



**Ludan  
Engineering**



**LUDAN GROUP**  
global experience, local approach

# **LUDAN Engineering SRL**

## **IT/OT Technologies**

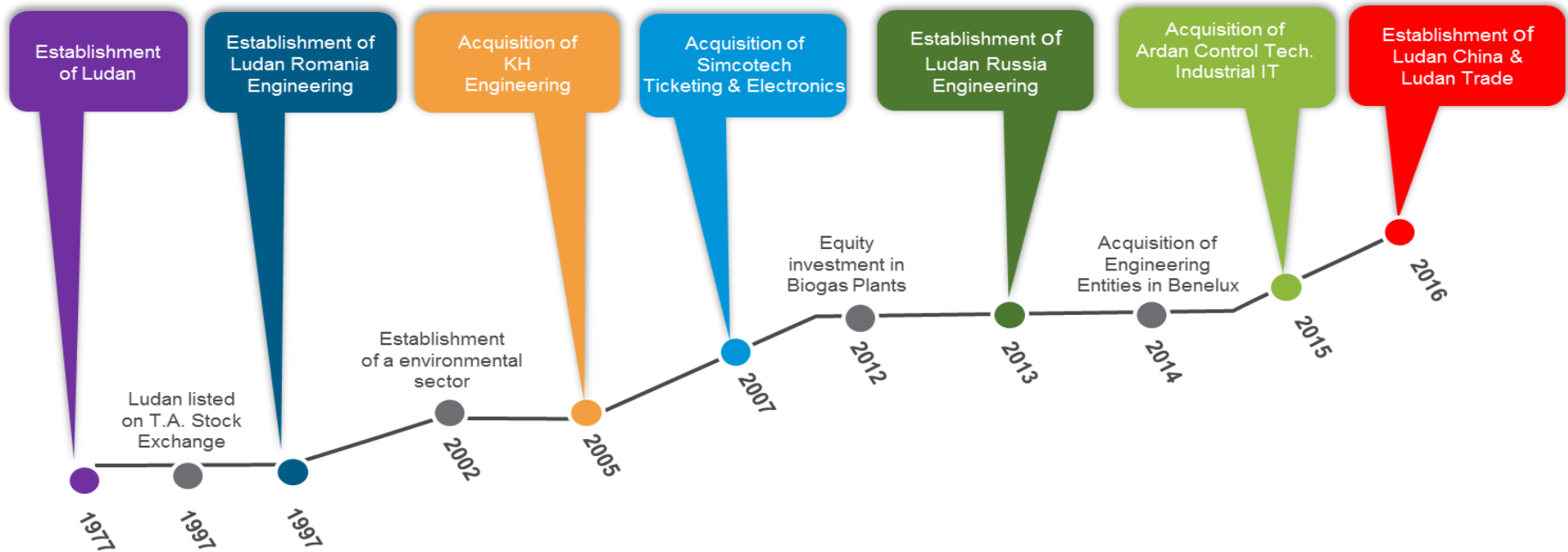
# OVERVIEW

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- Part of LUDAN Group
- The company delivers multidisciplinary engineering services to the East European process industry marketplace
- 75 employees (primarily engineers)
- Successful experience in more than 200 Engineering & Construction projects
- 120,000 Engineering man-hours per year
- Advanced tools for Design and Project Management
- Fully acquainted with international standards and latest technical developments
- Openness for challenges
- Customer oriented
- Flexible approach

# LUDAN GROUP

- Established in Israel in 1977
- Listed for trading on the TASE in 1997
- More than 1300 employees

