



Driving Digital Transformation for Silo Monitoring

How to create an award-winning
IoT solution

December 16th 2020

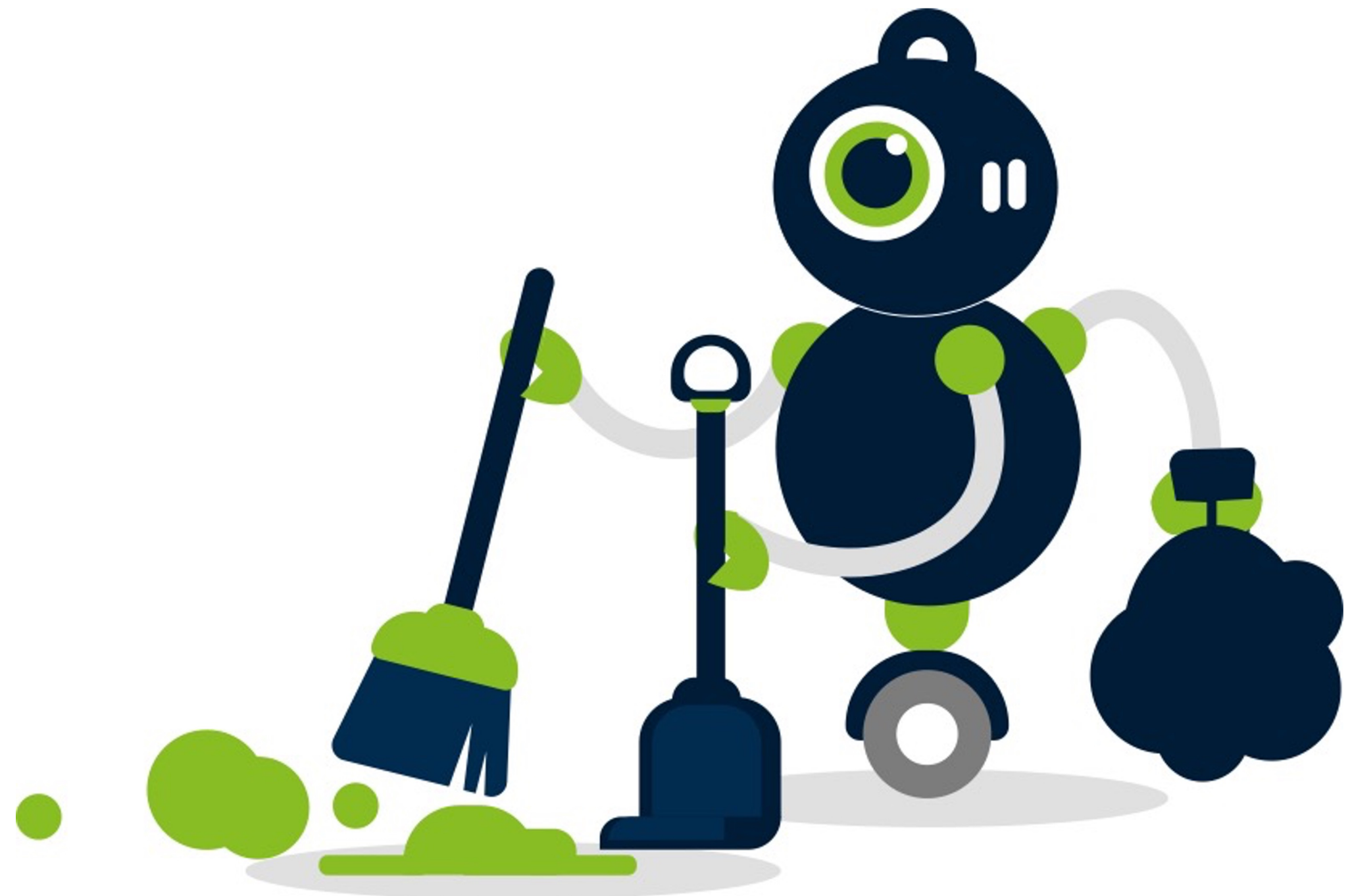
Housekeeping

Have questions?

There's time set aside for Q&A at the end, so please utilize the Q&A function

Want to view this webinar again?

Webinar is being recorded and will be available on-demand on taoglas.com



Speakers



Peter Behan

Vice President of IoT Solutions Taoglas

Peter joins Taoglas from Firmwave, which was acquired in August 2019. He has held positions with market-leading companies in the telecommunications industry and has 20 years of software development experience.



