



**MSD**

Animal Health

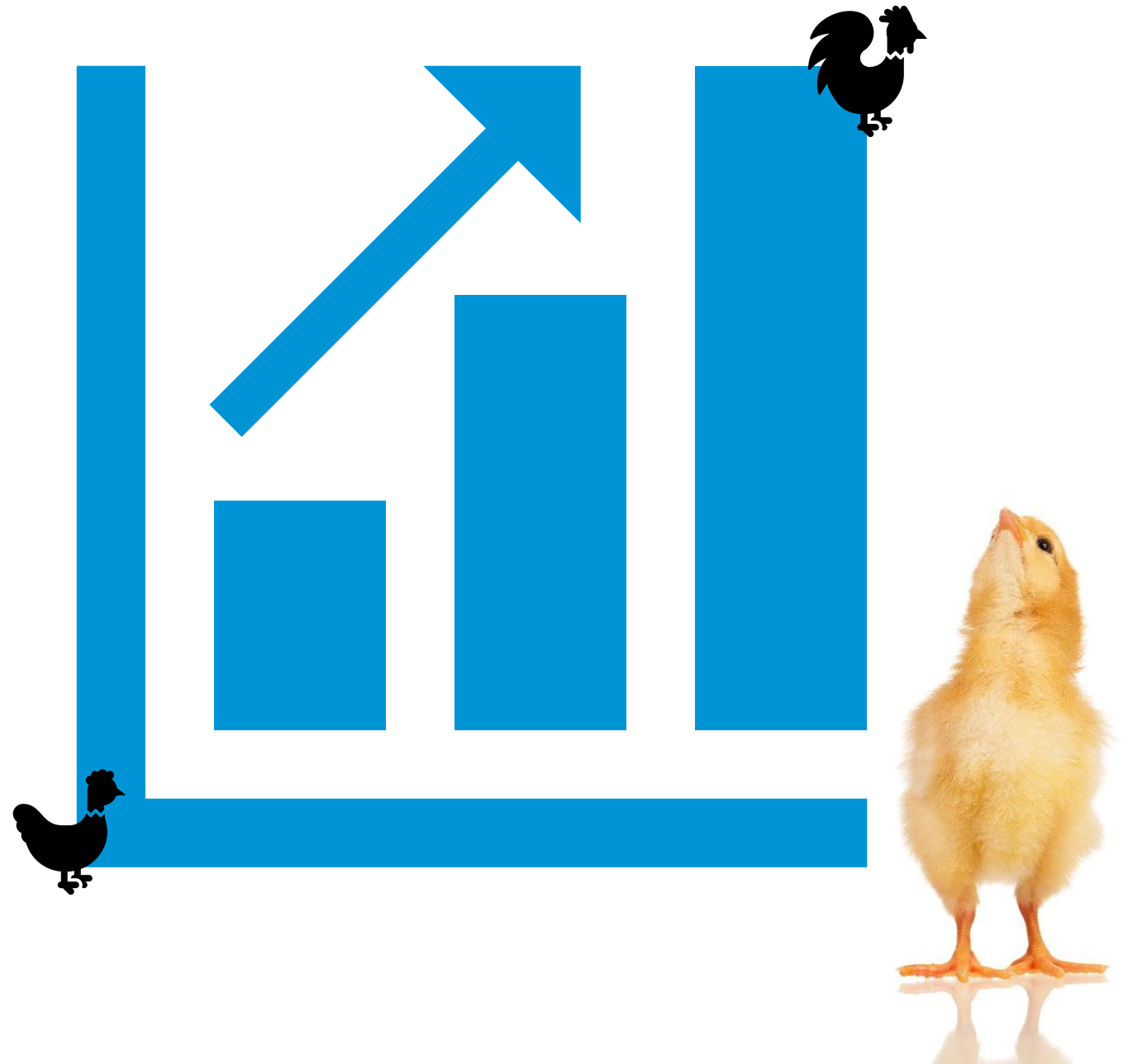


**VINOVO**

poultry health solutions

## Evolution of the hatchery

- Scale
- Amalgamation & integration
- Incubation technology
- Automation & vaccination
- Biosecurity & chick welfare
- Process control
- Data & IoT



**THE ART OF *IN OVO***  
**VACCINATION**



## Advantages of *in ovo* vaccination

- Centralised point of control
- Automated Efficiency
- Reduced chick handling
- Shorter chick processing times
- Improved Hatchery Processes

### Biological:

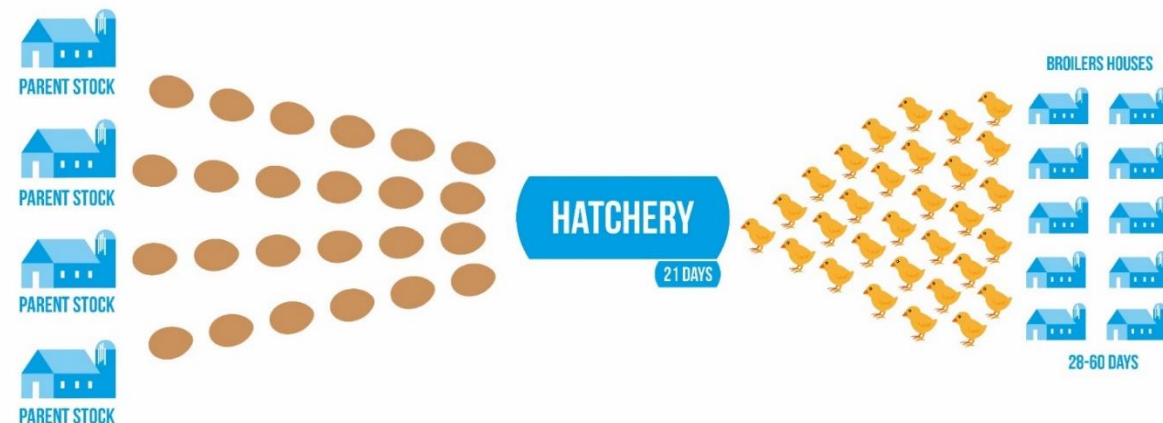
- Hygienic process
- Higher assurance of vaccination
- Correct vaccine dosage

### Chick Quality / Animal Welfare:

- Avoiding many belts and handling movements
- Avoiding post-vaccination reactions
- Jump-start on early immune response

### Process:

- Accurate
- Automated and mass scale
- Individual vaccine delivery
- Reduced labor
- Efficient vaccination team



