

# Industry 4.0: Extension of machinery life-cycle, component re-use and servitization

**Technologies and business transformation to take advantage of the rental market**

*Asier Agirregomezkorta, ULMA Servicios de Manutención S. Coop.*

# THE COMPANY

FOUNDED.....1984 (OINAKAR)  
TOTAL TURNOVER 2015.....29.278 m€  
EMPLOYEES.....144  
FORKLIFTS IN RENTAL (LTR).....1.500

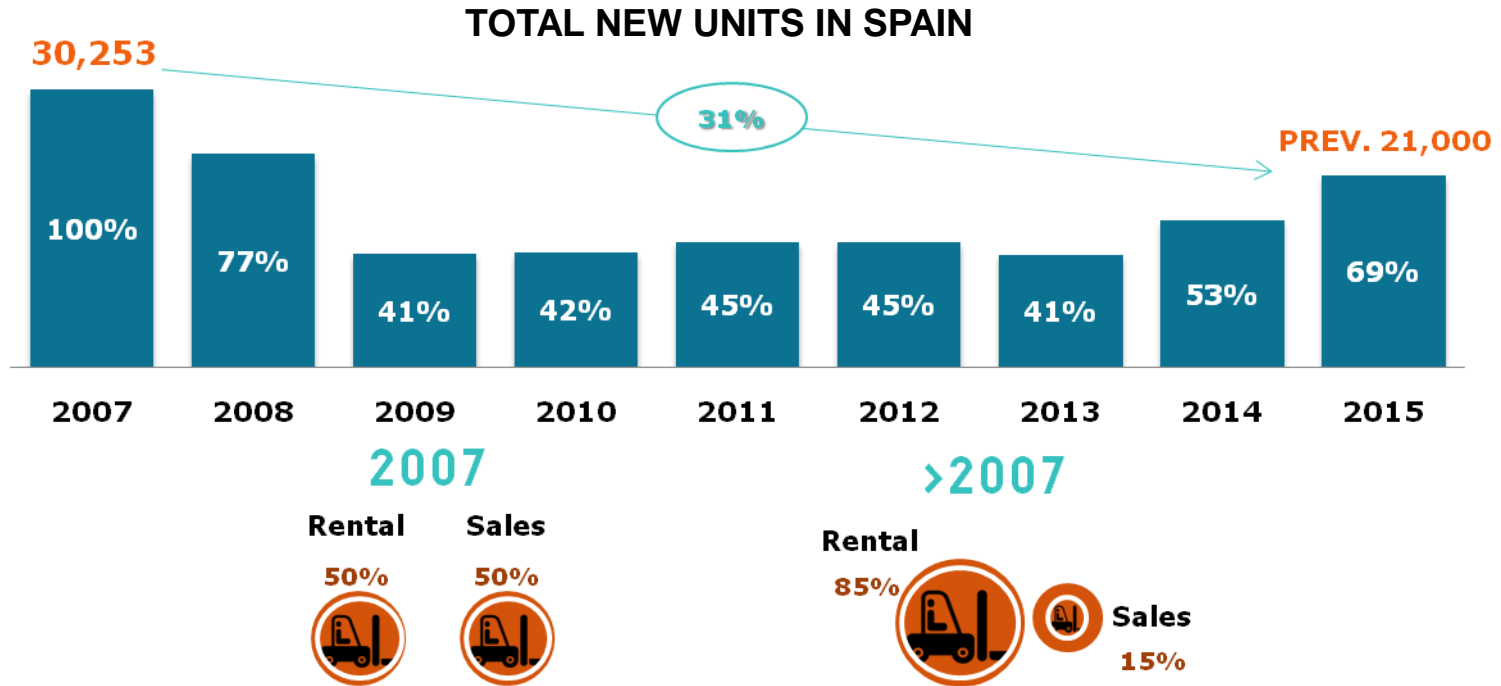


## CURRENT BUSINESSES

- SALES (NEW, 2<sup>ND</sup> HAND)
