De slimme pluimveestal

PPA 24-01-2023

Vencomatic Group

Agro Supply - Prinzen - Van Gent - Vencomatic

Let’s meet

Dennis Hoeks

Product Manager Data & Systemintegration

- Started at Vencomatic in April 2007
- Background in Mechanical Engineering / R&D with a wide interest and a passion for innovation
- After various other functions in 2019 added to the product management team
- Responsible for product roadmap related to control technology, data and software development within the Vencomatic Group

Facts & Figures

Our team

>450 employees

30 Internships p/y

15 Nationalities

10 Years of employment

38 Average age

Turnover
>100 million

24/7 service

Worldwide

10 locations

100 dealers

10+ Partnerships

The market

Carbon footprint of food products

35% Increase in demand for animal protein in the coming 20 years

Our products

>75 million layer hens on our systems

Per year >200 million chicks hatch on-farm

Per year >50 million m3 natural gas equivalent savings through use of heat exchangers

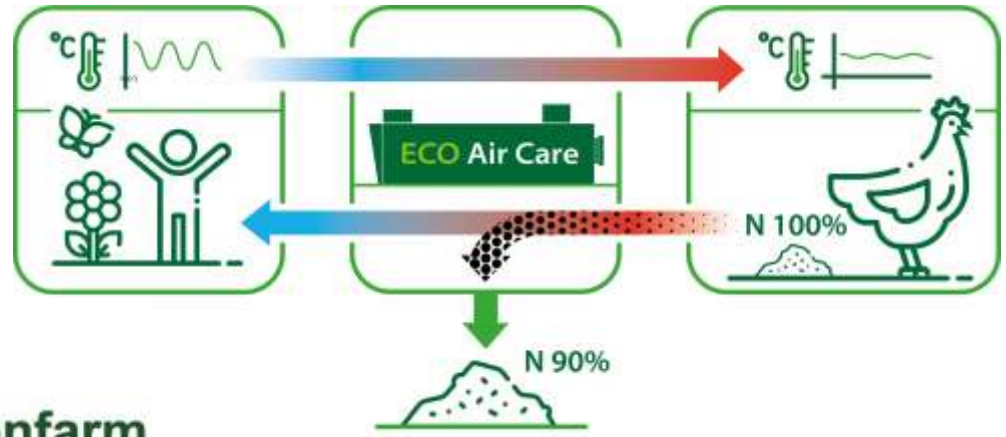
Per day >330 million eggs packed on Prinzen packers

ECO Air Care: 90% nitrogen reduction!

- Ventilation concept using air-air heat exchangers for heat and cold recovery
- Initially developed for improvement of house climate and energy saving
- Additionally, dust is removed from the outgoing air