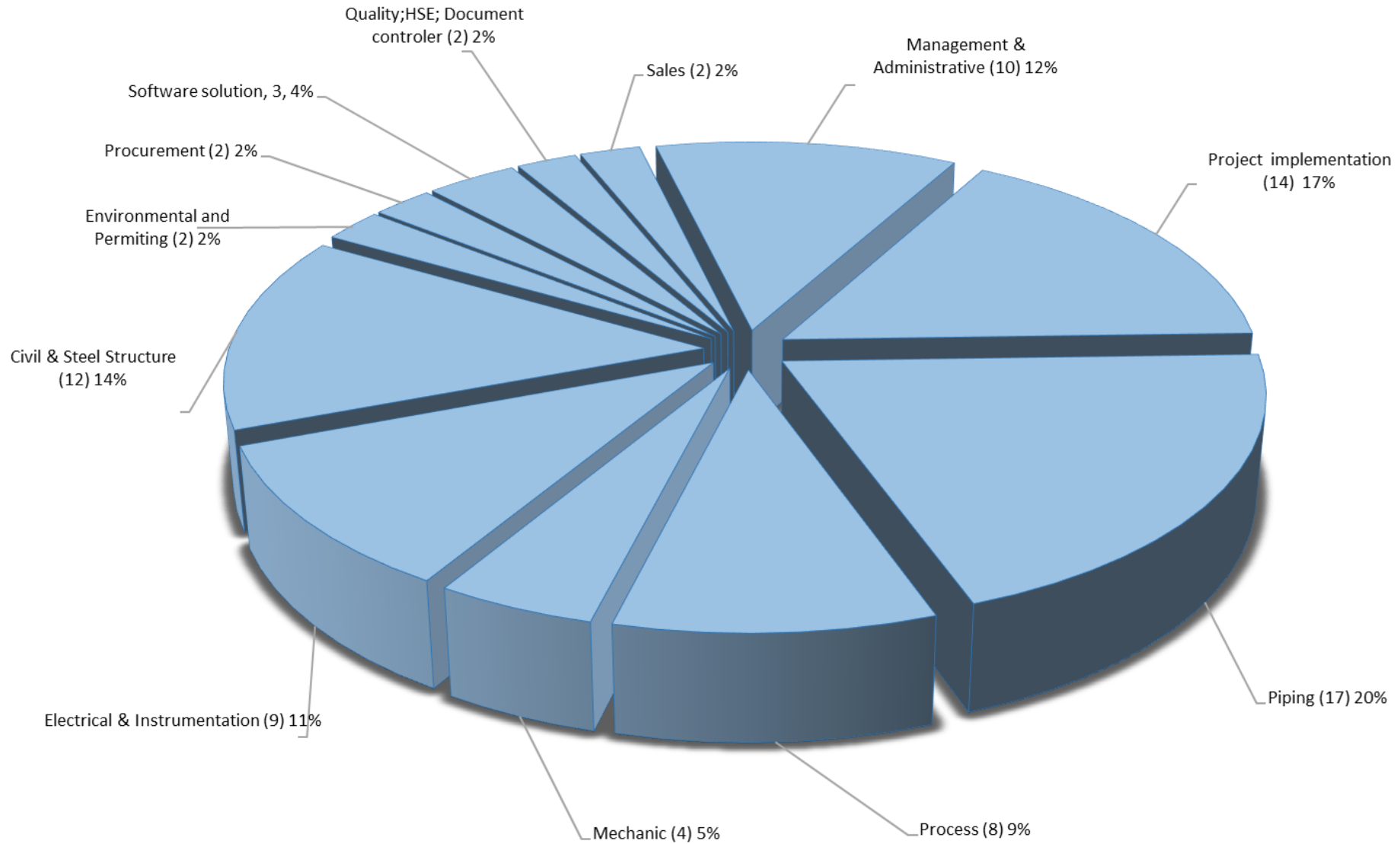


# QUALITY MANAGEMENT SYSTEM

- Quality Management System was official implemented on 30 December 2005
- ISO 9001:2015, ISO 14001:2015, ISO 18001:2007
- Authorized for design activities for the nuclear sector
- Periodic audits for re-certifications
- Personnel accreditation for maintenance, analysis and machine diagnosis.



# HUMAN RESOURCES



# IT&OT SERVICES

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- Company audit;
- Recommendations;
- Technical support for equipment maintenance plan;
- Design and implementation;
- Support post implementation;
- Integration with third party application;
- Custom made solution.