- RENTAL
- SERVICE
- SPARE PARTS

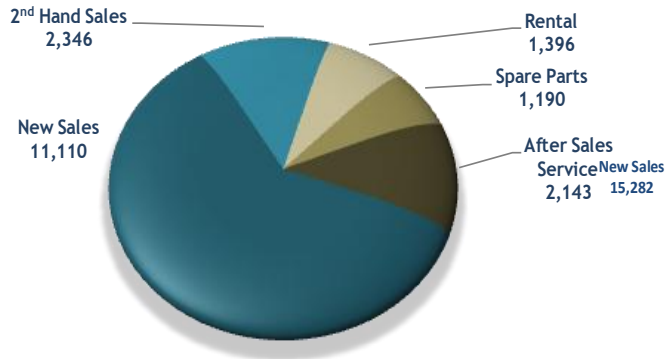


# MARKET EVOLUTION



# THE SHIFT (BUSINESS EVOLUTION)

**1999**

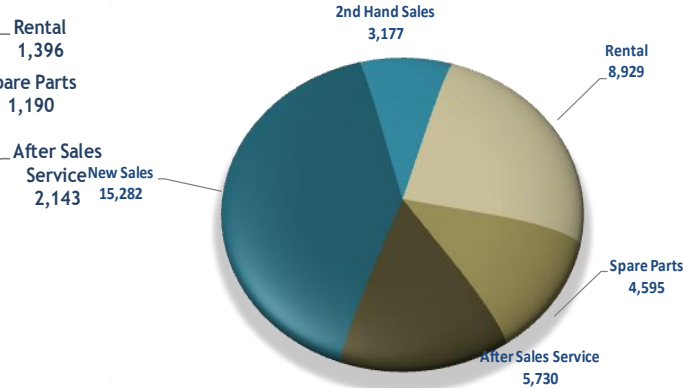


**Turnover...18.185 m€**  
**Employees.....98**

TOTAL  
MACHINES  
74%

TOTAL  
SERVICES  
26%

**2008**

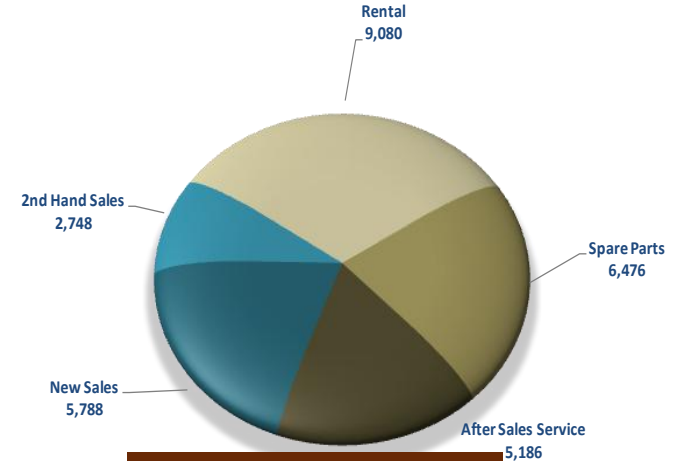


**Turnover...37.713 m€**  
**Employees.....192**

TOTAL  
MACHINES  
49%

TOTAL  
SERVICES  
51%

**2015**

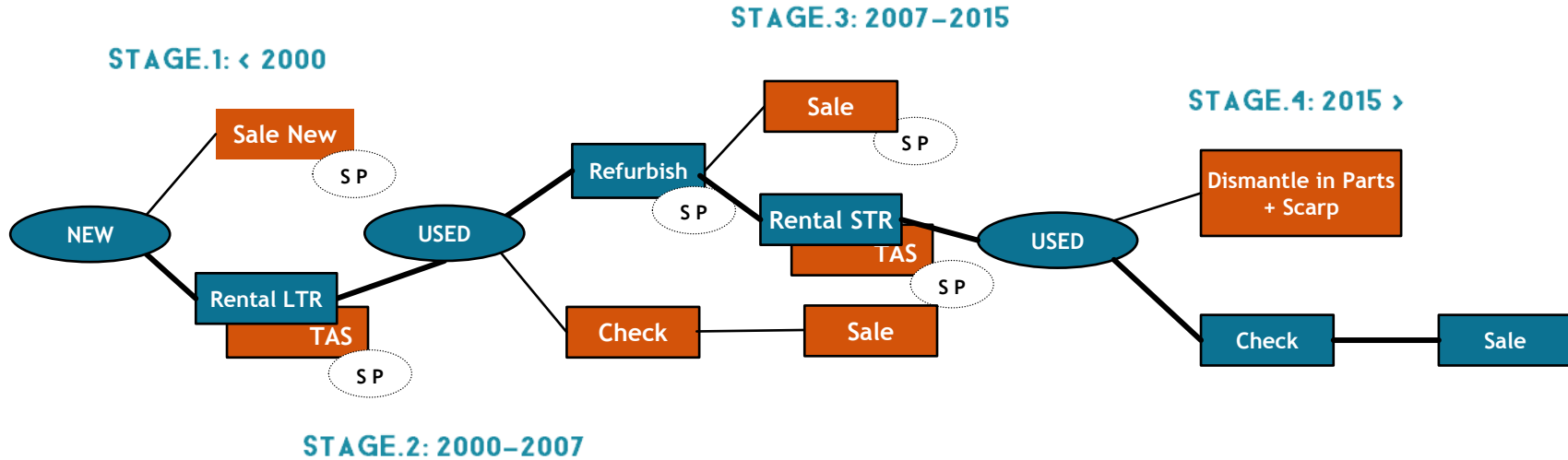


