

- Founded in 1997 in Steinfort
- 15 high skilled people (engineers-developers)
- System Integrator for Traceability and Mobility: Hardware, Software & Services
- Focus on Logistics, Manufacturing and Healthcare using **Barcode & RFID technologies**
- Local and International Large Accounts



Identity

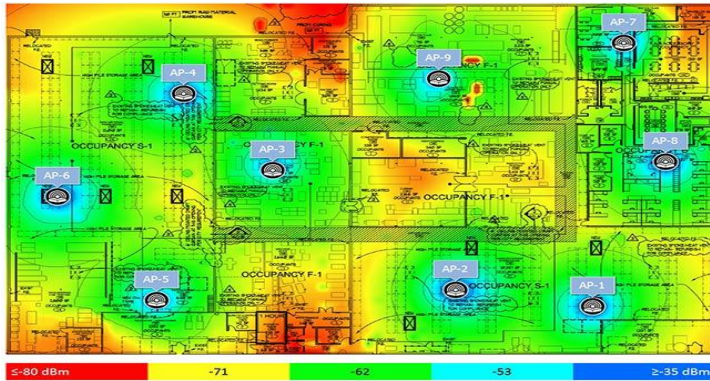
Interaction

Innovation

Intelligence



Wireless implementation for Warehouse



Packages for Process Automation

DESKTOP

Check-lists | Pda | Link entry

Date from 28-10-19 | at 04-11-19 | Type = Category =

Photo Supplementary Process Check-list Question Answered Search answer

Creation	Description	Status
04/11/2019 12:08:35	4551 - Preparation ZAP4 N° Machine ZAP1 M2455	Ongoing
04/11/2019 11:46:42	4550 - Preparation ZAP4 N° Machine ZAP1 M2455	Ongoing
04/11/2019 11:45:39	4549 - Preparation ZAP4 N° Machine ZAP1 M2455	Ongoing
04/11/2019 11:44:30	4548 - Preparation ZAP4 N° Machine ZAP1 M2455	Ongoing

Préparation ZAP4

QUESTIONS AND ANSWERS

N° machine ZAP1
M2455


MO Number

Store ID

Preparedness

List Interrupt

PDA

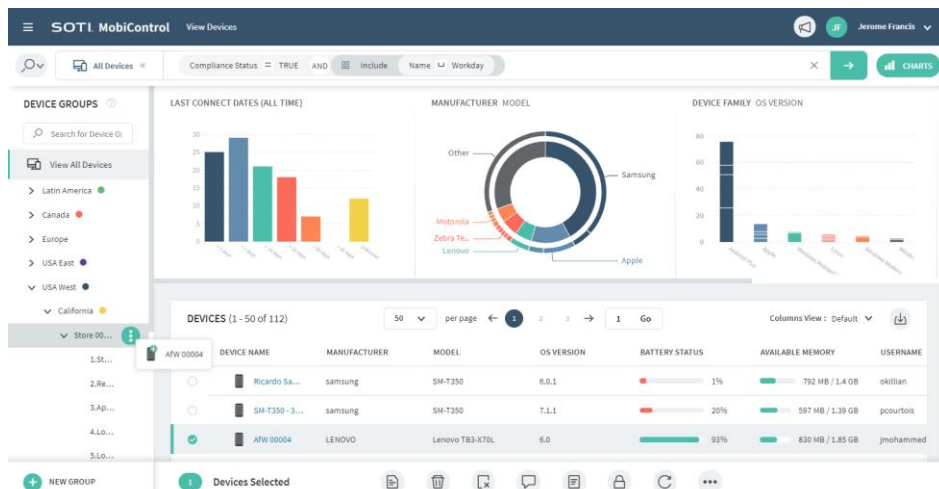


MADE IN LUXEMBOURG

Composed of a web interface and an Android application.

4check is a solution that allow the digitalization of forms with rugged mobiles PDA terminals. Very easy to use, smooth and flexible.