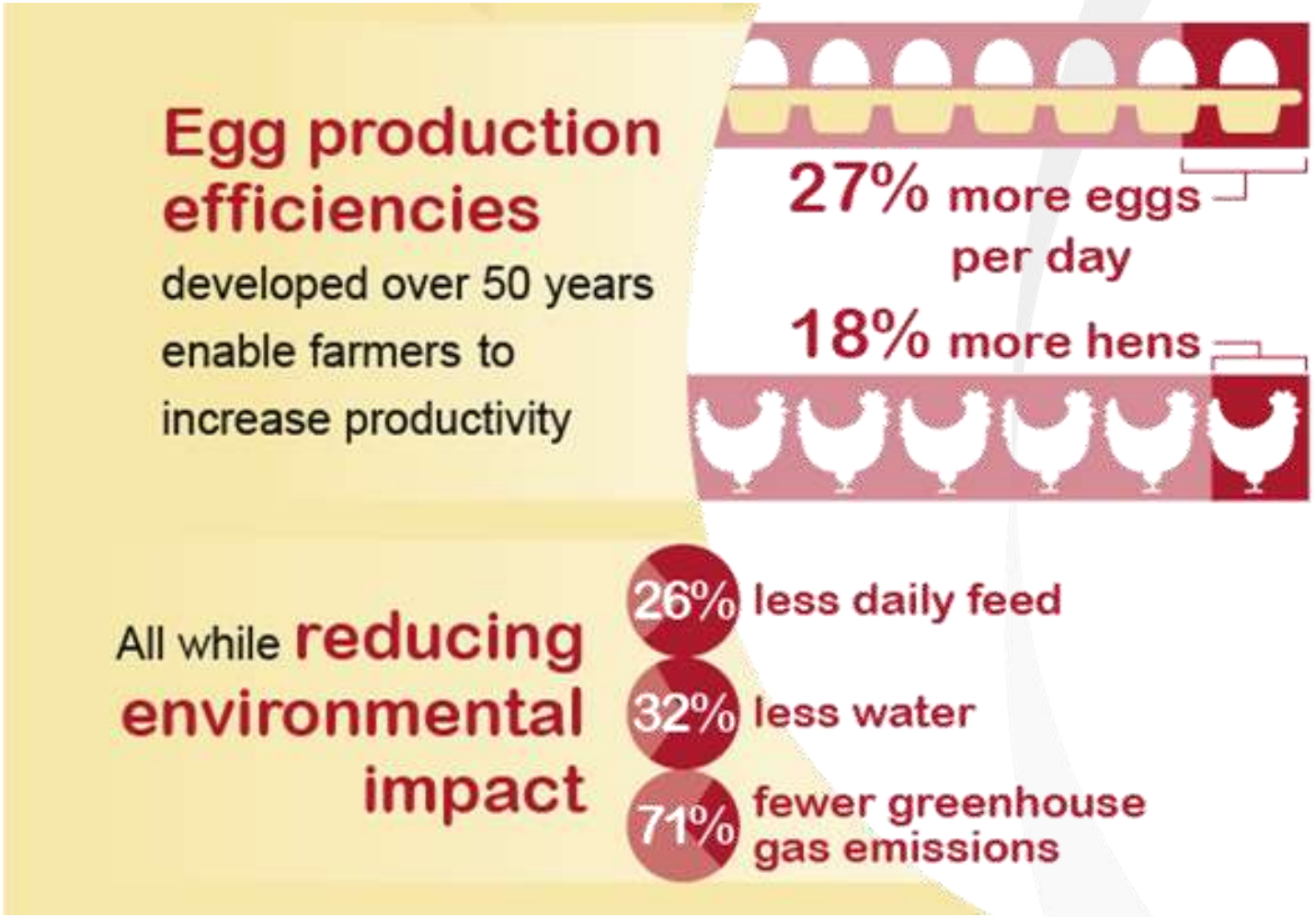
Test flock with 18.500 broiler breeders

- 8.314 kg less ammonia emission (6.847 kg nitrogen/year)
- Savings on feed (5%) and more eggs produced (5 eggs per hen housed)



Greenfarm HOOGELOON

Efficiency through time 1960 – 2010!



Source: Pelletier et al. (2014)

Make more while using less!

Potential for improvement

For instance:

- Number of eggs
- Peak production
- Feed conversion
- Hatchabillity
- Number of chicks
- Mortality

How come?

- Climate
- Diseases
- Stress
- Feed
- Water
- Management

Parameter	Control 24ºC / 50% RH	Heat 35ºC / 50% RH
Egg production	87.4%	56.2%
Egg weight [g]	56.4	46.9
Shell weight [g]	5.1	3.5
Antibody production	6.2	4.6

Source: Mishaly et al. (2004)

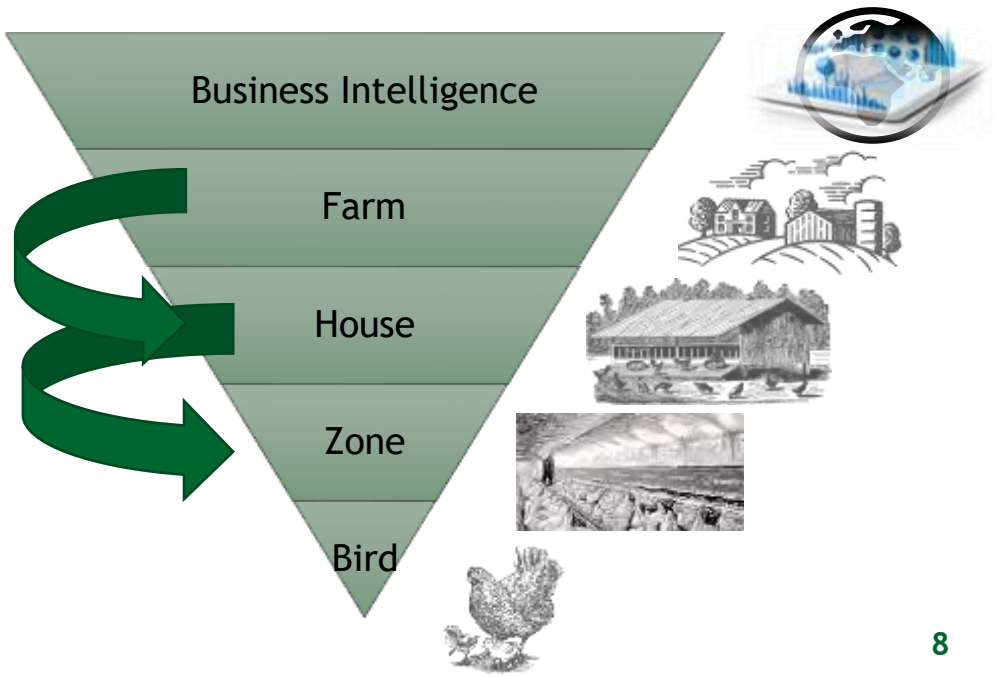
Disease	Egg production reduction	Mortality
Newcastle disease	Up to 100%	Up to 90%
Infectious bronchitis	Average 5-10% Up to 50%	<1%
Egg drop syndrome	10-15% Up to 40%	<1%
Avian influenza	10-80%	Up to 90%

