MULTISCAN TECHNOLOGIES

20211114 DIH WORKSHOP

www.multiscan.eu

multi scan technologies

MULTISCAN TECHNOLOGIES

- What are we?
- What do we do?
- How do we do it?
- Whay/ What for?

Our company

- **Manufacturer of high-tech** selection and inspection equipment for the agri-food industry x-ray/ artificial vision
- **The only** manufacturer that integrates hybrid x-ray / artificial vision solutions
- **Differential product** oriented to niches
- **Very technological**, promoting transversal knowledge and cross fertilization between sectors

Ours Markets

multi scan technologies

olive

- Fresh
- Processed
- olive
- With out bone
- Packed

FFV

- Cherry
- Cherry Tomato
- Tomato
- Citrus
- Avocado
- Onion

Nuts & Dried fruits

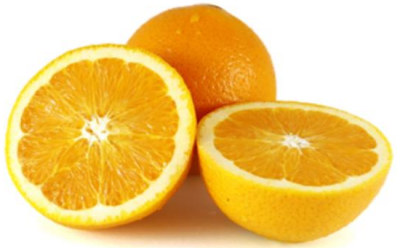
- Pistachio
- Macadamia
- Pecan
- Nut
- Cherry coffee

Agri-food industry

- Meat
- Fish
- Bakery
- Candies
- Snacks
- Ice
- Ice Cream
- Vegetables
- Prepared Food

sedener Technology insight

Our Solutions



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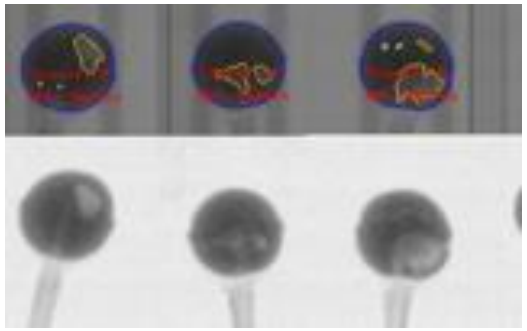