**Turnover...29.278 m€**  
**Employees.....144**

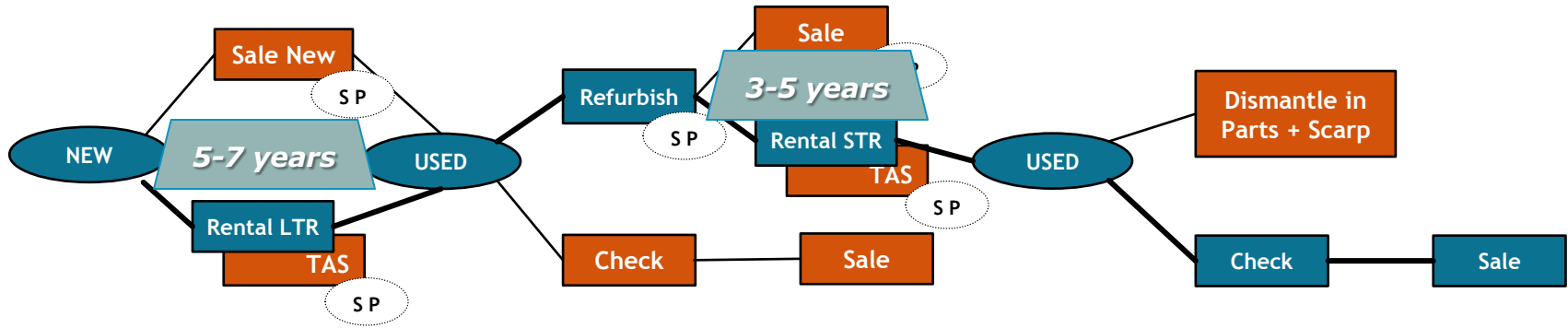
TOTAL  
MACHINES  
29%

TOTAL  
SERVICES  
71%

# THE SHIFT (BUSINESS EVOLUTION) PRODUCT LIFECYCLE



# THE PRODUCT LIFECYCLE FOR ULMA

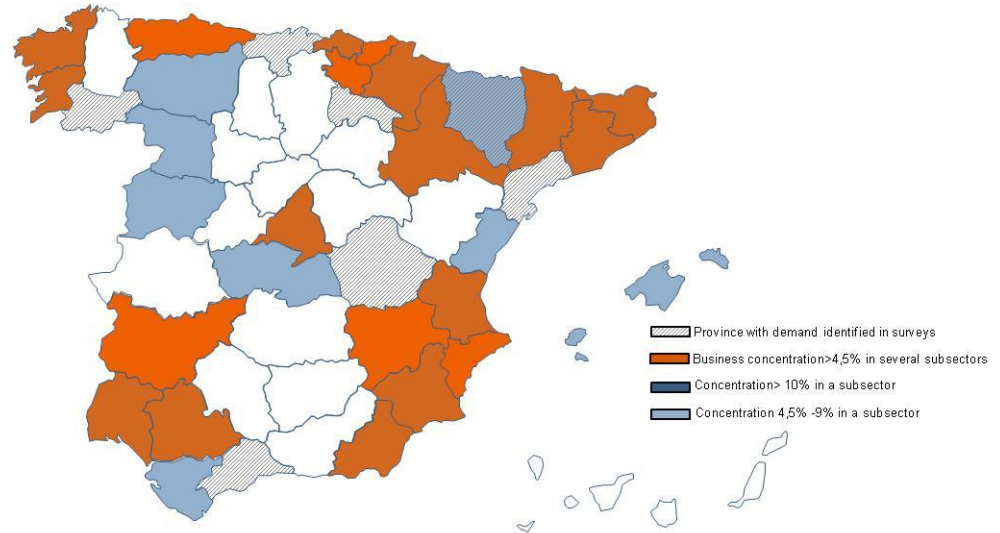


**STRATEGY (RENTAL): INCREASE BUSINESS PROFITABILITY THROUGH THE EXTENSION OF THE PRODUCT LIFECYCLE AND THE REDUCTION OF THE COSTS IN THE OVERALL PROCESS (OPTIMIZE ASSETS)**