Source: Roberts et al. (2011)

Reliable and accurate data is key!

Data → Information → Advice → Action

- More informed and reliable decisions
- Specific and accurate decisions
- Better and quicker decisions



Predictive AI: Four step approach

BY VINCENT GUYONNET ON SEPTEMBER 29, 2021

How artificial intelligence can benefit the egg sector

Artificial intelligence can make gathering data easier, but its real value to the egg sector is in its predictive ability.

After battling for more than two decades to keep out avian influenza, commonly referred to as AI, egg producers should be welcoming in another type of AI - artificial intelligence.

Modern egg production requires the daily collection of various data. This ranges from readings from numerous temperature points in the barn to ammonia levels, from water and feed consumption by barn section to daily egg production, including the number of dirty, cracked or softshell eggs.

Most farms still rely on pen and paper to record information, under the strong belief that having workers write down countless numbers is proof that they are doing their job. Yet, manual collection of data is time-consuming and prone to error, either when recording numbers or transferring data into computers.

Source: WATTPoultry.com

Four steps:

Most of the work!

Step 1: Generate data using sensors

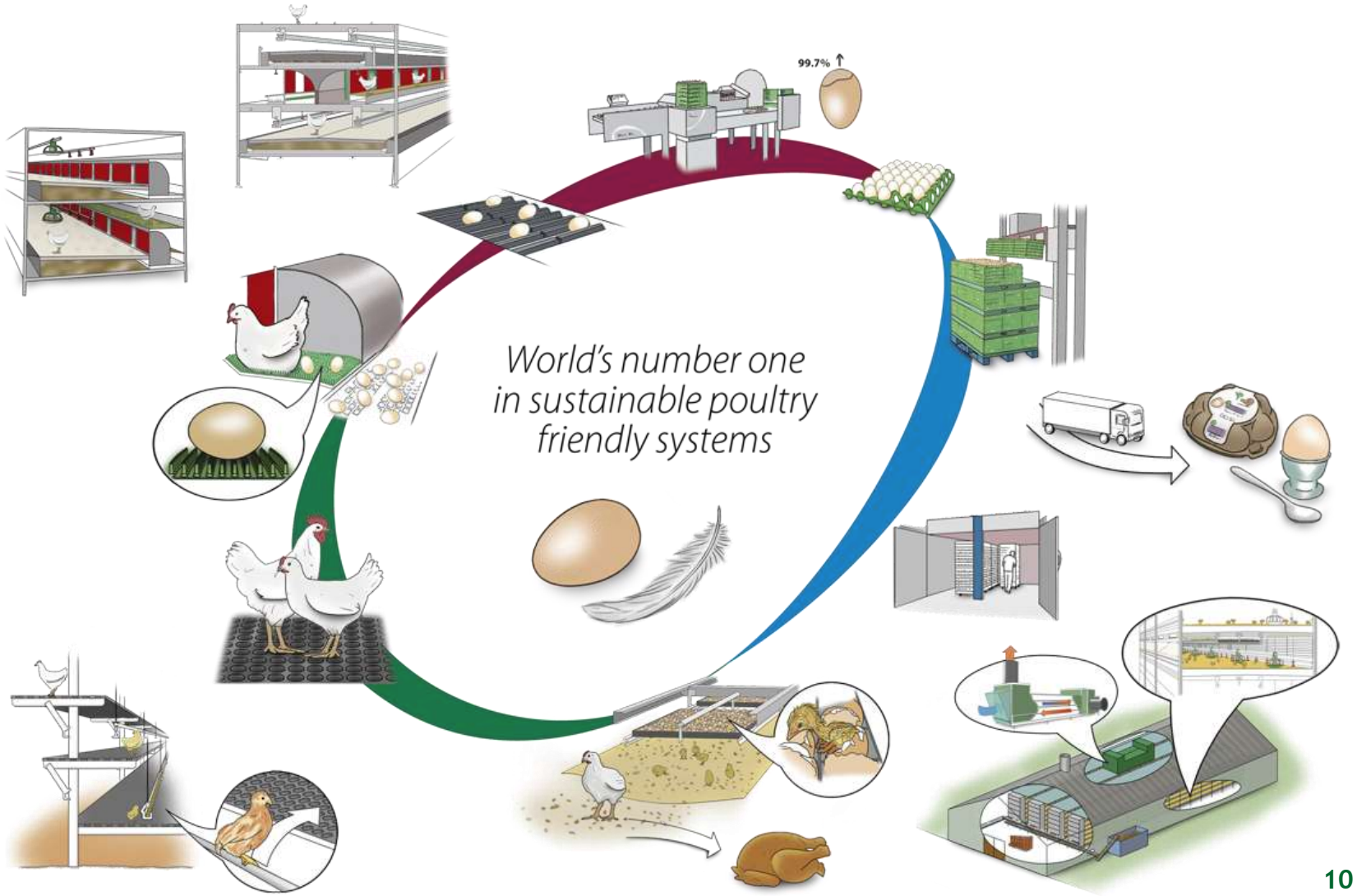
Step 2: Create infrastructure for data transfer