## Objectives of *in ovo* vaccination

- Delivery of vaccine in Amnion or Embryo
- Delivery of correct dosage
- Control & centralise the vaccination process
- Faster & safer delivery of vaccine
- Maintain efficacy of the vaccine

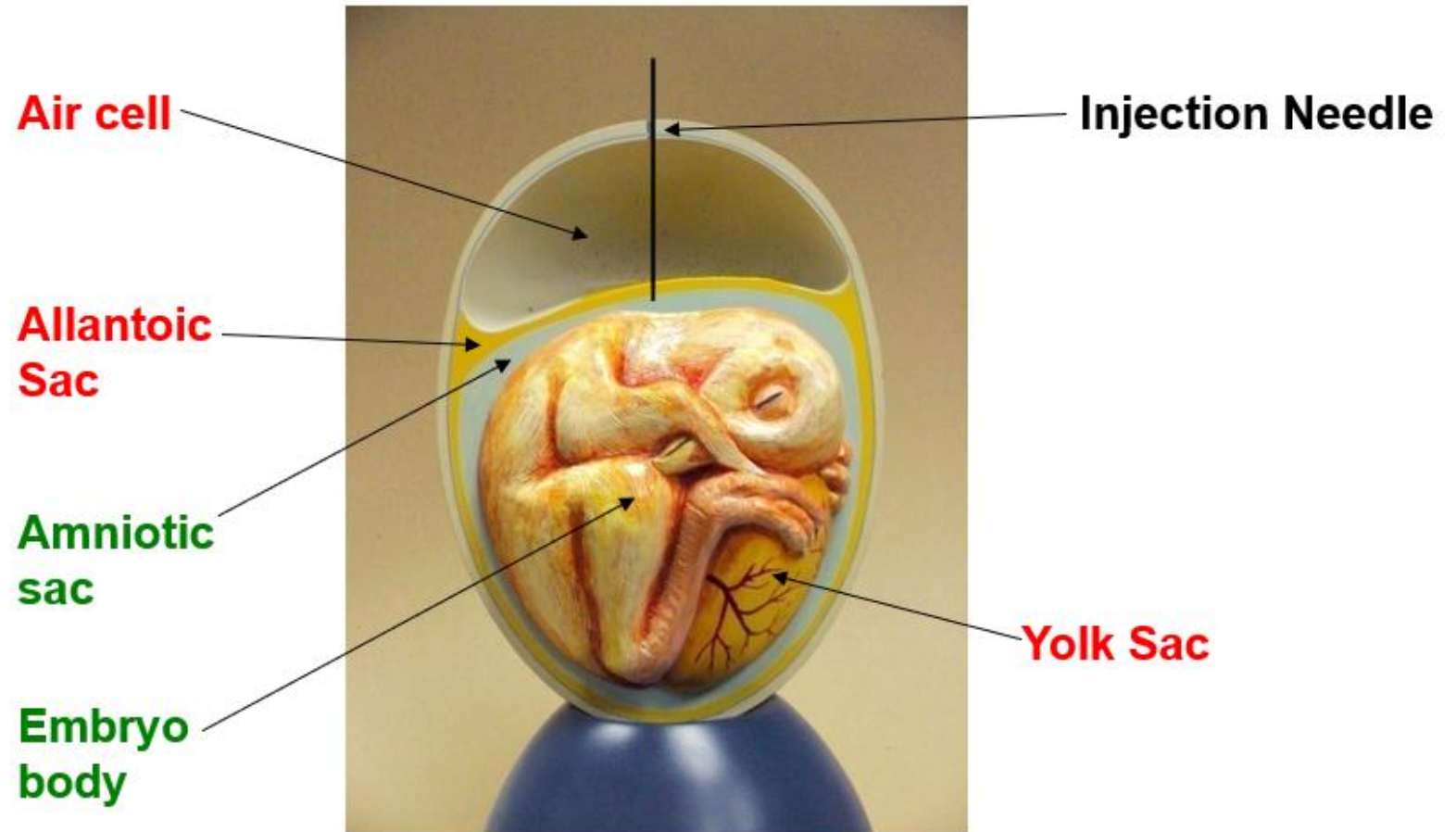
## Mission statement:

“To deliver the **correct volume** of **quality** vaccine within the **Ideal compartment** of a **Viable egg** without negatively affecting the **hatchability** or **chick quality**”



