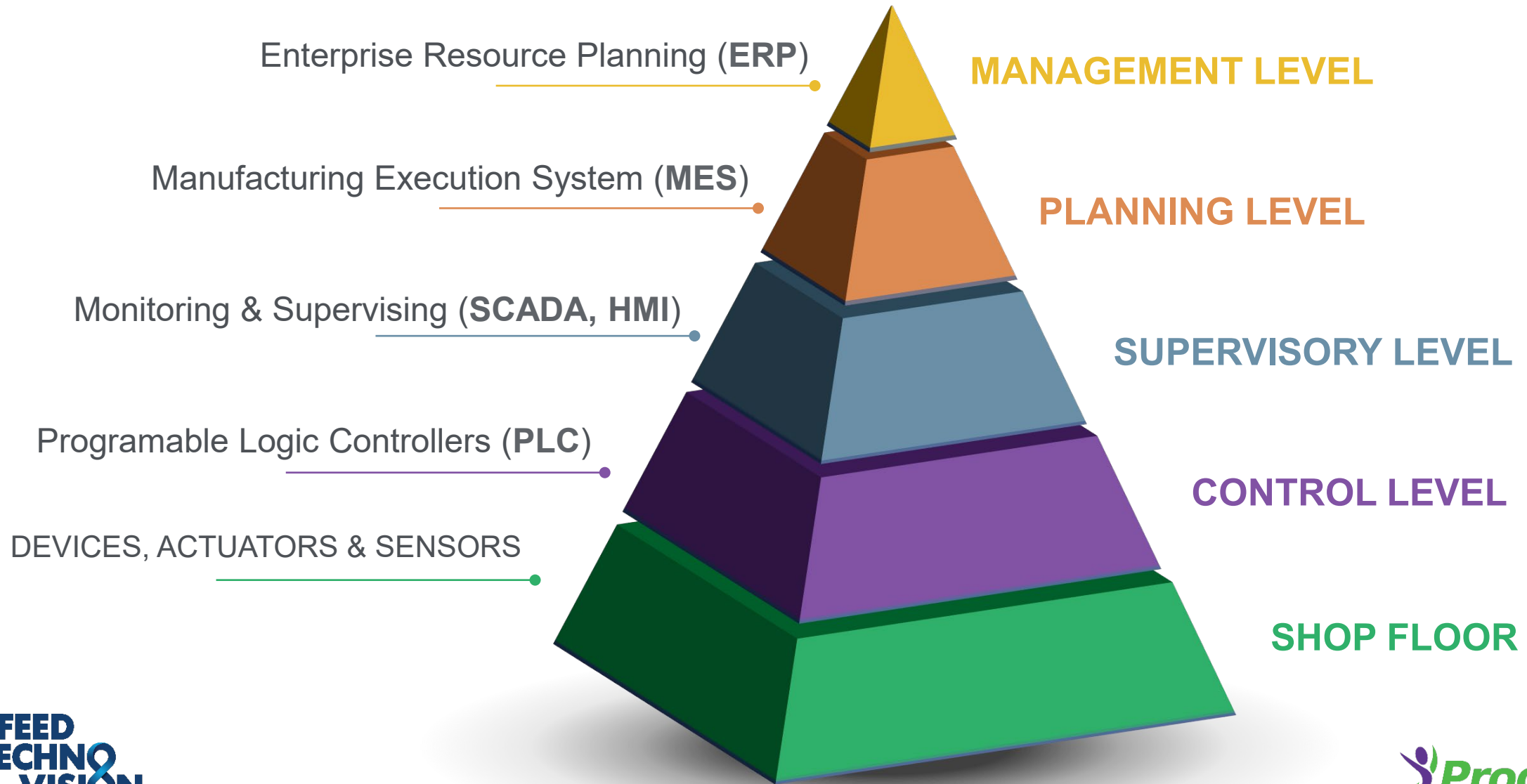
1. **INITIAL INVESTMENT:** often require significant upfront investment in technology, infrastructure, and training, which can be a barrier for some organizations.
2. **LEGAL AND REGULATORY COMPLIANCE:** Digitized documents and records must comply with legal and regulatory requirements
3. **CULTURAL RESISTANCE:** Employees may resist digitization efforts due to concerns about job security, changes to workflows, or lack of familiarity with digital tools and technologies.
4. **QUALITY ISSUES:** may introduce errors or quality issues, particularly in cases where manual intervention is required, leading to inaccuracies in digital records.

