Moneo Data Science Toolbox

Aplica Inteligencia Artificial
de un modo sencillo y económico

2022-11-15 Iker Gomez

Moneo → Digitaliza de tu Empresa

ifm Group

R&D Employees: >1300

Global sales exceeding $1.0B (2017)

Portfolio: >10,000 Products

discover ifm

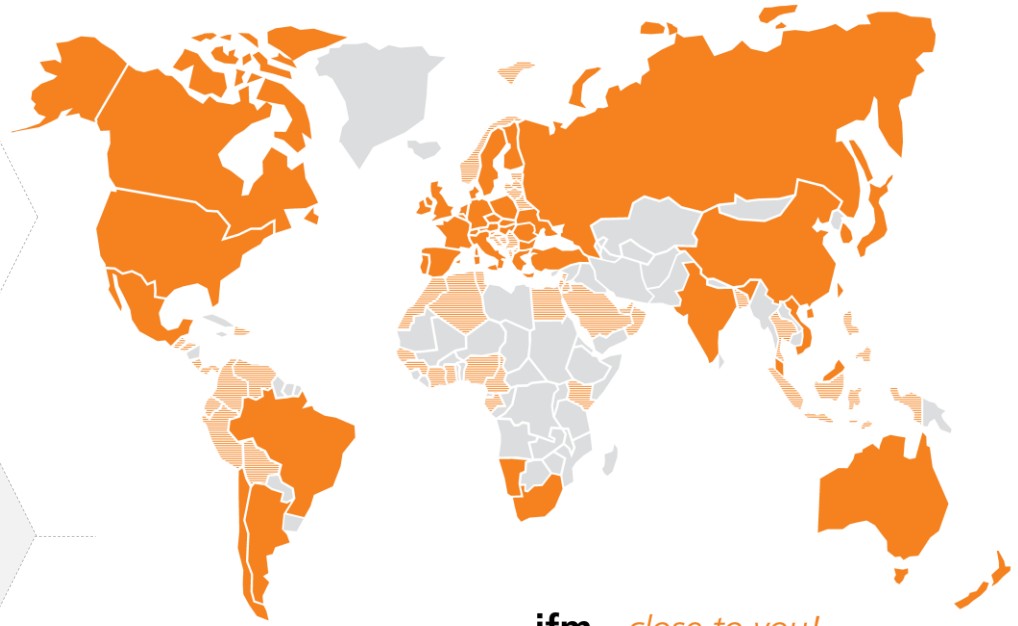
Headquarters: Germany

Employees: >9,000

Founded: 1969

Sensors Produced: >18.3m/year

Subsidiaries: 80 worldwide



ifm – *close to you!*

Moneo → Digitaliza de tu Empresa

ifm Group

Process sensors

Condition monitoring systems

Industrial communication

Connection technology

Systems for mobile machines

Identification systems

Industrial imaging

Sensors for motion control

Position sensors

Safety technology

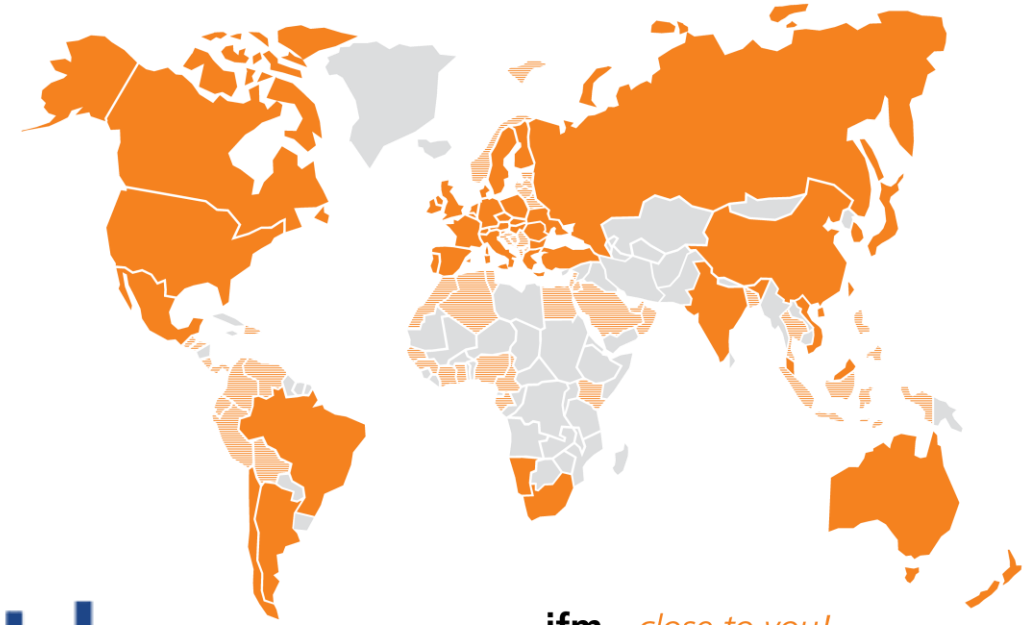
Edge Devices

Software solutions

Moneo → Digitaliza de tu Empresa

ifm Group

ifm software
ifm solutions
ifm service



ifm – *close to you!*

statmath
data.science.solutions.

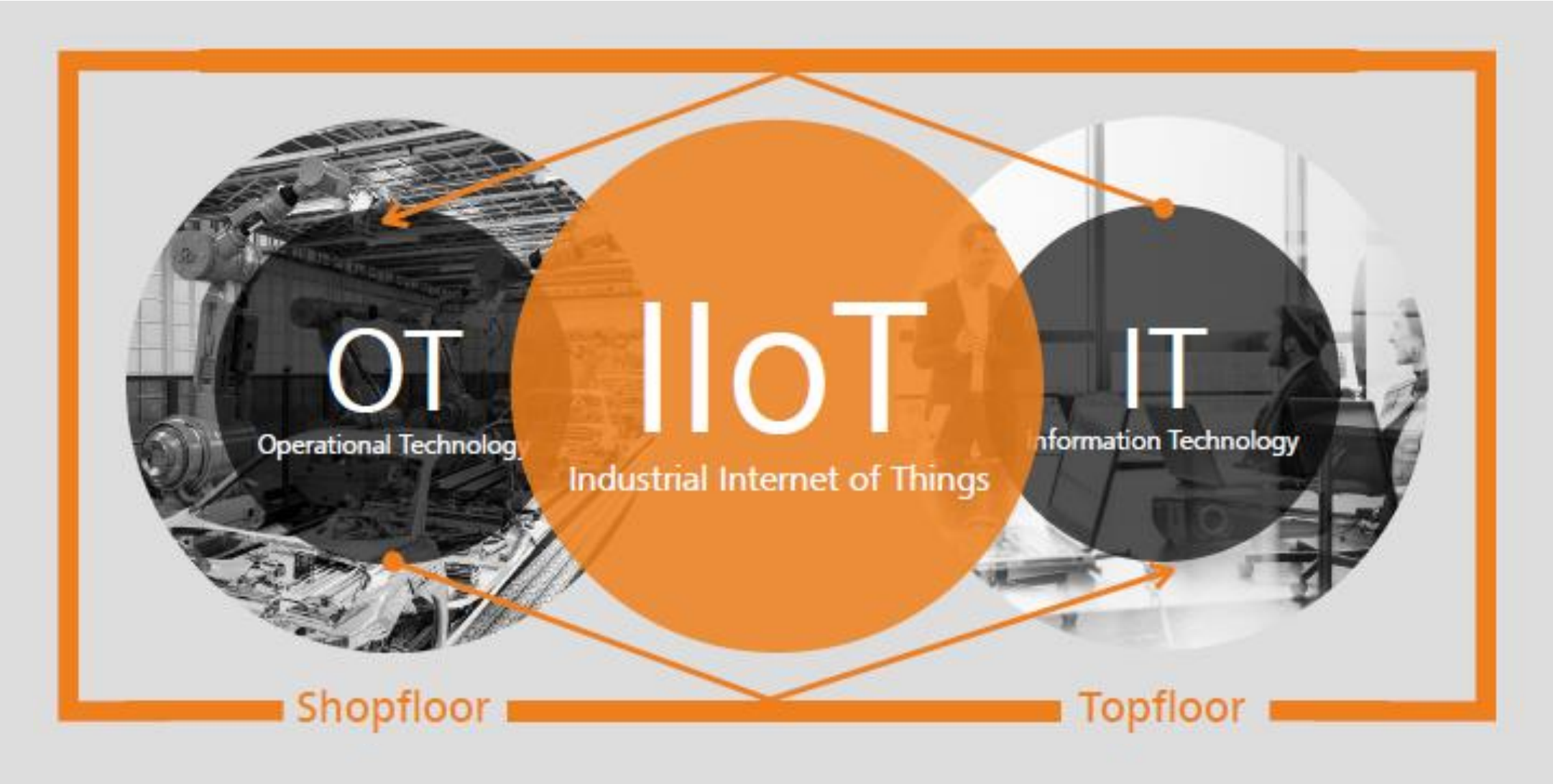
OPEN INDUSTRY 4.0 ALLIANCE

Ideen aus Leidenschaft

GIB
an ifm company

Moneo → Digitaliza de tu Empresa

Tu Partner



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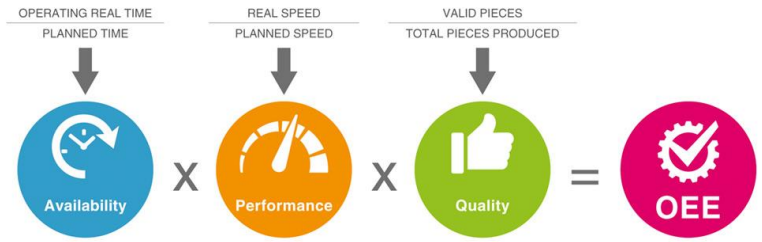
Moneo – Elimina Barreras

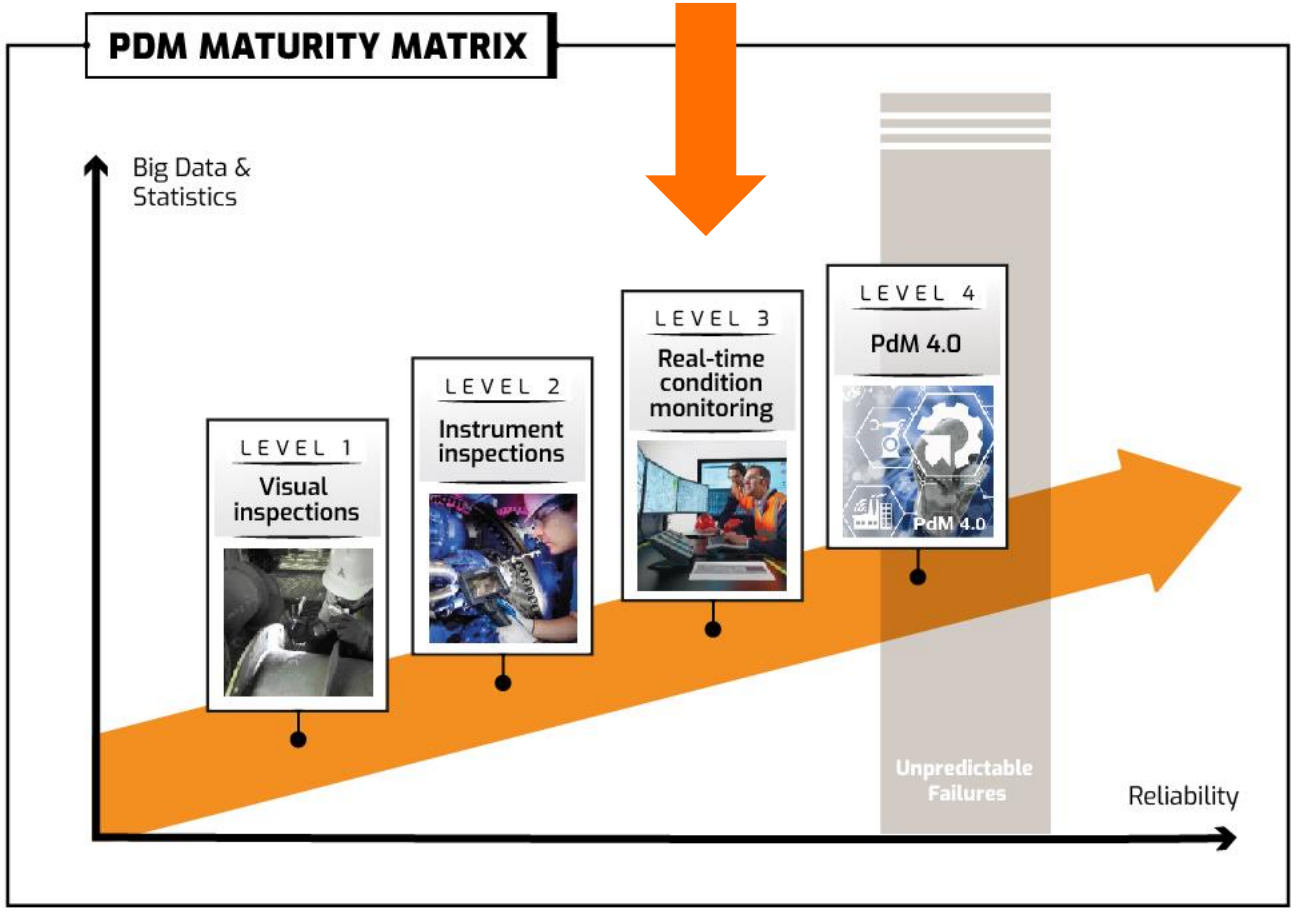
REAL TIME MOMINTORING CON MONEO

- **Reduce tiempo de implementación**
- **Reduce costes de proyectos**
- **Evita la necesidad de perfiles especializados**
  - **Conectividad para tod@s**
  - **Big Data para tod@s**
  - **Análisis avanzado para tod@s**
  - **Inteligencia Artificial para tod@s**

