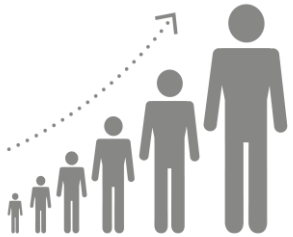
Royal Pas Reform

The hatchery of the future

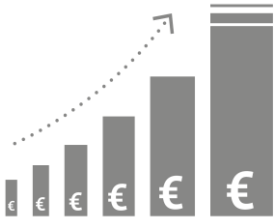
The hatchery of the future

Shaping sustainable growth through innovation and automation, with care for people, animals and planet

The future of the poultry industry



Global population growth



Increasing prosperity

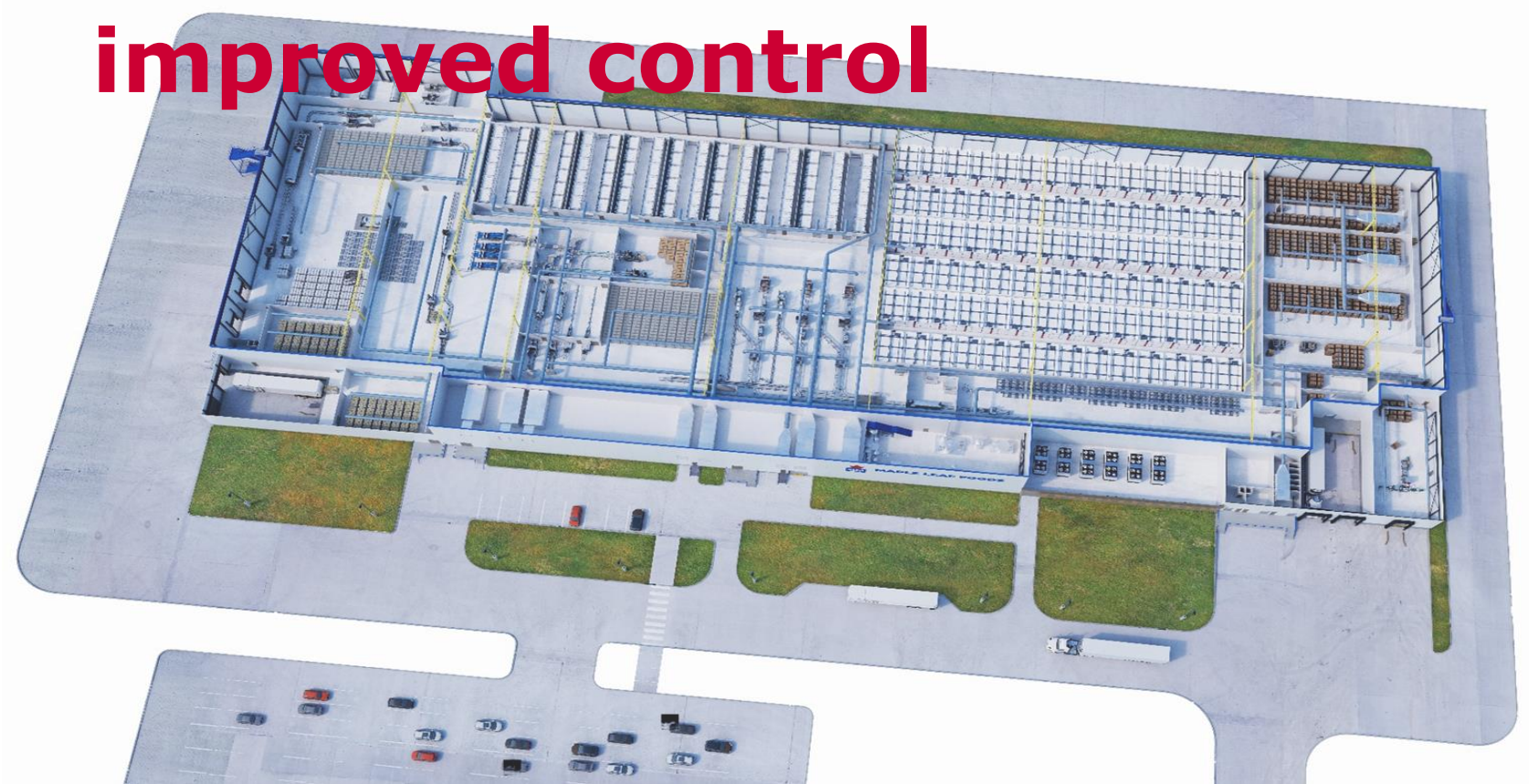
Poultry meat affordable and accepted worldwide