# PROJECT COMPLIANCE

- Regulatory compliance with **FDA (21 CFR part 11** for support of electronic signatures and electronic audits), **calibration of instruments, tools and measurement equipment and standards.**
- **ISO 55000** - Optimizing Your Asset Management System
- **SR EN 13306** – Maintenance terminology
- **ISO 14224** – Collection and exchange of reliability and maintenance data for equipment
- **Global Maintenance and Reliability Indicators**
- **ISO 50000** – Energy Management
- **ESG European Parliament** - Regulations



# EVOLVE

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## Maturity flow of your asset maintenance process

Computerized  
maintenance  
management systems  
**(CMMS)**

Enterprise asset  
Management  
**(EAM)**

Asset Performance Management  
**APM**

Automate work  
transactions for  
maintenance  
technicians.

Solutions extend CMMS  
capabilities with an  
asset registry that provides a  
centralized repository of all data  
related to assets for use by  
engineers and procurement

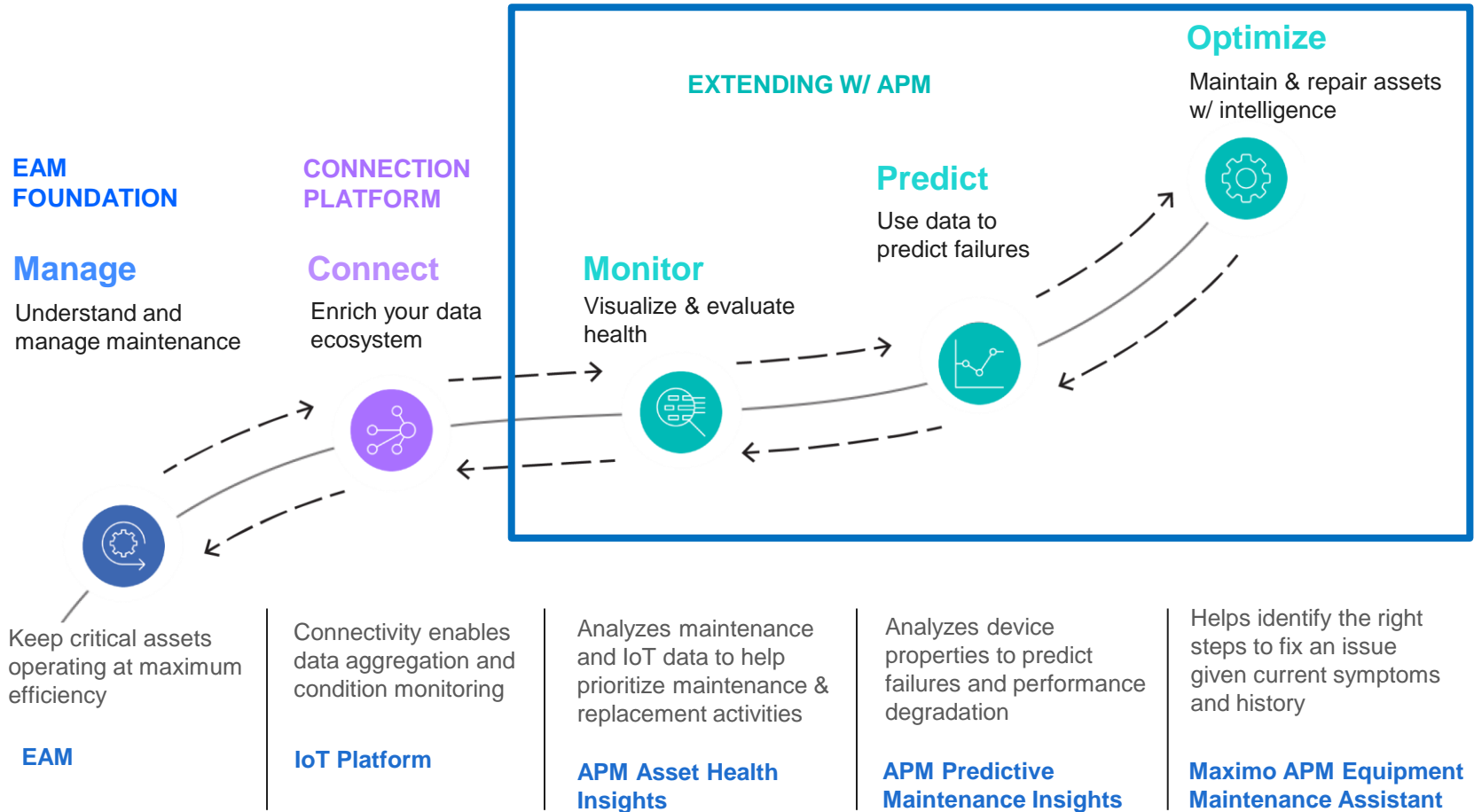
APM takes in massive amounts of  
sensor data and perform predictive  
and risk modeling.

