



Intermodal Africa: Benefits of Digitalization & Automation for Crane Operation

Buhle Yengwa
Siemens South Africa, Africa

Siemens

Worldwide reliable network of efficient integrated solutions



550.000.000



Boxes moved/year with our solutions

88



Countries we provide services

129



Years of experience



Digitalization

Old Culture on Projects

- More Engineering hour and physical calculations
- Commissioning starting after Panel assemble
- Crane Operators waiting for the final handover to begin their training



Simulation (Fully Visual environment)

- Early performance optimization
- Less Engineering and commissioning time
- Operator training performed on a digital twin of the Crane.



SIEMENS

More benefits of Digitalization



More benefits

- Saves time/ Saves money
- Reduce Failures
- Optimize Training
- Maximum availability



Siemens is IEC 62443 Certified

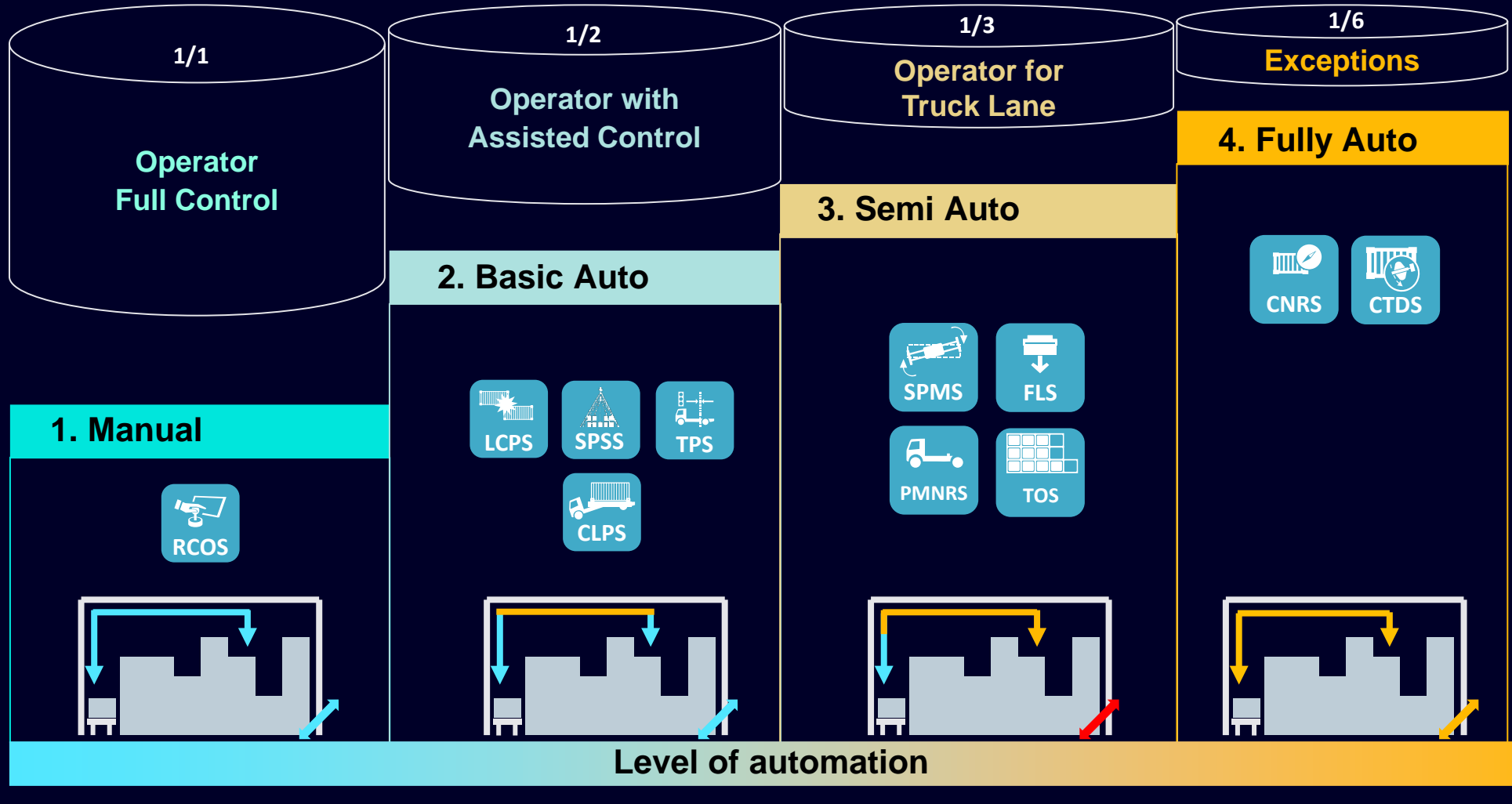
Your Port safety is important to us hence