Consequenses of growth

- Rising demand for day-old chicks
- Capacity expansion
- Efficiency improvement
- Consolidation and replacement
- Greenfield development

Further increase in scale and need for improved process control

Increased scale needs improved control



The future of the poultry industry

- Global demand for poultry continues to rise
- Growing need for skilled and available personnel
- Industry growth must stay aligned with consumer requirements
- Hatcheries are transforming into smart, autonomous and fully connected systems

Smart, connected hatcheries are essential for the future

Learning from other industries

What can we learn from other industries to create a roadmap for the hatchery of the future?

Innovation thrives when we look beyond our own industry

- **Self-driving cars |** adaptive control and data learning
- **Smart homes |** human-centered automation
- **Connected devices |** predictive maintenance and cloud insights
- **AI assistants |** proactive, data-driven support

Autonomous cars

Four pillars of the automotive industry

Automation	Performance	Information	Social concern

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Autonomous cars

Four pillars of the automotive industry

Automation	Performance	Information	Social concern
Self-parking	Pre-collision warning	Personal assistant	Electrical power
Automatic door opening	Lane keep assistance	Connected app with data dashboard	Quality perception
	Adaptive cruise control		

Four pillars of the future hatchery

- **Automation** | Independence and efficiency through intelligent control
- **Performance** | Consistency, chick quality, and measurable results
- **Information** | Predictability, insights and decision support
- **Social concern** | Positive impact on people, animals, and planet

The hatchery of the future

Autonomous incubation

In analogy with the automative industry

Automation Independancy & KPI	**Performance** Chick quantity & quality	**Information** Predictability & support	**Social concern** Impact on society & consumer
Automated guided vehicles (AGV)	Adaptive embryonic incubation	Connected app with data dashboard	Energy efficient
Process automation	Process automation	Data management	Early feeding
Automatic feather sexing (broilers)	Data management	Service contracts	Data management
AI powered egg quality control	Automatic feather sexing (broilers)		In-ovo sexing (layers)
	AI powered egg quality control		Waste management

Key innovations powering autonomous incubation

- **Process automation** | Smart handling systems and automated guided vehicles
- **Early feeding** | Immediate access to feed and water after hatch
- **Automatic sexing** | Non-invasive and welfare friendly technology
- **Adaptive embryonic incubation** | Real-time, embryo–driven incubation control
- **In-ovo vaccination** | Safe, consistent and precise protection