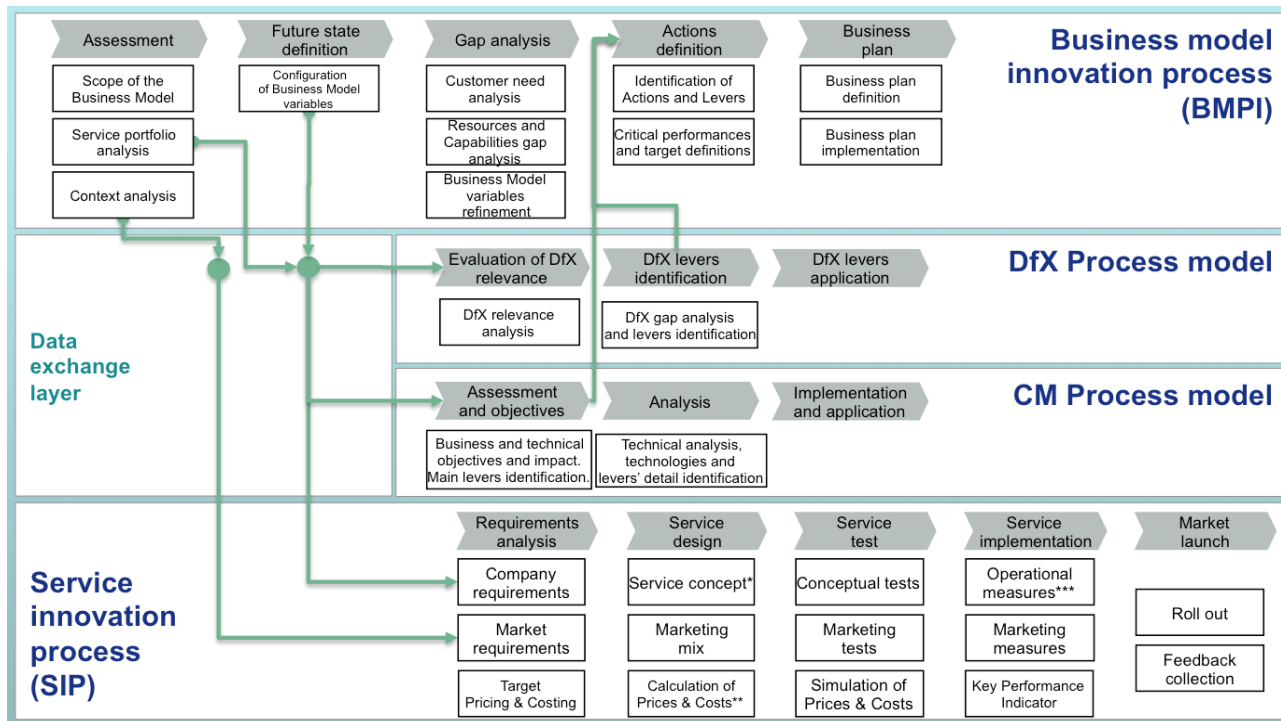
# DEVELOPING THE NEW "STR" BUSINESSES

## VALUE PROPOSITION

- *ACCESS AND USE OF THE FORKLIFT FROM 1 DAY TO 2 YEARS,*
- *COMPETITIVE PRICES, QUICK RESPONSE (PROXIMITY), WIDE NUMBER OF FORKLIFTS IN PERFECT CONDITIONS FOR PEAKS OR SEASONAL DEMAND*
- *INCLUDES: FULL SERVICE, USAGE MONITORING AND INSURANCE*



# DEVELOPING THE NEW STR BUSINESS: T-REX EUROPEAN PROJECT



UNIVERSITÀ DEGLI STUDI DI BRESCIA



Integrated process Models for BM definition



# STRATEGY DEVELOPMENT (PRODUCT)

## EXAMPLE 1: FORKLIFT TRUCKS REFURBISHMENT PROCESS



**BEFORE**



**AFTER**

# STRATEGY DEVELOPMENT (PRODUCT)

## EXAMPLE 1: FORKLIFT TRUCKS REFURBISHMENT PROCESS

**ULMA REFURBISHED forklifts**  
the **GUARANTEE** of a Leader

**1.** Process of Selection  
& Check in



**2.** Disassembly  
& Cleaning



**4.** Painting and  
assembly



**3.** Repair of  
components &  
bodywork



**5.** Check in &  
Last Inspection



# STRATEGY DEVELOPMENT (PRODUCT)

## EXAMPLE 2: BATTERY REGENERATION + INFORMATION

Energy accumulators start to sulphatate, since the very moment of their manufacture, and the process speeds up with every load.

Sulphates become glass formations, and cover battery cells, thus reducing the capacity of the battery and even making it useless.

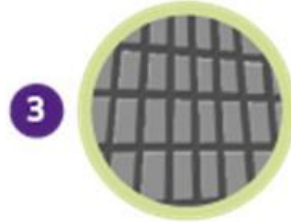
The regeneration technology separates those glass formations from lead, and make the battery recover almost all of its previous capacity.