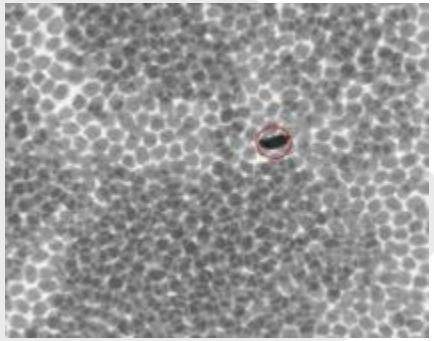

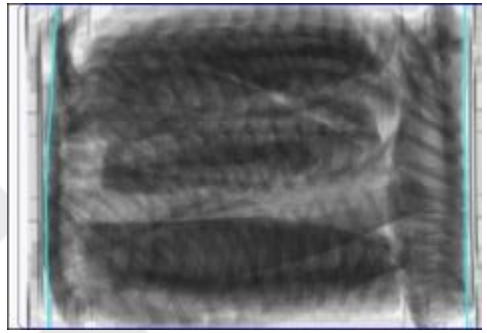

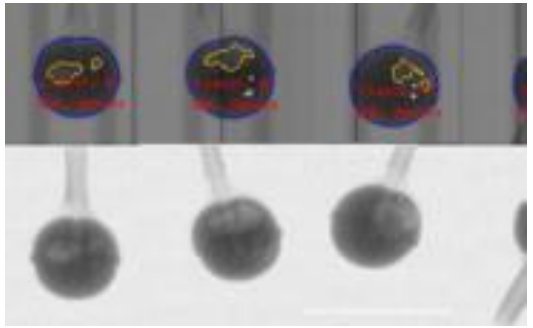

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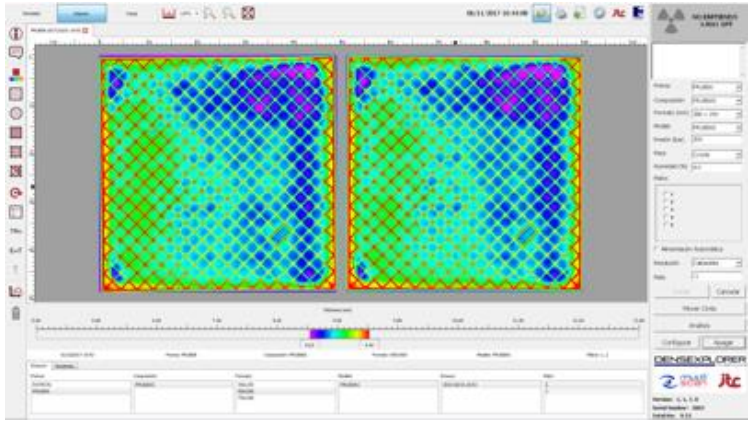
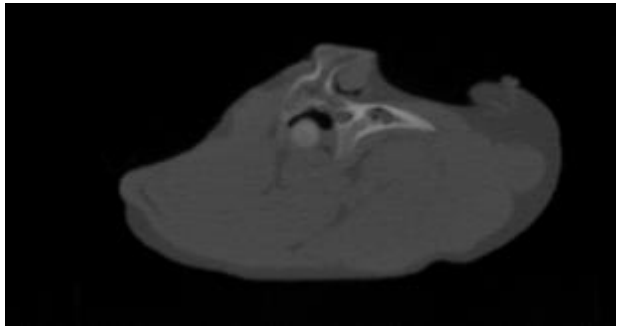
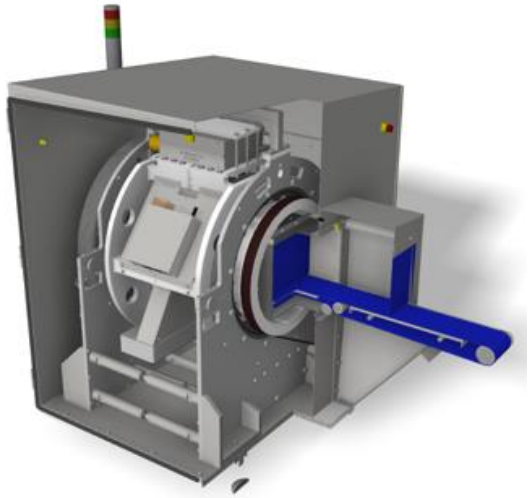






APPLICATION EXPERIMENT

Production management and predictive maintenance in food processing

Multiscan: Computer vision and product owner

UPV: technical leader and production management

ITI: Predictive maintenance and AI

- Overview
- Solution being developed
- Main innovations
- Use case / Application scenario
- Impact
- Risks and lessons learned

Our Solutions

As-Is

- **Inspection machine uses computer vision to detect product properties and sort production**
- **Process controller** collects data from other manufacturing components (line feeder, conveyors, etc)
- **Data silo:** All these data has great potential value for the customer and supplier

Main Innovations

- **Datasets:** High quality production datasets to improve product design and product maintenance
- **Service platform** to deploy added value services driven by production data
- **Production management:** Added value applications to improve production management (quality management, production KPIs, order control,…)
- **Predictive maintenance:** Added value applications to improve maintenance management

Use Case Overview: Communications

Embedded OPC UA : Collects production data from Inspection Unit (Computer Vision and connected manufacturing systems and provides secure endpoints to access data

