9th Southern Asia Ports, Logistics & Shipping 2014 Automation & Innovation in Ports

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Automation & Innovation 360°

Proactive → **Reactive** → **Post Ops**

Yard	Equipment	HR	Automate	Customers	H/S
Discharge & Delivery	Pools	Drivers	RFID	Online Requests	Berth Freezes
Export & Load	Sharing Across QCs	Controllers	OCR	Progress Updates	Works & Repairs
HK	Terminal Pooling	Admin	DGPS	Coordination	Skill Based deployment
Empties Handling	RTG Load Balancing	Billing	CHE	Steaming Time	Preventive Maintenance

Utilization → **Productivity** → **Efficiency**

View of Systems

Application Strategy

New Ideas

Systems of Innovation

Systems of Differentiation

Systems of Record

Better Ideas

Common Ideas

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Gartner.

OCR Based Crane Operations

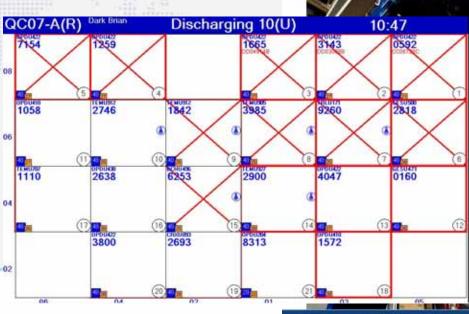➢ OCR to recognize the container that is being loaded and discharged

➢ OCR to recognize the ITV number

➢ OCR also to recognize the damaged containers

➢ Interfaces & Algorithms to calculate the stow position using interfaces to crane systems via trolley and hoist movements

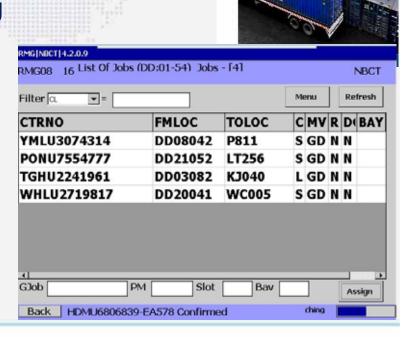➢ Auto confirmation of Job via twist lock OPEN-CLOSE events

RFID Based RTG Operation

➢ Prime Movers have a RFID Tag (Passive)

➢ RTG to host a RFID Reader

➢ Prime Mover Arrival Detected by RFID on RTG

➢ RTG Job List Automatically Filtered Showing
   Jobs only for the PM

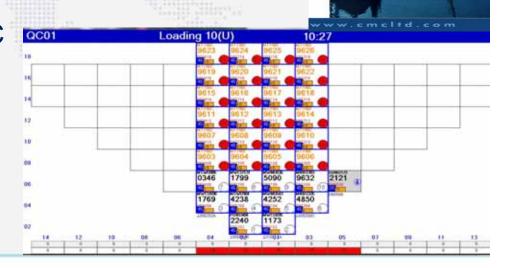➢ Interfaces with PDS/DGPS and
   CHE Systems for Hands Free Operation

RMG|NBCT|4.2.0.9

RMG08   16 List Of Jobs (DD:01-54) Jobs - [4]   NBCT

Filter |α ▼| = [   ]   Menu   Refresh

CTRNO	FMLOC	TOLOC	C	MV	R	D(	BAY
YMLU3074314	DD08042	P811	S	GD	N	N	
PONU7554777	DD21052	LT256	S	GD	N	N	
TGHU2241961	DD03082	KJ040	L	GD	N	N	
WHLU2719817	DD20041	WC005	S	GD	N	N	

GJob [   ]   PM [ ]   Slot [ ]   Bav [ ]   Assign

Back   HDMU6806839-EA578 Confirmed   ching

RFID Based Quay Operation

➢ Prime Movers have a RFID Tag (Passive)

➢ QGC to host a RFID Reader

➢ Prime Mover Arrival Detected by RFID on QGC

➢ Tally Clerk Screen and the QGC
  Driver Screen Highlight the Eligible Jobs

➢ Interfaces with PDS/DGPS and QGC
  Systems for Hands Free Operation

SCADA Systems for Reefer Monitoring

➢ Devices on Container Transmit Key Data Over RF

➢ The RF Server Picks up this Data and Publishes
the Reefer Data

➢ Plug, Unplug Status, Temperature Details Tapped to Monitor

➢ Alerts and Alarms based on the Set Temperatures

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Accurate Weight for Accurate Planning