APM solutions enable organizations  
to predict equipment failure and  
perform proactive decision-making  
that can improve safety, optimize  
labor and material management,  
and enhance capital budget  
planning.



# AI JOURNEY

## Asset Performance Management analytics journey



# EAM KEY MODULES

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## Work management

- Job plans for recurring tasks
- Predictive maintenance
- Manage labor, skills, qualifications
- Mobile enablement for better point of failure data collection



## Asset management

- Location/Function, work, and cost history
- Roll-up costs
- Asset modeling
- Improved asset safety



## Supply chain

- Manage inventory across storerooms and sites for better visibility
- Eliminate costly off-contract buying
- Improved monitoring of vendor performance
- Fully manage receipts, inspections and vendor payments



## Planning and scheduling

- Ensures assignment of the right person, with the right skills
- Drag-and-drop team assignments accelerates schedule optimization.



## Health safety environment

- Standardize HS&E practices
- Operators log risk assessment, incident management, investigation and correction
- Planning for hazard identification, risk assessment, and risk control



## Service management

- Deliver on internal and external contracts
- Track SLA's and performance



## Analytics

- Descriptive, predictive and prescriptive analytics
- Built on industry-leading Cognos business intelligence software
- Available & customizable by user type



## Mobility

- Connected and Disconnected capabilities
- Ensure data capture at the point of work for better accuracy