- Security program requirements for IACS service providers (IEC 62443-2-4 Certified)
- System Security requirements and Security levels (IEC 62443-3-3 Certified)
- Secure product development lifecycle requirements (IEC 62443-4-1)



SIEMENS

Automation



- Operator
- Supervised
- Automated



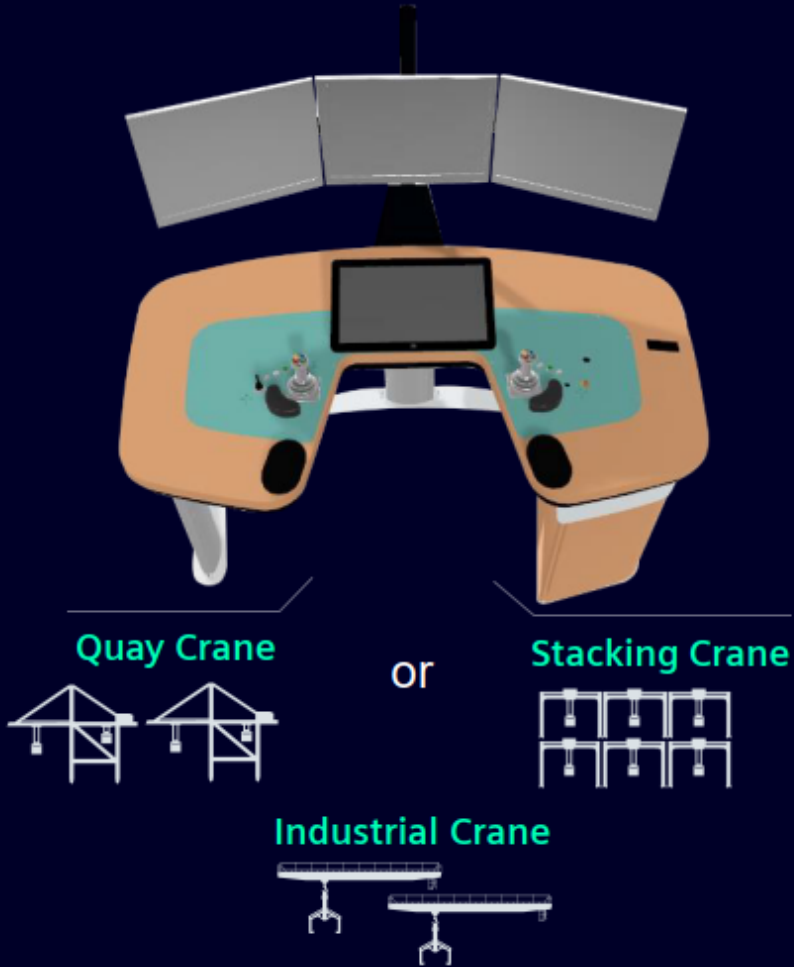
Automation: RCOS



Improve your Crane drivers quality of life

SIEMENS

Automation: RCOS functionality



"Any to any" operator connects to any crane from any desk.