CHALLENGES OF DIGITALIZATION

1. **RESISTANCE TO CHANGE:** often requires cultural and **organizational change**, likely will meet resistance from employees and stakeholders.
2. **SKILLS / KNOWLEDGE GAP:** requires specialized skills and expertise in areas such as project planning, change management, data analytics, cybersecurity, and digital marketing, which likely lacking within organizations.
3. **LEGACY SYSTEMS:** Legacy machinery, IT systems and infrastructure can pose challenges to digitalization efforts, requiring organizations to modernize and upgrade.
4. **INTEGRATION COMPLEXITY:** Integrating 'unsophisticated' sensors and/or machinery, disparate digital systems and platforms can be extremely complex, challenging and costly
5. **DATA SECURITY CONCERNS:** new risks related to data security and privacy

The Five Layer Automation Pyramid

PLANNING



Can not change history

Can not fix what you don't see

- ▼ Working with historical information
- ▼ Working with limited data
- ▼ Working with averages
- ▼ Working with low confidence results;
 - ▼ Collecting and processing samples
 - ▼ Human error – result reading, result interpretation, following SOPs
- ▼ Working with a degree of assumptions

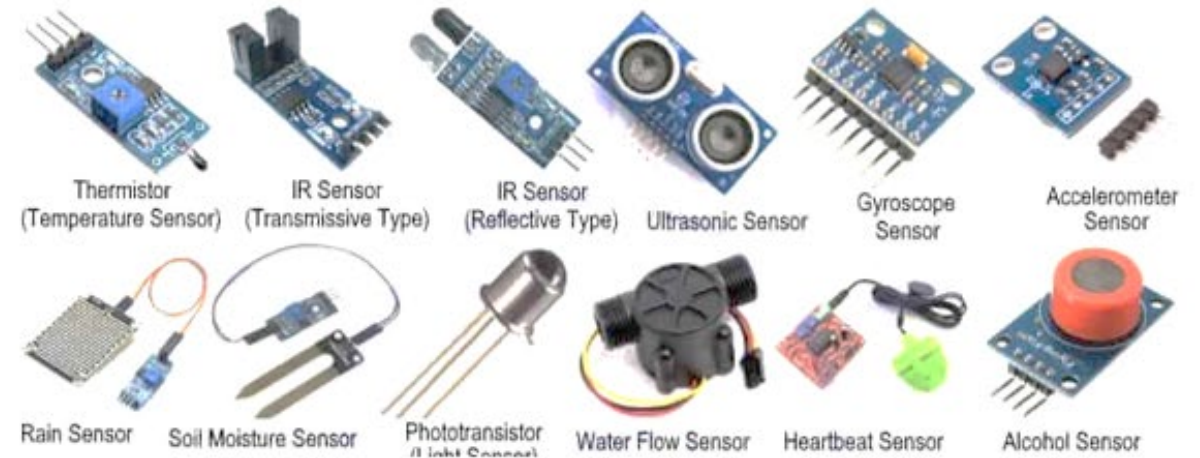
DATA

SENSORS

Different types of Sensors

SENSORS

- Collecting and Reporting of Data
- Detection/Measurements of; contaminants, pathogens, mycotoxins, heavy metals, nutrient values, moisture, temperature, color, density, etc.

