



# 43rd ASEAN GLASS CONFERENCE

“Glass : Inspiring new frontiers of development“

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Romain PIOCH: Sales area Manager

[www.tiama.com](http://www.tiama.com)



Tiamo  
**TRACEABILITY**  
systems

**„Traceability, a corner  
stone to move towards  
Smart Factory“**

# Growing challenges for the glass industry

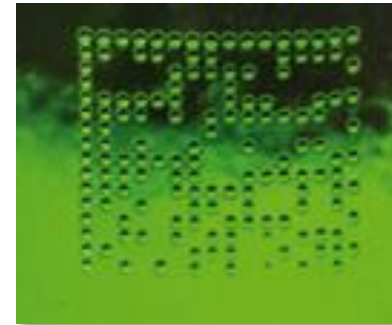
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- More & more complexity in the production run
  - Complexity in the production machinery
  - Mixed production runs
  - Glass article complexity and diversity
- Increasing Quality standards
- Increasing Productivity targets
- ... and finally the difficulty to operate a glass plant relaying on human factor & empirical choices

# What is Traceability?

- A **unique** code engraved at the hot end
- To make each container **individual** and **unique**
- Production management enhanced for glass **and** filling plants
- Encoding of process information **from the gob to the final consumer**
- Tiamo is currently working with the CETIE and other market players to define an **industry standard** for laser marks on glass containers



Traceability

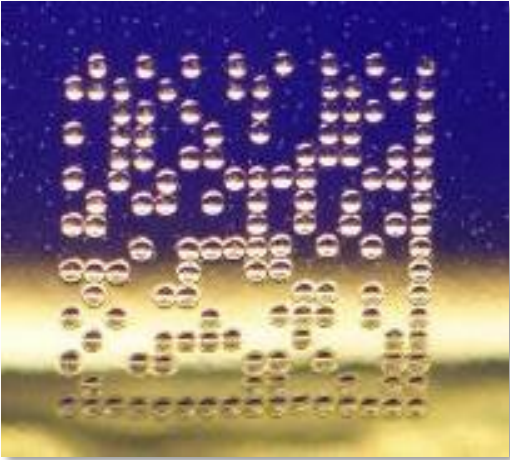


# TRACEABILITY: our customers around the world

Traceability







- 16x16 datamatrix encoding : 24 digits
- Can be placed on several locations such as heel or neck
- A code that is unique, secure, redundant and resistant

16x16 datamatrix code exemple :

	Customer information	Date	Time	Cavity section	Mould
# Characters	7	6	6	3	2
Encoding	0123456	151209	182310	102	21
Meaning	Plant or line identification	15-dec-09	18h 23mn 10s	Section 10 Cavity 2	Mould # 21



# Traceability in the Glass plant

Traceability



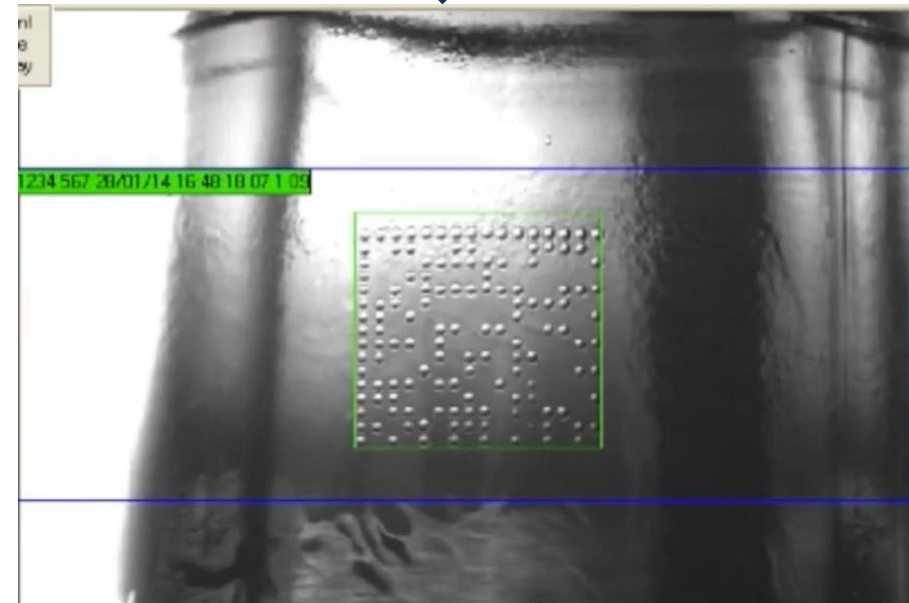
- High quality of engraving
- Early stage process information encoded
- Doesn't damage the glass or affect the pressure of the filled bottle

