FIIF EVENT

Data-driven service of industrial cranes

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KONECRANES

Journey

1960s
KONE crane service &
first service agreement

1960 – 1987 UN -hoist

KONECRANES

1990s
Independent company
selling cranes & service

1990's XL -hoist

2000s
Service business
growing globally

2000 →
CXT-hoist + condition monitoring

2010 Lifecycle Care:
Remote monitoring
Service digital tools

2010 → SMARTON winch

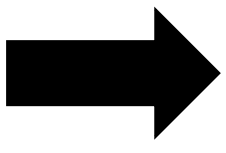
2024
Data-driven service

2024 →
X-series smart crane

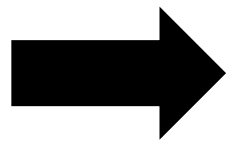
Konecranes approach

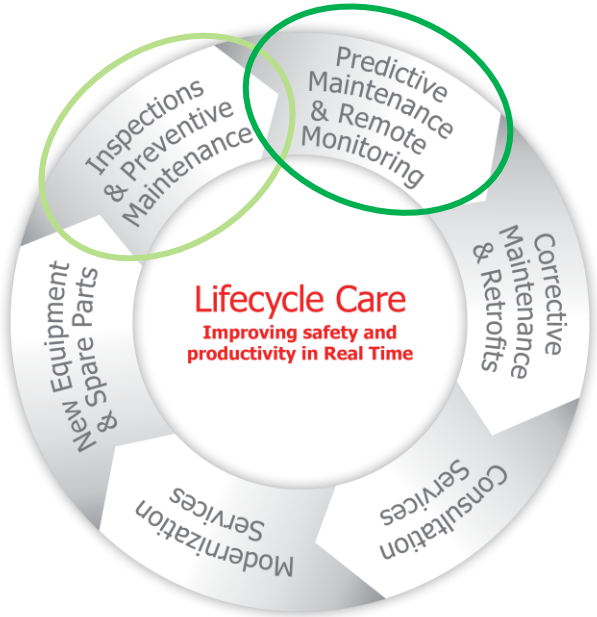
- Preventive maintenance = Agreed fixed maintenance interval for certain service action
- Predictive maintenance = Maintenance need is identified/predicted based on lifecycle data of the crane
  - Data: asset information, usage & condition data, maintenance history
  - Different levels of predictions based on available data of each asset
- Konecranes offers preventive and predictive maintenance together
  - Preventive as a standard & predictive as more advanced approach