Step 3: Visualize the data in graphs and dashboards

Step 4: Create predictive algorithms using vast amounts of data

Most of the value

Automation of the ‘Eggway’ core strength Vencomatic Group



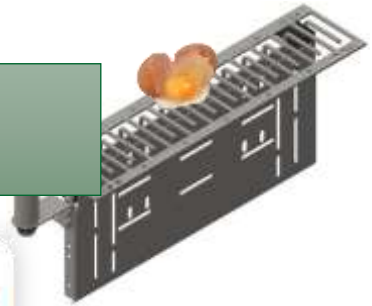
Introducing the Meggsius family!

- Next level in automation, reaching for autonomy
- Generating data and new information
- When combined provide an even more powerful solution

“With Meggsius you have full control of your egg collection process, while decreasing labour and producing continuous and exciting new information”

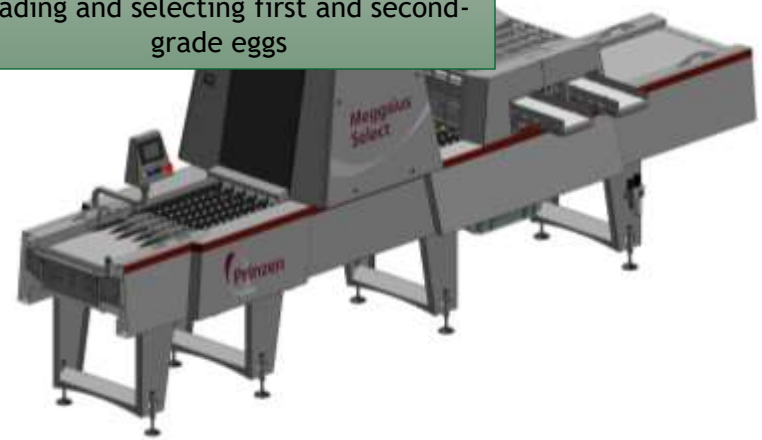
The Meggsius family

Detect
Detecting leaking eggs



Count
Measuring egg-flow

Select
Grading and selecting first and second-grade eggs



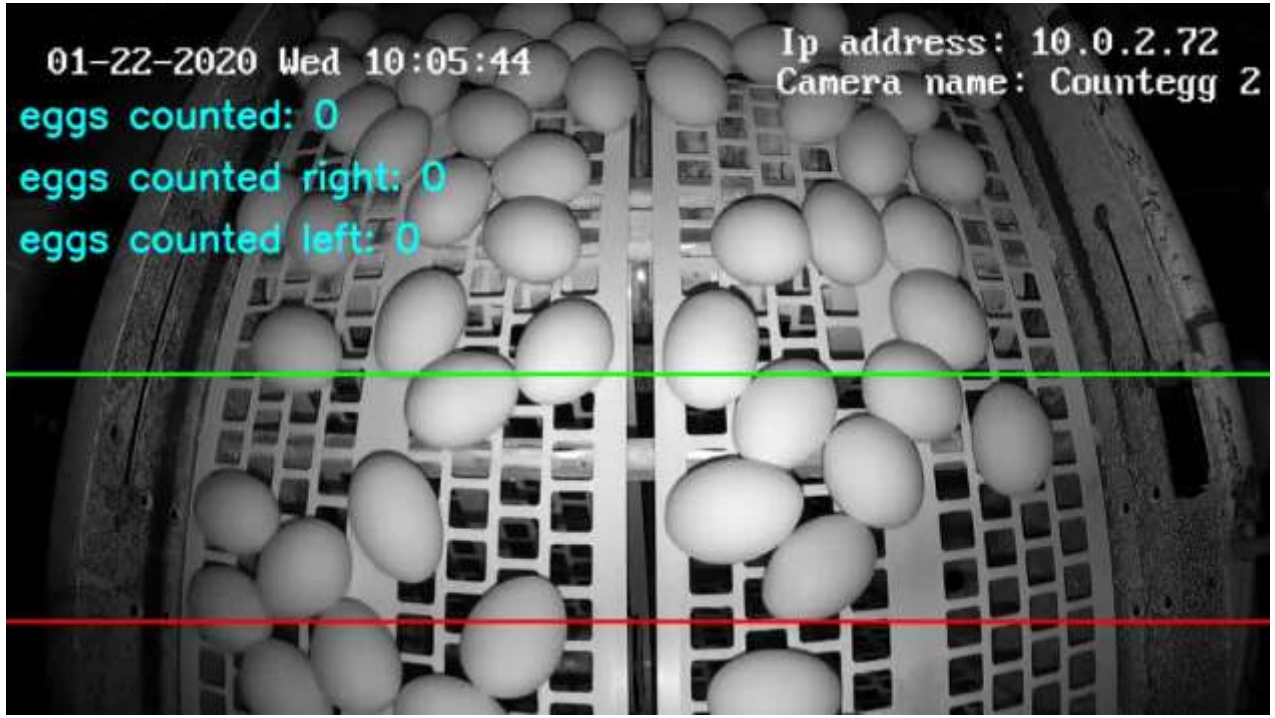
Meggsius
Stay ahead

Control
Optimizing egg flow, improving capacity and egg quality

Connect
Cloud based platform for collection, visualization and analyzing data

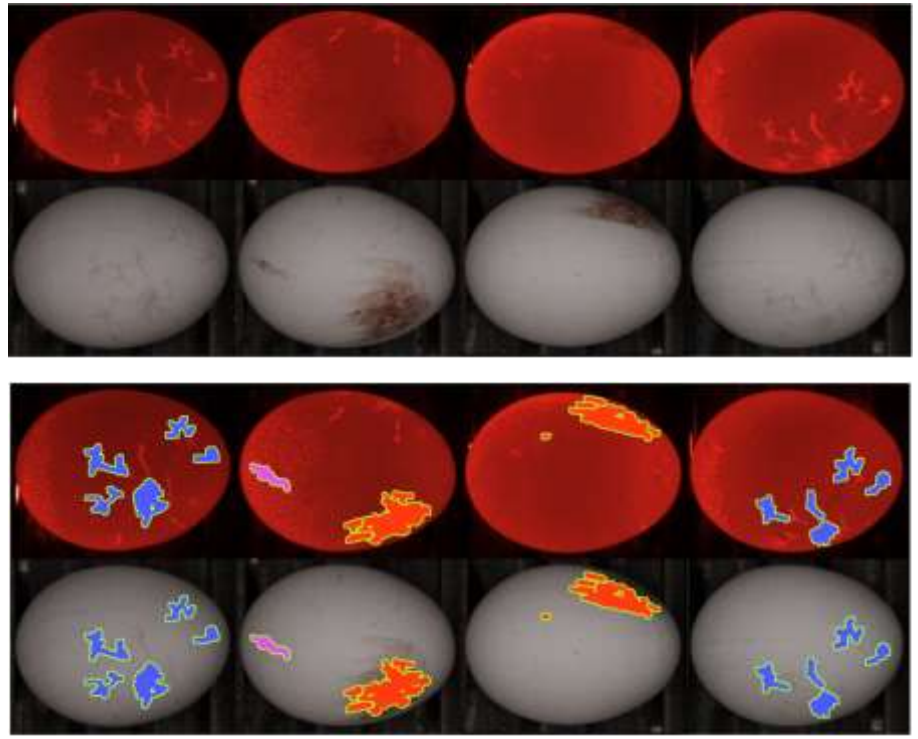
Meggsius Count

- Sensor for measuring egg flow
- Based on vision technology
