



Poultry industry



Malachy Mitchell

Mmitchell@farrellymitchell.com



 **Quick read**

Introduction

A move towards a mechanised poultry sector is becoming increasingly attractive to break the chain of inefficiencies and increase the return from expensive feed and capital-intensive resources. Sensors will inform artificial intelligence (AI) to take pragmatic decisions and AI will in turn instruct robots to do the needful tasks both economically and efficiently...

World Meat & Egg Consumption

World meat consumption forecasts are expected to average over 36.3kg per capita by 2023, an increase of 2.4kg compared with 2013. Some 72% of this increase will come from poultry. Egg consumption continues to grow also, due to their nutritional value and high level of versatility. In addition, eggs are finding their way in innovative pharmaceutical and sport nutrition food products.

Management Shift in the Poultry Industry

Progressive poultry industry producers know the average weight of birds, average feed, average water consumption and a couple of other “averages.” Egg producers are marginally better in having a daily data egg production average for a group of birds but managing by averages makes the entire production process potentially inefficient and misaligned.

The emerging “Topical Three” technologies as depicted in figure 1 will soon allow poultry producers to shift away from the management of “averages” to one with increased accuracy, range and representation of real time information, gathered across the supply chain – from flock to stock on the supermarket shelf.

This will result in improved visibility across a complex supply chain, resulting in improved physical and financial KPI's.

Internet of Things

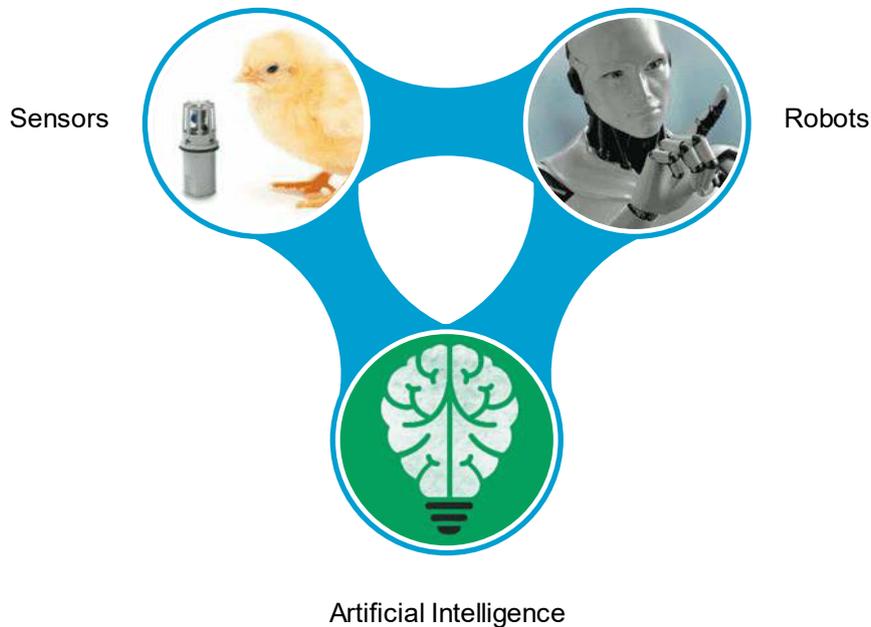
The Internet of Things (IoT) is an inter-connected network of -devices, vehicles, appliances - embedded with sensors, software, network connectivity, and computer capability enabling these objects to collect, exchange, and act on data, - usually without human intervention.

- The collection, analysis and dissemination of data within intensive farming systems and complex supply chains, such as the poultry industry value chain, present enormous opportunities for all stakeholders
- A move towards a more mechanised poultry sector is growing in attractiveness as producers aim to remove the inefficiencies involved in the process
- AI or artificial intelligence, robots and the Internet of Things are seen as key to better outcomes
- The use of these technologies can make measurable improvements to animal welfare and husbandry, improve the use and application of expensive inputs and benefit not only profits but also consumers through providing safer and more consistent food standards

Sensor technology is easy to install and experiences less resistance due to lower implementation costs and because benefits are immediately recognised. Big Dutchman's DOL 53 is a sensor designed to measure ammonia, a frequent problem in many poultry houses. Also, climate in poultry houses influences the wellbeing of birds, feed utilisation and optimal performance. Respiratory, digestive and behavioural disorders are more likely to occur in houses in which the climatic conditions are not maintained constantly. SKOV and Filipino Poultry use novel sensors to regulate and control the climate in the house, including ventilation and temperature.



Figure 1: The Topical Three



Artificial Intelligence (AI)

Software algorithms are automating complex decision-making programs to mimic human thought processes and senses. AI is a computer program that can teach itself to learn, understand, reason, plan and act when blasted with data.

Vital Farms teamed up with Israeli technology giant Novatrans to create Ovabrite saving 7 billion male chick culls every year and creating significant cost savings for the layer industry. Because male chicks of egg laying breeds do not produce enough meat, they are culled by maceration. Ovabrite’s Tera Egg detects gender and fertility in the chicken embryo, enabling layer farms to remove male and infertile eggs before they enter incubation, so these eggs can be redirected for human consumption rather than hatched chicks being culled post-incubation.

Robots

Robots are machines with enhanced sensing, control, and intelligence used to automate, augment, or assist human activities.