"Pooling" connects crane to a free desk when assistance is needed

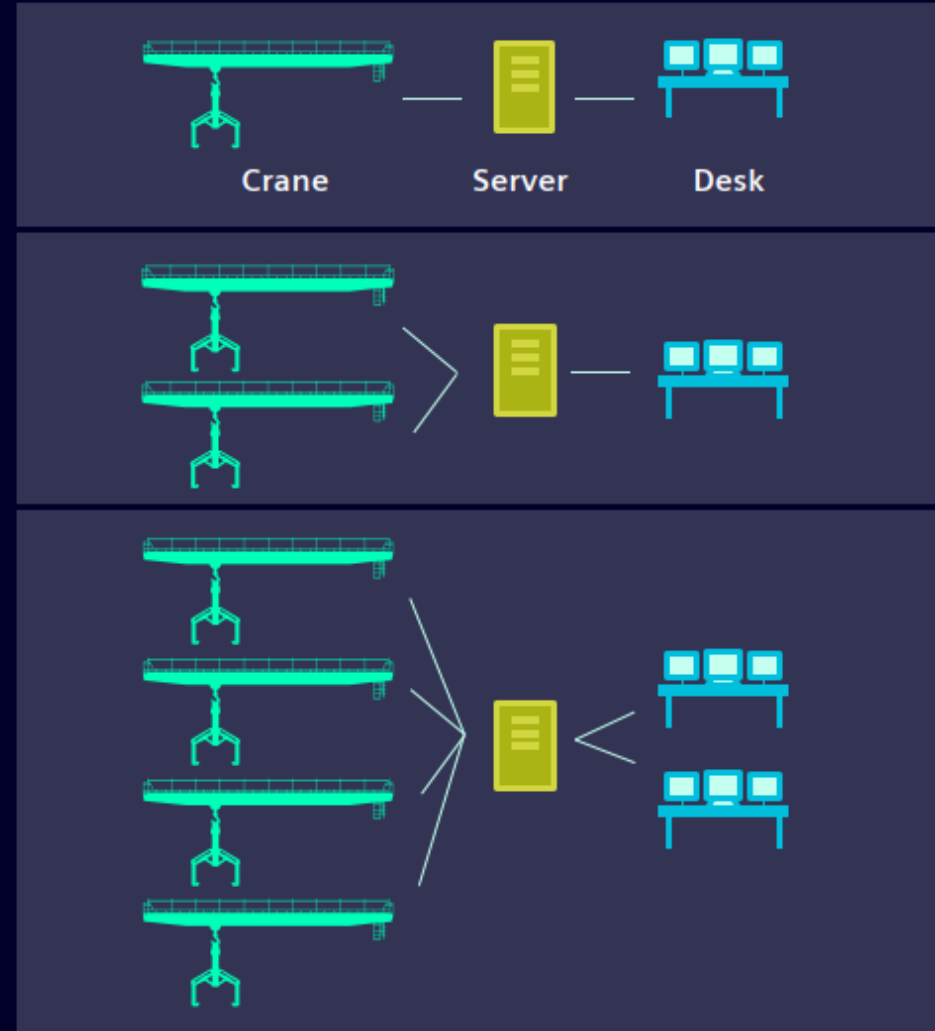


"Decentral Concept"
Decentral PLC software

- Redundant Server Pair
- No single point of failure




"Integration & Interfacing" can be applied to non-Siemens PLC's, offers interfacing with TOS




Automation: RCOS Benefits


The remote operator acts when necessary working from a comfortable and safe environment

 **Stress on human body (neck/back)**


Difficult to create comfortable & safe environment

 **Transportation from and to cranes required**

No toilets, no coffee machines

 **Reduced visuals due to increase of ship size**

(>70 high, >10m deep, >20.000 containers)

 **(Semi) Automation systems**

New systems do not require human operator 100% of the time



Automation: TPS



SIEMENS

Automation: TPS Benefits

Reduce Cost

Less manual intervention.
Less commissioning time



Increase Safety

Reduce damage when loading and unloading on the truck

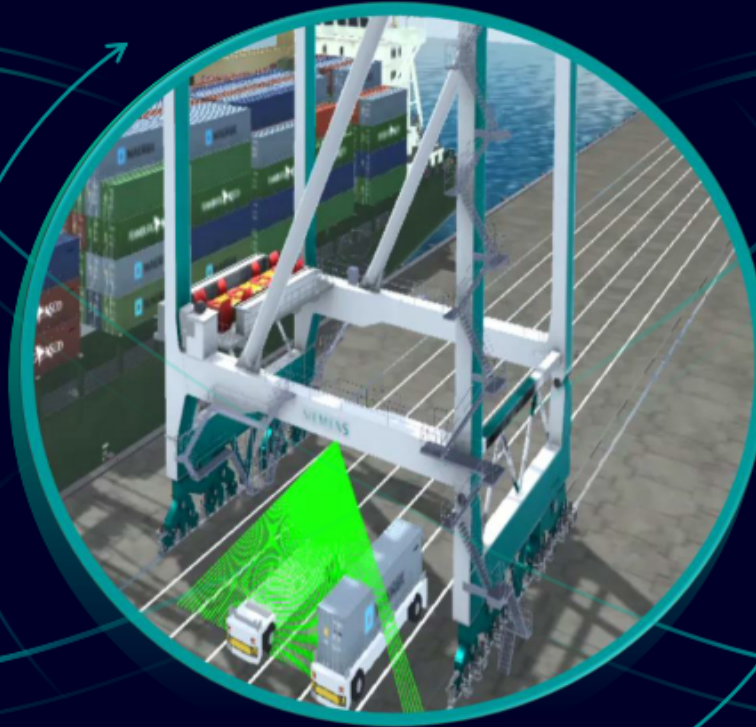


Flexibility

Support Different type of truck & Trailer.