# Traceability in the Glass plant

Traceability



- Programmed rejections: mold number, time period...
- Defects association
- Replace traditional dots and save mold maintenance
- Resorting time improvement





# Traceability in the Glass plant

Traceability



**Control your process**



**Save time and money**



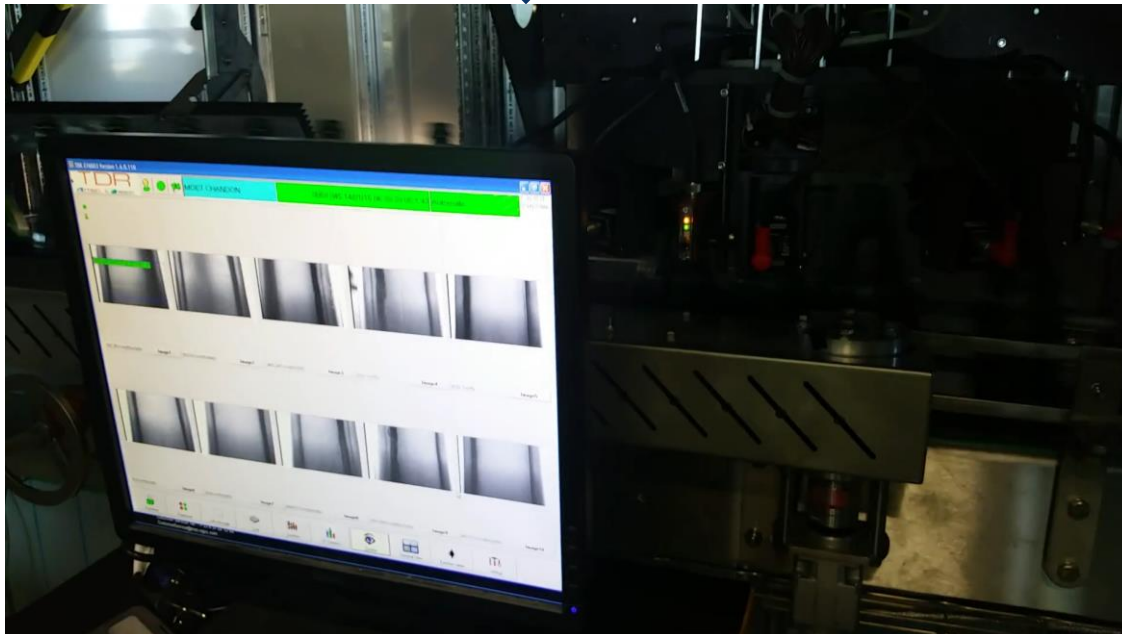
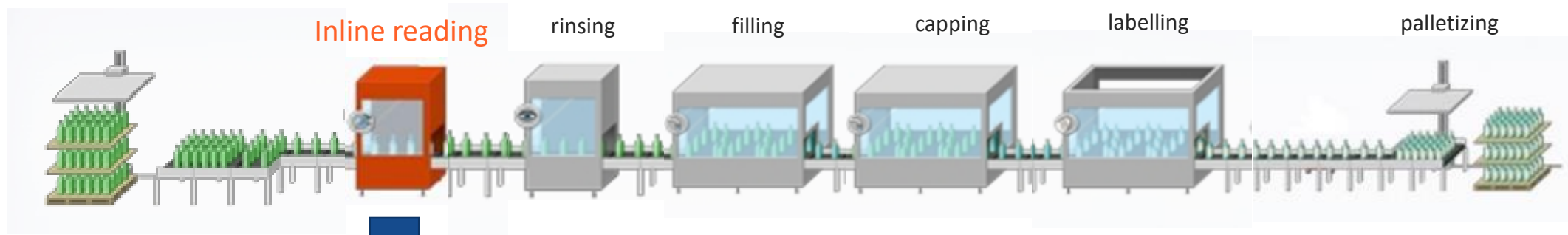
**Ensure the best quality for your customers**