*Sulphuric acid reacts to lead.*



*Formations of lead sulphate crystallise and become inert.*



*A pulse treatment emits separates crystalline formations of lead sulphate.*



*The sulphate then forms active sulphuric acid, and lead is free to run again.*

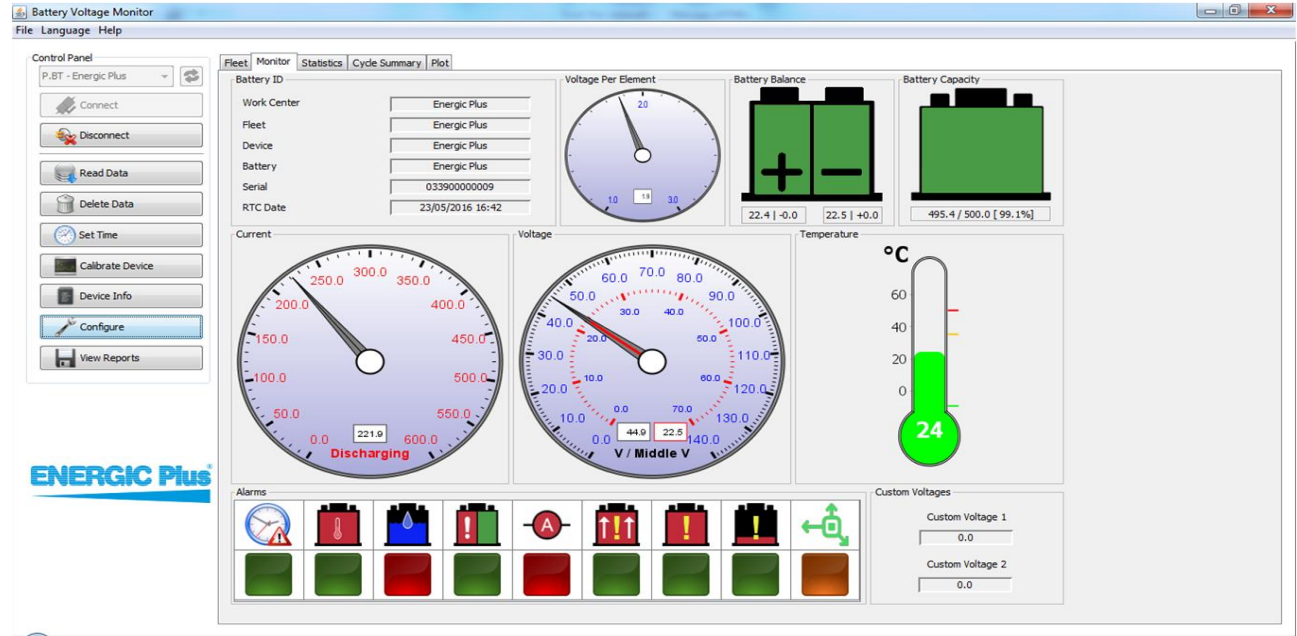


# STRATEGY DEVELOPMENT (PRODUCT)

## EXAMPLE 2: BATTERY REGENERATION + INFORMATION



85% OF THE FORKLIFTS  
ARE ELECTRIC



**ENERGIC Plus**



# STRATEGY DEVELOPMENT (PRODUCT)

## EXAMPLE 3: STANDARIZATION AND CUSTOMIZATION



FOUNDRY PREPARATION



EXHAUST PARTICLES  
CLEANING SYSTEM



BOTTOM PROTECTION

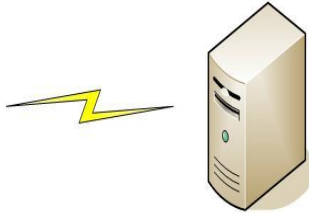


COIL TYPE RADIATOR  
(SERPENTINE)

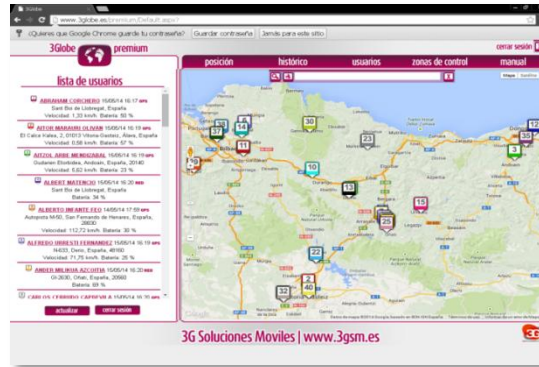
# STRATEGY DEVELOPMENT (SERVICE)