Poultry houses require nearly constant attention: cleaning and sanitising, collecting eggs and checking

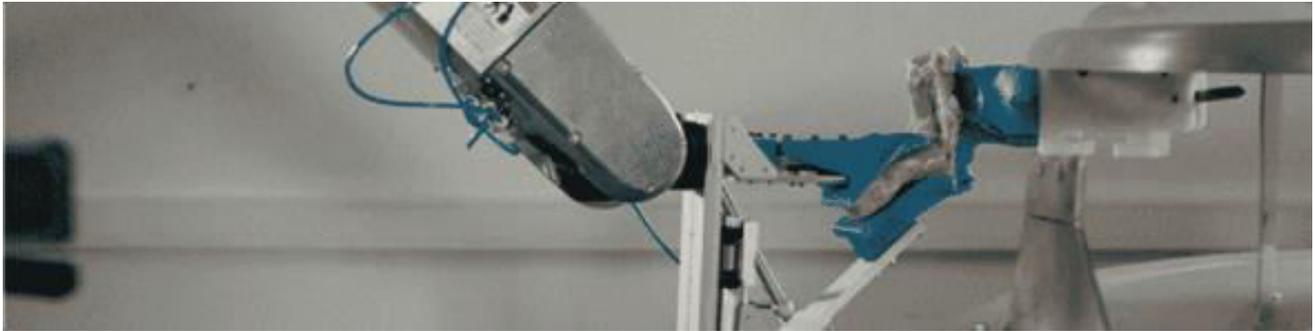
birds. This is time-consuming, monotonous work which robots can do more precisely, thoroughly and honestly compared to their human counterparts. Robots can also help in flock management. If robots detect an ill bird, farm management can be alerted, and the birds removed immediately, or the flock treated. Therefore, these automations will reduce or help to contain disease outbreaks, such as bird flu and foodborne illnesses, improving the safety of the entire supply chain.

The Synergy of Sensors, AI and Robots

Recent research in the US shows that 76% of chicken deboning industry employees had some level of damage to the nerves in their hands, while 34% showed signs of carpal tunnel syndrome. Automating a procedure such as chicken deboning requires precise recognition of the shape and size of each chicken and individual body structures. Artificial intelligence technology programs can easily analyse the difference in density and structure of meat versus bone, thereby making the most precise cut possible as depicted in figure 2. This is an epitome of combined technologies interplaying at the same time: robots perform the work that AI instructs them to do informed and aided by data that sensors collect.



Figure 2: SINTEF Gribbot can debone a chicken in about three seconds, replacing up to 30 human operators creating economies of efficiency.



Source: SINTEF

Conclusion

The collection, analysis and dissemination of data within intensive farming systems and complex supply chains, such as the poultry industry value chain, present enormous opportunities for all stakeholders. It can make measurable improvements to animal welfare and husbandry, improve the use and application of expensive inputs and benefit not only profits but also consumers through providing safer and more consistent food standards.



Expert in this Insight

Malachy Mitchell
MANAGING DIRECTOR

Mmitchell@farrellymitchell.com



Contact Details

www.FarrellyMitchell.com

EUROPE

Dublin (Head Office)

Malachy Mitchell, Managing Director

Farrelly & Mitchell

Unit 5A, Fingal Bay Business Park, Balbriggan Co.
Dublin Ireland. K32 EH70

Telephone : +353 1 690 6550

mmitchell@farrellymitchell.com

MIDDLE EAST & NORTH AFRICA

United Arab Emirates

Chaitanya GRK, Regional Director (MENA)

Farrelly & Mitchell (MENA)

Unit 1001, 10th Floor, Swiss Tower, Cluster Y
Jumeirah Lakes Towers, Dubai, United Arab
Emirates

Telephone : +971 4 279 8331

Mobile : +971 551991356

cgrk@farrellymitchell.com

SAUDI ARABIA

Riyadh

Najeeb Alhumaid, Partner (Saudi Arabia)

Branch of Farrelly & Mitchell Business Consultants Ltd

Jarir Plaza Building, Suite 106, King Abdullah Road,
Al Hamra District, Riyadh 12211-3857,
Kingdom of Saudi Arabia

Telephone : +966 11 463 4406

Mobile : +966 54 338 7199

nalhumaid@farrellymitchell.com

AFRICA (SSA)

Ghana

Stephen Awuah, Senior Manager, Africa (SSA)

Farrelly & Mitchell Ghana Limited

Utopia Office, 14 Senchi Street, Airport
Residential Area,
Accra Ghana

Telephone: +233 302 906850

Mobile: +233 59212 1723

sawuah@farrellymitchell.com

Connect with



Disclaimer

The information in this article is intended to give information in general nature, great efforts has been exerted to ensure the accuracy of this data at the time the article was written Farrelly & Mitchell Business Consultants Ltd. and its Branch offices or affiliates does not provide any implicit or explicit guarantees on the validity, timing or completeness of any data or information in this article. Also we assume no responsibility on the appropriateness of the data and information for suiting any particular purpose or reliability in trading or investing.

Please note: Unless provided otherwise and in writing from us, all information contained in this article, including logo, pictures and drawings, are considered property of Farrelly & Mitchell Business Consultants Ltd and or its branch offices or affiliates.