Mobile Device Management Integration



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How digitalization can generate revenue using Enterprise Mobility Devices

Digitalization definition: Transformation of business processes by leveraging digital technologies, resulting in opportunities for efficiencies and increased revenue

Customer's target: having a clear view of all RAMP* processes to understand existing costs, create customer satisfaction and generate more revenue (invoicing accuracy)

*RAMP: airport defined area for purposes of loading, unloading, maintenance around an aircraft.
All these operations are generating costs but also profits.

Digital Technologies involved:

- Enterprise Mobility Device (Wifi/4G)
- Barcodes/NFC
- Private LTE Network
- Client/Server Application
- Web server
- Cybersecurity

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1. Infrastructure - Main differences between Consumer and Enterprise devices – devices provided by 4i:

	Consumer	Enterprise
Rugged	No	Yes – IP54 min.
Barcode reader/NFC	No/Yes	Yes/Yes
Life cycle	1.5 year	4 year
OS - Upgrade	Android - No	Android - Yes
Price	Cheap (350€)	More expensive (from 500€)
Security patches	Limited	Yes (6 years min.)
Repair	Yes but more expensive than a new unit – long repair time	Yes – 6 year min. No costs
ROI	Very low	Very high



As digitalization projects have quite long implementation time (6 to 18 months), it is really important to understand and invest in the right technology!

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2. Infrastructure – private LTE network – provided by customer’s mobile operator

Benefits:

- Provides connectivity inside the aircraft (allowing real time operations)
- Provides high level of security (only authorized SIM cards are allowed to communicate with a dedicated server)
- Provides full control for IT administration

3. Software – provided by 4i – starting oct. 2018

Challenges:

- Open discussion with Luxair on how to plan the digitalization with some ideas on phasing
- Constitution of a working group (field operators, software developers and management of Cargo department)
- Identification of all RAMP processes – 1st inventory of specifications (done by the customer – very long sheet)
- How to adapt our standard solution package to the customer needs – fast implementation and low price
- IT security compliance

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2018 Initial analysis:

- Paperwork – more than 200 types of tasks or checklists
- Many different Excel sheets in place / Common tool needed
- Operation/reporting issues (who/what/when/why/how)
- Quality issues – response time to customer’s claim
- kpi’s/dashboard not realistic enough
- Airlines invoicing precision/issues (% of invoiced tasks)
- No ‘how to’ process standardization



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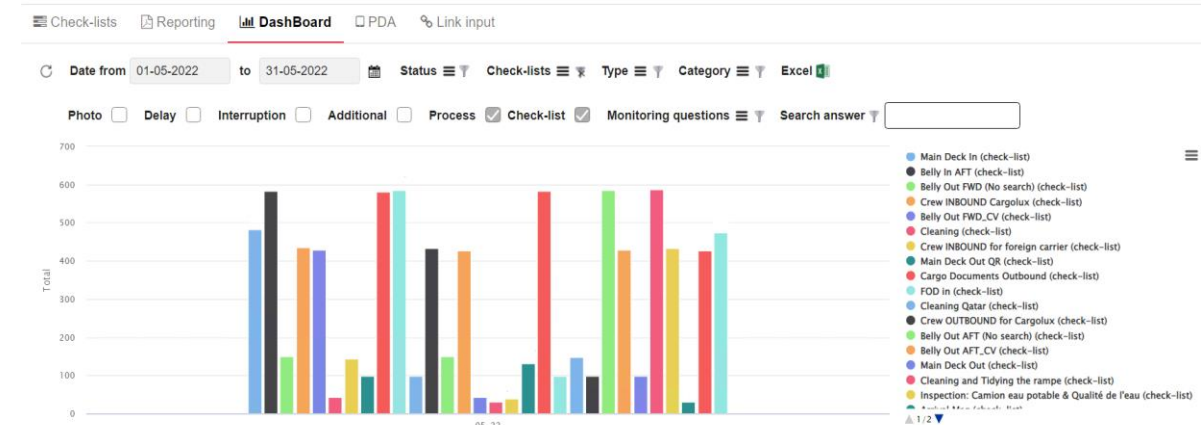