Barry Finnegan

CEO and Co-Founder of LvLogics

Barry Finnegan is the Co-Founder and CEO of LvLogics. In his role with LvLogics he leads a fast moving and mixed-discipline, technical team in product development and solution provision within the telemetry and IoT sector.

Agenda

- 1. Why digital transformation for silo monitoring matters**
- 2. Picking the right partner**
- 3. What goes into creating an award-winning solution?**
- 4. How does it work?**
- 5. Key takeaways**
- 6. Q&A**

Why digital transformation for silo monitoring matters

US: Hike in grain entrapment incidents last year compared to 2018

By Aerin Einstein-Curtis 19-Mar-2020 - Last updated on 19-Mar-2020 at 08:47 GMT



RELATED TAGS: Grain, grain bin, safety, Osha

Harvest challenges and poor grain quality in the US informed the upturn in grain entrapments and fatalities seen in 2019, with an expert forecasting more safety challenges this year.

Researchers with Purdue University's Agricultural Safety and Health Program released information regarding the injuries and deaths that occurred in agricultural confined spaces in a report released earlier this month.

No fewer than 67 fatal and non-fatal cases involving all types of agricultural confined spaces were documented in 2019, representing a 9.8% increase over 2018, they found. They said there were 38 grain entrapments last year, representing a 26.7% increase over 2018.

The states that saw the most incidents included Minnesota, Iowa, and Nebraska, the authors reported. Overall, 15 states had injuries or deaths.

The Purdue Agricultural Confined Space Incident Database (PACSID) has documented incidents related to grain and feed storage and handling on farms and at commercial facilities since the 1970s.

In 2013, the project expanded to include data from grain transport vehicles falls from or into confined spaces, injuries inside of containers related to machinery and added additional types of agricultural confined spaces like liquid storage tanks, manure storage and forage silos.

No fewer than 67 fatal and non-fatal cases involving all types of agricultural confined spaces were documented in 2019, representing a 9.8% increase over 2018, they found. They said there were 38 grain entrapments last year, representing a 26.7% increase over 2018.

The New York Times

Silos Loom as Death Traps on American Farms

61

Death in the Silo

Emma Cott and John Broder

0:039:19HD

The United States is producing more grain than ever, for food, feed, and commercial applications like ethanol. But as other farm work has gotten safer, gruesome grain bin accidents persist. Stephen McGee

By John M. Broder

Oct. 28, 2012

STERLING, Mich. — Tommy Osier, 18, a popular but indifferent student, was still a year from graduating from high school, and that was no sure thing. Farm work paid him \$7.40 an hour, taught him discipline and gave him new skills. He had begun talking about making a life in farming.

But he hated the chore he drew on Memorial Day of last year, working inside the silo at Pine Grove Farm. The corn was damp and crusted. It tended to hang up on the sides of the old six-story cement bin and had to be busted up with a steel rod before it would cascade to the bottom to be shoveled out.

That morning, just after 9, the phone rang in the Osier home. “Tommy’s in the silo,” his sister relayed to their mother, Linda, unsure of what it meant.

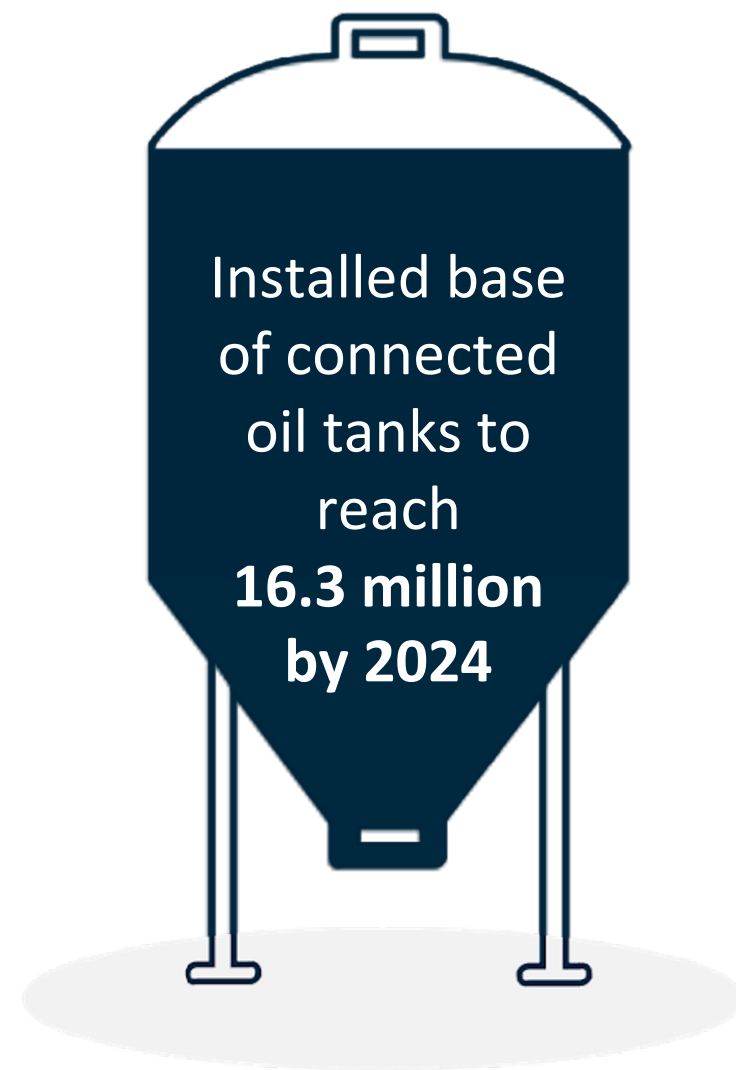
victims. Since 2007, 80 farmworkers have died in silo accidents; 14 of them were teenage boys.