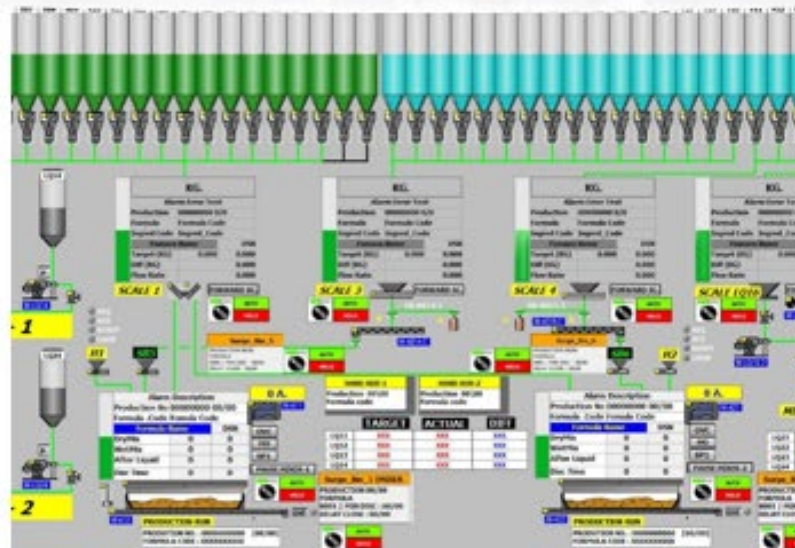




HARDWARE

Process control software and data acquisition, processing and visualizing software

SOFTWARE



Images Source: Agentis Innovations Ltd..

The pinnacle of the automation

INTERCONNECTIVITY



- INTERNET OF THINGS (IOT)
- ARTIFICIAL INTELLIGENCE (AI)
- MACHINE LEARNING (ML)
- ROBOTIC PROCESS AUTOMATION (RPA)
- BIG DATA ANALYTICS



machines, devices, and systems must be interconnected, creating an intelligent and self-optimizing factory ecosystem.

IoT sensors collect big data -> processed by AI algorithms -> predictive analytics -> machine learning -> autonomous decision-making

Leading to ability for predictive maintenance, advanced quality control, adaptive production, and the creation of agile and flexible manufacturing systems