**Give additional value to your container**

# Traceability in filling plants

Traceability



- Filling process information added to the datamatrix code
- Returnable cycle counting
- A way to prevent counterfeiting
- Control of the distribution channels



**The possibility to verify the authenticity of a bottle**



**A way to know more information about the product inside the bottle (If there is a link towards the website for example)**



**The possibility to link marketing information to the code. (Game contests/promotions)**

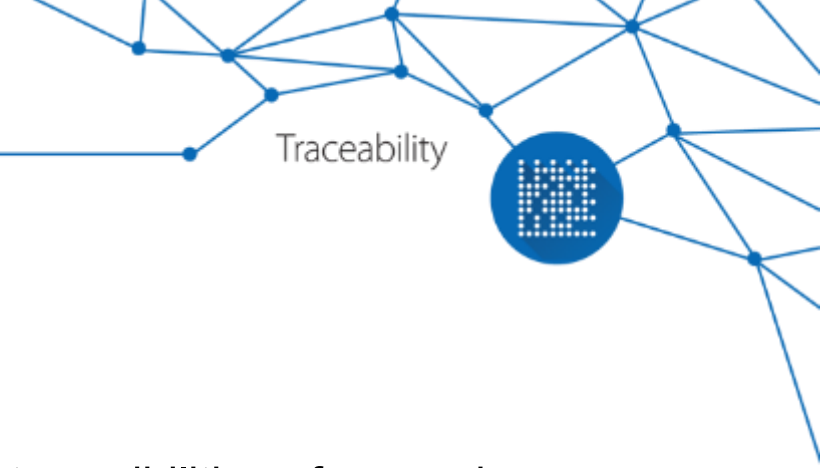
# HOT END ENGRAVING : Total Tracer

Traceability



- Can engrave codes on every type of production : beer bottles, jars, spirit, wine or champagne bottles and even on odd shape articles
- Designed for hot end environment

## HOT END ENGRAVING : Total Tracer



Different possibilities of engravings :

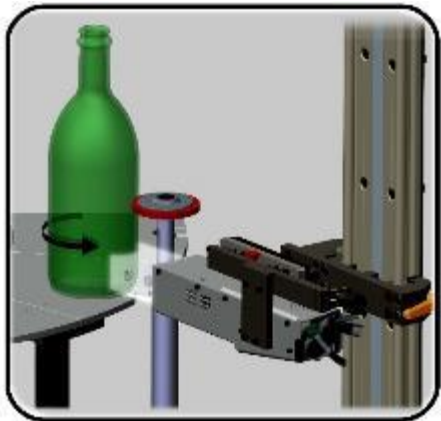
- Datamatrix engraving  
Speed: up to 750bpm for a 14x14
- Alphanumeric engraving  
Speed: up to 700bpm for 10 digits
- Datamatrix + Alphanumeric  
Speed: up to 650bpm for a 14x14