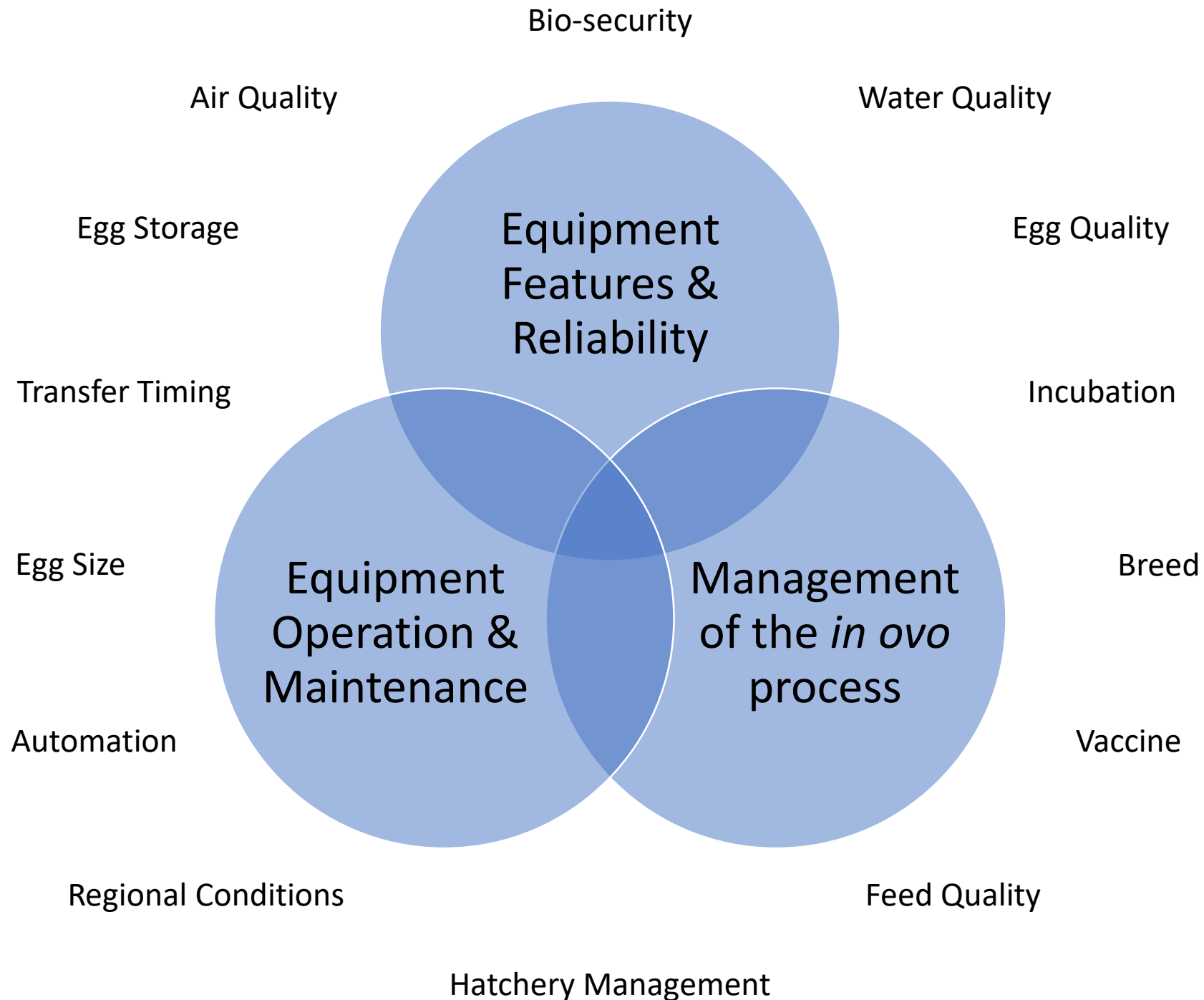
## What is *in ovo* vaccination

- Early delivery of live vaccine to the embryo within the egg
- Accurate, automated, mass, yet individual vaccination
- Single point of control within a Hatcher



## Influencing factors

- Internal Factors
  - Equipment Features & Reliability
  - Equipment Operation & Maintenance
  - Management of the Process
- External Factors





## Operation & maintenance

- Training & certification
- Scheduled preventative services
- 24/7 Remote assistance
- First-aid spare parts package
- Hatchery improvement program
- Validation of operating procedures





## Risks of *in ovo* vaccination

- Cross-contamination
- Early mortality
- Limited visibility of process
- Effects on Vaccine efficacy
- Equipment failures down time

### **Biological:**

- Cross-contamination
- Reduced vaccination coverage
- Reduced vaccine efficacy

### **Chick Quality / Animal Welfare:**

- Loss of hatchability
- Loss of chick quality
- Reduced immunity

### **Process:**

- Equipment failure
- Inaccurate vaccine delivery



## Process management

- Vaccine preparation
- Recordkeeping
- Process validation
- Protocol & standard operating procedures



## Validation toolbox

- Visual inspection
- Blue dye test
- PARVI & Convenience evaluation
- Break-outs
- Viral flex
- Customer feedback, hatchery & field results



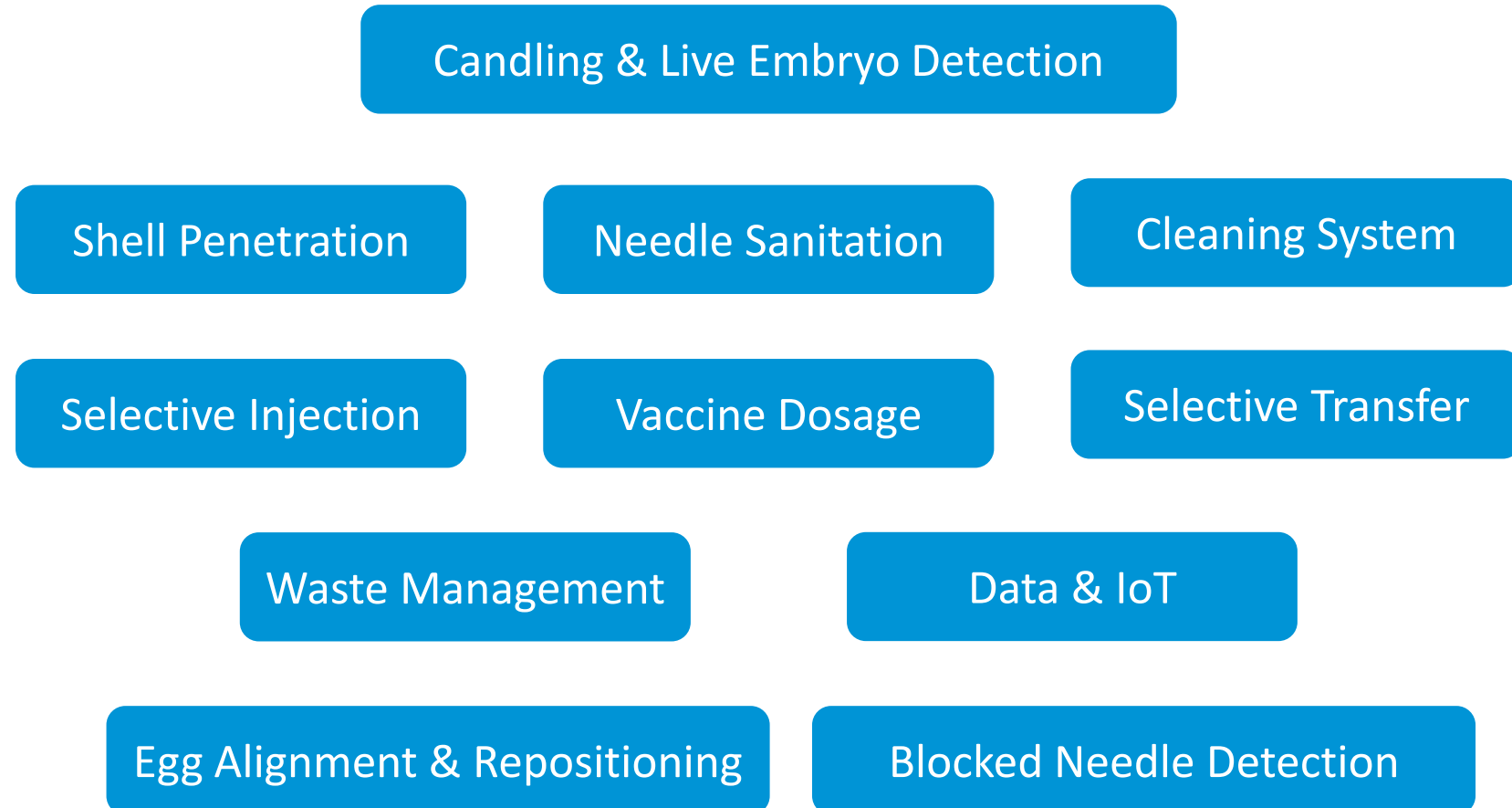


### Mission statement:

“We Deliver the correct amount of good quality vaccine within the correct compartment of the correct egg without negatively affecting the hatchability or chick quality”