Quality Control with AI

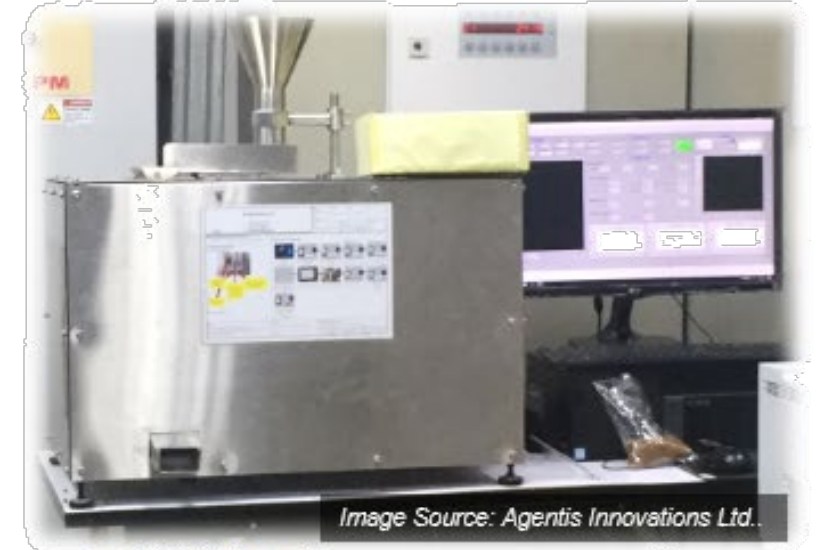
Robotic Arm



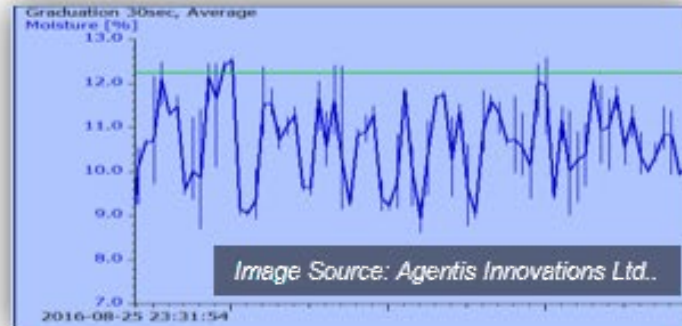