# INTEGRATION

## OFF LINE-VIB



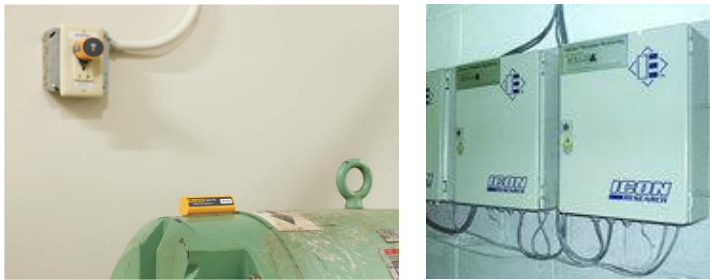
## IR



## MOTOR TESTING



## ON-LINE-VIB



## ANALIZA LUBRIFIANȚILOR



## DCS

- Honeywell, Foxboro, ABB
- Emerson, Yokagawa

## PLC

- Siemens, Rockwell, Schneider,
- GE, Pheonix, SMS, etc

## OTHERS

- SAP, Oracle,
- Primavera, dbs

# VISUALIZATION

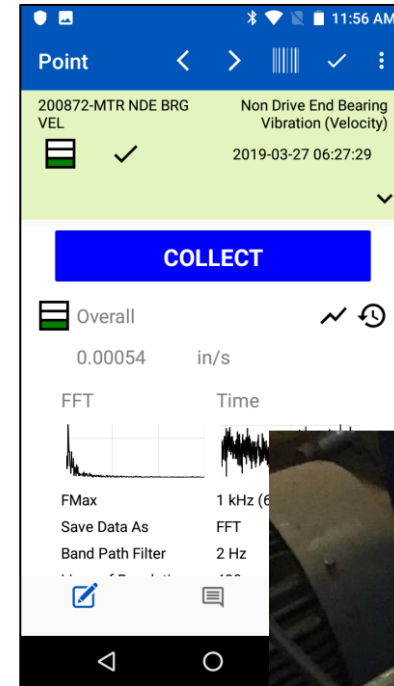
## ASSET IDENTIFICATION



## CHECK LIST/WORK MANAG



## DATA COLLECTION



# THE FIVE COMPONENTS NECESSARY FOR APM



- 1. Asset registry:** includes information such as the stock of each item, serial number, part number, date the part was manufactured, where the asset resides, who is responsible for the asset, whether the organization owns or leases it, condition, documentation, and so on.
- 2. Work history:** The work history tracks closing codes that indicate what happened to the part, solution codes that specify what exactly was done to fix it, as well as information such as who performed the work, tools and materials used, and how long it took to fix. All of this data informs failure code analysis.
- 3. Real-time condition data:** APM solutions can then combine these measurements with asset and work history data to gain a proactive understanding of when the bearing will break.
- 4. Algorithms and modeling analytics:** Once an APM solution has gathered the necessary data, an organization can use algorithms to drive actions or employ artificial intelligence/machine learning models to enable “what if” analysis.
- 5. Connectivity:** Analytics enable organizations to take asset registry, work order, and condition data to perform “what if” analysis to predict what could happen in the future under varying circumstances

# ENERGY MANAGEMENT



- Mitigate risk and increases productivity;
- Compare energy efficiency across buildings, plants, and process lines;
- Analyze energy consumption by load type, analyze facility energy performance and ensure energy efficiency compliance.
- Enable proactive maintenance to ensure safety and simplify power quality monitoring and analysis to protect sensitive equipment.

# ESG COMPLIANCE

## Envizi supports:



Financial grade carbon accounting



Comprehensive ESG reporting & disclosure



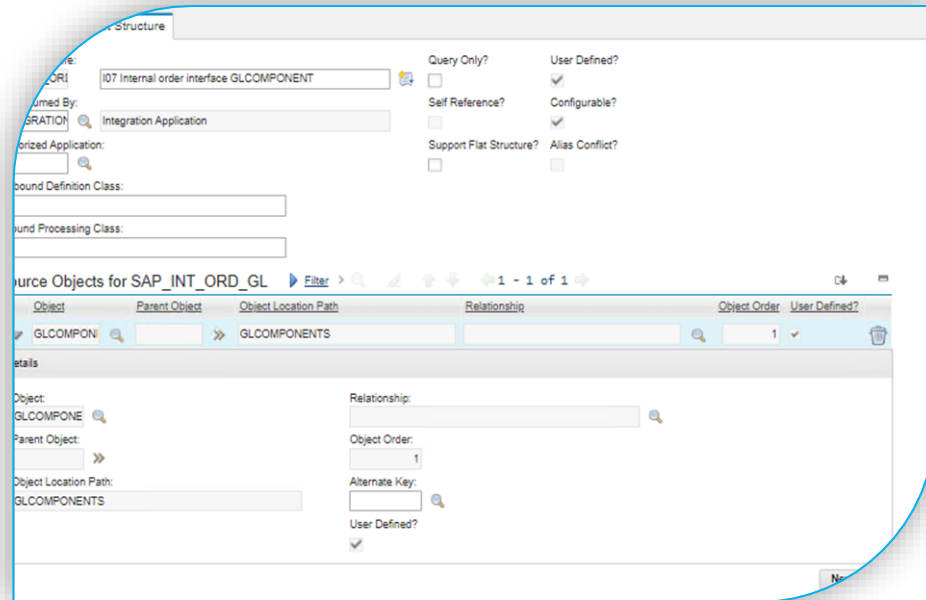
Tracking of performance to sustainability commitments and goals



# IMPLEMENTATION OF MAXIMO-SAP INTERFACES AT AZOMURES



- Analysis of the maintenance activities and process flows;
- Function and technical specifications of interfaces;
- Design Interfaces communication and flow;
- Interface implementation and testing;
- Maximo configuration according new process;
- Training