## Equipment features

- Accuracy
- Bio-security
- Reliability



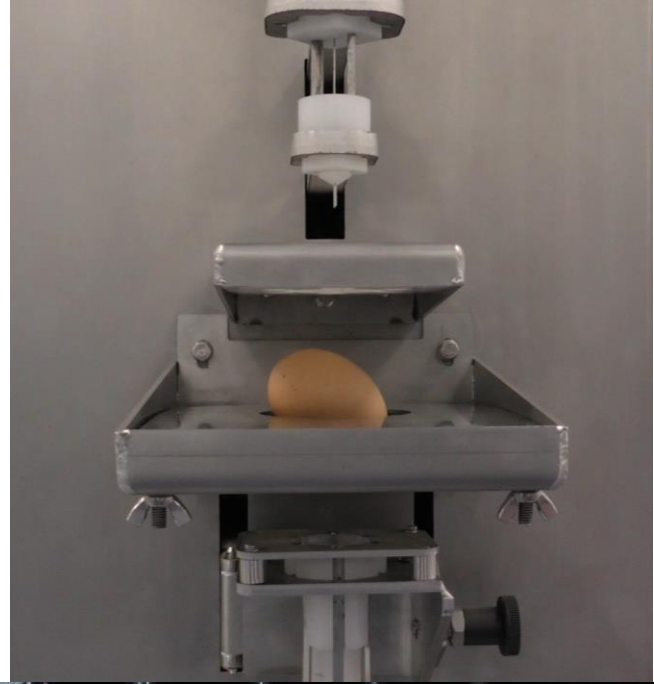
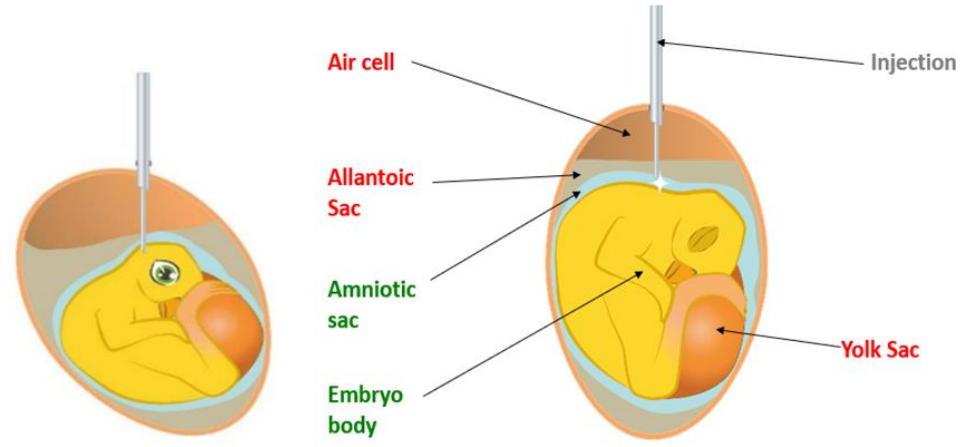


## Development & Advances

- Live embryo detection
- Safe *in ovo* vaccination
- Selective Transfer & Waste
- Cleaner Safer Hatchery
- World wide Service program