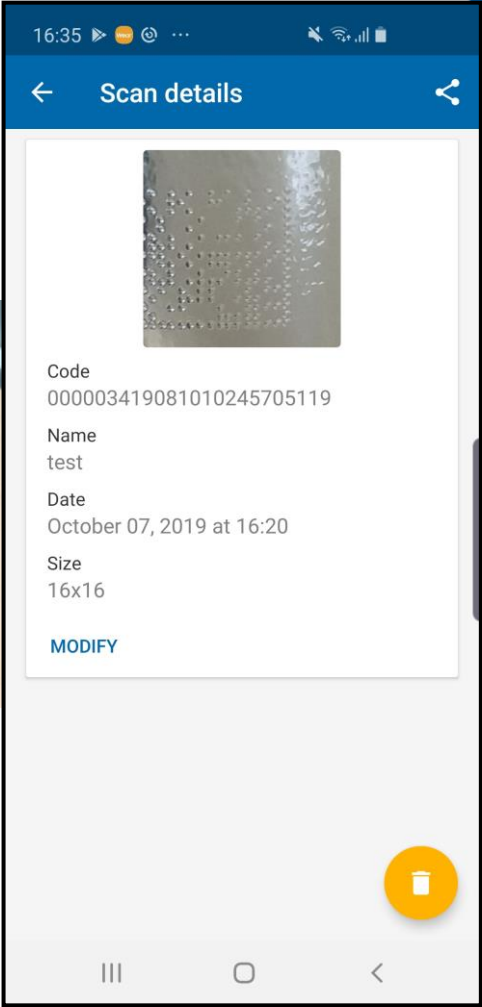
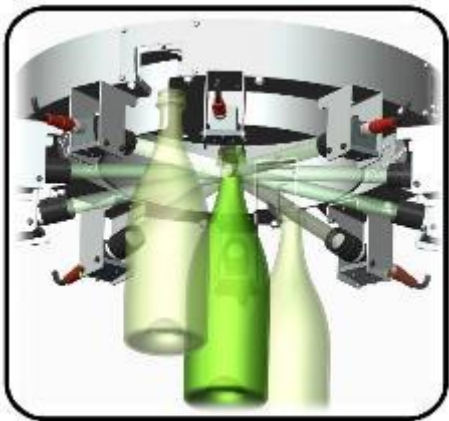
## CDR

Carousel Datamatrix Reader



## TDR

Top Datamatrix Reader



# The future is NOW

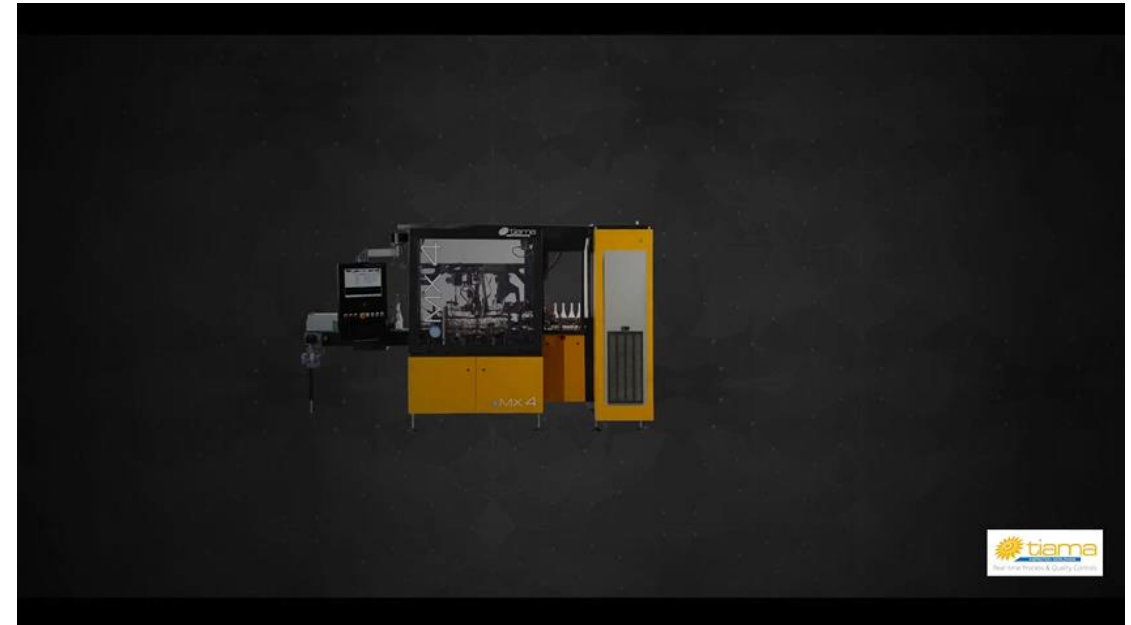
Traceability

## DNA for glass

- Defect information and events gathered at the hot and cold ends correlated to the container
- Distinct identity of each item