# SERVICES FOR DINAMIC EQUIPMENT DIAGNOSIS

- Installation and commissioning RFID for 8 equipment;
- Data logger and equipment model for analysis;
- Training personnel;
- Report and recommendation after every data collection;



Prince International Corporation, Ferro Corporation  
and Chromaflo Technologies have combined to become

**VIBRANTZ**  
TECHNOLOGIES Click here to  
learn more

# IMPLEMENTATION OF MAXIMO IN PEWETE



- Define business process model;
- Technical and functional solution design
- Implemented: Asset Management, Work Orders, Planning (Job Plan), Preventive Maintenance (PM), Inventory (Items Master, Inventory), Reports;
- Technical documentation;
- User training;



# AUTOMATION OF EVIDENCE FOR PRESSURE VESSELS, BOILERS, PRESSURE PIPES AND LIFTING EQUIPMENT AND RELATED LICENSES IN MAXIMO



rompetrol

KazMunayGas  
Group  
Member

- Compliance with ISCIR requirements;
- Compliance with all quality, health, safety and environmental requirements (QHSE) in accordance with applicable legal regulations and the Beneficiary's requirements;
- Technical and functional solution design
- KPIs, Reports;
- User training;

The screenshot displays the Maximo software interface for asset management. The main window shows the 'Asset' details for asset ID C167514. The asset is currently in an 'OPERATING' status. The interface includes a navigation menu on the left with options like 'New Asset', 'Change Status', and 'Apply Item Assembly Structure'. The main content area is divided into several sections: 'Asset' information (Site: PEM, Type: [blank], Asset Template: [blank]), 'Details' (Parent: [blank], Maintain Hierarchy? [checkbox]), 'Location' (EF-352, Conducto gaze facia - HPP), 'Legacy Tag Number', 'Bin', 'Item', 'Condition Code', 'Meter Group', 'Amplisament', and 'Warranty Expiration Date'. On the right side, there are fields for 'Calendar', 'Shift', 'Priority', 'Serial #', 'Asset Tag', 'Failure Class', 'Item Type', 'Tool Rate', 'OL Account', 'ExiATEX?', and 'ExiATEX Standard'. A red circle highlights the 'RSVTI' tab in the top navigation bar, and another red circle highlights the 'Usage' dropdown menu, which is currently set to 'DMCI'.

# NEW INTERFACE MATERIAL MOVEMENT FROM SAP-TO MAXIMO



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- New interface SAP-Maximo for total material quantity;
- New table buffer and new trigger;
- Stock synchronization after integration;
- Technical and functional solution documentation
- User training

Stock Default Interface - Version 1

OPERATION ENVIRONMENT DB: 10.13.0.185  
MAXIMO WEB SERVICES ADDRESS: 10.13.0.170:9084  
LOGS PATH: C:\MaxintLogs  
DRIVE: C  
PORT: 7770  
PSWD: \*\*\*\*\*

Interface control  
Scan period (min): 0.08  
Start Interface Stop Interface  
Interface is running. Scan period is 0.08 [min]

Backup  
00:00  
00:01

SQL connection settings  
Server: 10.13.0.185  
Database: maxdb76i  
Table name: IF\_STOCKDEFAULT  
User name: maximo  
Password: \*\*\*\*\*

Next checking time: 1/30/2020 11:41:27 AM  
Last duration: 00:00:00.0156014  
Highest duration: 00:01:46.7882685  
Errors: 0