Possibility to trigger TPS for different lanes



Increase Productivity

Optimization of the workflow with less manual intervention

Remove Down Time due to fail landing/ damage



Answers for Africa

Data harvesting

Automation: CMS

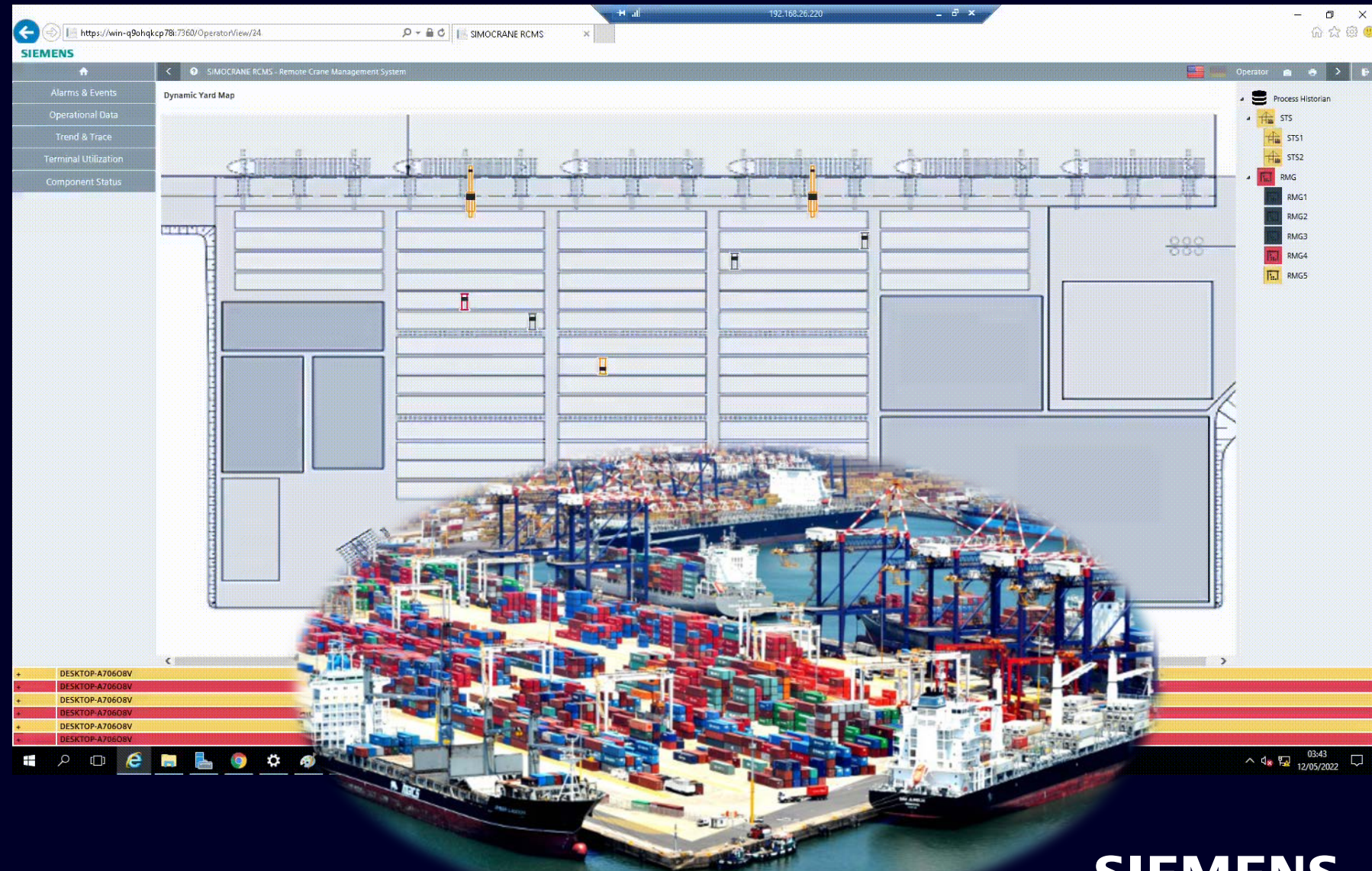
Replay Function (Playback)

- Investigate crane faults and advance analysis
- Intelligent Replay Controller
- Play & Pause it like a movie
- Replay crane data as often as you want
- Direct connection to archiver (MS SQL)