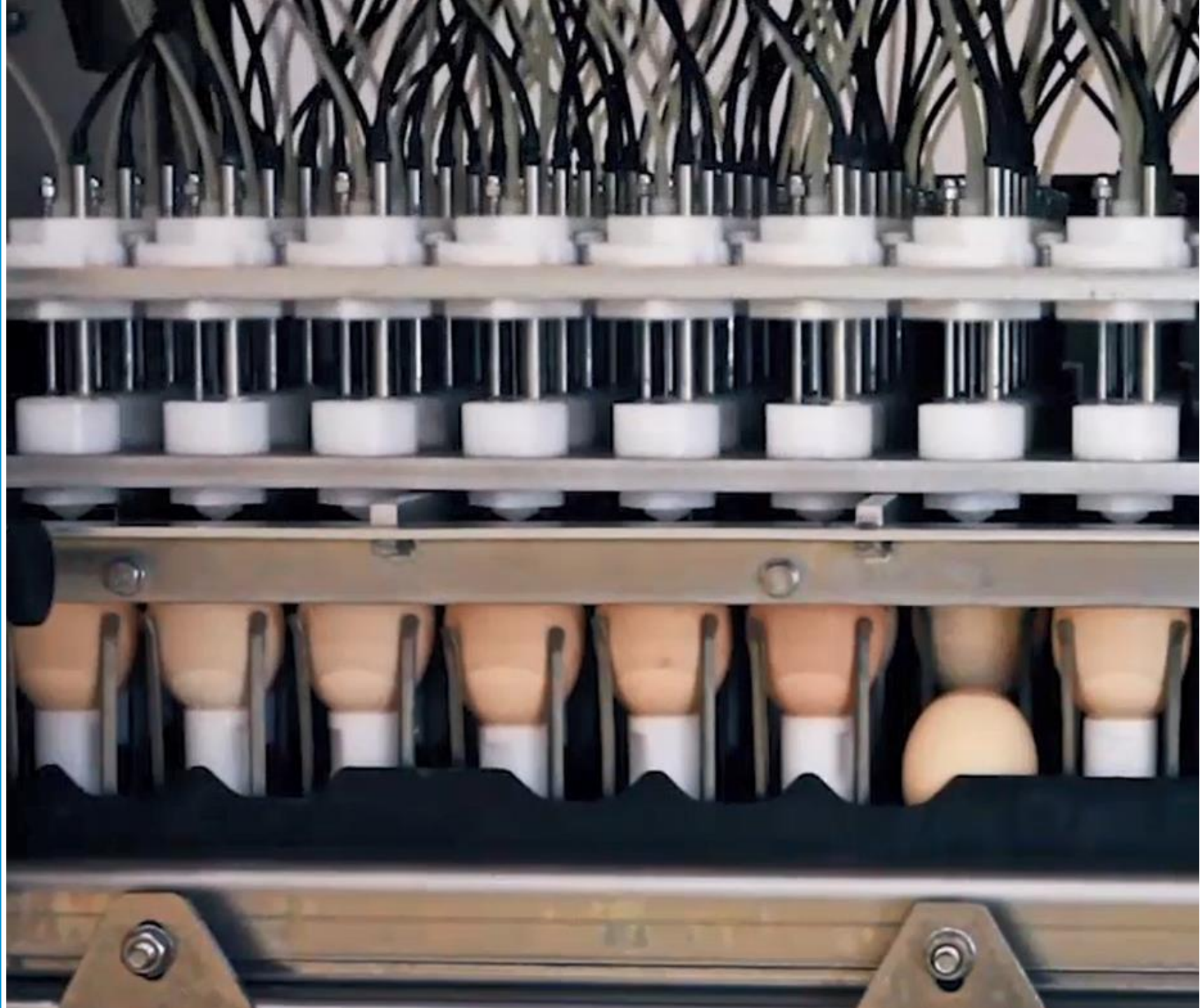
## Individual alignment & support

- Correct compartment vaccination – Amnion, embryo or both.
- Safer vaccinating method and reduced risk of damaging embryo, shell, membrane or veins.



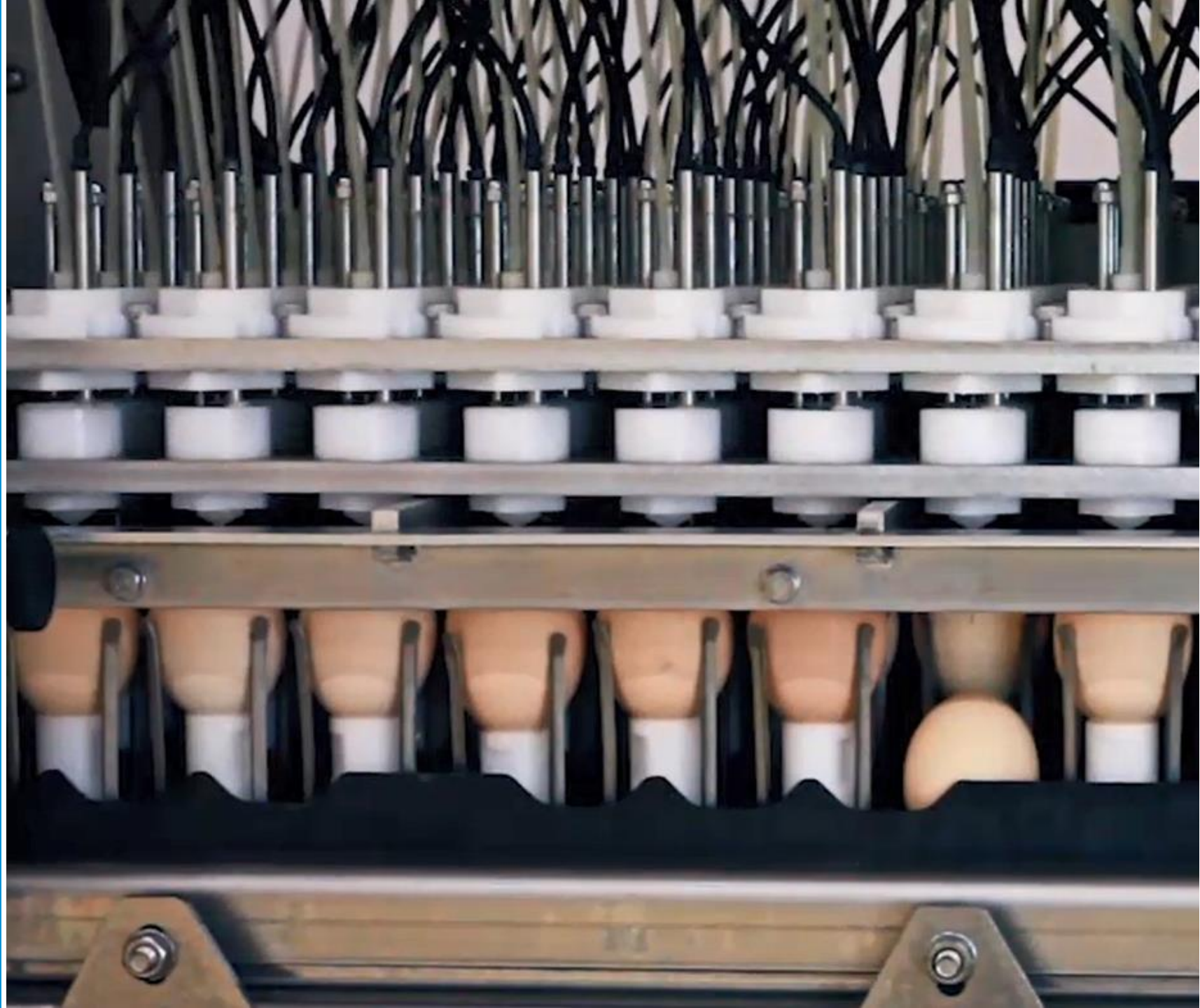
## Adjustable needle depth

- Varying sizes of eggs between flock ages.
  - Young flock = small egg
  - Old flock = large egg
- Accurate location of vaccine placement
- Safer vaccination for the embryo.