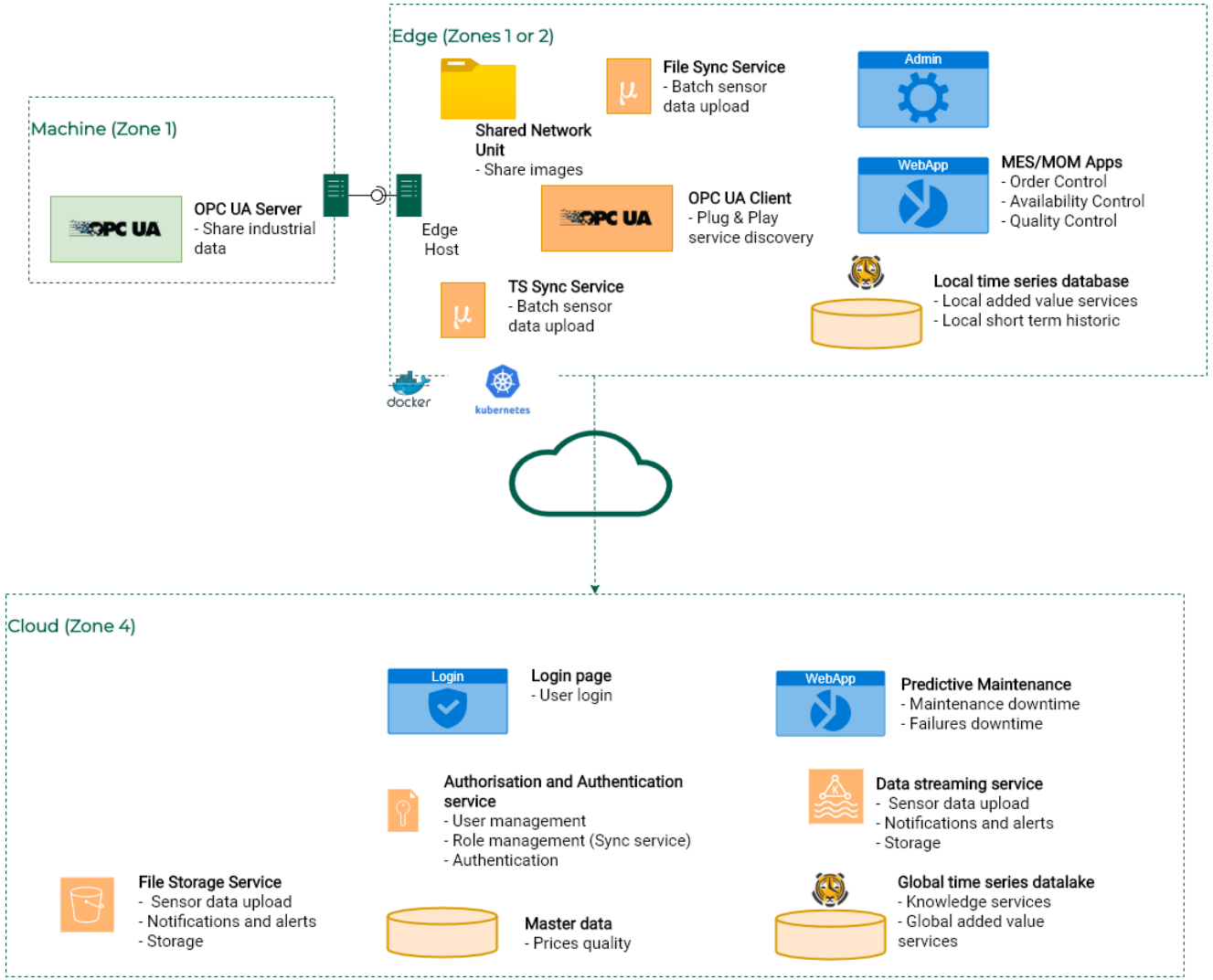
Hybrid Edge-cloud service Platform: Provides service platform to manage data collection from multiple installation sites

MES/MOM Applications: Added value applications to improve production management (quality management, production KPIs, order control,…)