Update StockDefault Reservations  
100

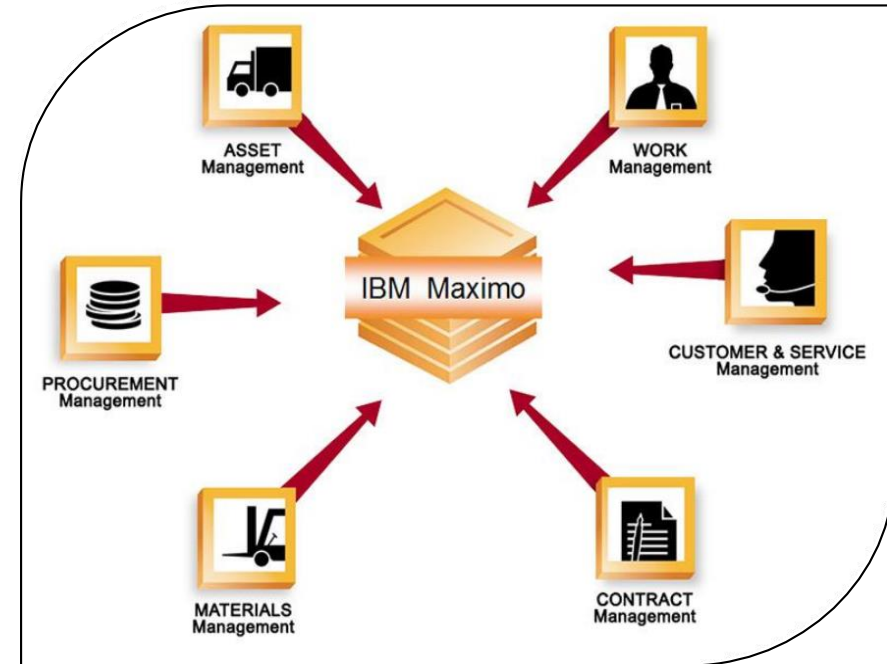
Save Settings SaveLogs EXIT Manual Check

Log Messages  
1/30/2020 11:24:22 AM Processing reservations for item 4813 and GI/Account 26G3-P18001/XXXXXXXX  
1/30/2020 11:24:22 AM Reservation was deleted by MAXIMO  
1/30/2020 11:38:39 AM Processing reservations for item 4785 and GI/Account 26G3-P18005/XXXXXXXX  
1/30/2020 11:38:39 AM Reservation was deleted by MAXIMO  
1/30/2020 11:38:40 AM Processing reservations for item 5179 and GI/Account 26G1-P18030/XX  
1/30/2020 11:38:40 AM Reservation was deleted by MAXIMO  
1/30/2020 11:38:40 AM Processing reservations for item 5179 and GI/Account 26G3-P18001/XXXXXXXX  
1/30/2020 11:38:40 AM Reservation was deleted by MAXIMO  
1/30/2020 11:38:41 AM Processing reservations for item 15007 and GI/Account 26G3-P18001/XXXXXXXX  
1/30/2020 11:38:41 AM Reservation was deleted by MAXIMO