Cost and Ease of Installation

- Traditional methods cost 6-8 times more than the LvLogics solution and are difficult to install
- Negative logistics cost of over **€2 billion** globally, on average, per year with manual approach



The Silo Market



Picking the right partner



**What goes into creating an
award-winning solution?**

World-first, Smart Sensor

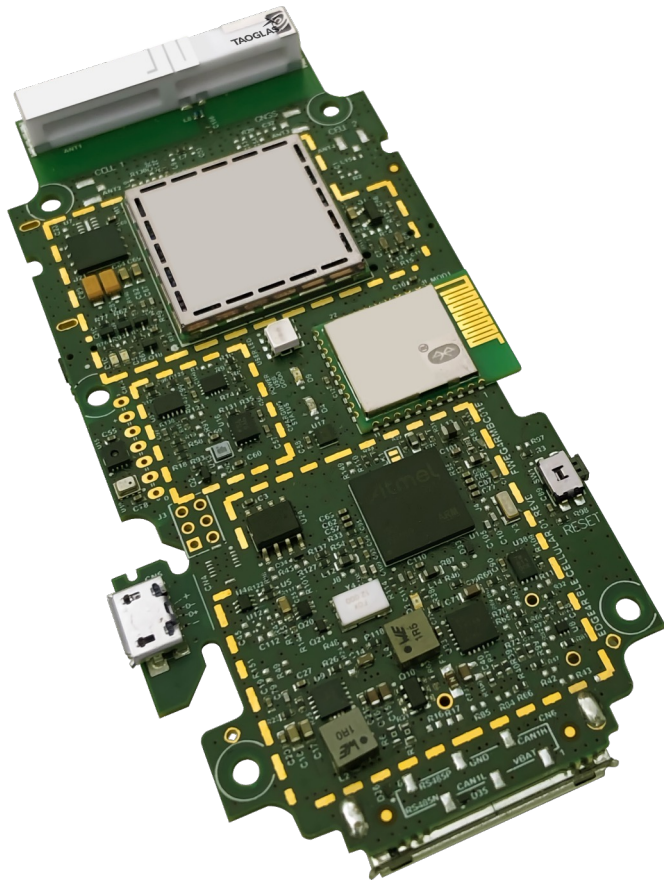


End-to-End Solution

Components (world-first sensor)



System-on-Module



Device



Solution/Software



The Journey



Technical Challenges

- Error recovery
- Ease of install
- Optimising solution for low power
- Designing hardware to interface with laser, external temperature/humidity sensor and air compressor