- Using Artificial Intelligence for egg detection and counting
- 99,7% accurate counting or above



Meggsius Select

- Machine for sorting first and second grade eggs
- Based on vision technology
- Using Artificial Intelligence to detect external anomalies
- Measuring important egg characteristics, such as
  - → External defects
  - → Contamination
  - → Size and volume
- More than 98.5% accurate grading

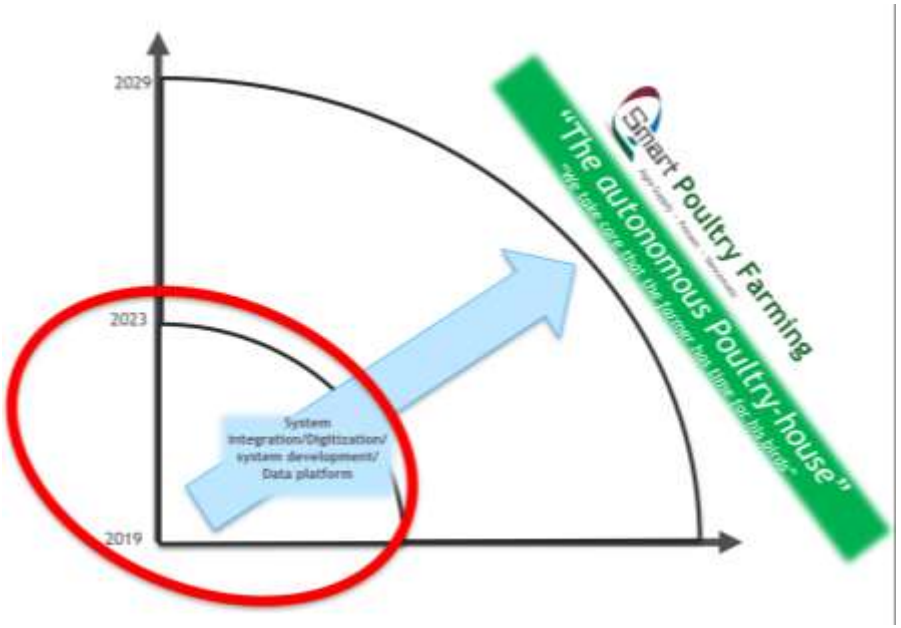


Blue = Cracks Red = Blood Pink = Egg yolk

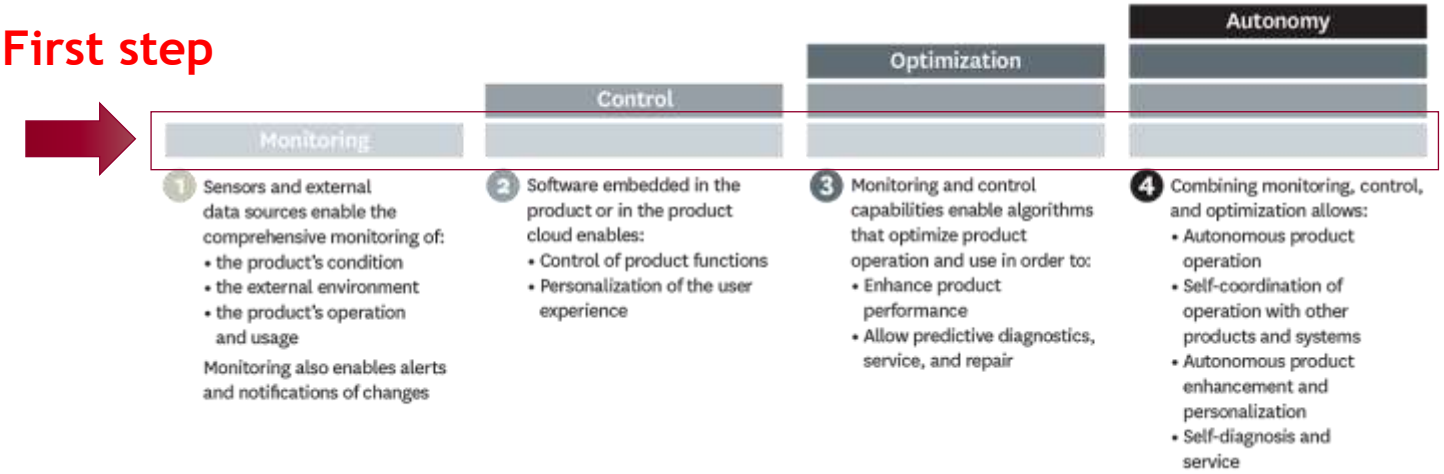
Going towards an autonomous poultry house