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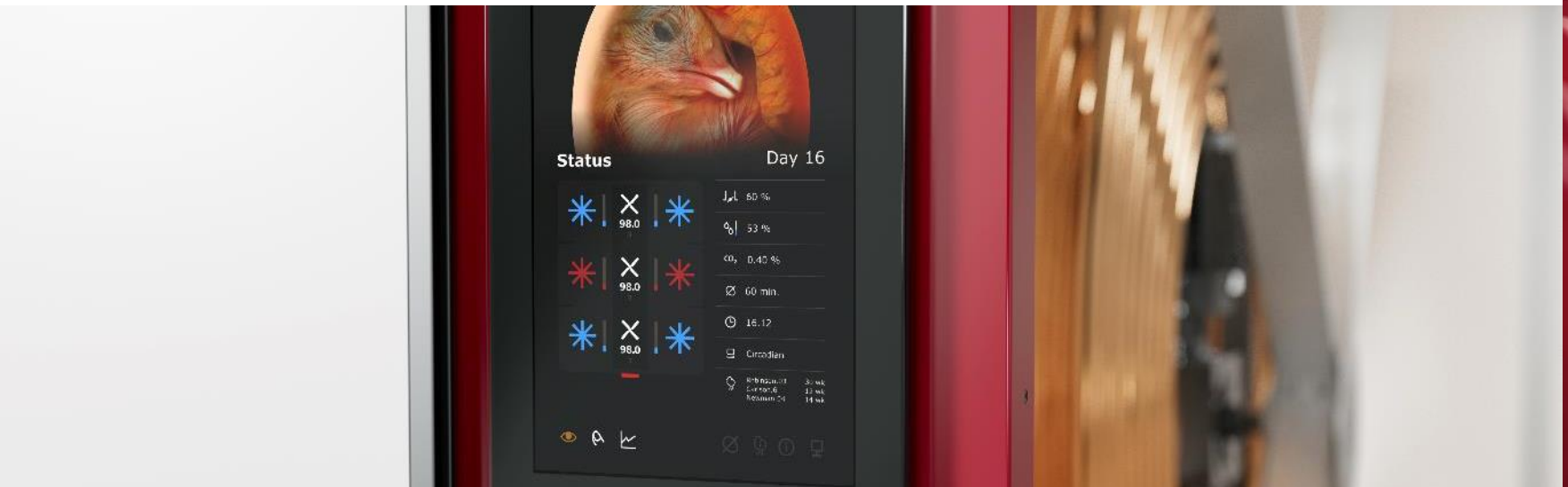
SmartSense™

Adaptive embryonic incubation

Adaptive embryonic incubation

SmartSense™

With SmartSense™, Royal Pas Reform has developed a new series of fully connected, data-driven incubators that reliably ‘sense’ the changing needs of the growing embryo



Adaptive embryonic incubation

How it works

Transition from manual operation to scheduled incubation programs, eventually reaching fully adaptive embryonic incubation based on the real-time needs of the developing embryo.

Benefits

Improved uniformity and chick quality

An optimized incubation program tailored to actual embryo needs (genetics, breeder age, storage time, etc.), resulting in the highest number of top-quality chicks

SmartVac

Next generation in-ovo vaccination

Next generation in-ovo vaccination

Embryo soft touch®

SmartVac was designed to maximize the safety of the injection process, by focusing on the development level and needs of the growing embryo

Next generation in-ovo vaccination

SmartVac in-ovo vaccination

How it works

Using individually adjusted needle depth for each egg, SmartVac delivers the injectables only into the amniotic fluid, preventing any risk of injury to the developing embryo

Benefits

Automatically adapts to variations in egg and embryo size, ensuring precise individual injection

Prevents injury to the growing embryo, reducing hatchability losses related to vaccination

Avoids injection into clear or early-dead eggs thanks to advanced sensor technology

The hatchery of the future

Summary

Roadmap to the hatchery of the future

1. **Manual** | Operator-driven decisions
2. **Connected** | IoT data collection and local insights.
3. **Remote** | Centralized analysis and reporting.
4. **Automatic** | Dashboards, alerts, and adaptive programs.
5. **Autonomous** | Self-learning, self-optimizing incubation programs

Five steps to autonomous incubation


1939


2004


2010


2015


2024

Manual | Operator-driven decisions

Connected | IoT data collection and local insights.

Remote | Centralized analysis and reporting

Automatic | Dashboards, alerts, and adaptive programs

Autonomous | Self-learning, self-optimizing incubation

1919

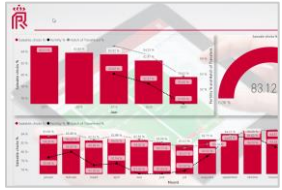
2030?


1960

2006


2013


2024



2025

The hatchery of the future

Shaping sustainable growth through innovation and automation with care for people, animals and planet

- The global poultry market continues to grow
- Hatcheries are evolving into smarter, more autonomous and connected systems, driven by technology and guided by purpose
- At Royal Pas Reform, we lead this transformation, balancing performance with responsibility
- The hatchery of the future is not just a vision – it’s the path we are already on!

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Thank you!

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