Moneo → Digitaliza de tu Empresa

PdM





Moneo – Real Time Monitoring

MONITORIZACIÓN EN TIEMPO REAL

- **Estado de Salud de Máquinas Productivas**
- **Estado de Salud de Equipos Auxiliares**
- **Consumos Energéticos**
- **Indicadores de Calidad**
- **Parámetros de Proceso**
- **Indicadores Productivos**

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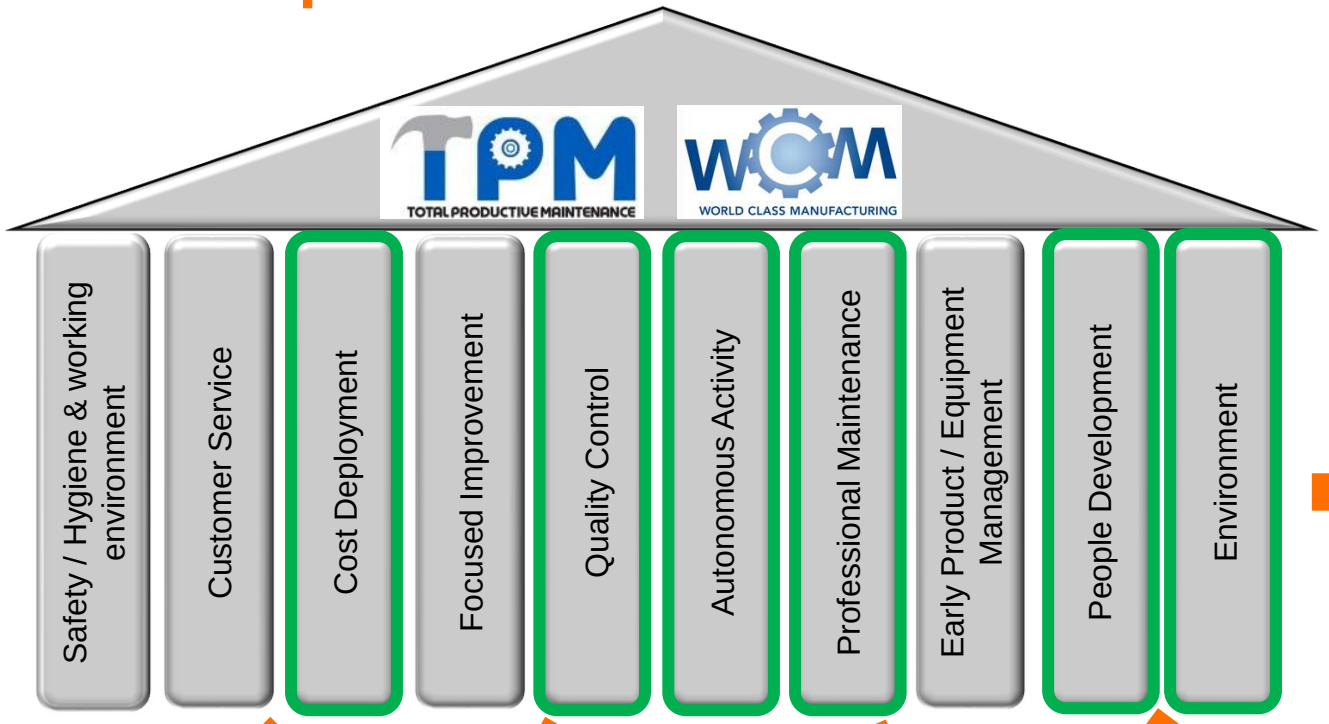
Beneficios Departamentales



- **Monitorización de energía**

- **Mejora de productividad**
- **Reducción de rechazos**
- **Reducción de costes energéticos**
- **Reducción de costes de matenimiento**

- **Mejora de calidad**
- **Mejora continua**
- **Monitorización de procesos**

- **Cero inspecciones**
- **SOP / OPL**

- **Reducción de paradas imprevistas**
- **Optimización de mantenimientos**
- **No coste de la urgencia**
- **Aumento vida útil equipos**
- **Reducción costes**

- **Indicadores sencillos**
- **Herramientas digitales de uso sencillo**

Moneo – Real Time Monitoring

- **Uso sencillo sin necesidad de desarrollo de software**
- **Generación automática de BBDD**
- **Generación Drag & Drop de pantallas**
- **Generación Drag & Drop de herramientas de análisis avanzadas**
- **Data Flow Modeler para cálculo en tiempo real**
- **Conexión vía web browser**
- **Solución multi usuario**

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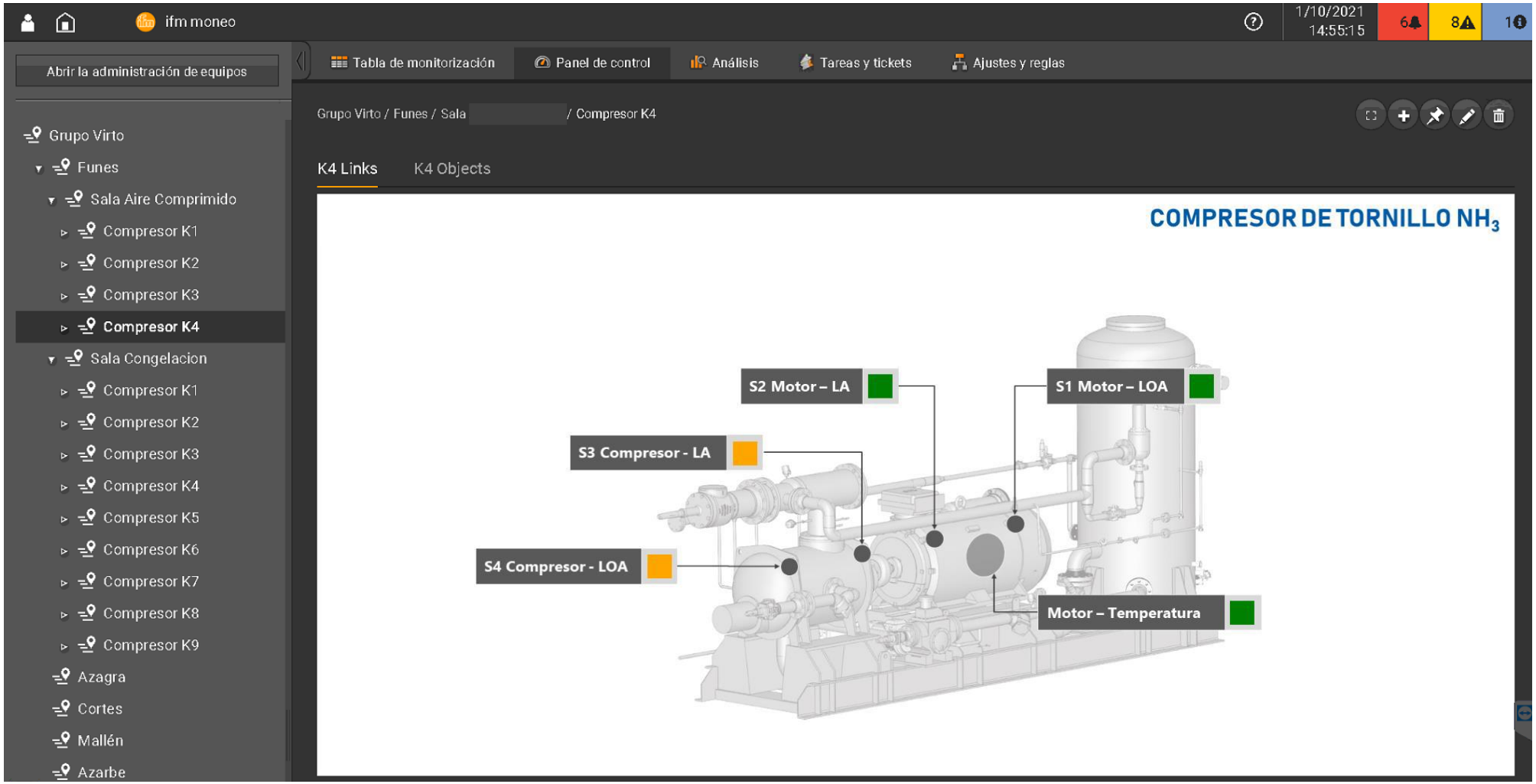
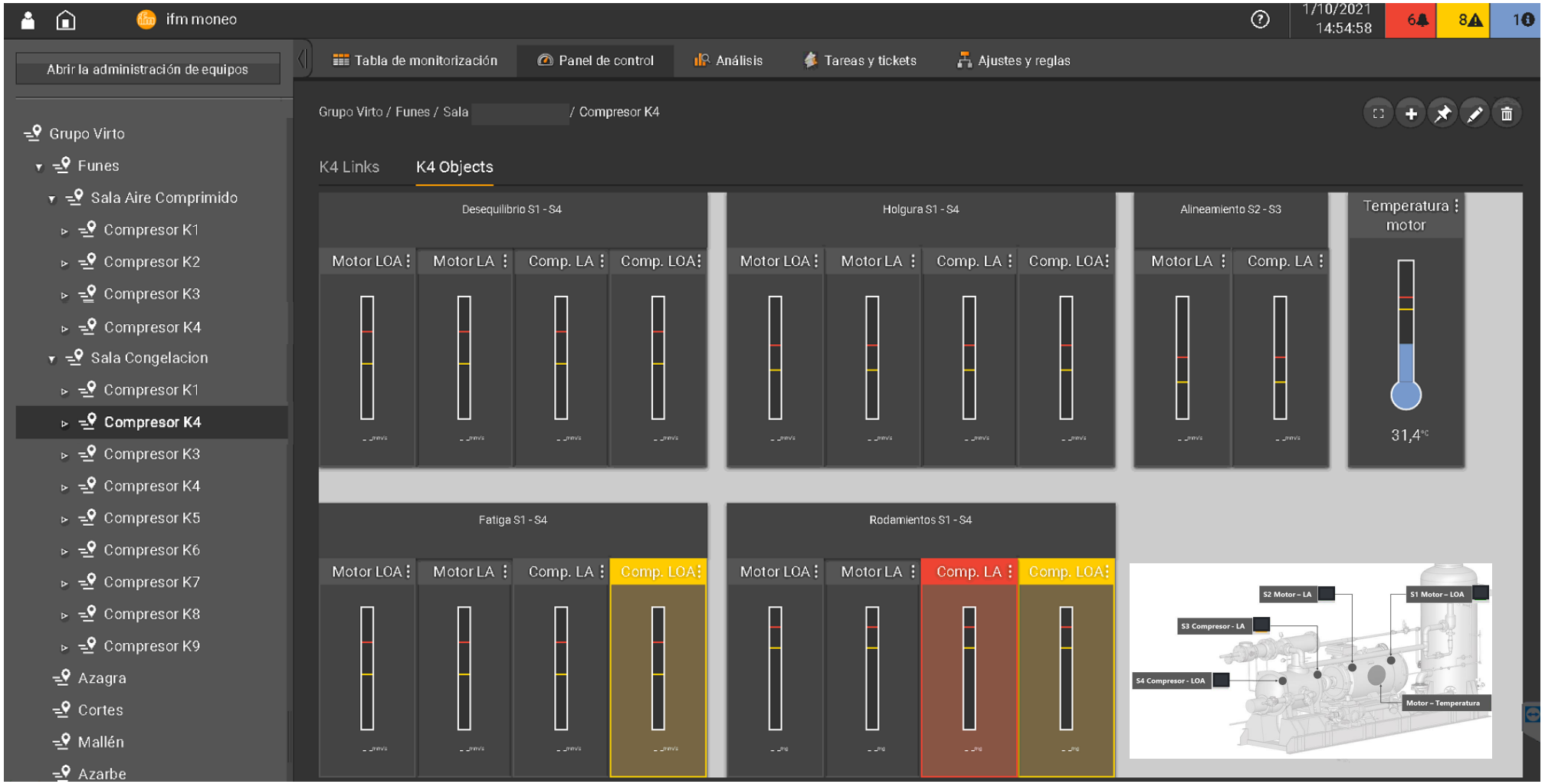
moneo