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What we have implemented – 3 Phases:

1st phase oct 2018 – dec 2019

- Turn all paperwork into data using mobile devices and real time connected software
- Easy to use and flexible interface to generate data from the field
- Common Database with automatic data exchange between systems – **ready for invoicing**
- Statistic module to generate basic kpi’s/dashboard



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Monitoring : eRamp

As phase 1 was finished in dec 2019, the customer was ready to improve 100% of its processes before the first Covid spread.

Phase 2 was starting in feb 2021 by adding security features and some operational/reporting features – other Cargo departments

Phase 3 was starting in oct 2021 by adding some operational/reporting features – end of the digitalization project in dec 2021.

As the project was frozen during 2020 due to the pandemic, it took **27 months to implement the digitalization** project in all Cargo departments.

During the implementation, we upgraded all Android OS devices to get all security patches and core functionalities to follow the solution requirements – thanks to Enterprise Devices (lifecycle)!

On 60 devices running 24/7 operations, we only had 2 broken devices – repaired within 5 days! High ROI.

eCargo production
Report Date : 03-06-2022 11:22:58
Period : 27-05-2022 to 03-06-2022

385919 Drinking water (385910 CV.)	
Cargolux A/C Reg: FLT IN STA: 03-06-2022 05:05 (Zulu) ETA: 03-06-2022 08:21 (Zulu) SPOT Z4 Start : 03-06-2022 10:46:30 - End :	
Interrupts	
Stand-by * Remarks Mandatory !!! *	DEPART LE 03/06 19H05 Start : 03-06-2022 10:47:40 - End : - 14689 -
385879 Belly Out AFT (No search) (385866 Silkway)	
Silkway West A/C Reg: FLT OUT STD: 02-06-2022 19:00 (Zulu) ETD: 03-06-2022 07:45 (Zulu) SPOT Z8 Start : 03-06-2022 07:55:21 - End : 03-06-2022 08:14:38	
Interrupts	
Schenck Breakdown	Start : 03-06-2022 08:05:00 - End : 03-06-2022 08:13:15 - 13490 -
385858 Main Deck Out CV (Search MD) (385847 CV.)	
Cargolux A/C Reg: FLT OUT STD: 03-06-2022 07:40 (Zulu) ETD: 03-06-2022 08:25 (Zulu) SPOT Z3 Start : 03-06-2022 08:54:05 - End : 03-06-2022 10:10:51	
Monitoring questions	
Remark / Observations	CHARMENT PAR CV TREININGE 5 PERSONNES

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2022 – Real facts:

- 24/7 process automation with 60 ground operators
- 14 departments are using the solution
- 10000 processes/month are done
- Standardization of all processes – better safety – better quality
- Automatic Daily Operational Report about delays and issues (who/what/when/why/how)
- Real time kpi's/dashboard – better customer service
- Airlines invoicing accuracy – increased revenue



Z3		Z2		Z1	
ETA : 25. 04:10	ETD : 25. 07:55	ETA : 25. 04:55	ETD : 25. 07:30	ETA : 25. 06:52	ETD : 25. 09:22
FOD in	Start loading Main Deck			FOD in	Start loading Main Deck
Cargo Documents inbound	Main Deck Out CV (Search MD)			Cargo Documents inbound	Main Deck Out CV (Search MD)
Crew INBOUND Cargolux	Belly Out FWD_CV			Crew INBOUND	Belly Out FWD_CV
Main Deck In	Belly Out AFT_CV			Main Deck In	Belly Out AFT_CV
Belly In AFT	Cargo Documents Outbound			Belly In AFT	Cargo Documents Outbound
Belly In FWD	Crew OUTBOUND for			Belly In FWD	Crew OUTBOUND for
Cleaning / bedding				Cleaning / bedding	
WC				WC	
Drinking water	FOD out			Drinking water	FOD out