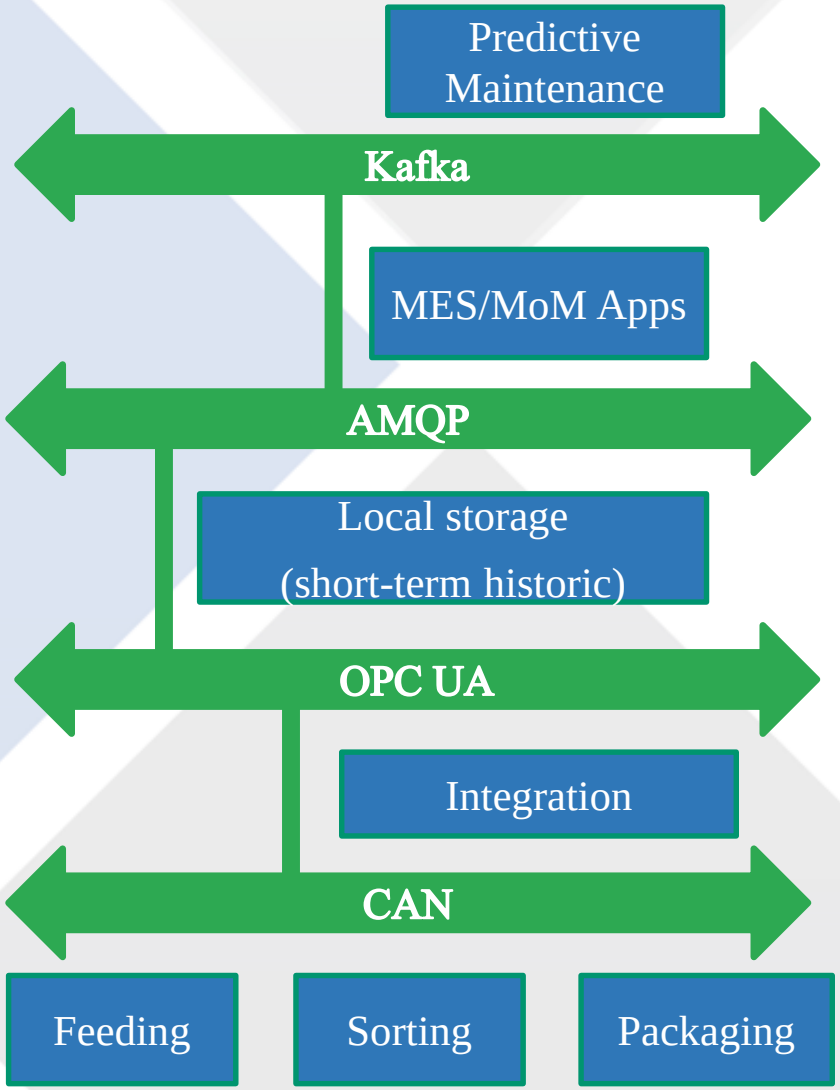
Predictive Maintenance: Added value applications to improve maintenance management

Use Case Overview: High level Architecture

- **Layered architecture:**
  - ✓ Low-latency, secure, peer-to-peer data communications across logical layers of the system
  - ✓ Control over QoS (latency, delivery times) in each logical layer
  - ✓ Automatic service Discovery
  - ✓ Hierarchical scalability and isolation



Use Case Overview: Communications



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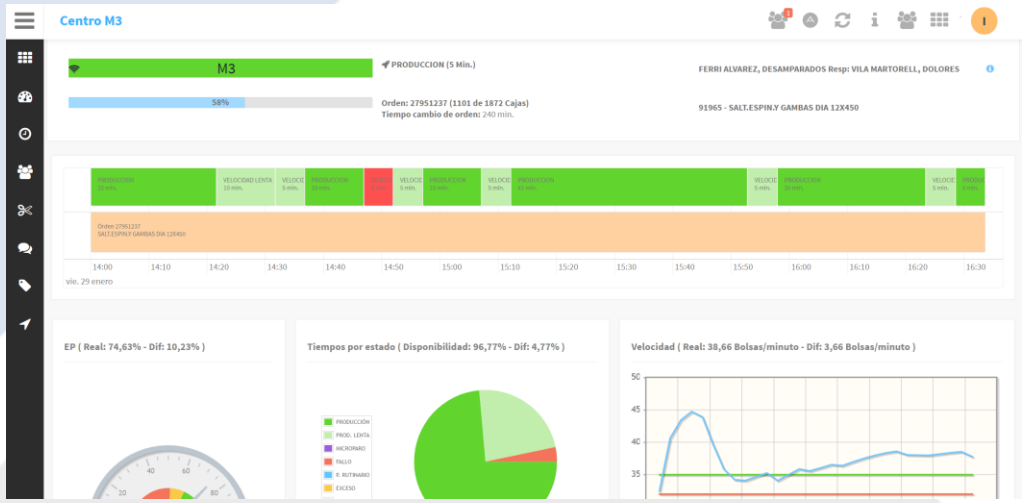
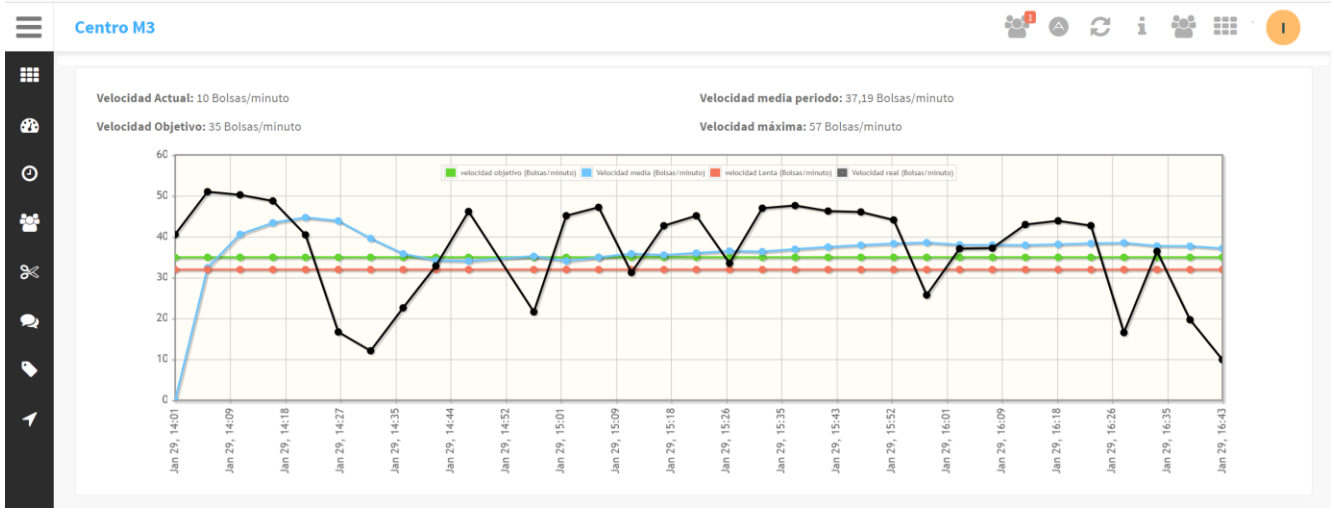
  - Control over QoS (latency, delivery times) in each logical layer
  - Automatic service Discovery
  - Hierarchical scalability and isolation