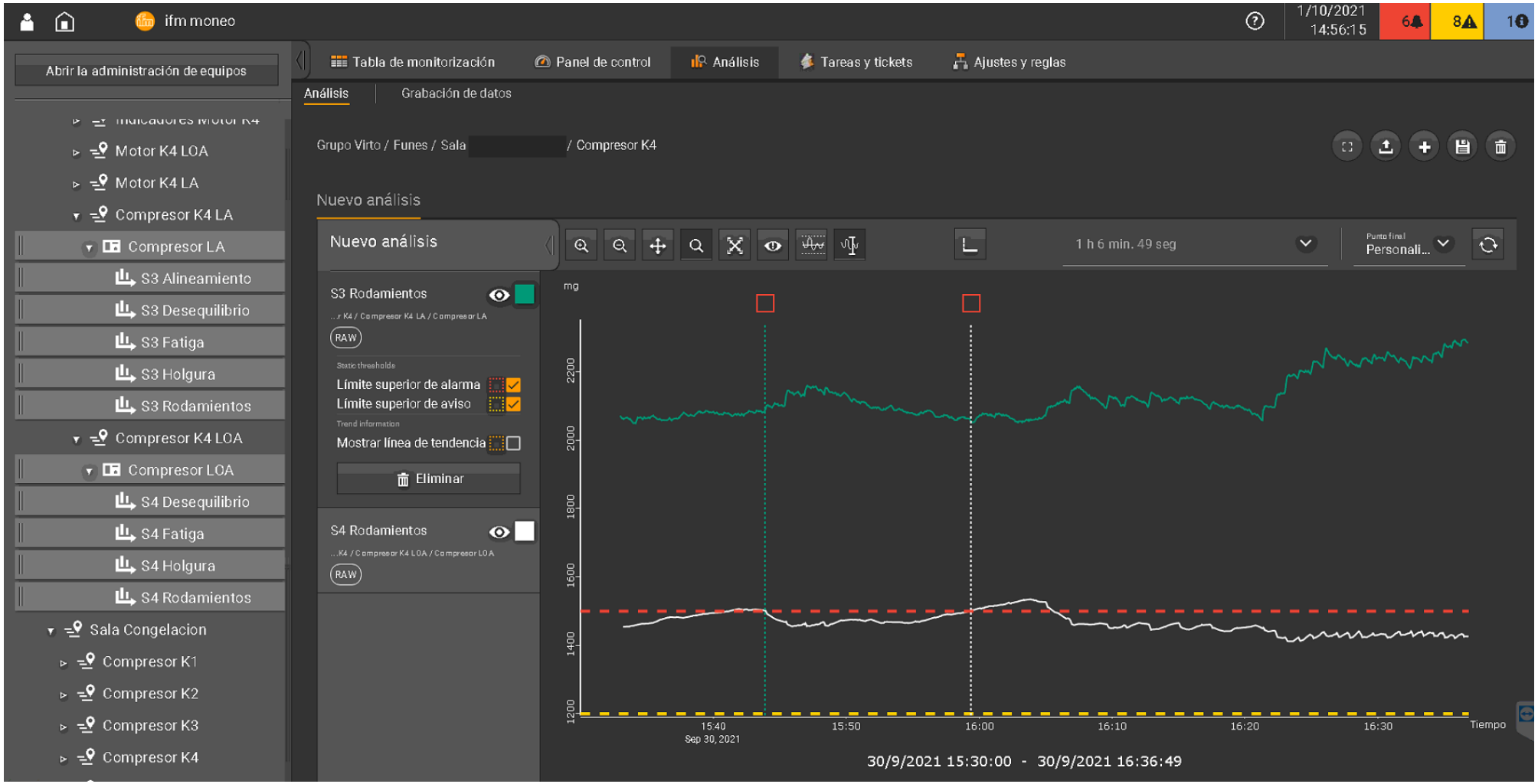
Moneo → Digitaliza de tu Empresa

moneo



Moneo → Digitaliza de tu Empresa

moneo



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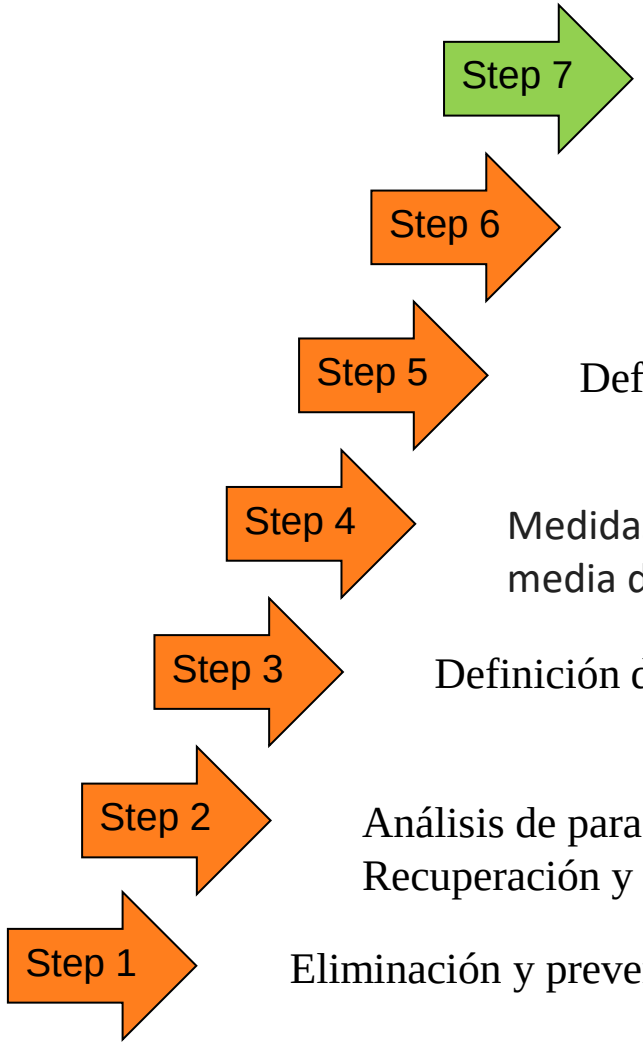
Digitalización del Mantenimiento



Gestión de los costes de mantenimiento
Construcción de un sistema planificación automático de mantenimiento

Definición del sistema CBM

Definición de estándares de mantenimiento

Medidas que abordan los puntos débiles de las máquinas y la extensión de la vida media de los componentes

Definición de estándares de mantenimiento

Análisis de paradas
Recuperación y reversión del deterioro

Eliminación y prevención de deterioro acelerado

WCM TPM

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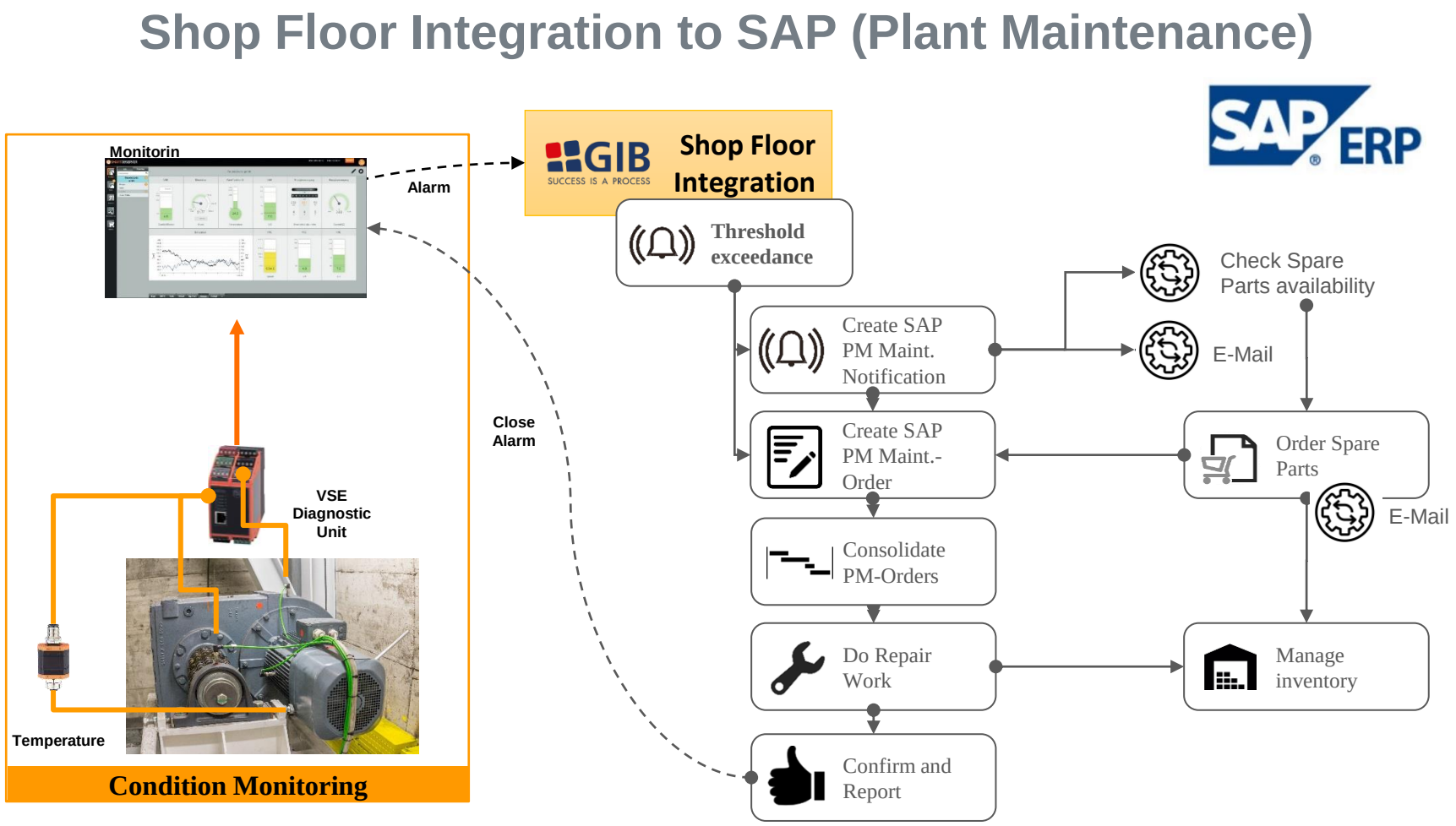
Digitalización del Mantenimiento



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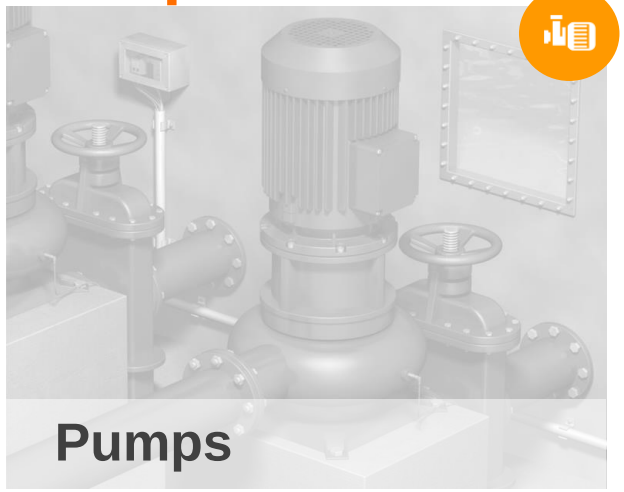
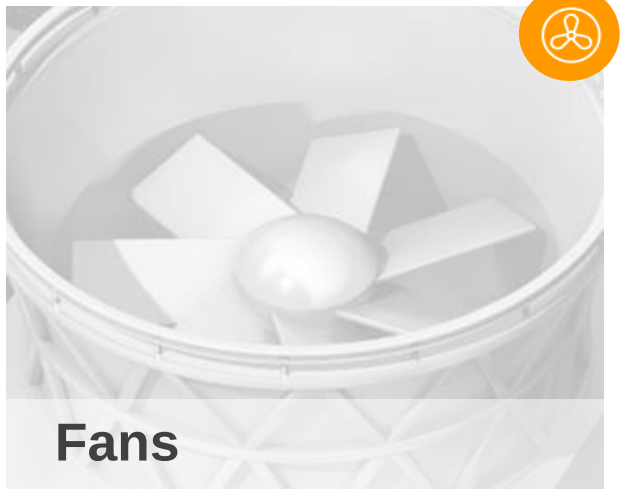
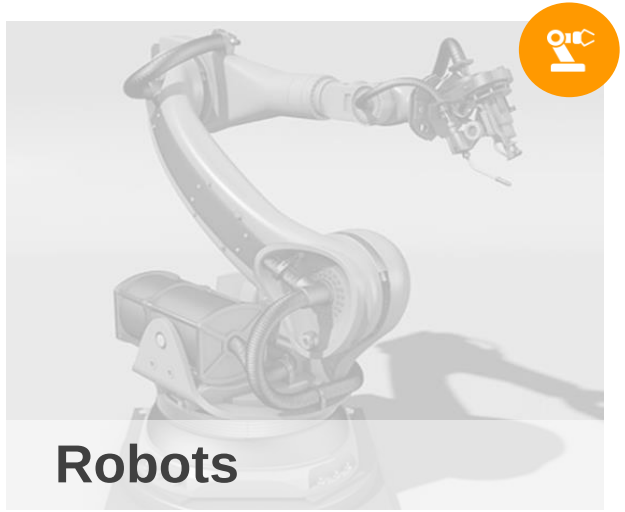
Aplicaciones