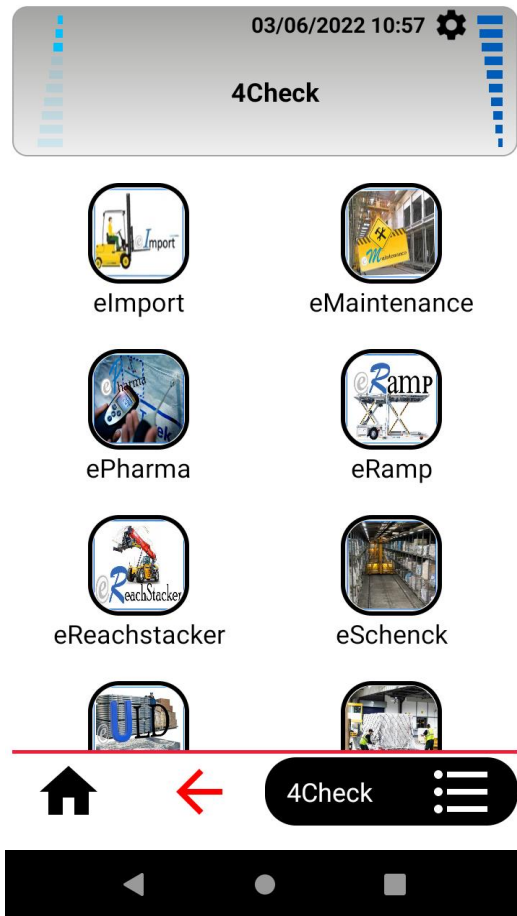
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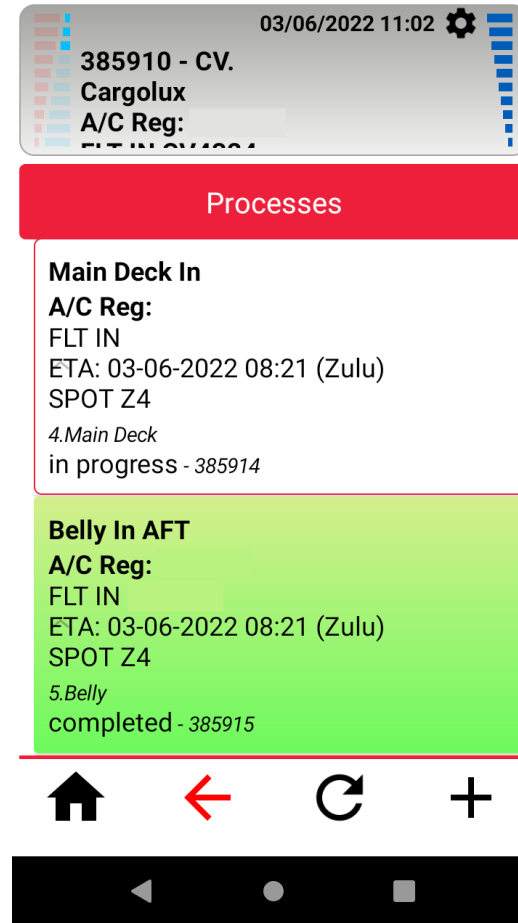
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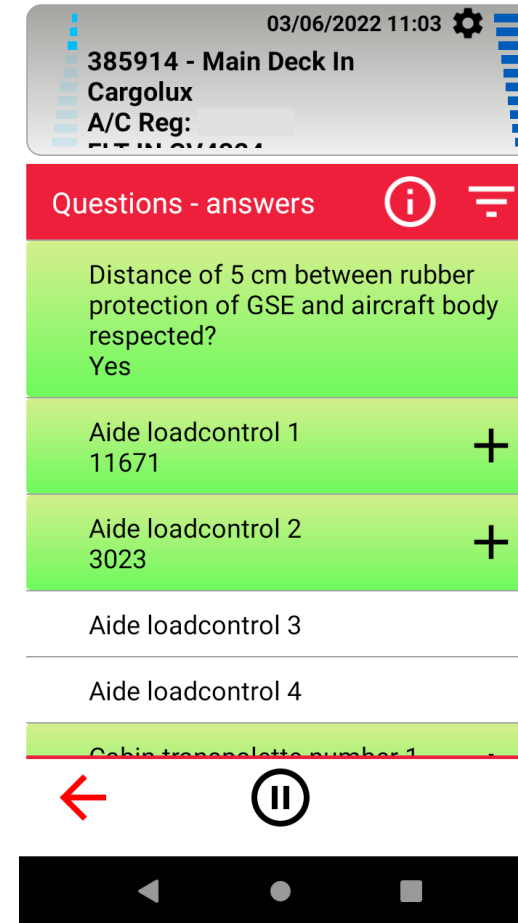
Mobile Device App screenshots