IoT Moisture Sensor



Vision Camera with AI

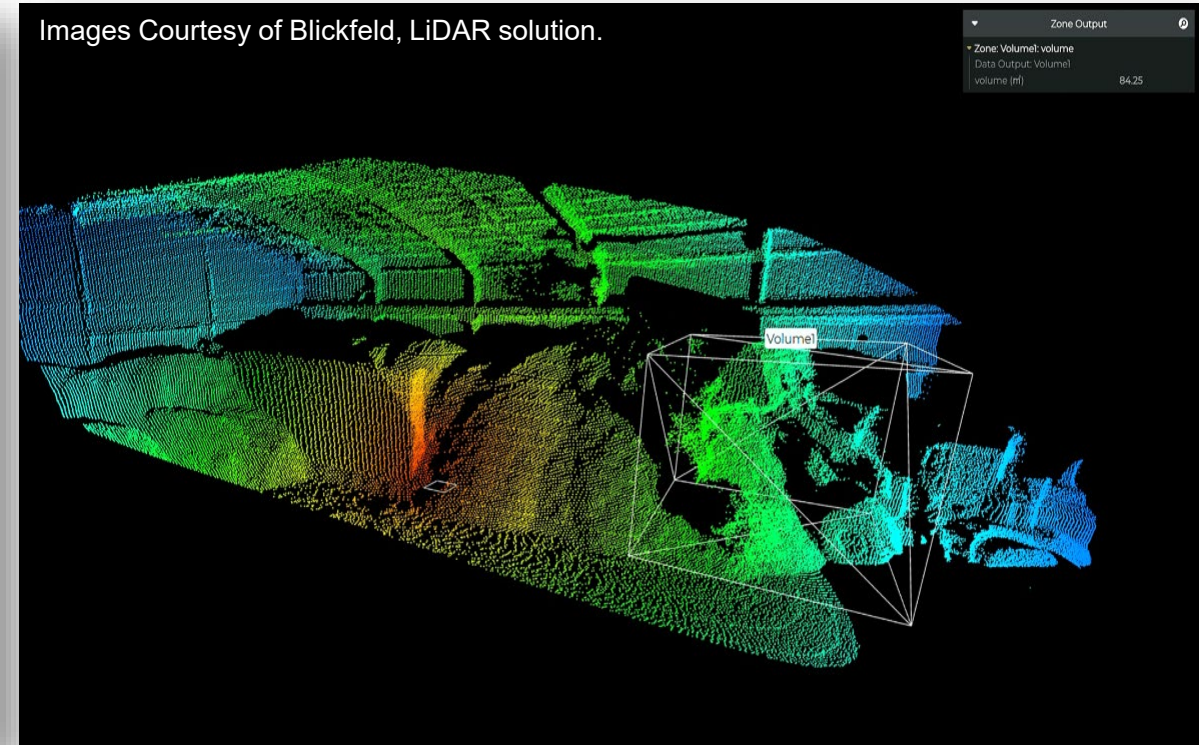
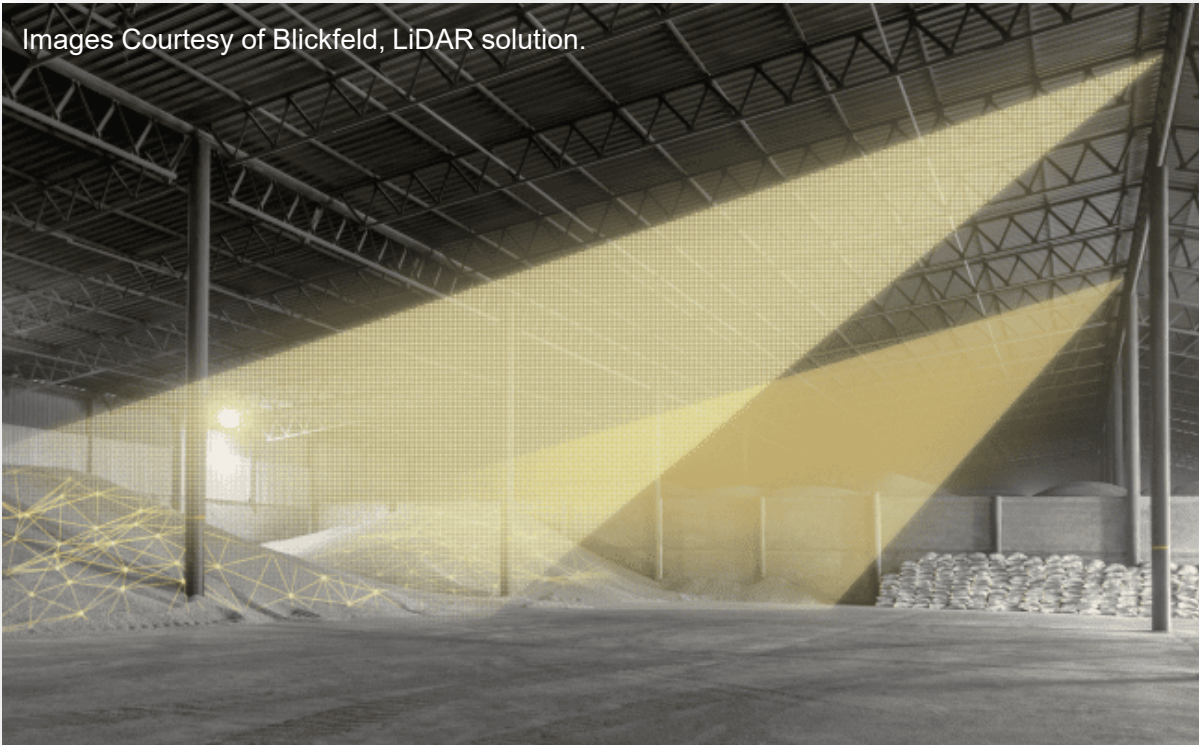