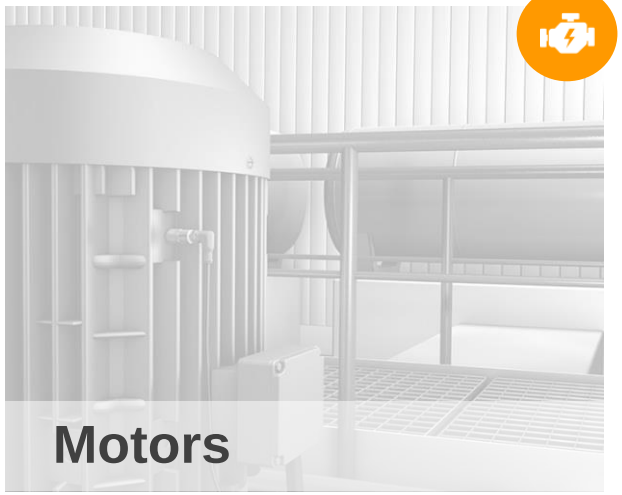


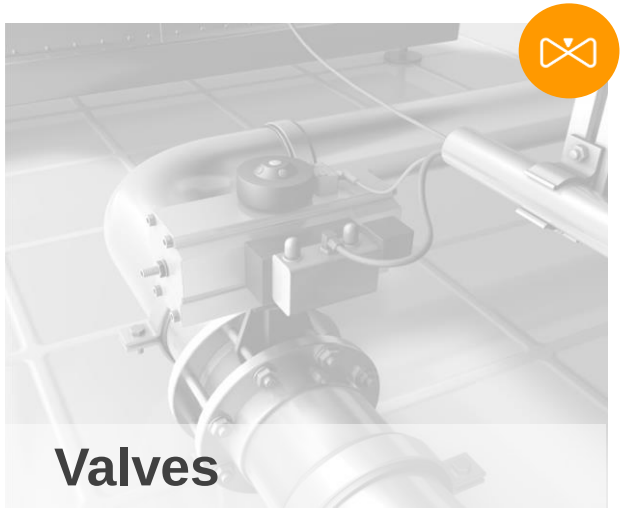


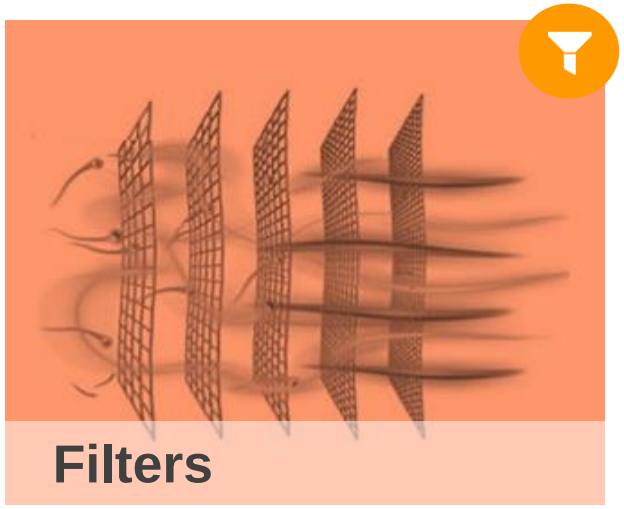


Moneo → Digitaliza de tu Empresa

Aplicaciones







Presses
Injection
Ovens
Hydraulic Groups

Moneo → Digitaliza de tu Empresa

Consumo Aire Comprimido

Consumo Agua

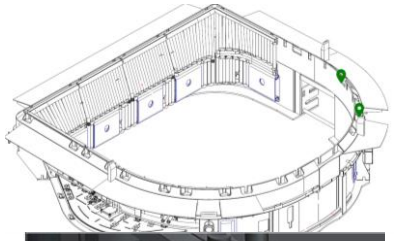
Consumo Corriente Eléctrica

Soplantes

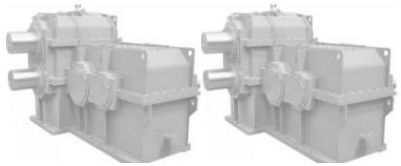
Depósitos

Mezclador

Horno Arco Eléctrico



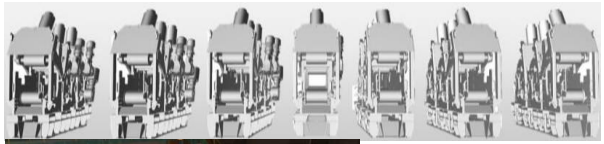
Tren de Laminado
Y
Cajas de Acabado

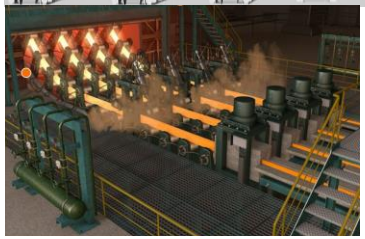


Filtración

Torres de Refrigeración

Colada Continua





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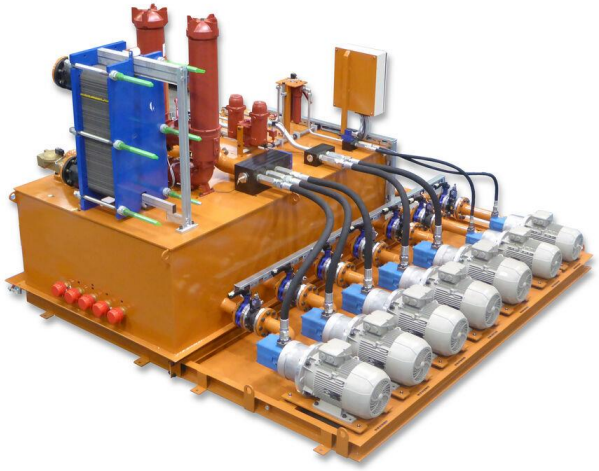
Casos de éxito

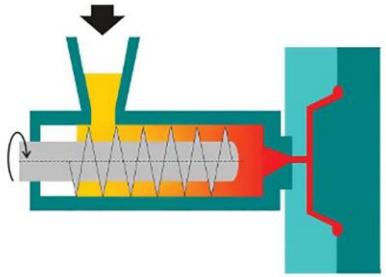
Grupos Hidráulicos



Prensas - Smart Stamp

Lubricación

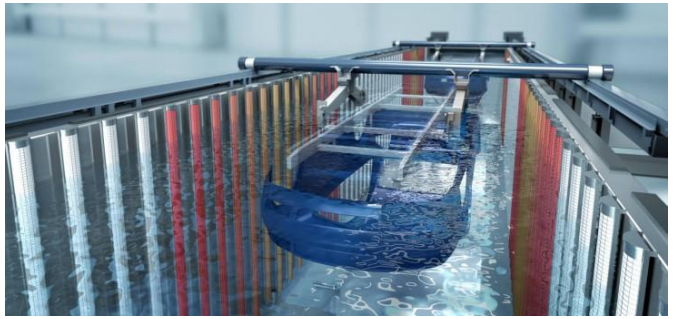
Inyección de Plástico



Estampación en Caliente

Máquina Papel

Pintura y Cataforesis



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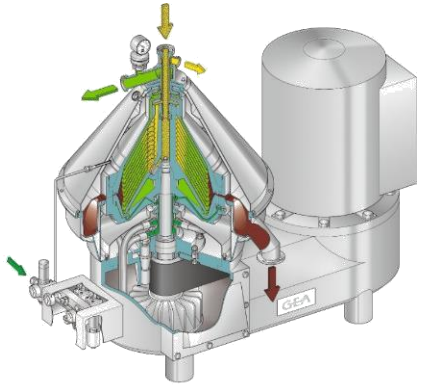
Separador



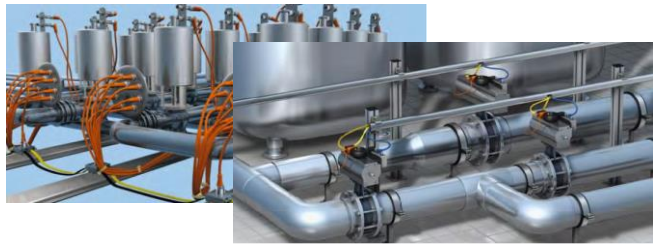
Compresor frío

Desnatadora leche
Clarificador

Pasteurizador
Intercambiador calor

Chiller
Ventilador refrigeración

Valvulas



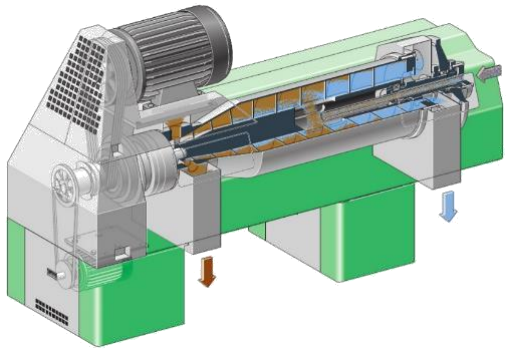
Dosificador

Agua refrigeración

Bombas

Homogeneizador

Decantador



Mezcladores

Conveyors

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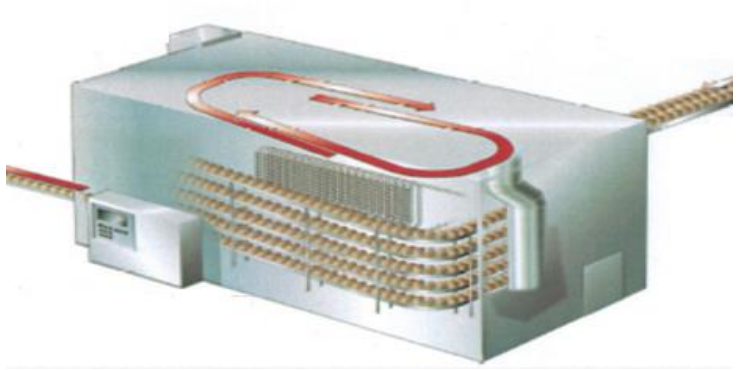
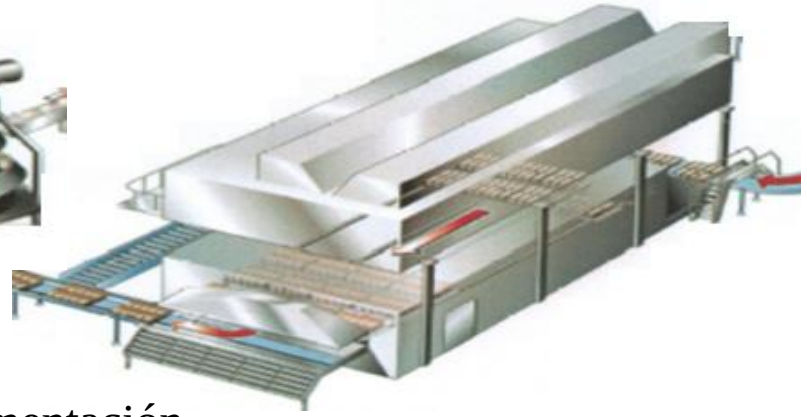
Enfriador