Automation: RCMS

- Crane Status & Position Monitoring
- Fully Customizable View
- cartographical representation
- Separates Yard Maps View i.e. per terminal sectors



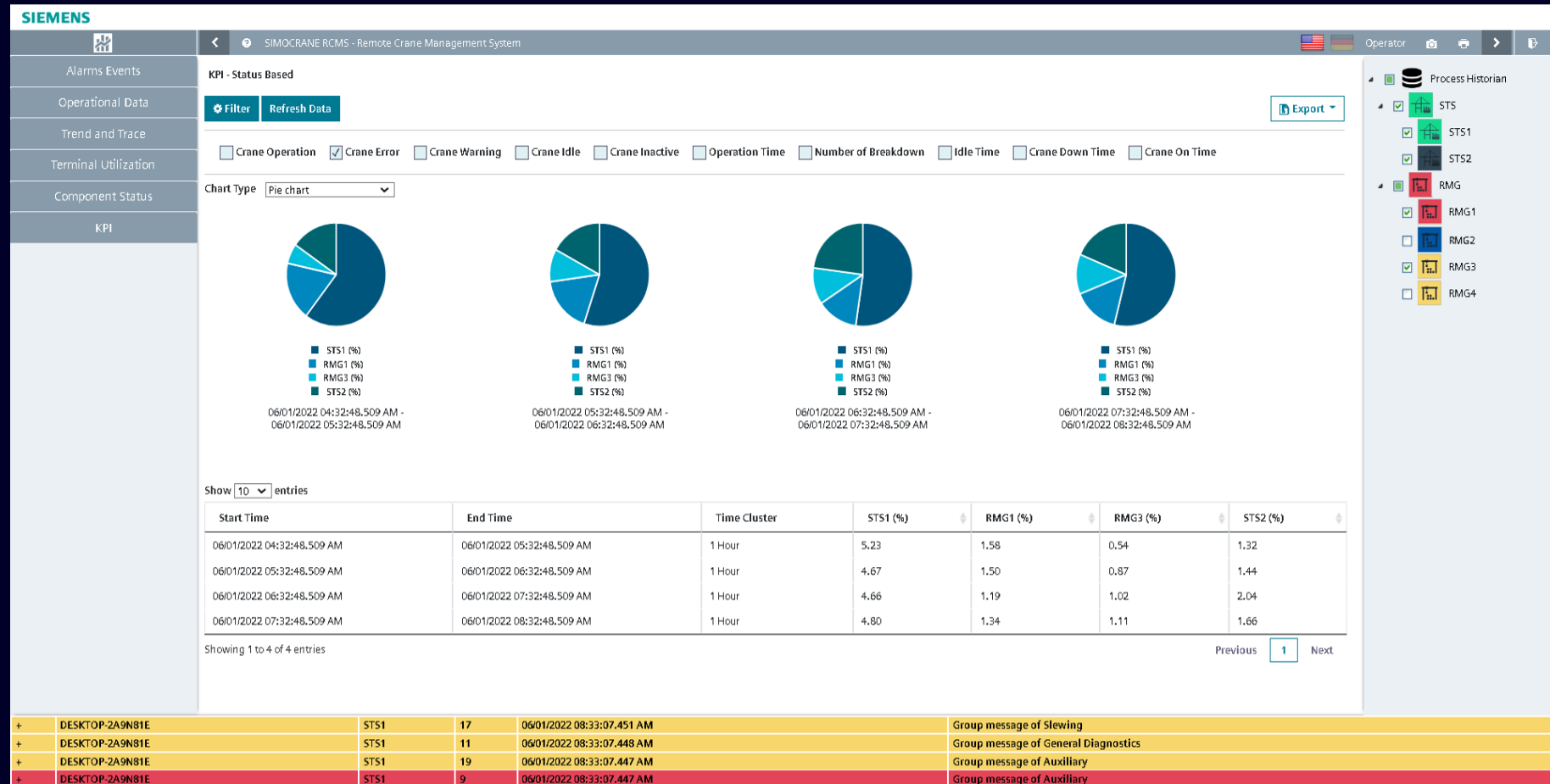
Automation: RCMS

KPI Screen

- Crane Comparison
- Operational Data
- Fault Messages
- Breakdown Messages

Important KPI

- MMBF
- Crane Status
- Number of Moves
- Crane Counters, Timers
- Energy Consumption





Thank you.....

Dalubuhle Yengwa
Cranes Technology Business Development manager
Siemens South Africa

+27 722 75 33 55

SIEMENS