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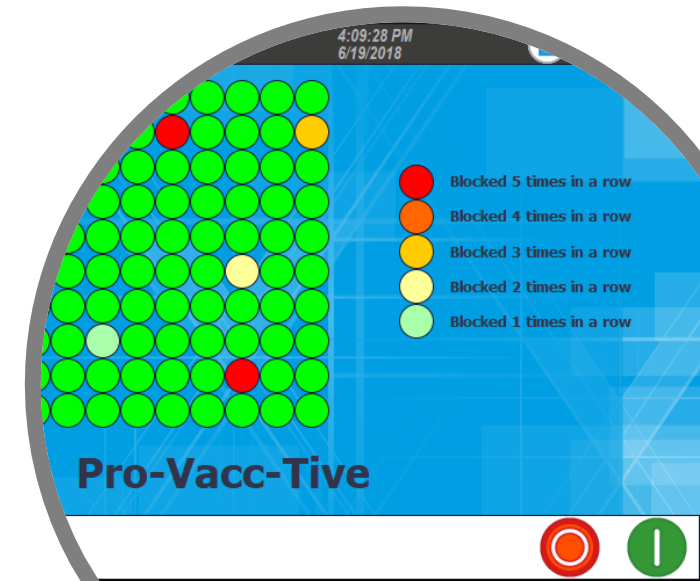
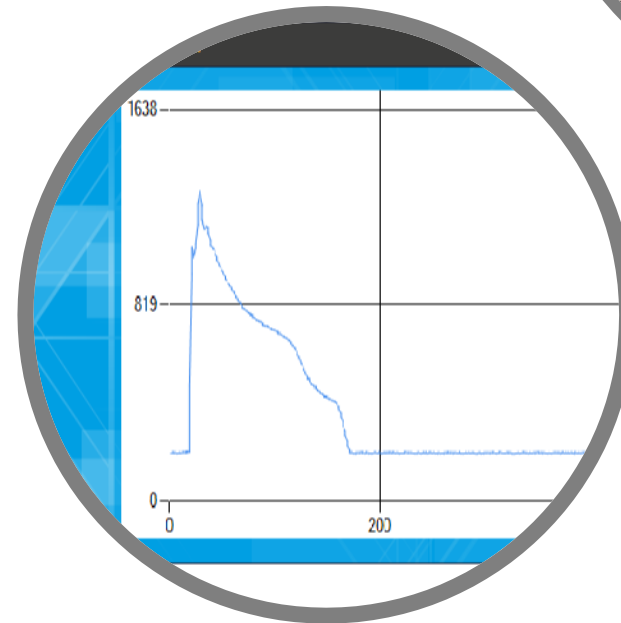


## Pro-Vacc-Tive

- Patented flow detection for both vaccine and sanitation pathways.
- Fully monitored, real-time, vaccine quality assurance.
- Immediate notification of a needle blockage.

### Advantages:

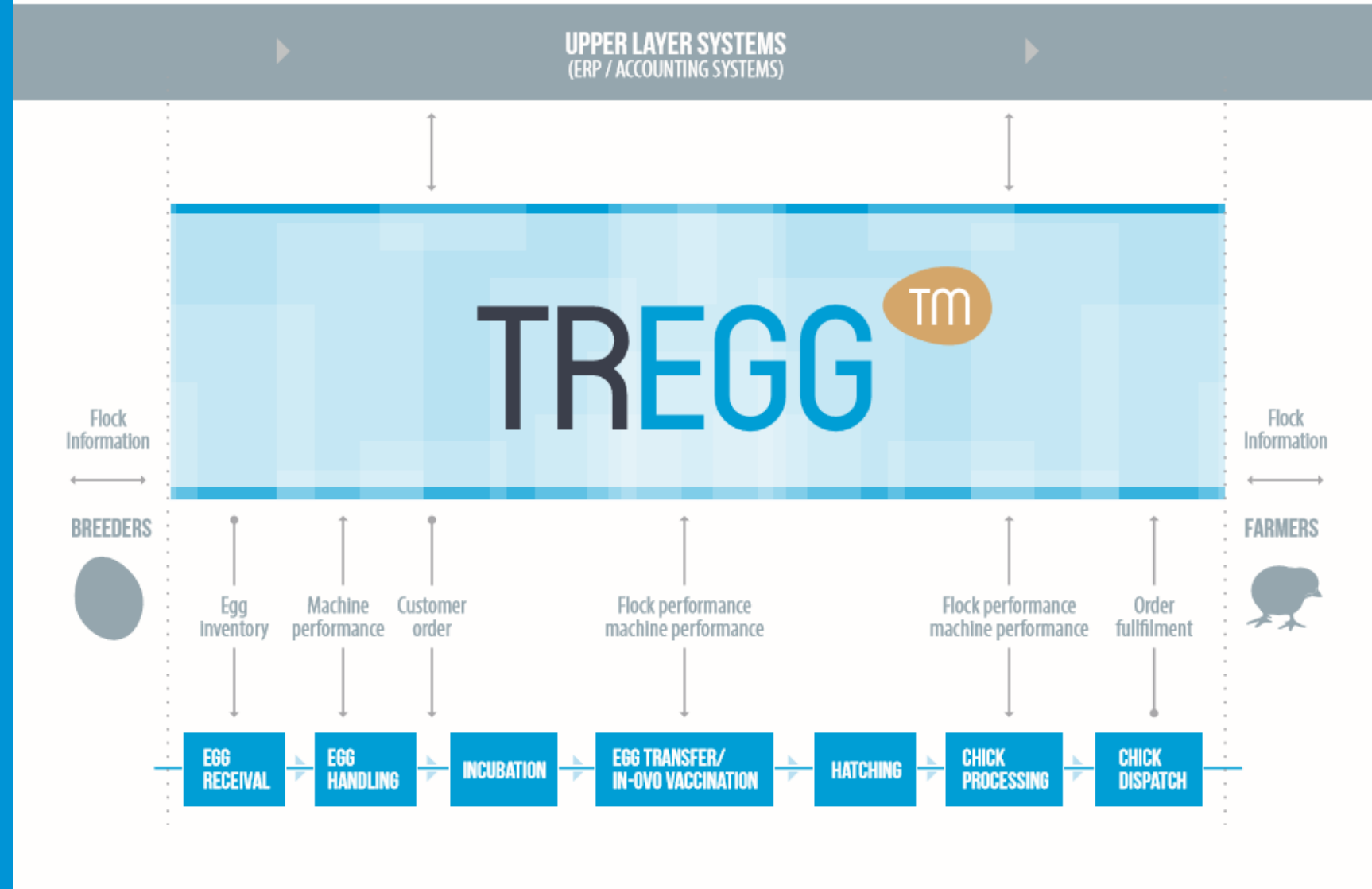
- Pro-actively responding to real time issues.
- Increased certainty of vaccinating every egg.
- Reduced machine downtime.
- Reduced vaccine waste.