# EAM SYSTEM IMPLEMENTATION IN AZOMURES

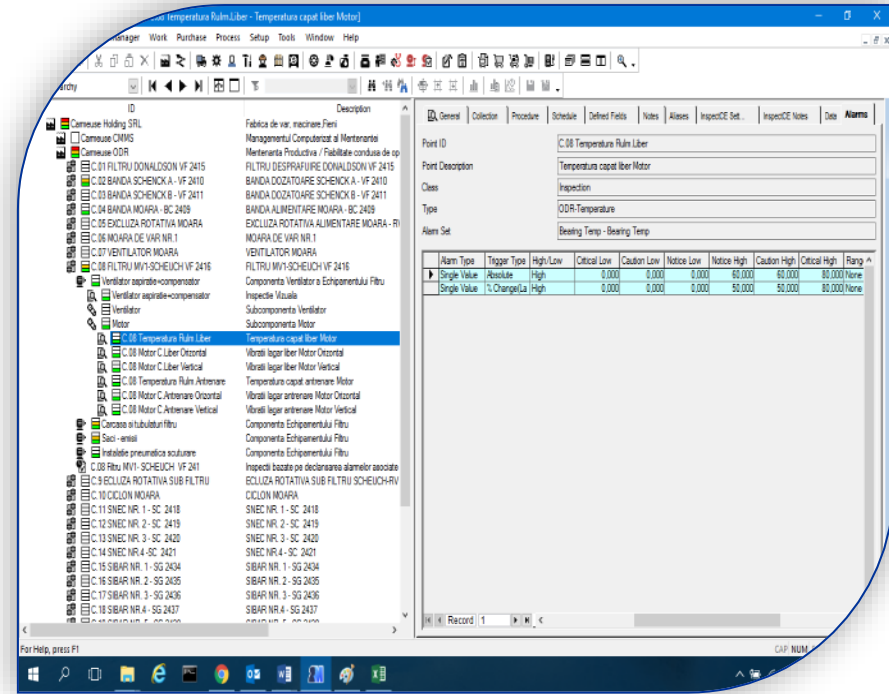


- Technical and functional solution design;
- Implemented: Work Management, Asset Management, KPIs, Reports;
- Materials Management interface with SAP;
- Interface with Oracle Primavera;
- Interface with SKF Decision Support;
- User training.



# EAPM SYSTEM IMPLEMENTATION IN SCHAEFFLER

- Database construction;
- Equipment inspection routes including temperature, vibration measurements;
- Work flow management process;
- Data processing and analysis;
- Relevant reports, KPIs;
- User training



# EAM SYSTEM IMPLEMENTATION IN NIS



- Overall Project Management & Procurement;
- Full CMMS implementation Turnkey project in the NIS refinery in Pancevo, Serbia;
- Construction and improvement of assets, locations and preventive maintenance system hierarchically;
- Definition and construction of rotating equipment;
- Developing an operational and management reports;
- Developing of queries, Key performance indicators (KPI);
- Integration with SAP system, calibration laboratories;
- Construction and integration with document management system / Drawings



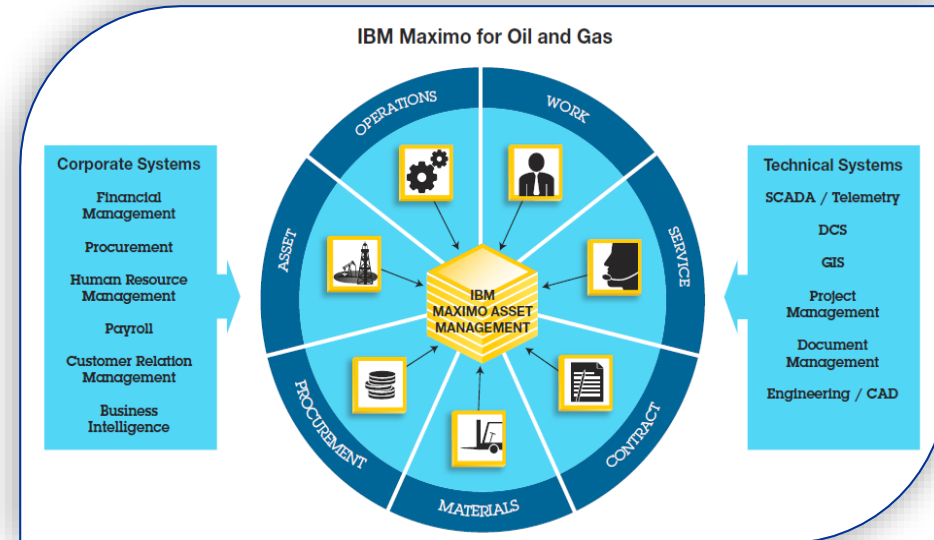
# EAM SYSTEM IMPLEMENTATION IN ROMPETROL



**rompetrol**

KazMunayGas  
Group  
Member

- Technical and functional solution design
- Implemented: Work Management, Procurement, Asset Management, Materials Management, Contract Management, KPIs, Reports;
- Interfaces with Oracle ERP and OsiSoftPI
- User training;





# ADDRESS AND CONTACT DETAILS

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## LUDAN Engineering SRL

Tudor Vladimirescu Blvd, No. 29 A  
Afi Tech Park 1, Floor 1, District 5  
RO - 050881, Bucharest, Romania  
Mob: 0748 213 016  
T: +40 31 229 20 20  
F: +40 31 229 20 22  
E: [office@ludan.ro](mailto:office@ludan.ro)  
W: <http://ludan.ro/>

**Razvan Neagoe**  
IT&OT Manager  
[razvan.neagoe@ludan.ro](mailto:razvan.neagoe@ludan.ro)