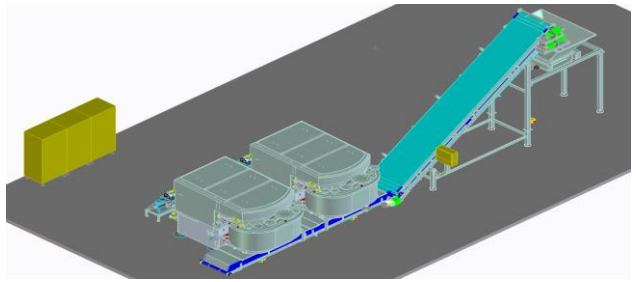
Bombas de Vacío

Moldeador

Hornos

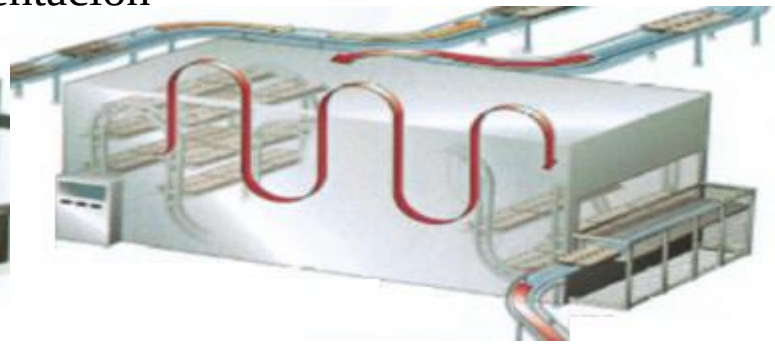


Amasadoras



Conveyors

Fermentación



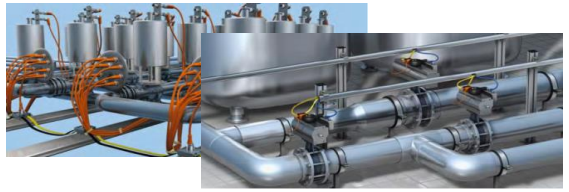
Consumo Agua

Consumo Aire

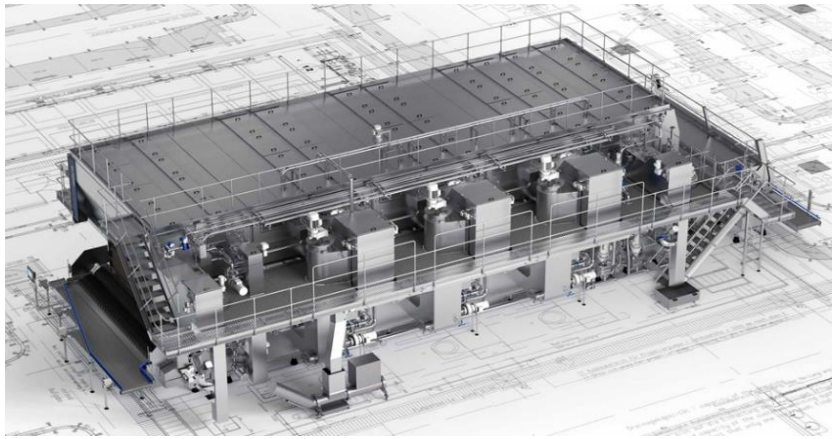
Consumo Eléctrico

Moneo → Digitaliza de tu Empresa

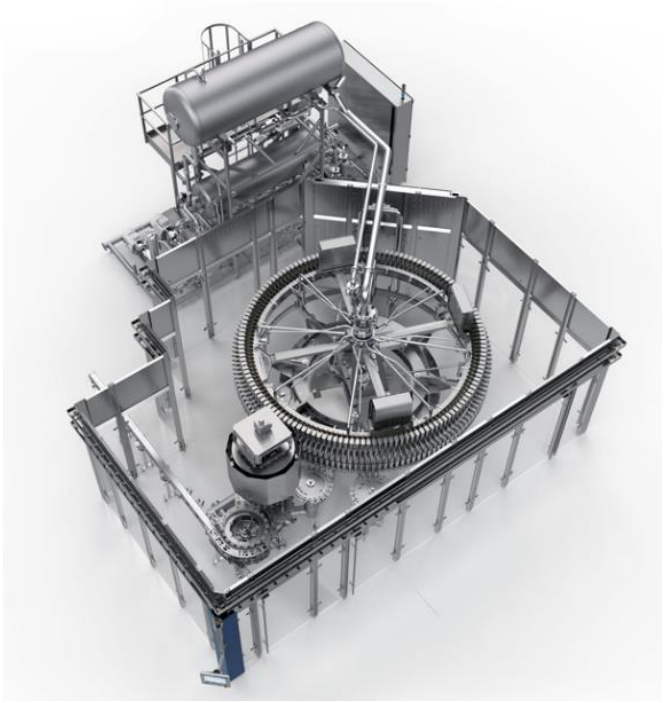
Valvulas



Lavadora



Llenadora



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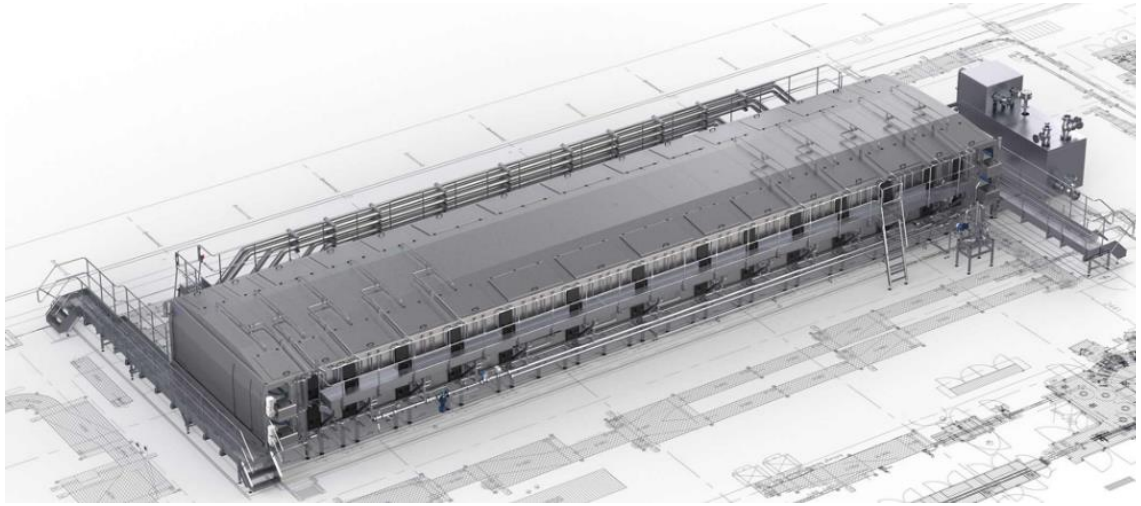
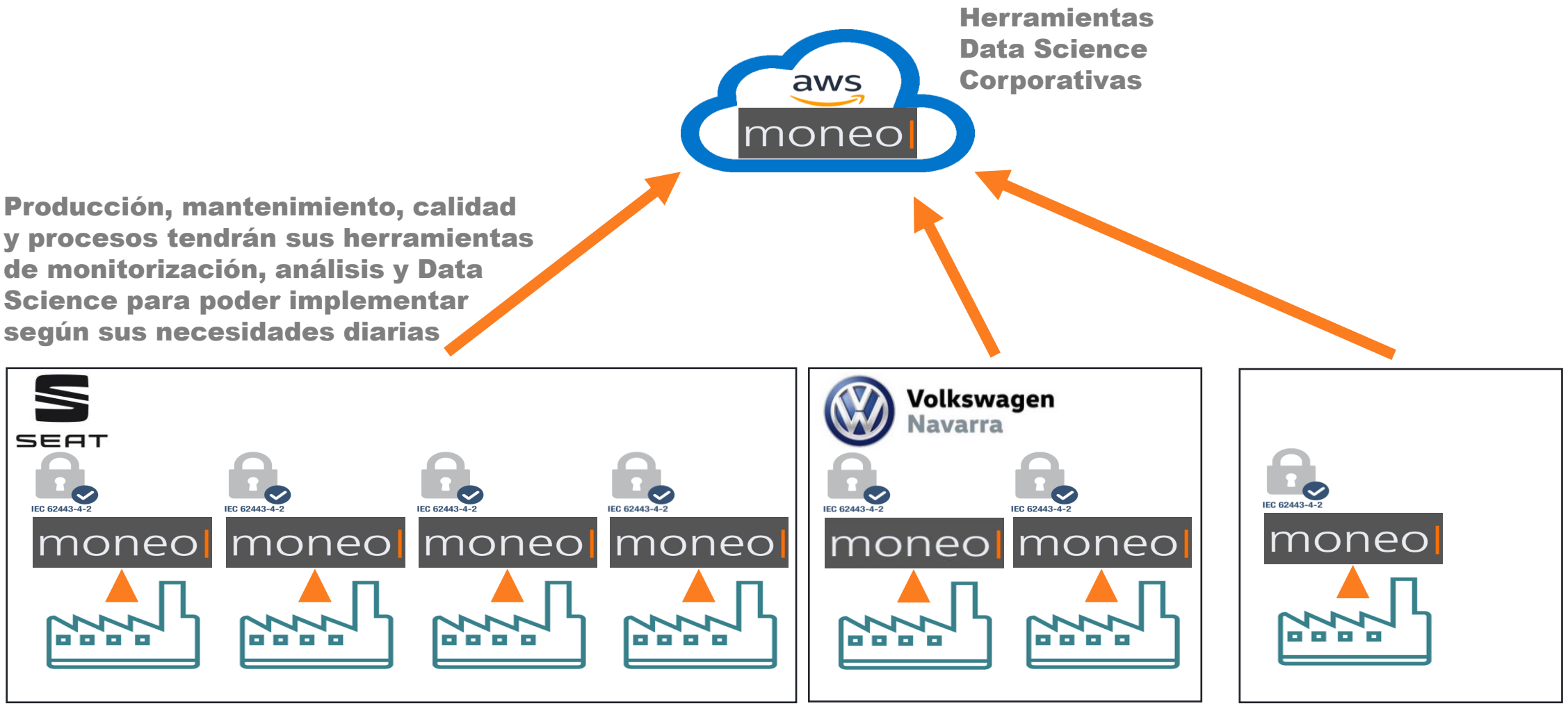


Moneo → Digitaliza de tu Empresa

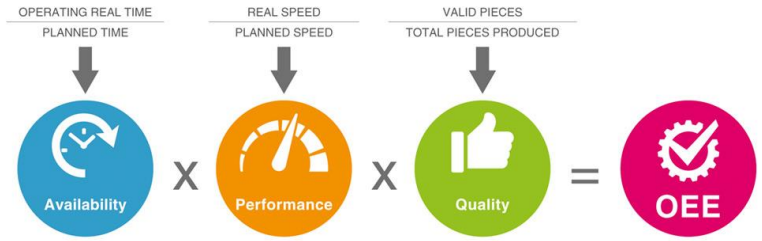
Moneo como Proveedor Seguro de Información

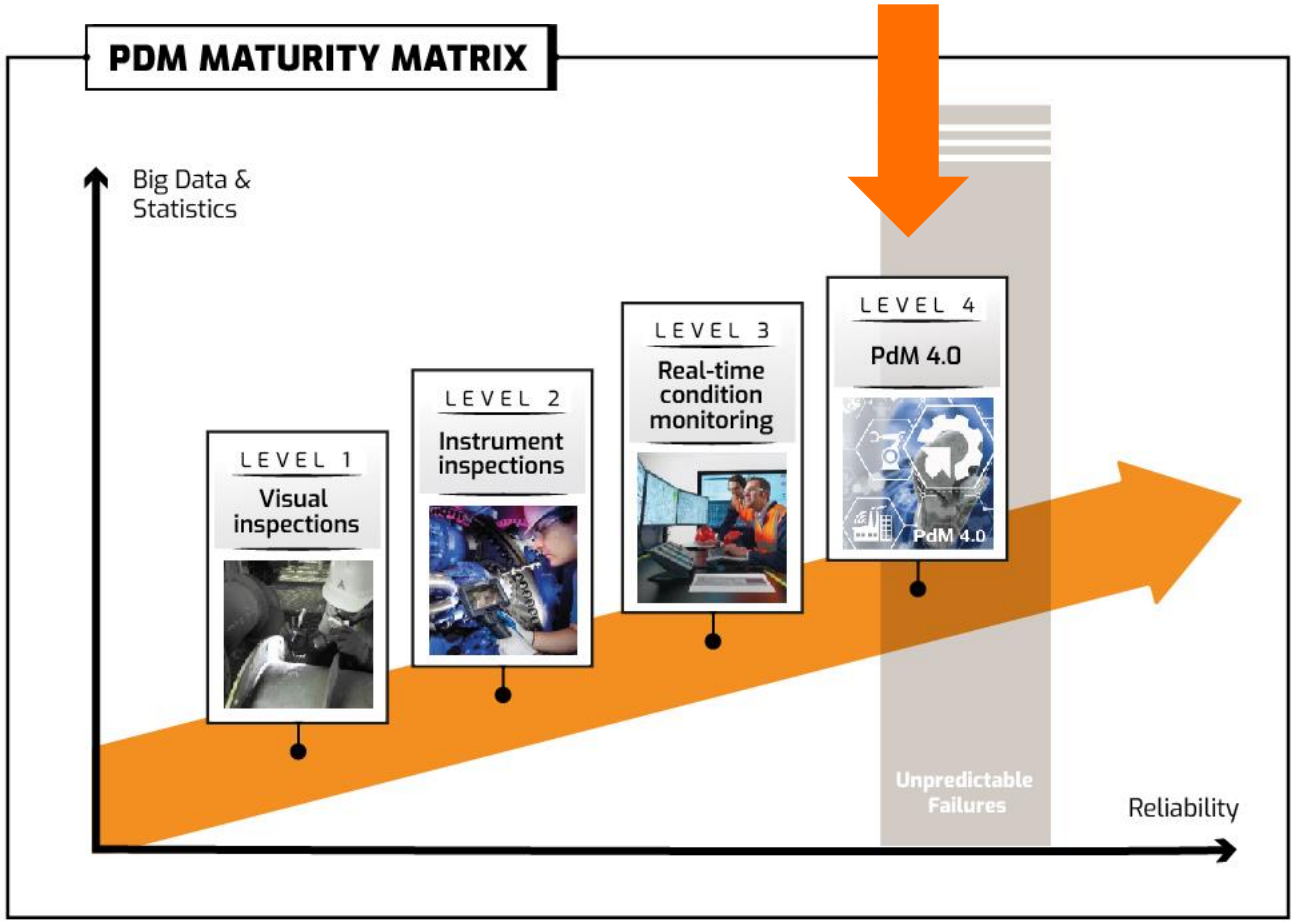
Moneo como Proveedor Seguro de Información



Moneo → Digitaliza de tu Empresa

PdM4.0





Moneo – Data Science Toolbox

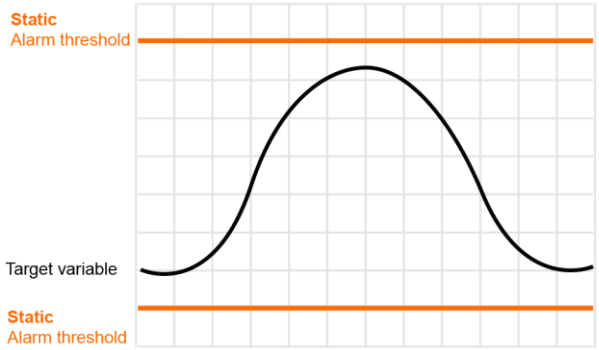
¿QUÉ DIRÍAS SI TE DIJERA QUE CON UN SIMPLE WIZARD VAS A SER CAPAZ DE GENERAR TUS ALGORITMOS DE INTELIGENCIA ARTIFICIAL EN MENOS DE 5 MINUTOS?