# Hatchery Intelligence Software

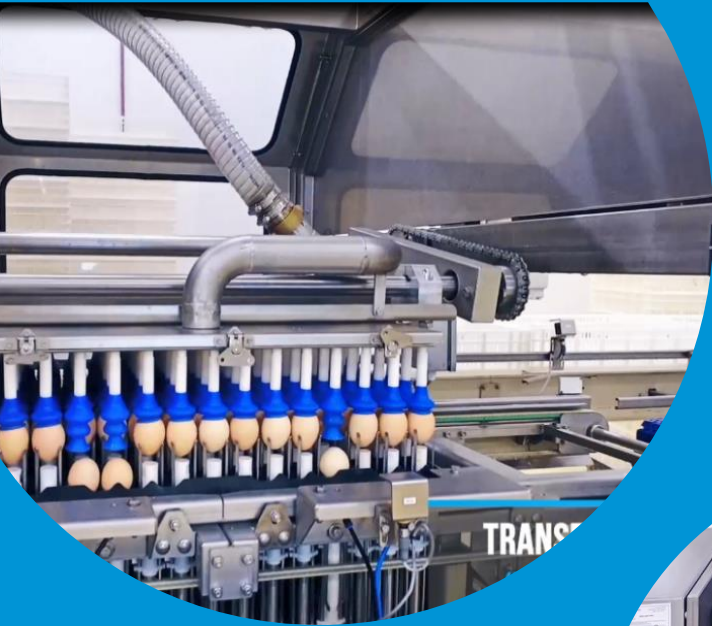
## TREGG™

- Real-Time Hatchery Performance Software
- Modular build
- Monitor machine performance
- Monitor flock performance
- Traceability and overview
- Serviceability and maintenance



# Why we developed Vinovo

- Global trend towards *in ovo* vaccination
- Preventative healthcare & reduced antibiotics
- A missing element in our programme
- Believed we could improve
- Improve animal welfare
- Optimised vaccination technique
  - Hygiene
  - Precision
  - Reliability



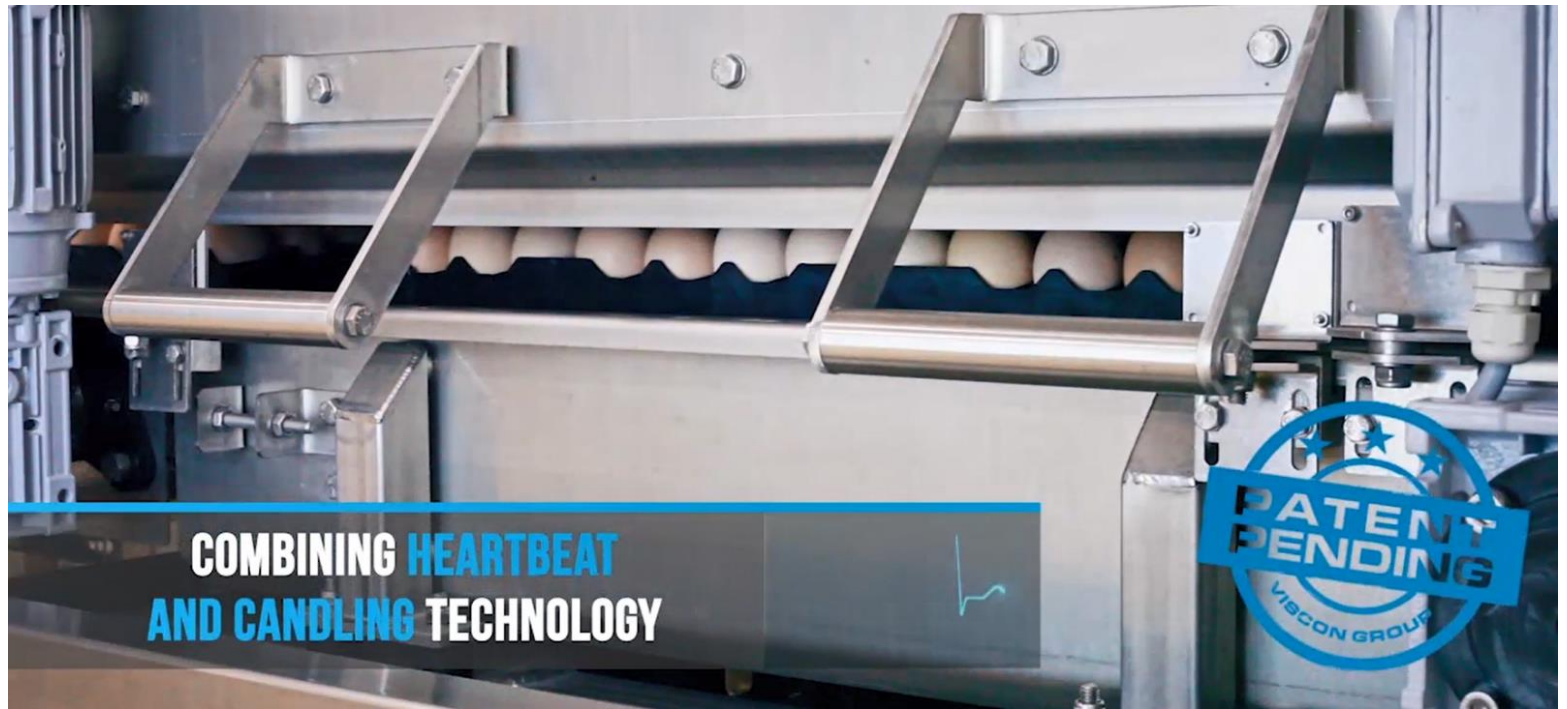
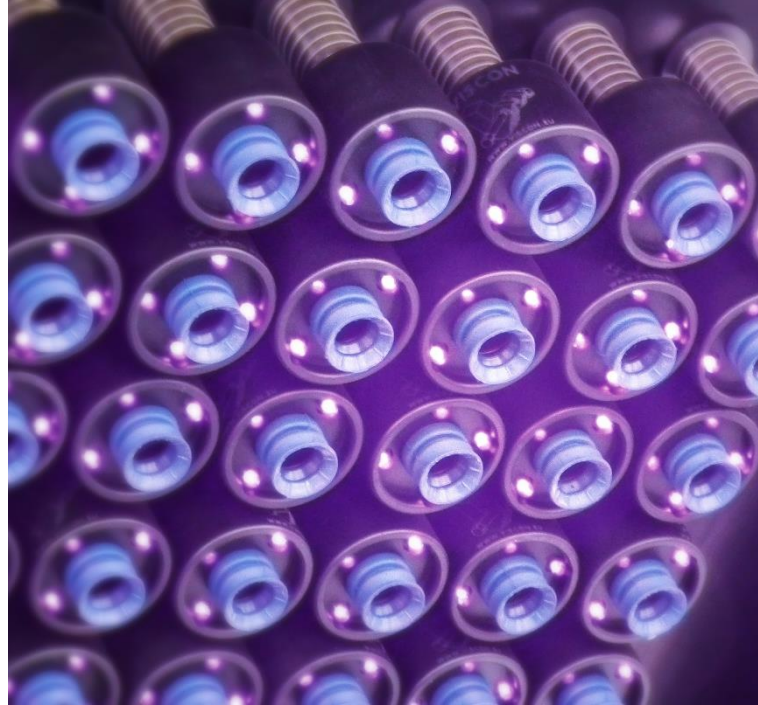
*Better protected and healthier birds*