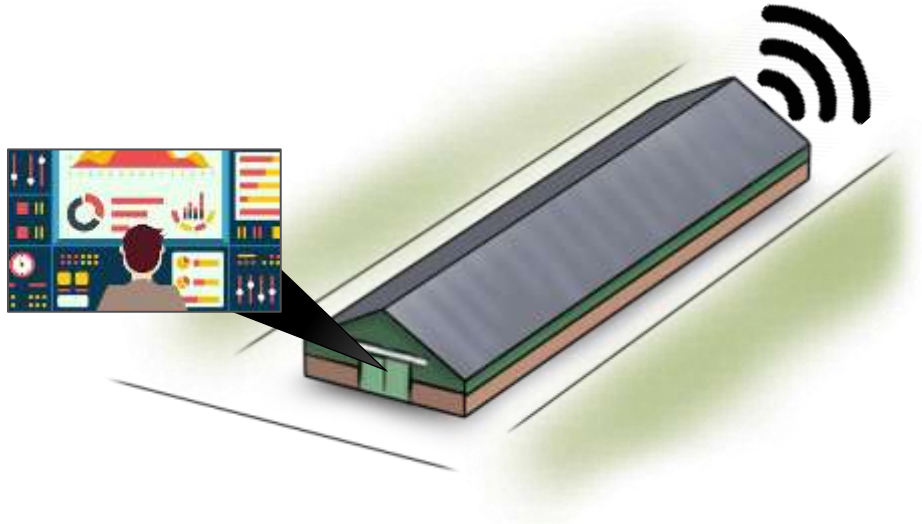
Goal:
More sustainable, more efficient, more profitable poultry husbandry with minimum dependence on people.

Required:
Smart production systems!

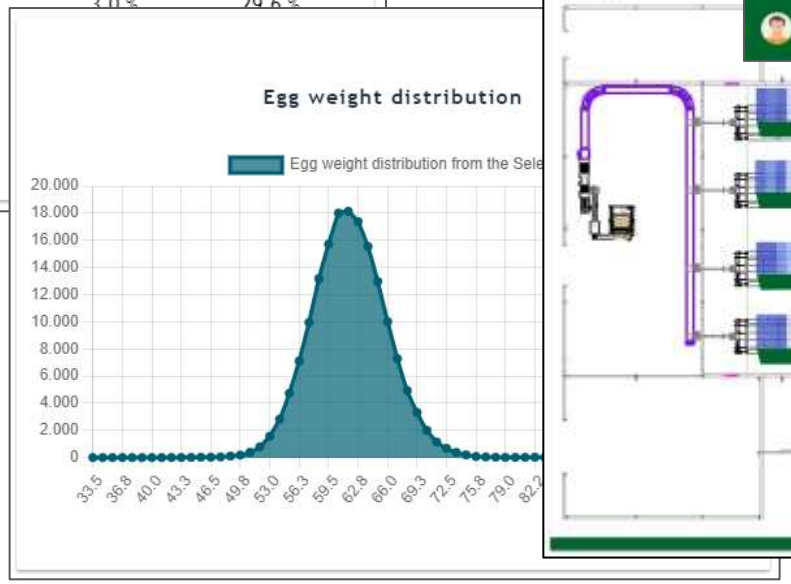


First step





Meggsius Connect



Thank you for your attention!