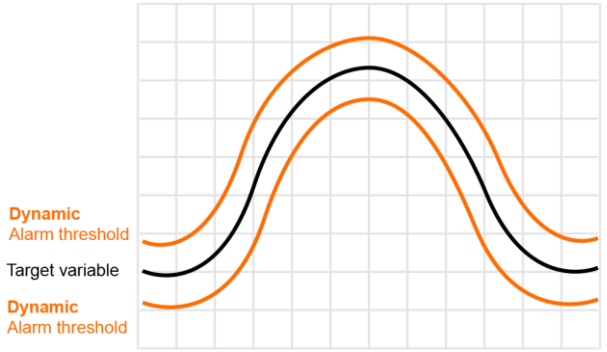
Monitorización Inteligente

Static process monitoring

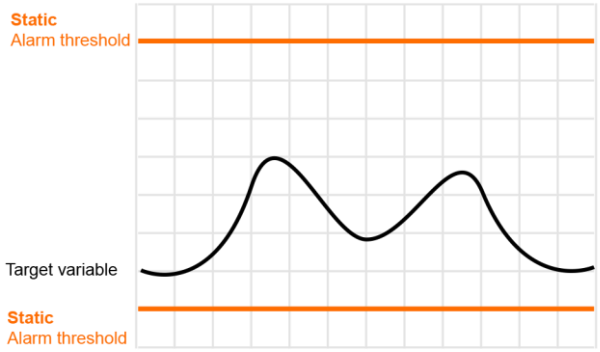
Dynamic process monitoring

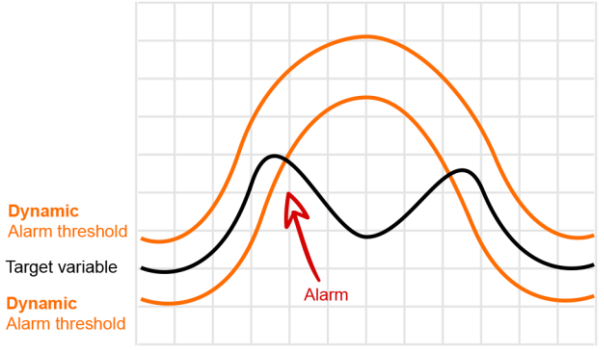
Normal condition





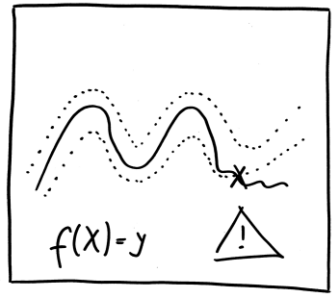
Anomaly condition



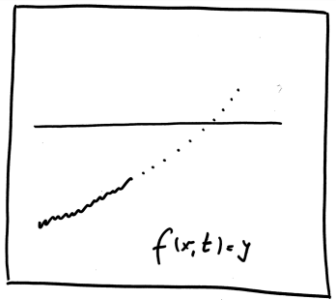


Moneo – Data Science Toolbox

PdM4.0



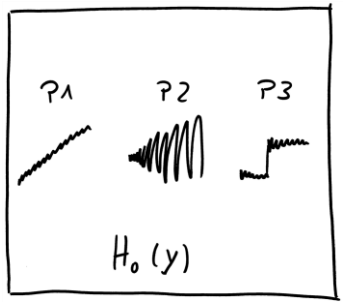
SmartLimitWatcher
Intelligent process monitoring



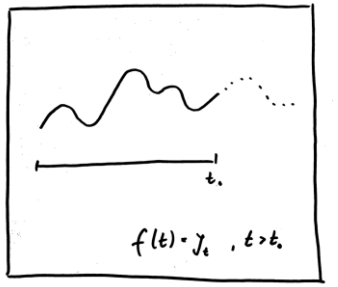
LifetimeEstimator
Predictions for smart maintenance

SLW	PM
LE	VP

PatternMonitor
Automated pattern detection



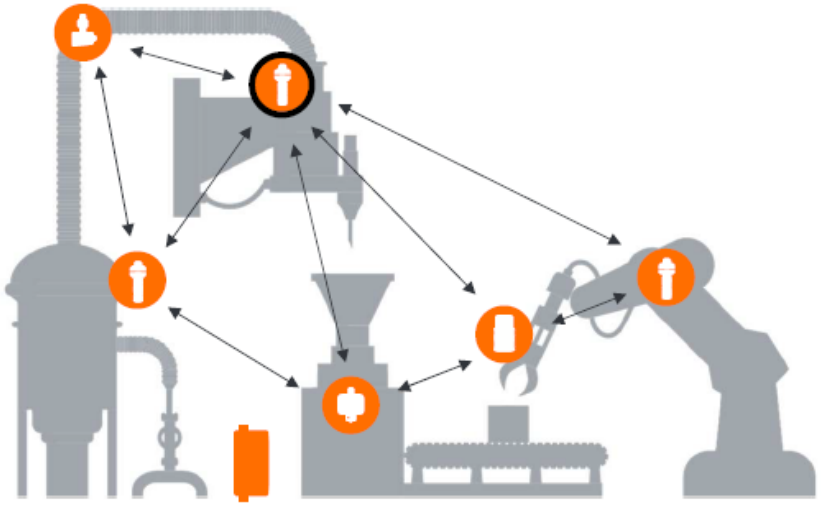
ValuePredictor
Timeseries forecasting



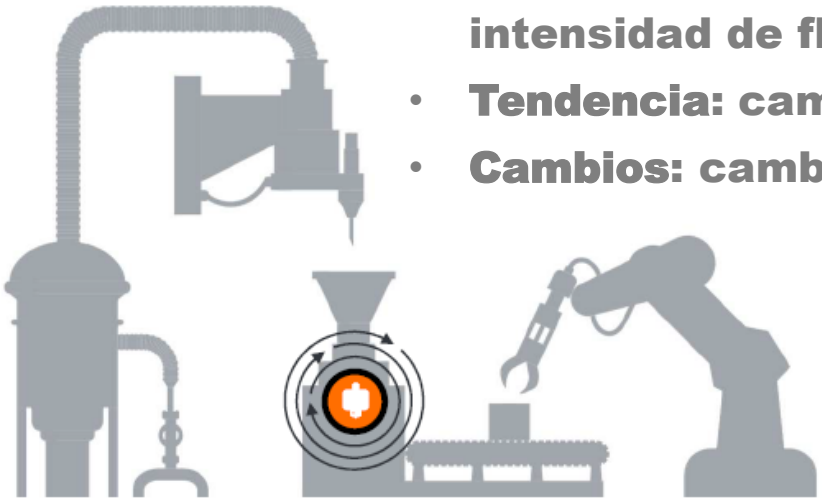
... More features in planning

Diferencias entre SLW y PAM

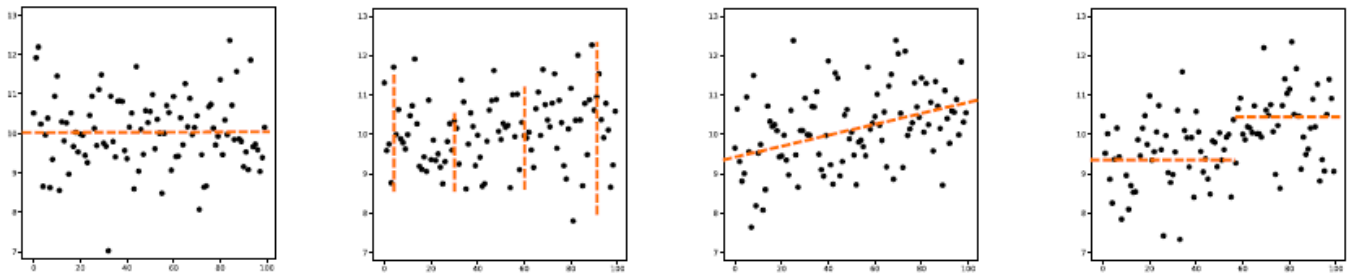
- **Usando métodos estadísticos, PAM chequea cambios de la variable crítica del proceso con uno de los siguientes patrones**
  - **Volatilidad: aumento o disminución de la intensidad de fluctuación**
  - **Tendencia: cambio gradual de nivel**
  - **Cambios: cambios repentinos de nivel**



SmartLimitWatcher



PatternMonitor



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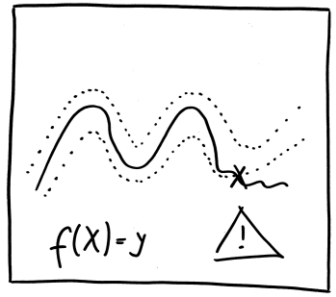
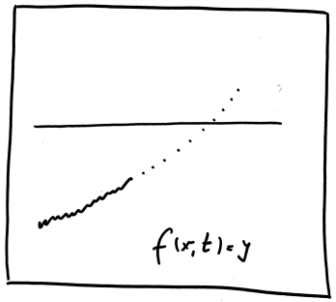
PdM4.0



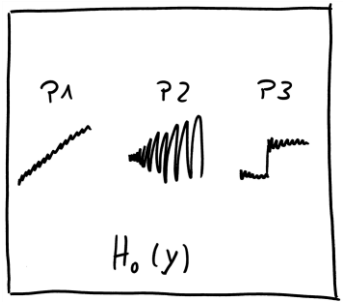
SmartLimitWatcher
Intelligent process monitoring



LifetimeEstimator
Predictions for smart maintenance

SLW	PM
LE	VP

PatternMonitor
Automated pattern detection



ValuePredictor
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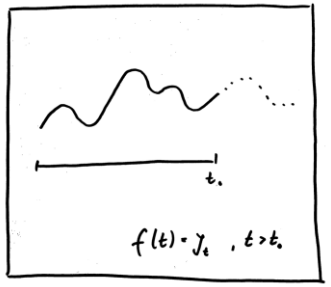
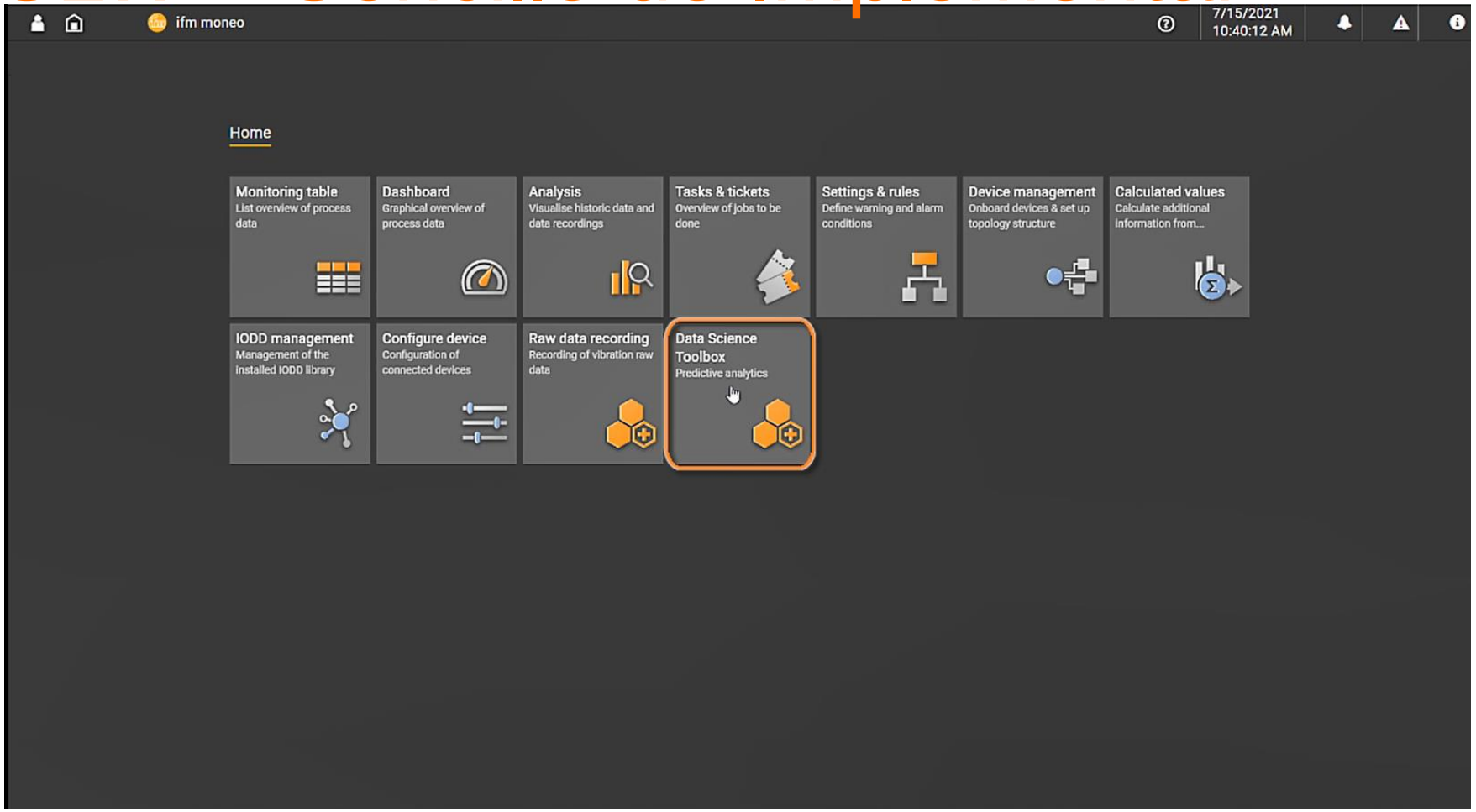