Big Data Analysis
and Transparency



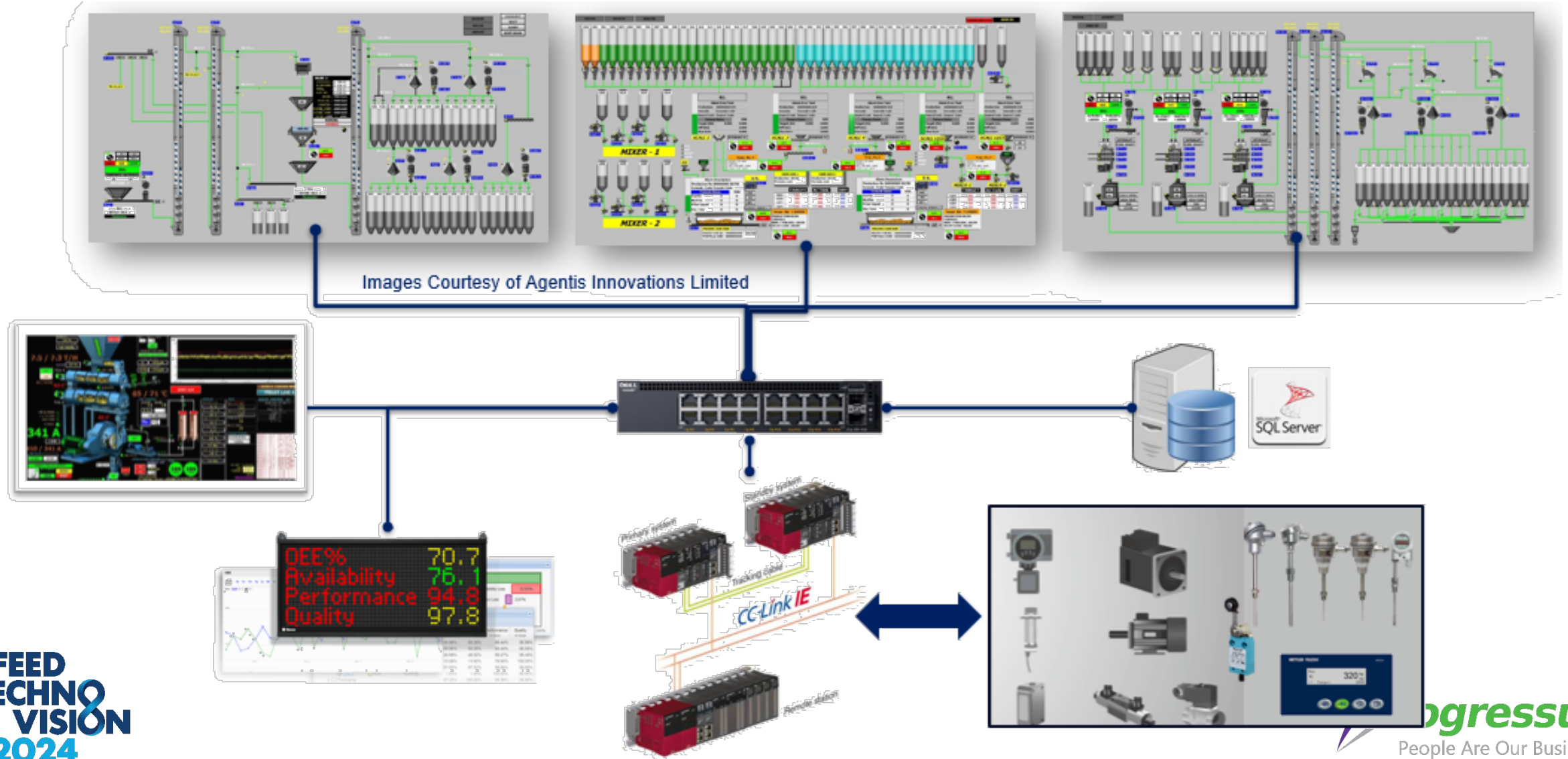
Human Interface and
Data Visualization

Camera technology and AI



Images Courtesy of Blickfeld, LiDAR solution. Image Source: blickfeld.com

Optimal Process Control & Equipment Efficiency



Precision Feed Manufacturing

Real-Time Dry Matter Compensation

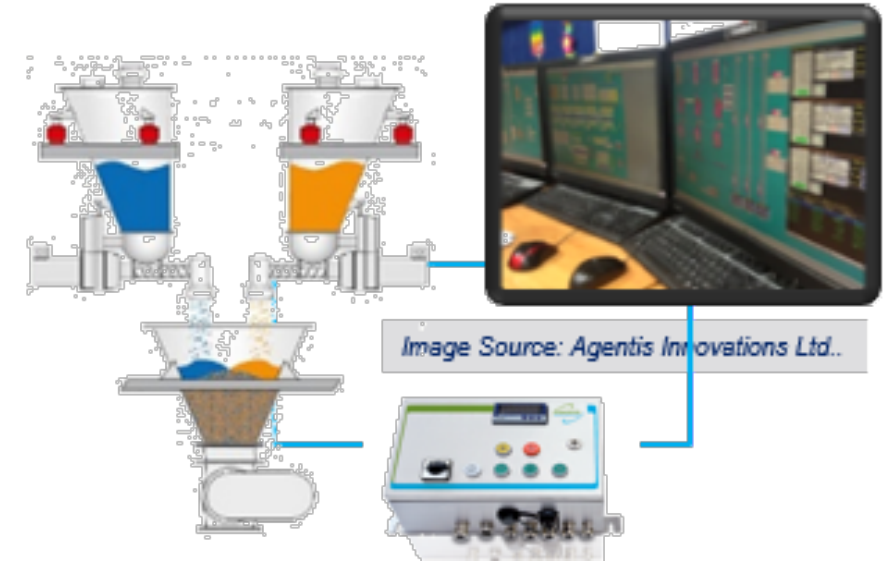
In real-time and during the feed production process, CORRECT NUTRIENT DENSITY of diets based on the actual moisture value of each key ingredient that the diet was formulated with.