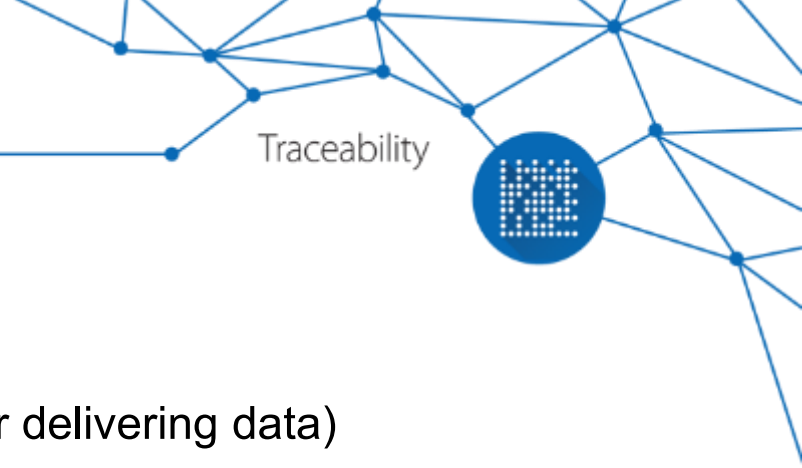
## Data association with defects

- Information sent into our intelligent softwares
- Anticipation of production drifts



### 3 BIG DATA PROJECTS CURRENTLY RUNNING

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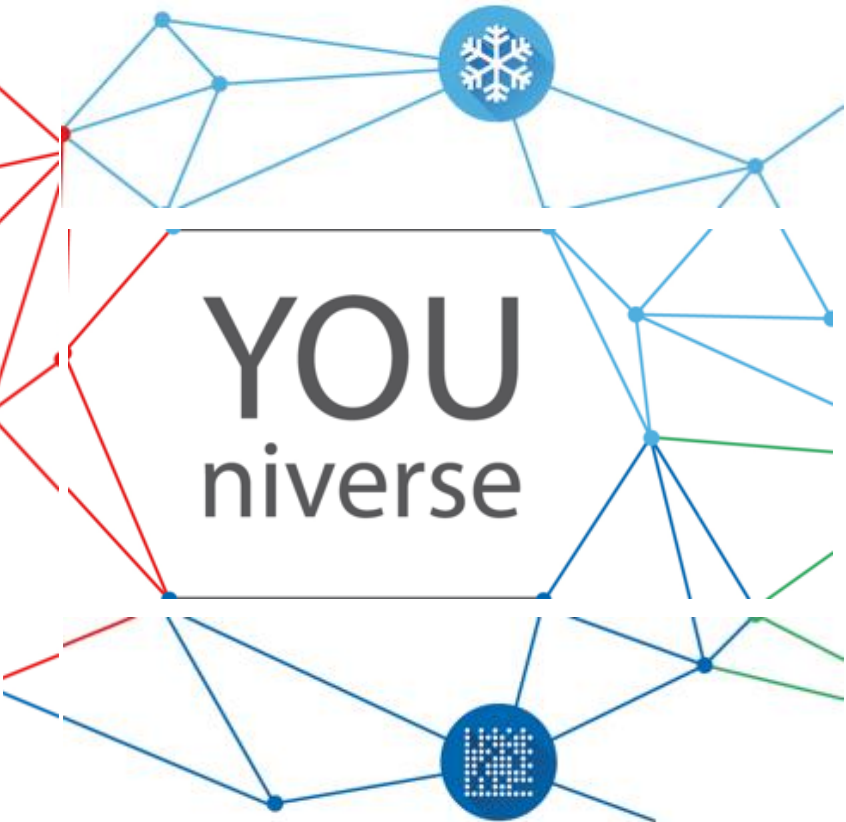
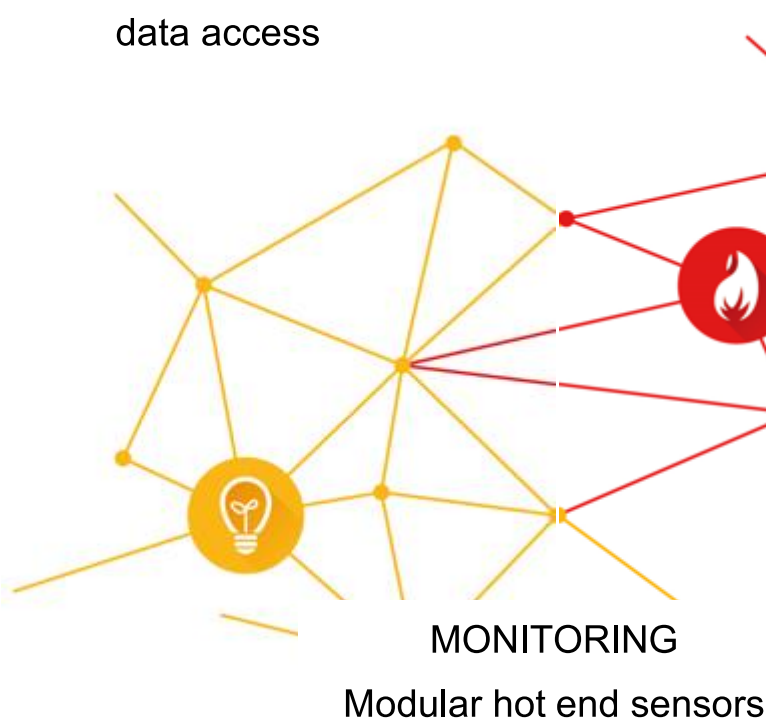
- Issues highlighted like a specific defect creation
- Data collected all over the plant (Tiama machines, IS machine, and any sensor delivering data)
- Gathered, analyzed, processed and contextualized (datamining)
- Correlations found between key indicators and their impact on defect creation and production efficiency
- Recommendations sent to the operator so that he can act on the process with the right settings
- Results: a more efficient process and the production of the best container possible