... More features in planning

Moneo – Data Science Toolbox

SLW – Sencillo de Implementar



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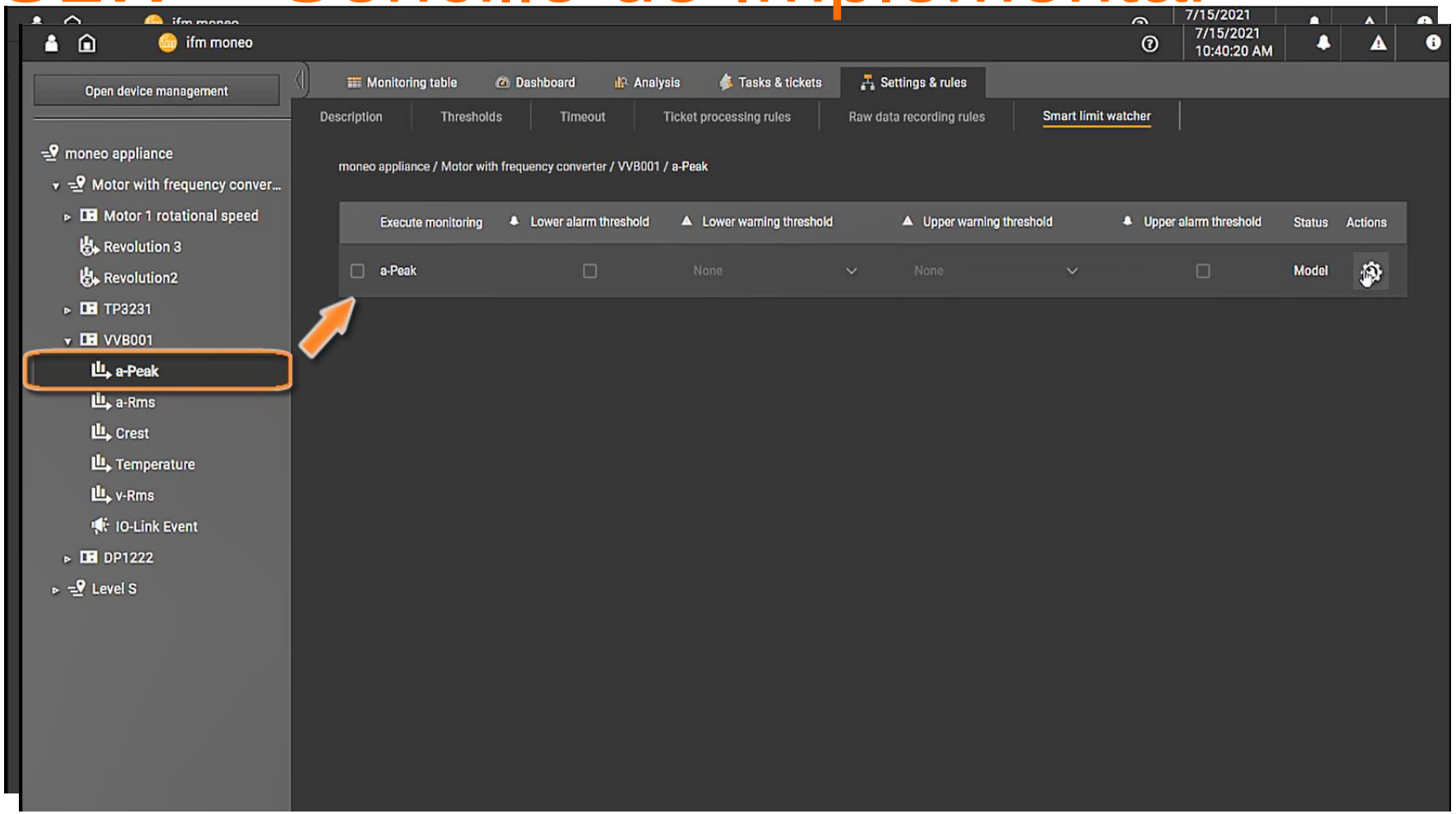
SLW – Sencillo de Implementar



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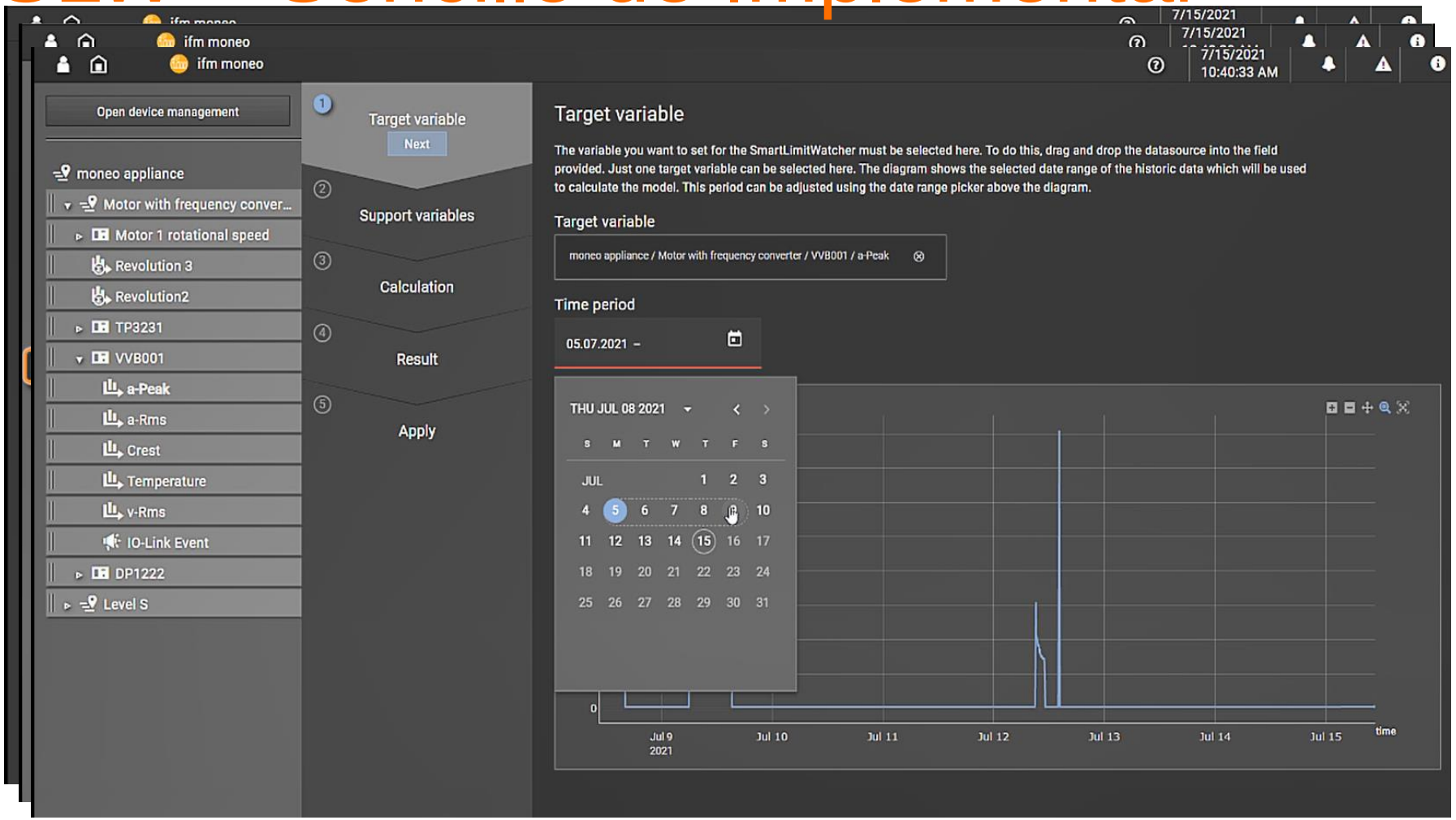
SLW – Sencillo de Implementar



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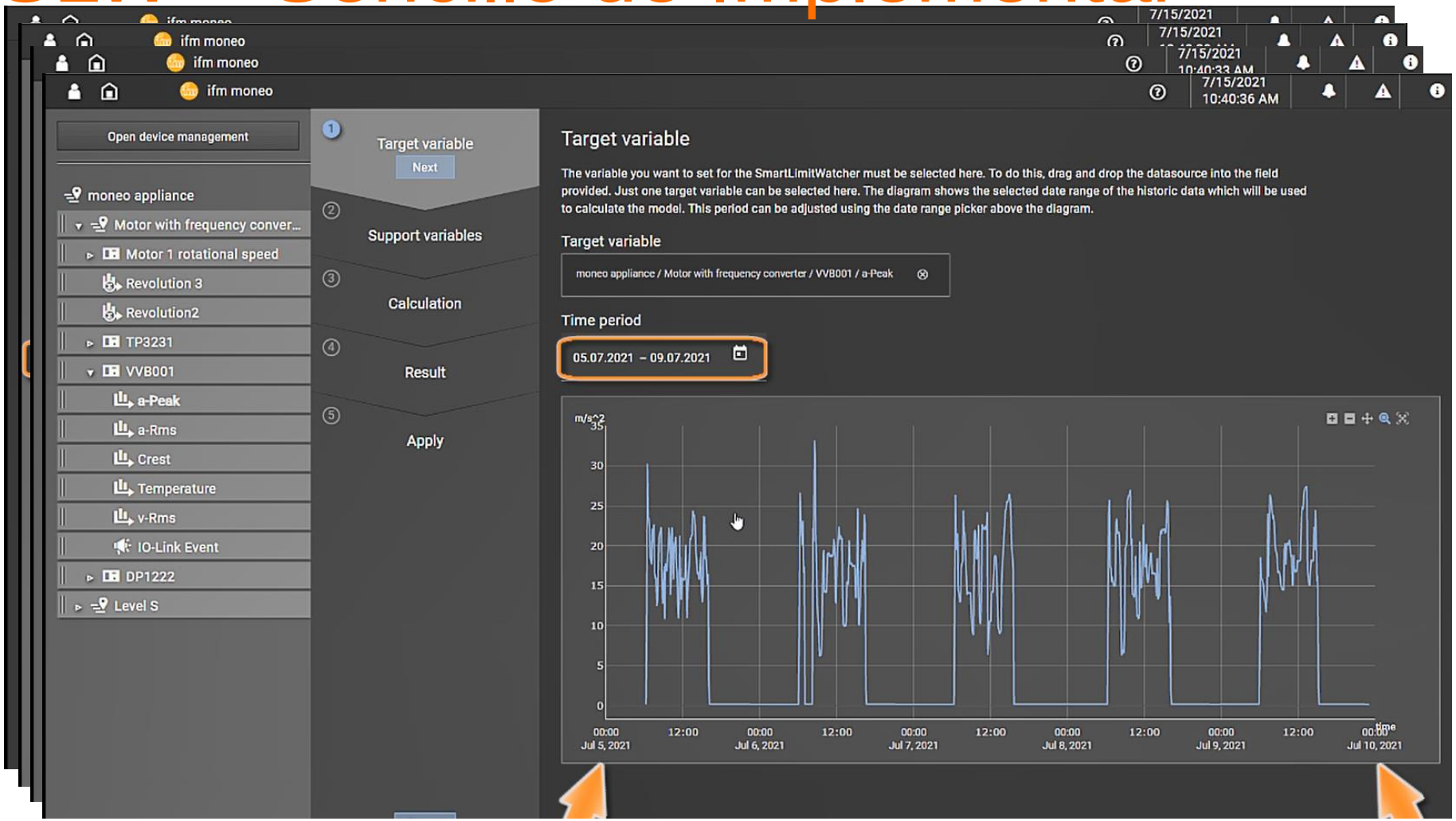

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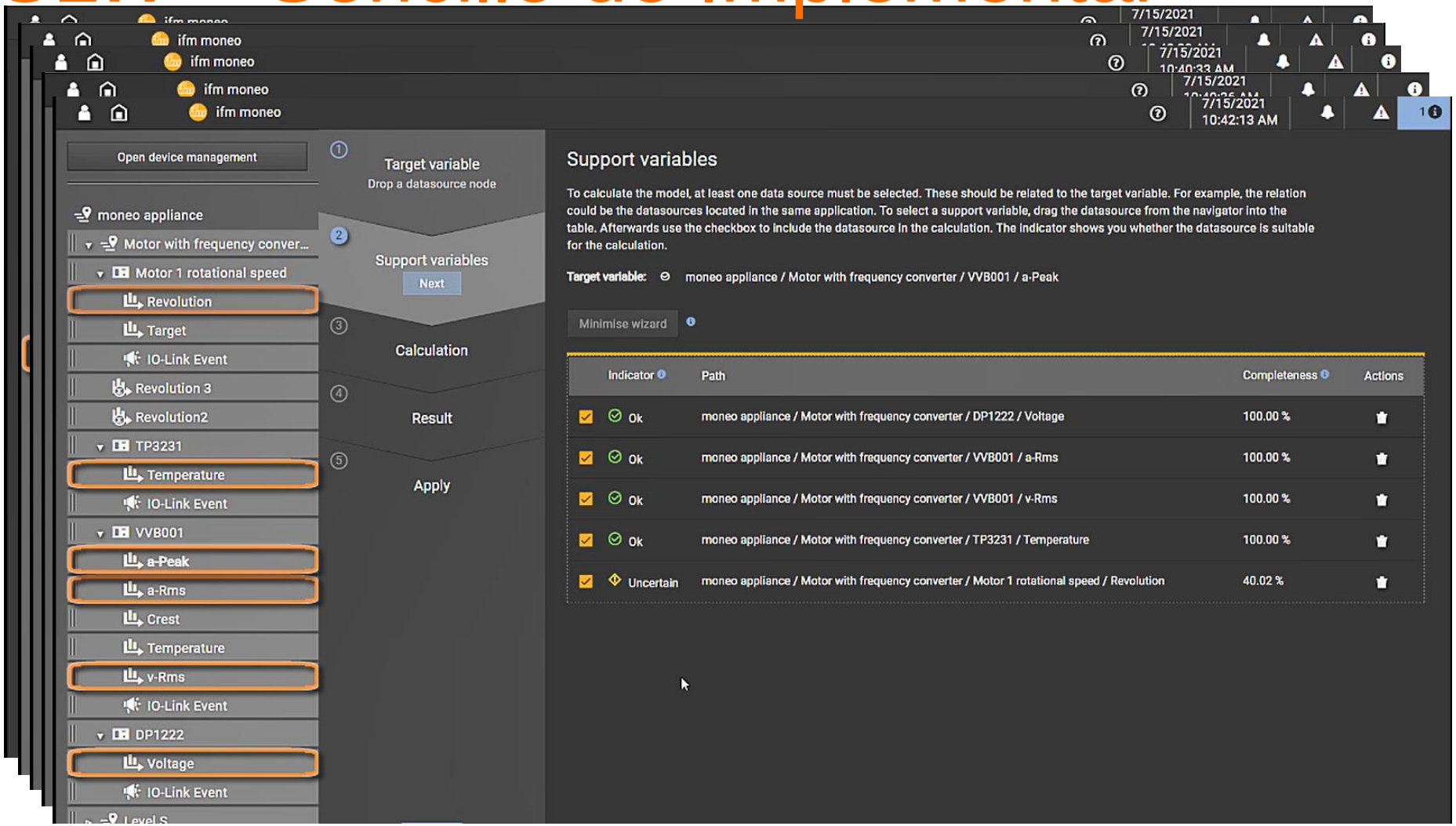