Technology Developed by Agentis Innovations

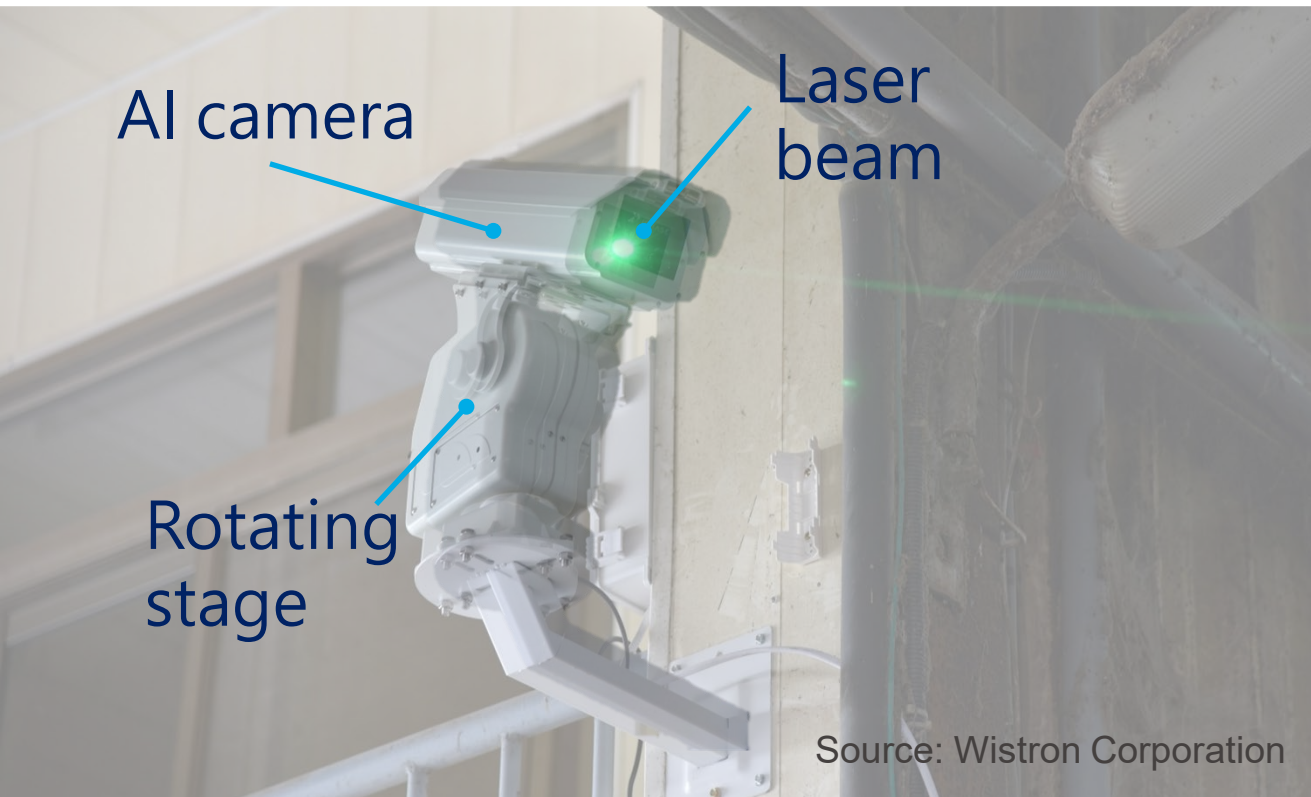
~~Nutrient Give Away~~

~~Shrinkage / Stocks~~

~~Precision Feeding~~



Peripheral Biosecurity



AI Bird Repeller captures images using camera, AI calculations are performed to activate the laser and repel the largest group of wild birds.