## EXAMPLE 4: SAT ON-LINE AND CENTRALIZED AFTER SALES SERVICE MANAGEMENT

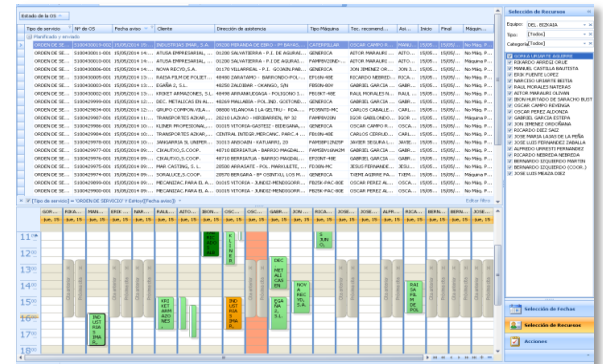
### SAT ON-LINE



### Servicemen GPS localization

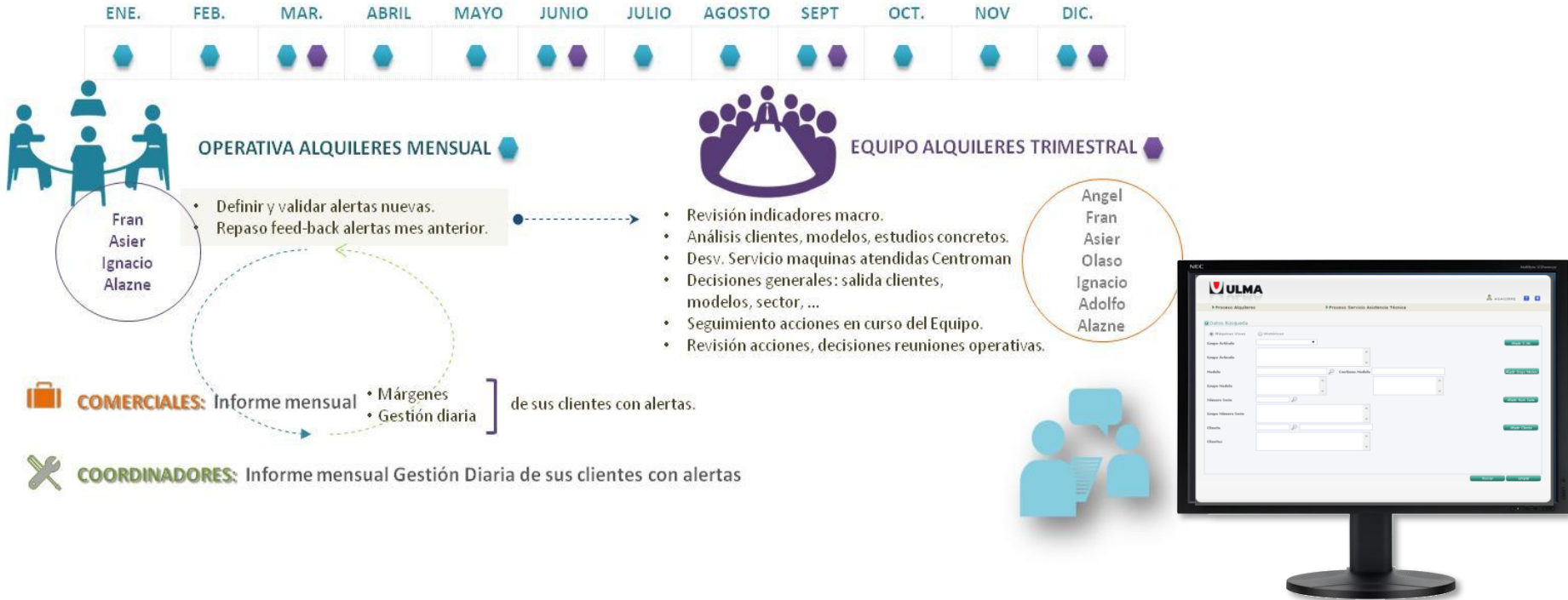


### Servicemen work planning IT Tool



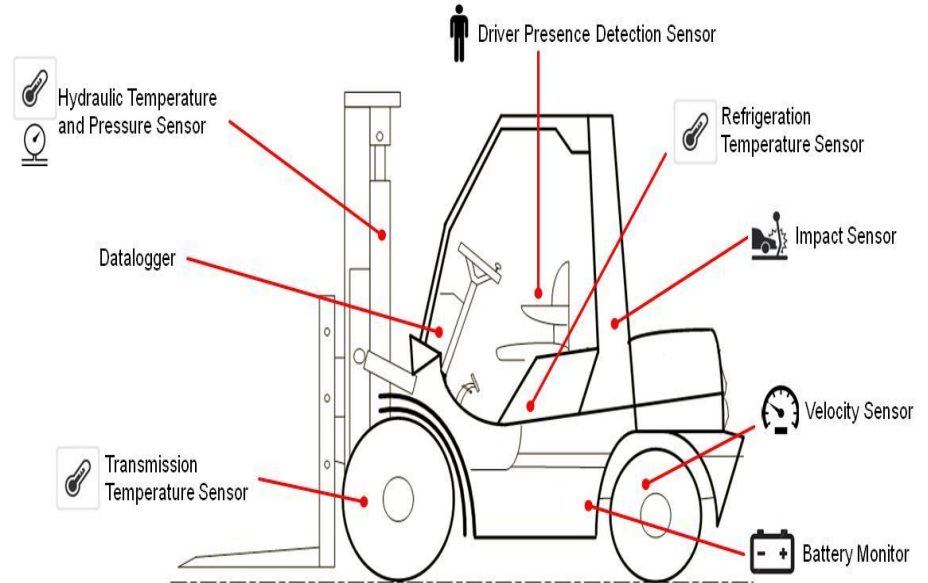
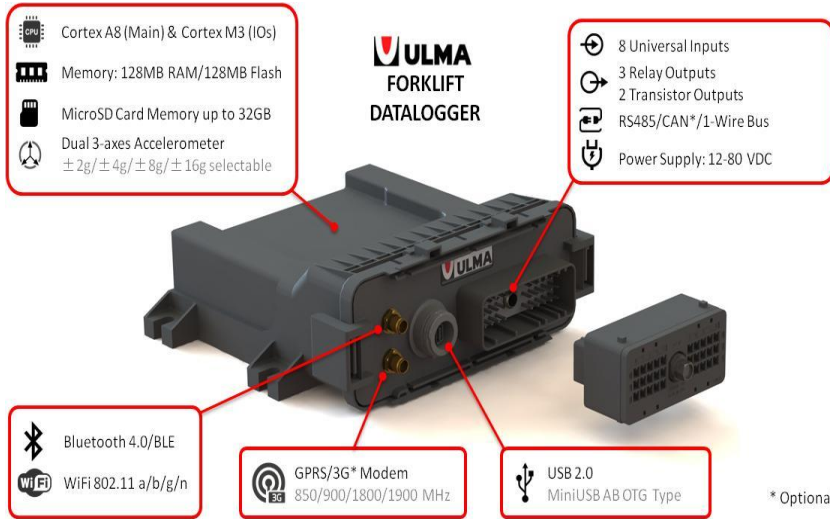
# STRATEGY DEVELOPMENT (ORGANIZATION)