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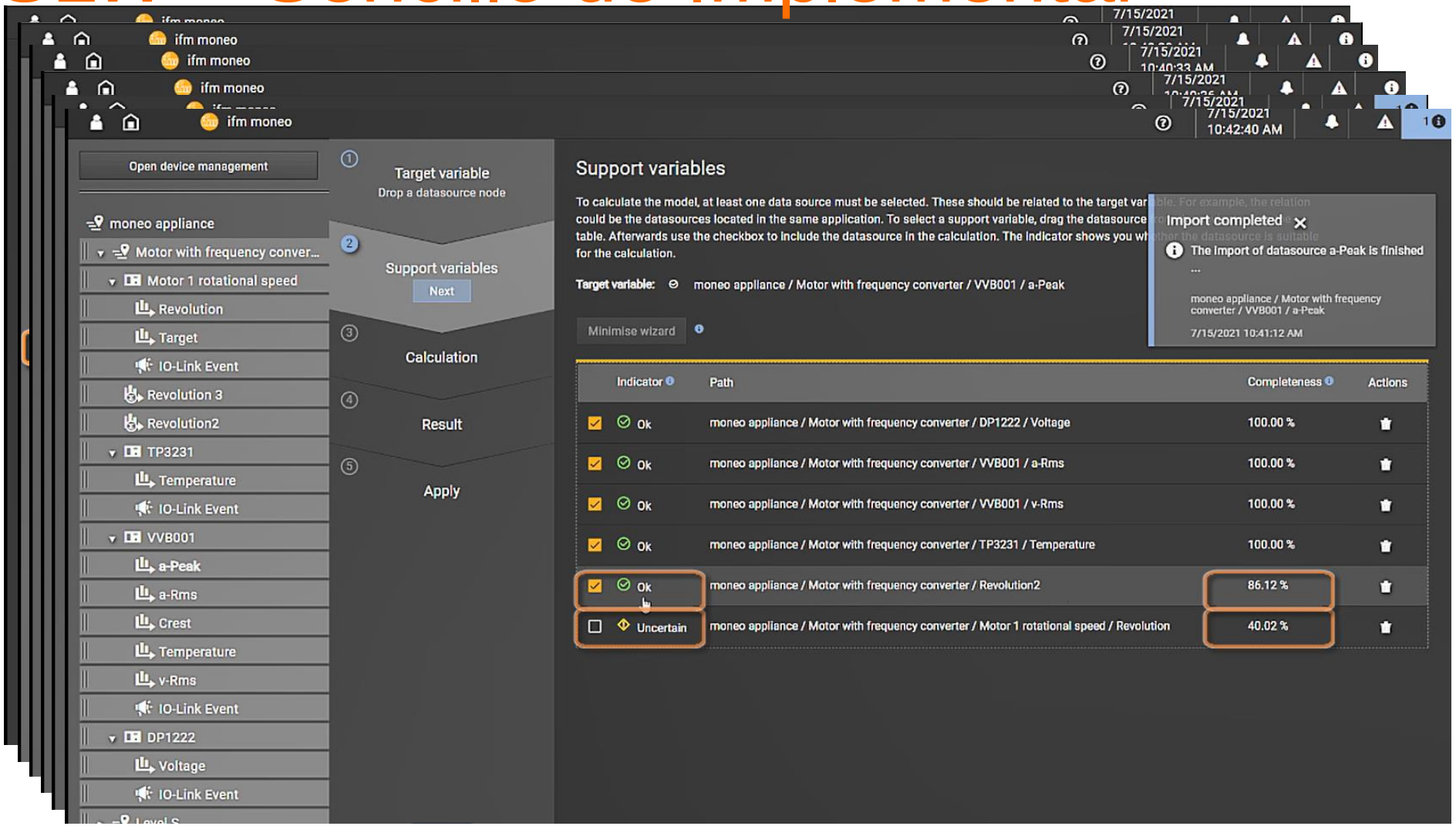

Moneo – Data Science Toolbox

SLW – Sencillo de Implementar

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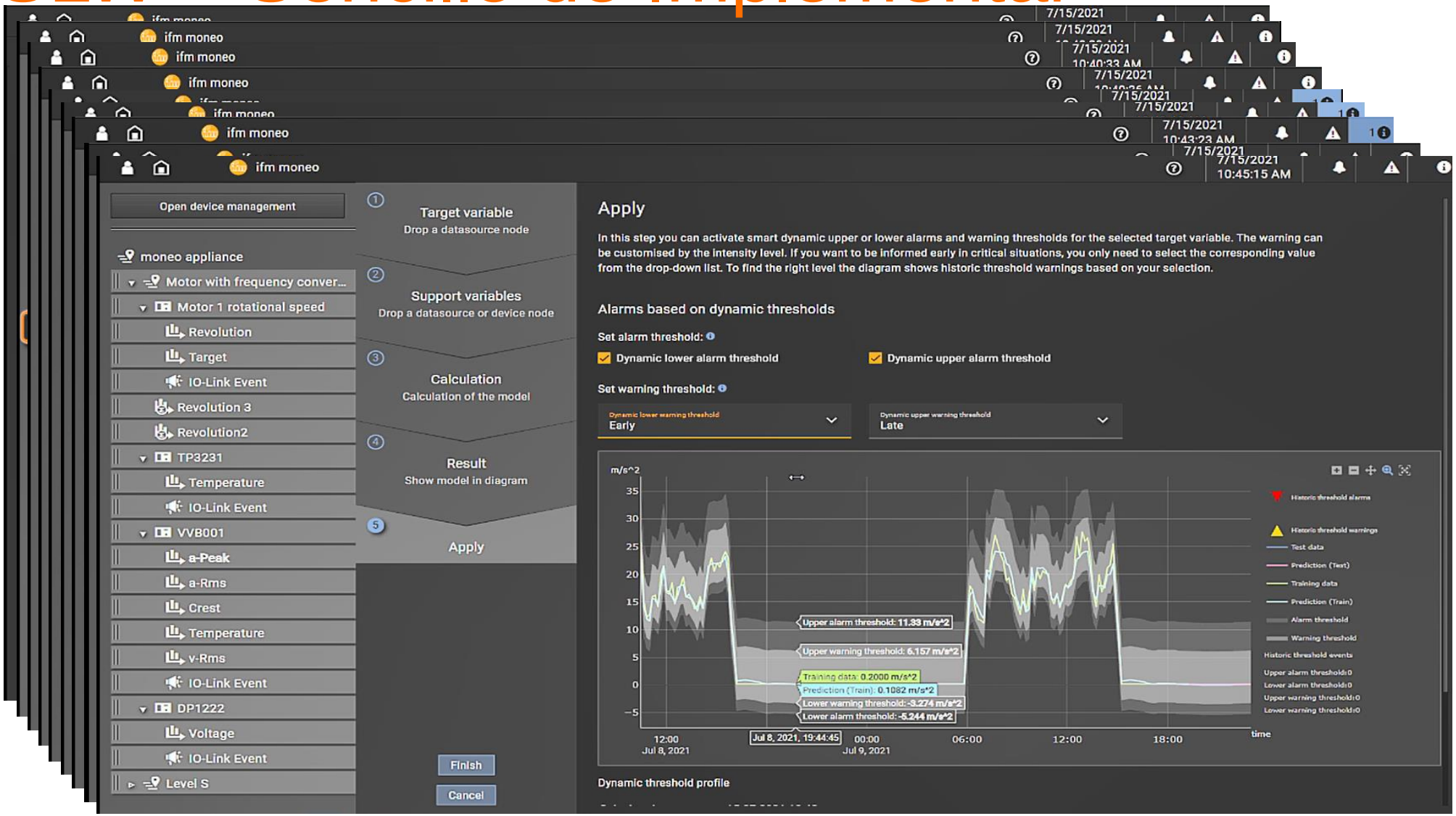
SLW – Sencillo de Implementar



Moneo – Data Science Toolbox

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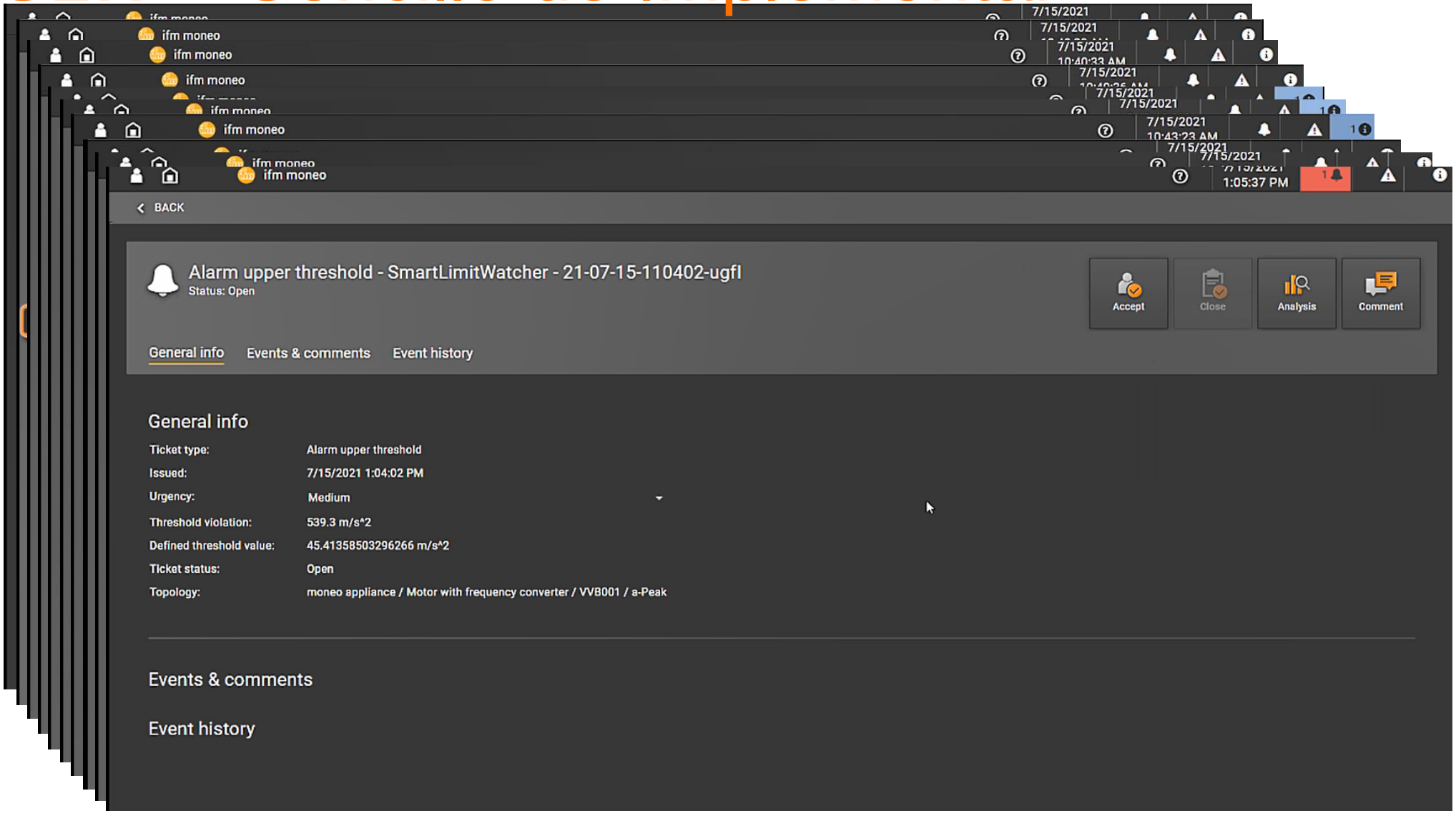

Gracias!

Iker Gomez Valencia