- Increase biosecurity
- Lower risk of bird flu
- Avoid disease loss

Feed Ordering and Farm Management

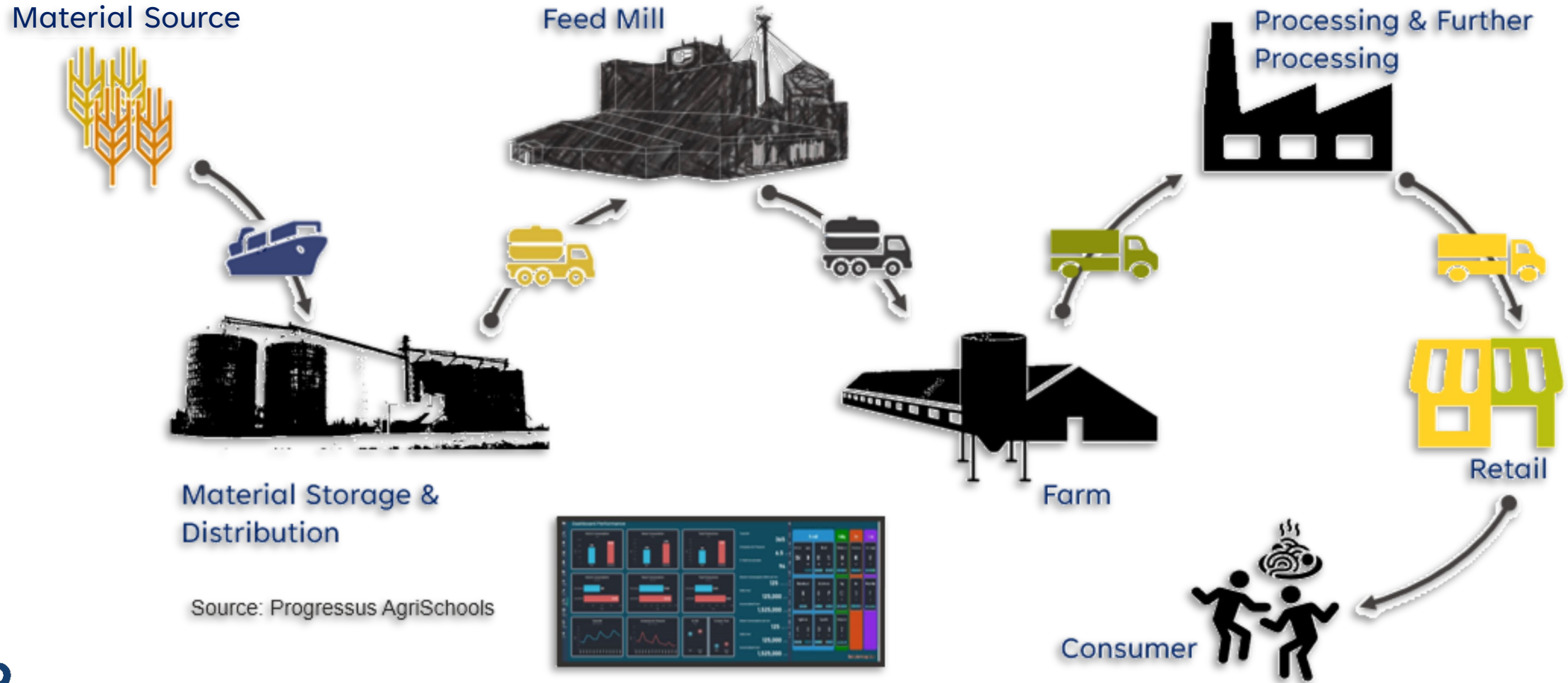


- Feed Production Planning
- Automatic Feed Ordering

- Weight based Catching Plan
- Sales Planning



Blockchain will Transform the way we farm and Food Safety



Source: Progressus AgriSchools

Summary



- Digitalization and Automation are vital to the future of milling and farming
- Invest in understanding and following technological developments
- If yet to start your business digital transformation, start!
- Technology is the new way, embrace it

Unleashing Digitalization and AI Technology for Feed Milling Operations