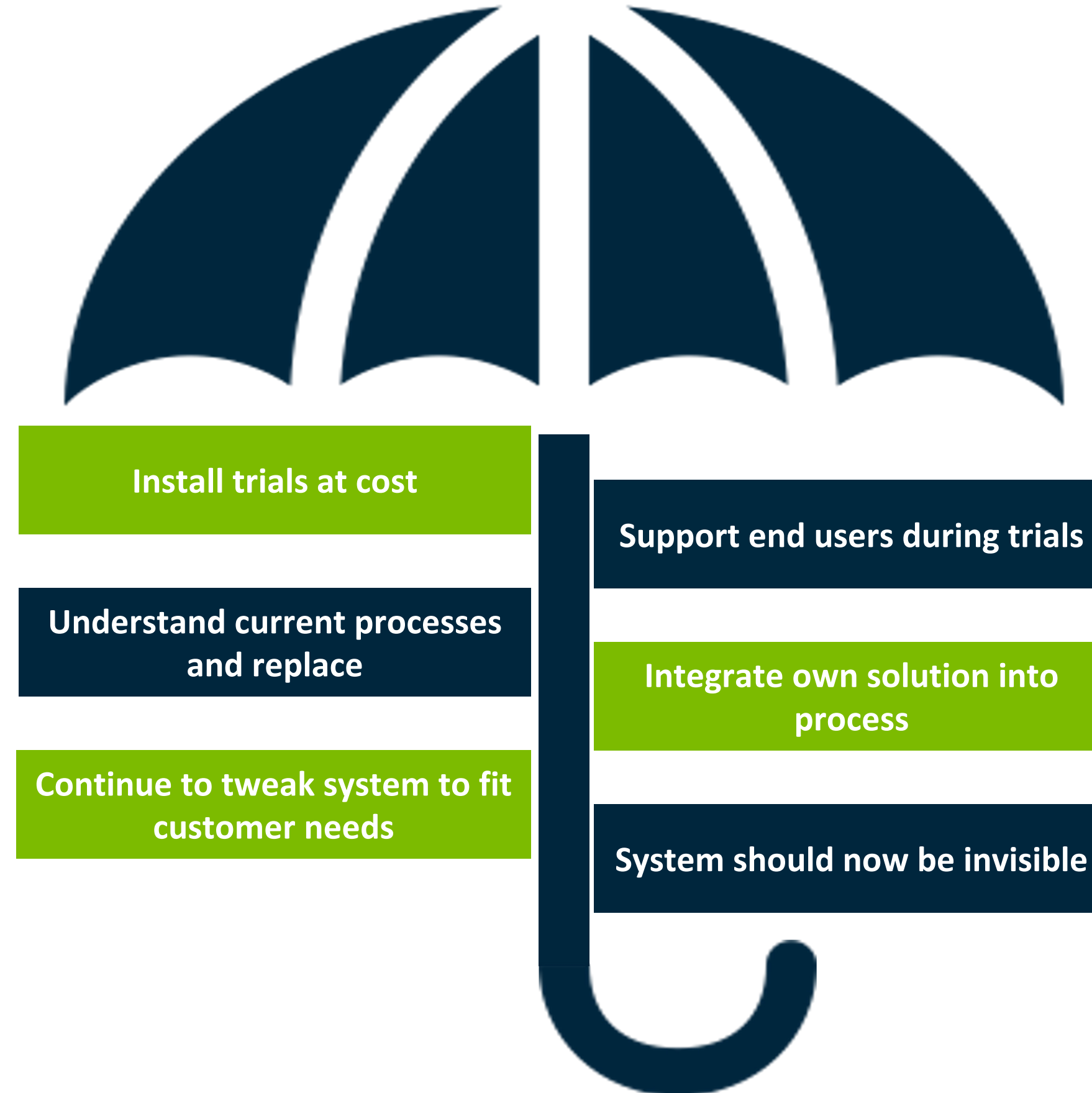
Adapting the solution to field

- Adapting firmware for specific error recovery modes (laser error and air compressor activation)
- Adapting dashboard to silo monitoring vertical