## Live Embryo Detection™

- Patented combined heartbeat and candling technology
- Allowing detection of:
  - Living embryos
  - Infertile eggs
  - Dead eggs
  - Bangers
- Optimum bio-security
- Improved chick quality
- Accurate indication of expected hatch





## Selective Transfer™

- Hygienic transfer of only viable eggs
- Allows processing of non-viable eggs in a separated room





## Company overview



# VISCON GROUP



2

Factories



3

Generations  
of experience



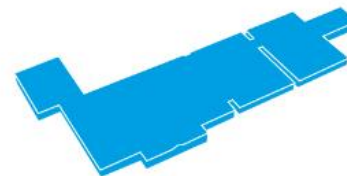
77+

Countries with  
Viscon equipment



300+

Colleagues



23,000 m<sup>2</sup>

Manufacturing facility



5,000

Cups of coffee  
a week

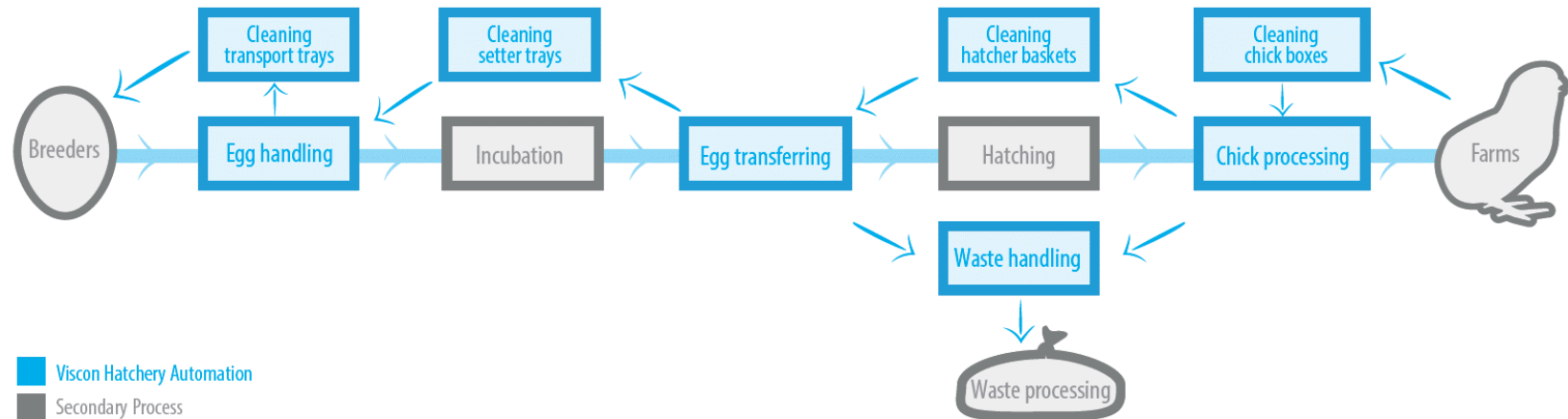
# Overview

- Active since early 90's
- Excellent Graduation Program
- New ideas from top talent
- Investors in people
- Turn-key solutions from eggs in to chicks out



## VHA Team

- 60
- Sales Engineers – 10
- Project Engineers – 20
- Manufacturing – 15
- Installation & Service – 15



# Bespoke Hatchery Automation





## Egg Room

- Farm trolley to setter trolley
- Egg Grading
- Data Collection



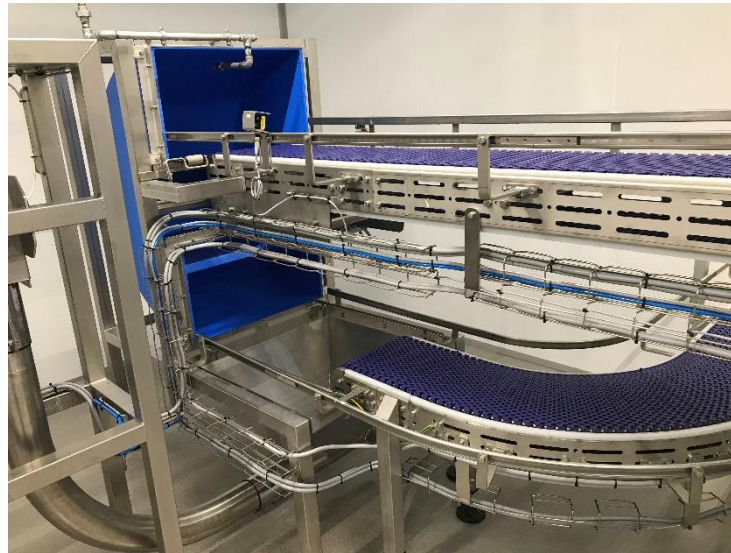
## Automated Washing

- Trolley
- Box
- Tray



## Automated storage

- Bespoke conveyors
- Rotating trays/boxes
- Auto Stack & De-stack
- Storage systems



## Waste Management

- Multi point Vacuum systems
- Selective egg waste
- Dust control



## Extensive Transfer and Chick processing systems

- Box and tray storage to Transfer room
- Trolley unloaders
- Trolley Stackers
- Automated to washing and storage
- Chick separators
- Chick counters
- Spray Vaccination
- Sexing carousel & counting





## Collaboration with MSD Animal Health

- Relationship since the development of the Vinovo Select Line in 2014
- Officially collaboration since June 20, 2018
- Possibility to lease or buy through MSD