➢ Differences between Declared Weight and Actual Weight

➢ Some times these Weight Differences Impact Stability

➢ Modern Equipment Equipped with Load Cells

➢ Load Cells as Add-On Gadgets for Older Equipment

➢ PLC Interfaces for Weight Capture from Load Cells

➢ Details update in Planning Systems for
  Accurate Weight and Balance

Optimized Dispatch

➢ DGPS and Geo Fencing for Delayed Assignments

➢ Best Job to Best CHE to Improve Laden Distance by 20-25%

➢ Third Party Optimization Engines used as System of Differentiators

➢ Checks and Alerts to Ensure Perfect Executions by Drivers as per Plan

➢ Strain Less Operation to Drivers via Confirmation Automations

➢ Workable and Suitable Templates Auto Configured for Immediate Benefits

➢ Simulation ➔ Best Template for the Terminal

Low Cost Gate Automation

➤ Non OCR Based and Non RFID Based Concepts

➤ Remote Access to Transport Companies

➤ CHA/Forwarders to Nominate the Transporters

➤ Transporters Login and Print the Gate Pass Remotely

➤ Barcode Reader Based Auto Gates

➤ Routing Slip/EIR and Gate Transaction on
   Successful Processing

➤ Appointment System for Added Benefits

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Proactive Maintenance Alarms

➢ Constant Monitoring of Health of CHE

➢ Gadgets to Capture the Following Key CHE Parameters
- •Distance Travelled
- •Tyre Pressure
- •Weight on the equipment
- •Engine Active hours
- •Working or Stopped
- •Fuel Levels
- •Bio Metric Authentication
- •Speed

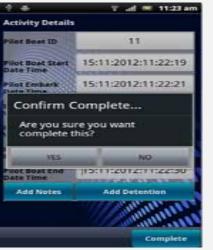➢End to End Interfaces with EAM systems for Equipment Availability

Mobile Apps Information/Transaction Anywhere Anytime

➤ SMS Alerts for
  • Box Discharge Times for Better Delivery Planning
  • Box Mounted on Trucks for Import Deliveries
  • Box Decked in Yard or Vessel for Export Boxes
  • Key Events to all Stake Holders

➤ Mobile Applications
  • Query Vessel Status
  • Query Container Status
  • Query Delivery Status
  • SSR Requests
  • Invoice Information

Preliminary Simulation Tools for Proactive Control
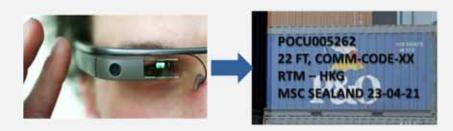
➢ Not a Full Fledged Exhaustive Simulation Tool

➢ Algorithms and Mechanisms to Run Next Shift

➢ Quick in Results

➢ Predicted KPIs and SLAs

➢ Key Suggestions for Seamless Operations
   and Capacity Planning

➢ Plug in to TOS Systems for Workload Details
   and Carry Forward Situ

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Google Glass

➢ Port Security Management
  ➢ Communication between Control Room and On Field Staff
  ➢ Video Surveillance Enablers
  ➢ Image Capture and Logging
  ➢ Alerts on Traffic and Tress Passing Exceptions

➢ Quay Side Operations replacing HHT

➢ Inventory Operations replacing HHT

➢ Voice Integrations for Query and Command

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22 FT, COMM-CODE-XX
RTM – HKG
MSC SEALAND 23-04-21

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Many More....

➢ Smart Cards for Truck Drivers for access control
to ensure ISPS compliance

➢ Dispatch the gate pass information as instruction
of Driver Mobile Interface mobile map applications
for directing truck drivers in the terminals
to regularize traffic and
aid the driver in faster arrival at destination points in yard
for better TAT and CHE productivity

➢ Work on vessel sailing deadlines based on
steaming time to next port

➢ Advance dispatch of instructions to pilots
for unberthing the vessel based on completion times

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Many More....

➢High Density stacking of boxes based on their
 departure times for more optimal usage of resources.

➢Usage of ruggedized mobiles/tablets instead of RDTs,
 as RDTs are very expensive

➢Flexible shift patterns based on the demand and supply

➢Terminal score cards for effective measurement of
 KPI and improvisations

➢E-Shift logs for better handover while shift change

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