Preventive maintenance

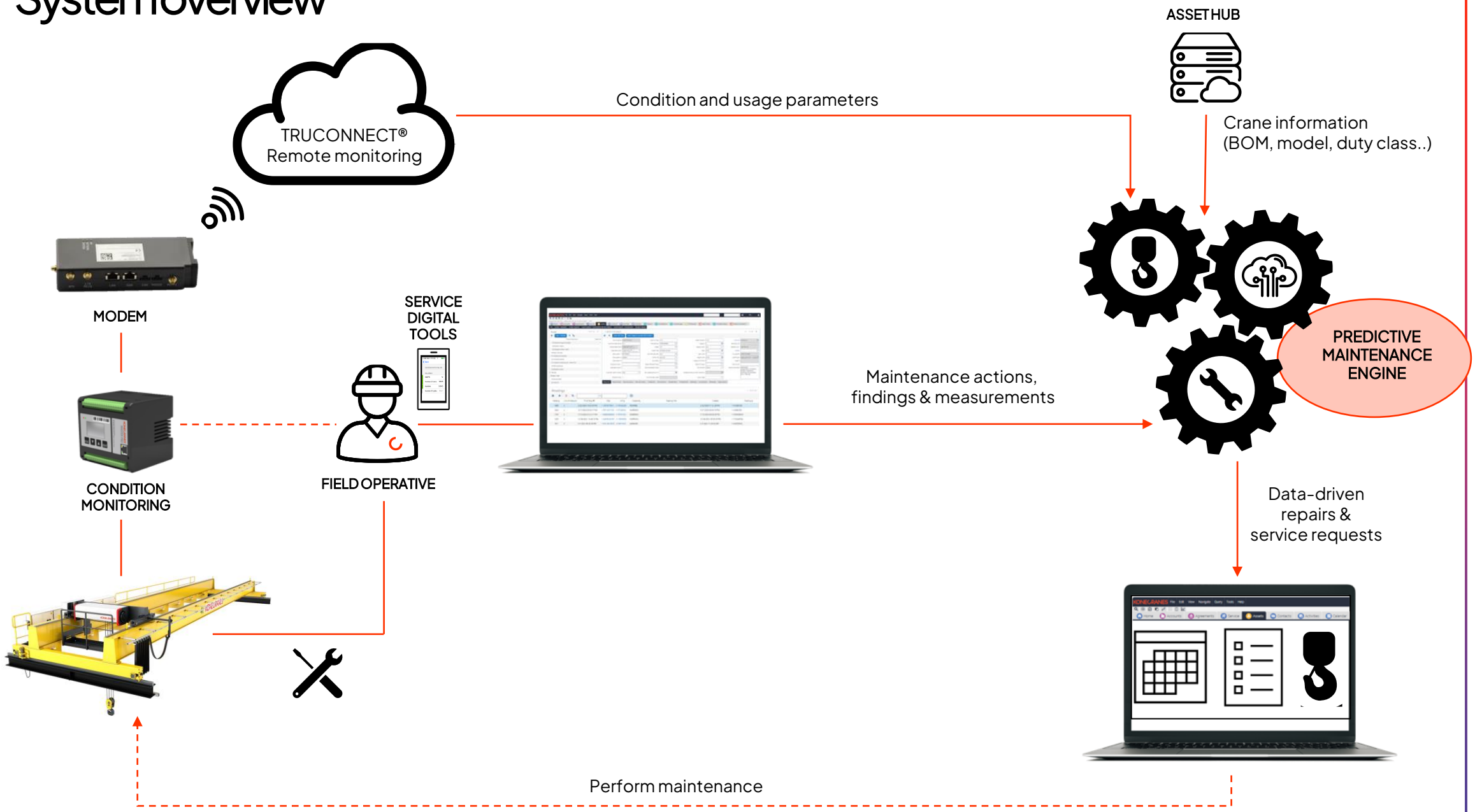


Predictive maintenance





System overview

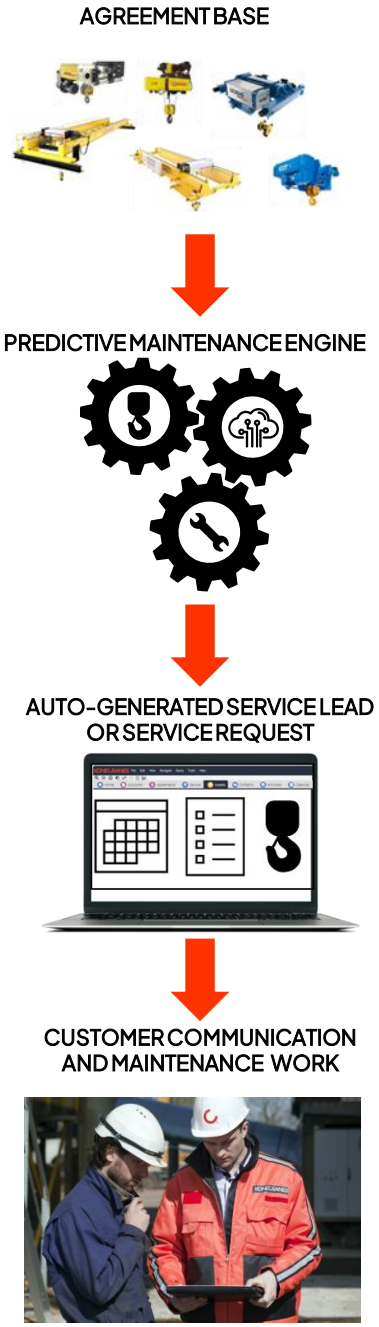


Building blocks in Konecranes

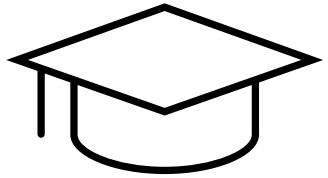
- Smart electrics of industrial cranes (2000 →)
  - Condition monitoring unit
- PLM & ERP systems (2000 →)
  - Product information
- TRUCONNECT Remote monitoring (2009→)
  - Modem & connectivity
- Digital tools for Service (2010→)
  - All maintenance digitally reported per crane/component
- Asset master data system (2018 →)
  - Connect the dots between systems
- Predictive maintenance Engine (2023 →)

Data-driven service

1. Analytics Engine(s) monitors lifecycle of equipment
   - Learn & define rules based on the collected data
2. Need for service auto-generated by Engine
   - When limits about to be exceeded and rules fulfilled
3. Service personnel handle the auto-generated lead/service request
   - Communication towards the customer
     - Show and tell what the data indicates
   - Perform maintenance work
     - Report the task for Engine to identify (feedback loop)



Learnings



- Build the architecture & gather data
  - Pioneer work is hard but valuable
  - Now easier to build/buy systems but gathering data starts from scratch (better late than never)
- Build trust in the data
  - Learn from mistakes and prevent faulty data
    - Aim for first-time-right
    - Analyze several data sources to find the ”truth”
  - Convince people to trust in the data (cultural shift)
- Support people in the new data-driven operation model
  - Dedicated team for support
- Show the value of data-driven operations
  - People get excited about new opportunities and ways of working when value is visible

Thank you.