## EXAMPLE 5: RENTAL BUSINESS MANAGEMENT + DAILY REPORTS



# STRATEGY DEVELOPMENT (ICT)

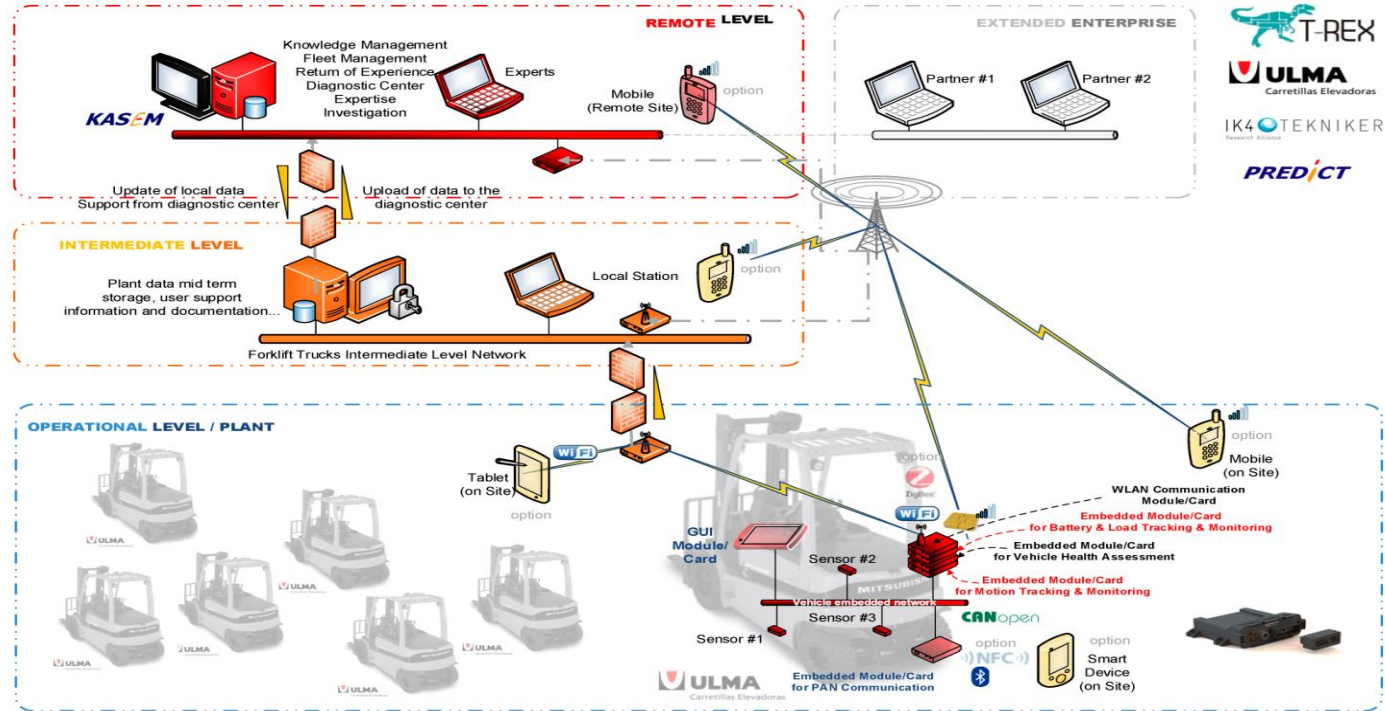
## EXAMPLE 6: ULMA FLEET MANAGER





# STRATEGY DEVELOPMENT (ICT)

## EXAMPLE 6: ULMA FLEET MANAGER



**KEY  
EXPLOTABLE  
RESULT - G3**

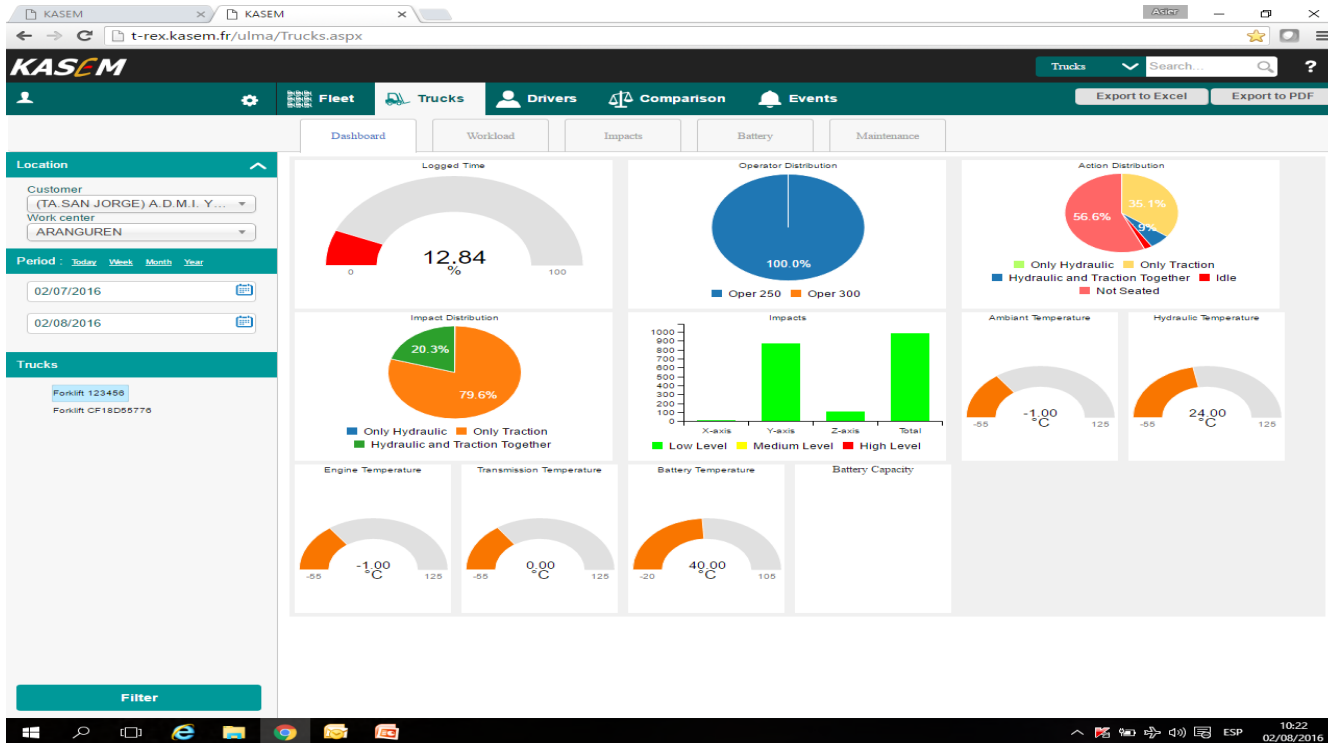
# STRATEGY DEVELOPMENT (ICT)

## EXAMPLE 6: ULMA FLEET MANAGER



# STRATEGY DEVELOPMENT (ICT)

## EXAMPLE 6: ULMA FLEET MANAGER



### BENEFITS:

- COST REDUCTIONS
- PRODUCTIVITY INCREASE
- SAFETY IMPROVEMENT
- LESS ENVIRONMENTAL IMPACT

# CONCLUSIONS

## FUTURE CHALLENGES

- ▶ LAUNCH TO THE MARKET THE NEW STR BUSINESS
- ▶ EXPLOIT ULMA FLEET MANAGER AND ESENERGIA PULSE (CBM + PREDICTIVE TECHNIQUES)
- ▶ DEVELOP TCO ASSESSMENT TOOL
- ▶ TEST “PAY PER USE” INNOVATIVE RENTAL SOLUTION

# T-REX CONSORTIUM



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# THANK YOU