# Five range of expertise

INTELLIGENCE  
Real-time intelligent  
data access

INSPECTION  
Self learning, cold end  
inspection systems

Traceability

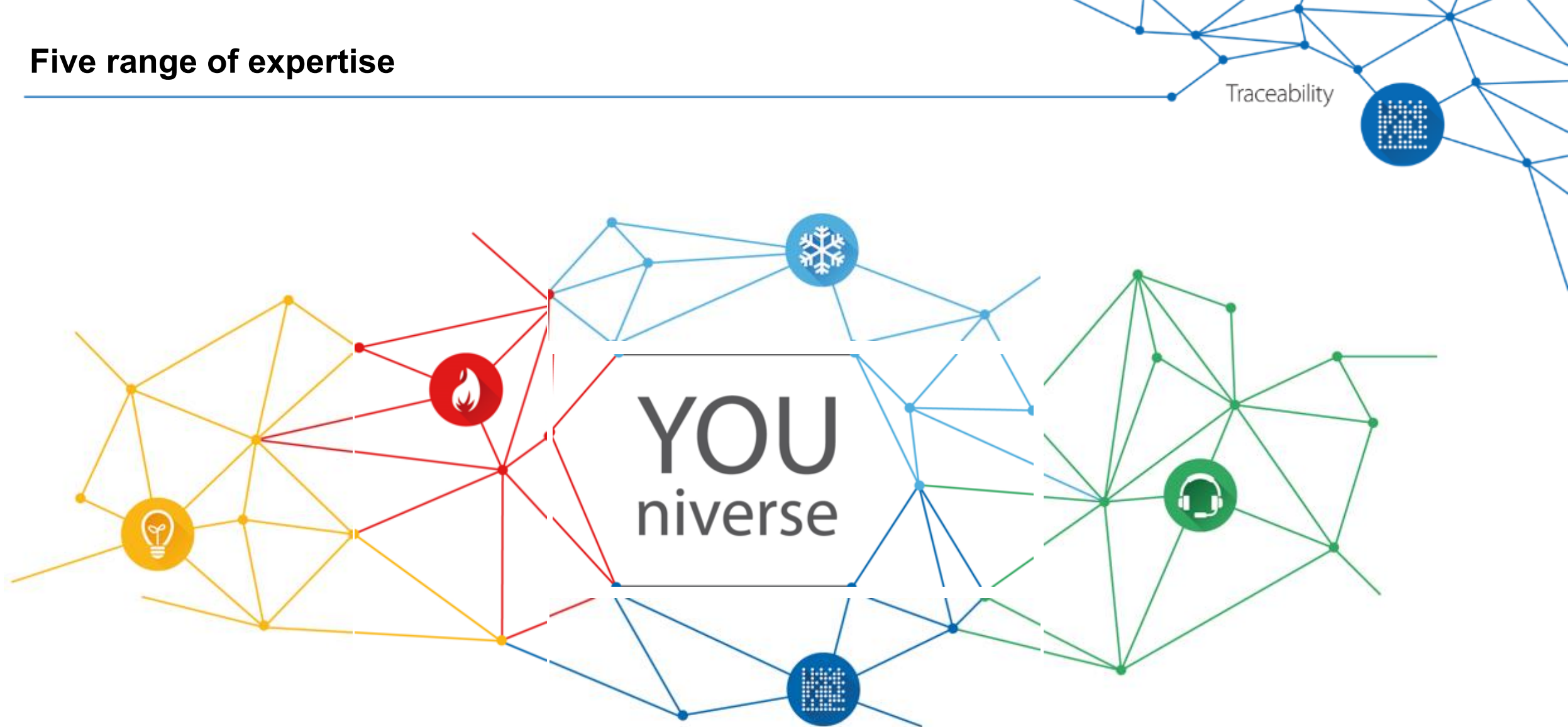


SERVICE  
Global support to make the  
most of your investment

TRACEABILITY  
Unique bottle identification