Ongoing challenges and scale

Commercial Umbrella



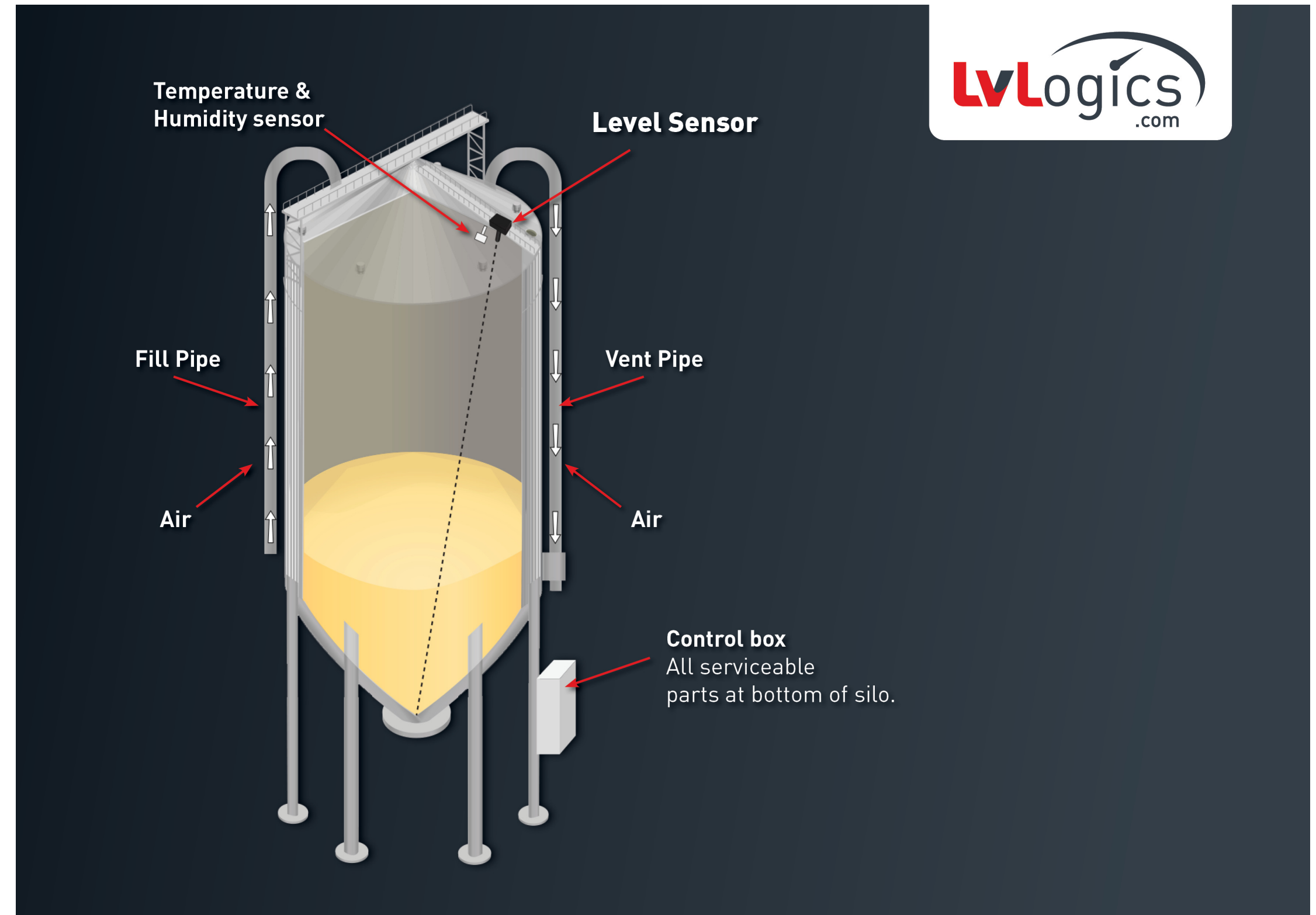
How does it work?

The Product

Cellular Options

Various Mounting Options

- Vertical or Horizontal
- Sigfox hardware customised by WND
- Pivot head creates flexibility
- IP 67 Enclosure
- Cellular engines certified
- Temp + Humidity Sensor optional
- +/- 5% Silo Volume Accuracy



The Product

Sensor Cleaning Options

Various Cleaning Options

- Depends on material and silo use
- Manual cleaning option (manual pump)
- 12 Volt compressor (battery powered)
- Solenoid activation (uses existing air source)



Case Study 1

Silo Monitoring Feed

“ LvLogics installed a number of silo monitors on pig feed silos belonging to us. This is the first sensor of its type that we have used which is so reliable and cost-effective.

We would recommend LvLogics service to anyone that needs to manage feed in silos as it creates efficiencies, enhances safety and assists good feedstock management. ”

John Kiernan, Kiernan Pig Farm, Co. Cavan

Case Study 2

Wood Pellet Monitoring

CUSTOMER: ENERPOWER Ltd

- Compatible with various fuel stores
- Dustproof mechanism differentiates product
- New RHI scheme to fund fuel store monitoring
- EU wood pellet monitoring approximately 1.2m units
- Distribution through wood pellet suppliers



Key Takeaways

Key Takeaways

EDGE framework:

- Cybersecurity in design and management
- Device lifecycle management and OTA updates
- Low Power hardware and software
- Short and long-range wireless hardware

Solution is a partnership:

- End-to-end collaboration meant solution delivered with one partner:
 - Makes complex IoT simple
 - Fast time-to-value

Award-Winning IoT



Questions?

Happy Holidays!

Keep an eye out on our website and social channels for our 2021 Webinar series





North America: nasales@taoglas.com

EMEA: emeasales@taoglas.com

APAC: asiasales@taoglas.com



Email: barry@lvlogics.com

Thank You!

For more information visit:

Taoglas.com

Lvlogics.com