Use Case Overview: MES/MOM APPLICATIONS

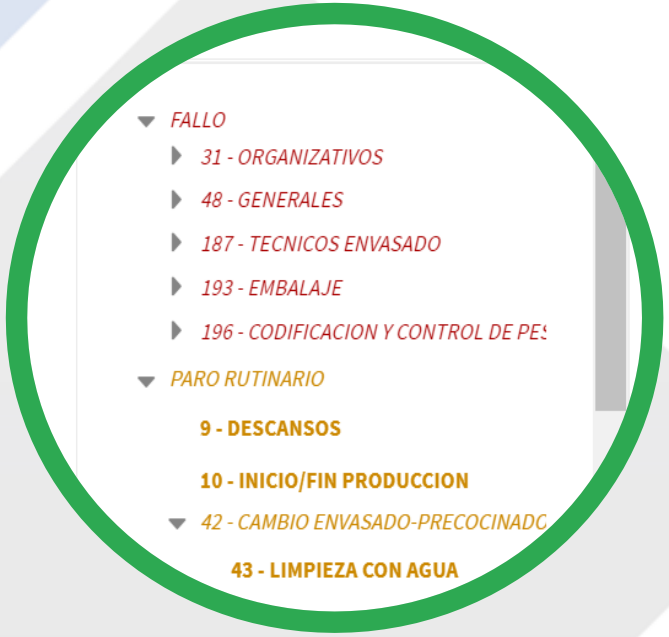
- Integrated MES applications to calculate production KPIs from sensor data





Use Case Overview: MES/MOM APPLICATIONS

- Work order dispatching and control
- Incidence management
- Context Information (downtime cause, incidence management)



Use Case Overview: MES/MOM APPLICATIONS

Piloting:

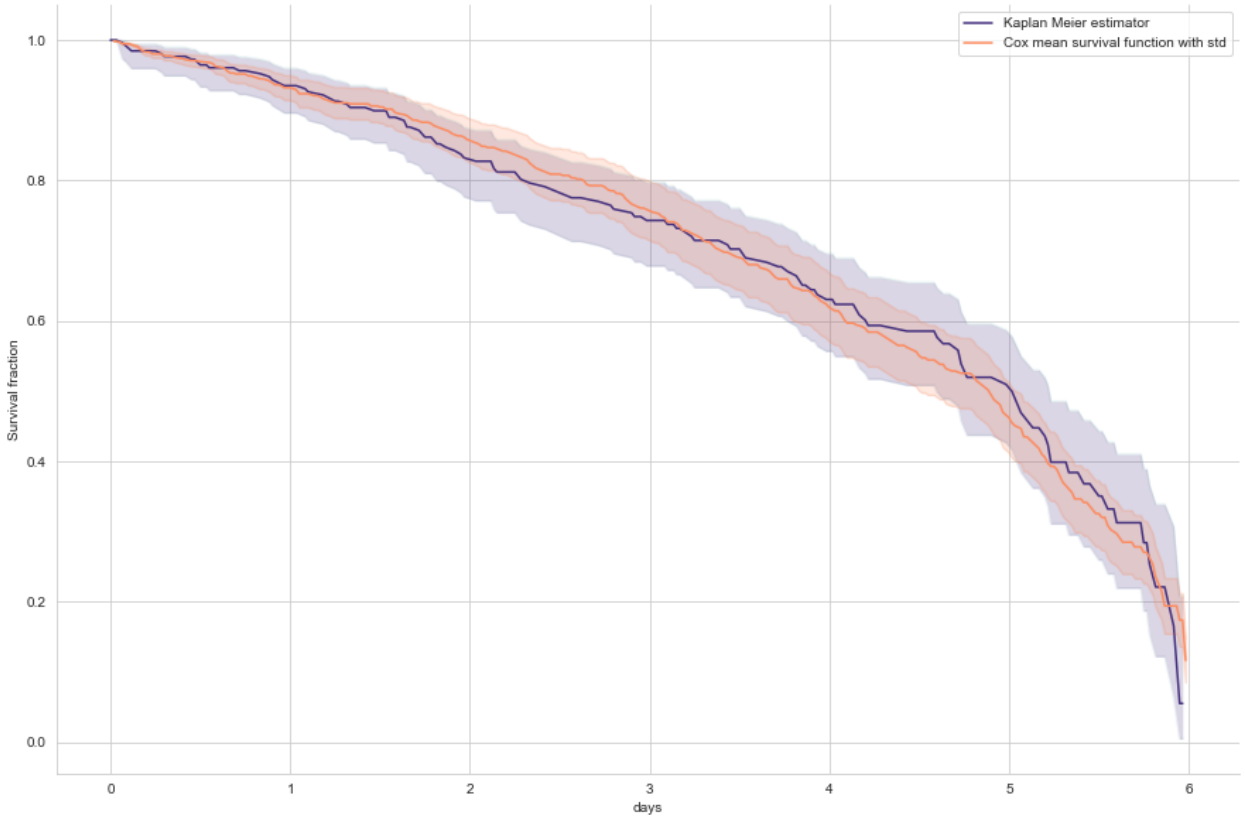
- Installation and training completed
- Still some operational issues (more on risks and lessons learned)
- Cherries Tomato season

Use Case Overview: MES/MOM APPLICATIONS

- **Data preparation:**
  - Pivoting: Conform dataframe where each column contains the readings of an industrial variable (275)
  - Time series interpolation: Interpolate time series to fill NaNs
  - Labeling: Label rows according to the status of the machine

Use Case Overview: PREDICTIVE MAINTENANCE

- Survival regression models trained on **real sensor data** with **simulated failure cases**
- Querying current machine state returns current risk score and estimated TTF
- Cox Proportional Hazards model fits nicely to the empirical Kaplan-Meier curve



The world is our market

ALCANCE GLOBAL

- 1,300 máquinas
- 2/3 ventas internacionales

History

KAYROS

1996

Selector I

Selector II

I20 Cherry

2004

X10H

S20TG

AWETA

2008

X20V

i5 Olives

2012

sedener Technology insight

i5 Plus

S30

2014

iTAC

DSX

MXV

S80

MGS

TECNICAFÉ Parque Tecnológico de Innovación

2018

Our people

NUESTRA GENTE

Where?

multiscan

multiscan
GAP: DISEÑO MECÁNICA
GESTIÓN GAP
INDICADORES OPERATIVOS
HERRAMIENTAS
L M X J V
PLAN DE ACCIÓN DEL GAP
ACCIÓN
RESP
FECHA

Our reflection

- How we can identify?
- How we can acces?
- How is defined the kind of services that the offer?

THANK YOU

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