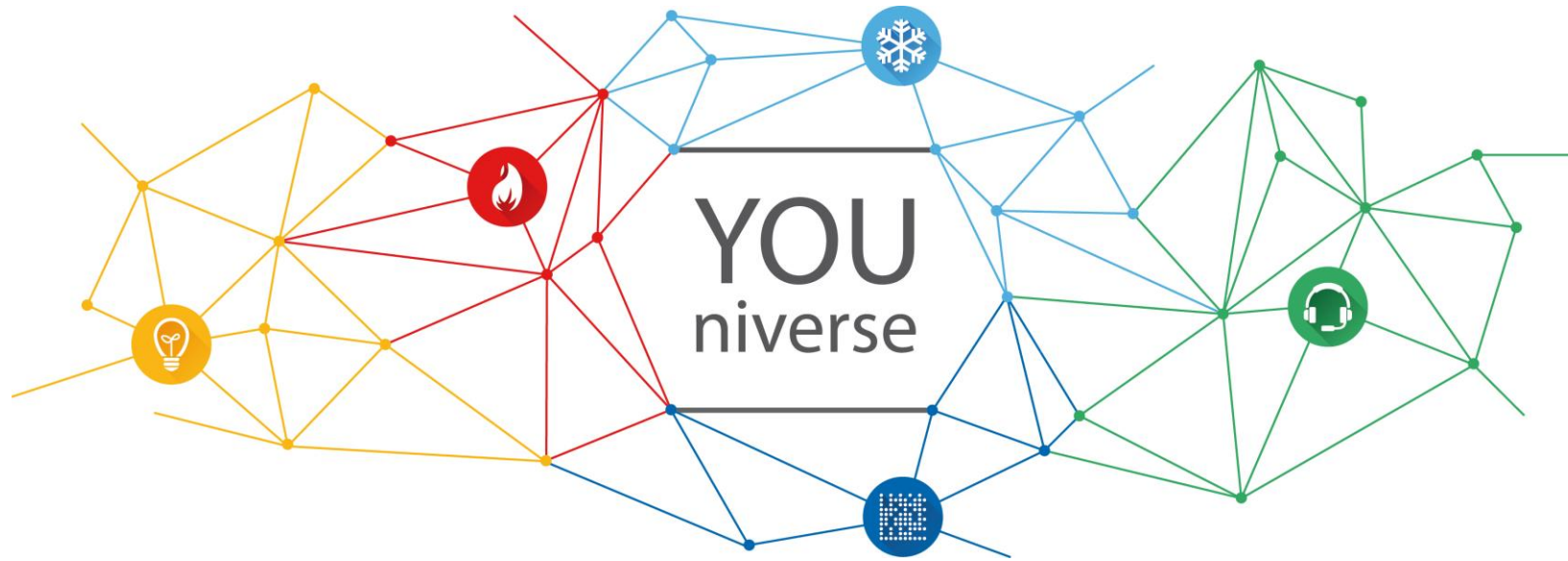
## Five range of expertise



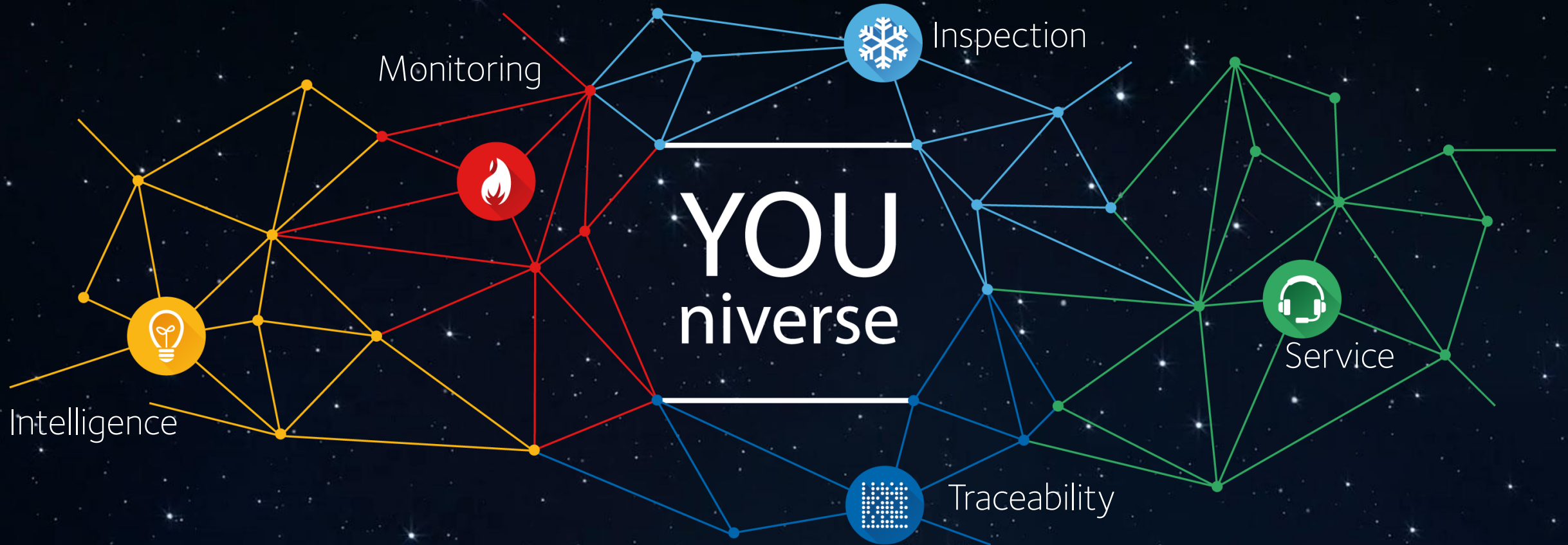
Designed **FOR YOU**, the customer, to meet your needs  
and expectations



# YOUiverse: our Smart Factory concept



- All the sensors at hot and cold ends collecting data
- Correlated to the container thanks to the datamatrix code
- A full range of services to optimize machine utilisation
- All the data sent into Intelligent Supervision systems to be analyzed with results displayed on a single platform



# Thanks for your attention

If you have questions contact Romain PIOCH : [r.pioch@tiamat.com](mailto:r.pioch@tiamat.com)