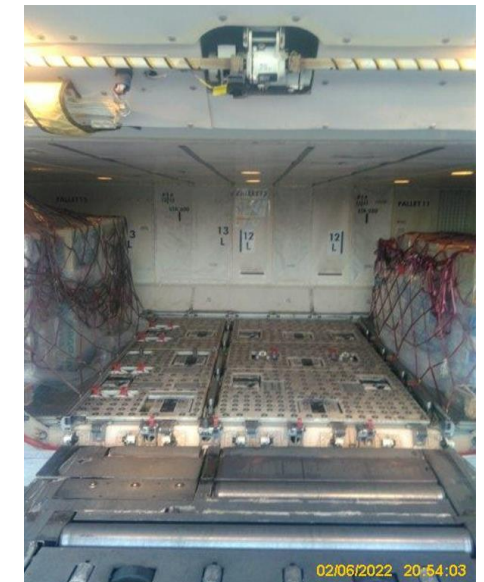
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Management Interface screenshot (Web Interface)

Check-lists
 Reporting
 DashBoard
 PDA
 Link input

Date from to
 Check-lists Type Category

Photo Delay Interruption Additional Process Check-list

+	Creation	Description
<input type="checkbox"/>	02-06-2022 17:58:06	385781 - Qatar Airways Cargo Documents Outbound FLT OUT A/C Reg: STD: 02-06-2022 19:30 (Zulu) ETD: 02-06-2022 20:00 (Zulu) SPOT Z4
<input checked="" type="checkbox"/>	02-06-2022 17:58:06	385779 - Qatar Airways Belly Out FWD (No search) A/C Reg: FLT OUT STD: 02-06-2022 19:30 (Zulu) ETD: 02-06-2022 20:00 (Zulu) SPOT Z4
<input type="checkbox"/>	02-06-2022 17:58:05	385775 - Qatar Airways Cleaning Qatar A/C Reg: FLT OUT STD: 02-06-2022 19:30 (Zulu) ETD: 02-06-2022 20:00 (Zulu) SPOT Z4
<input type="checkbox"/>	02-06-2022 17:58:05	385771 - Qatar Airways Arrival Msg A/C Reg: FLT IN STA: 02-06-2022 17:30 (Zulu) ETA: 02-06-2022 17:58 (Zulu) SPOT Z4
<input type="checkbox"/>	02-06-2022 17:58:05	385769 - Qatar Airways Cargo Documents inbound A/C Reg: FLT IN STA: 02-06-2022 17:30 (Zulu) ETA: 02-06-2022 17:58 (Zulu)
<input type="checkbox"/>	02-06-2022 17:35:20	385751 - Cargolux Cargo Documents inbound A/C Reg: FLT IN STA: 02-06-2022 10:25 (Zulu) ETA: 02-06-2022 17:35 (Zulu)
<input type="checkbox"/>	02-06-2022 17:10:23	385746 - Cargolux Cargo Documents Outbound

Visualization 385779 - Belly Out FWD (No search) : A/C Reg: FLT OUT STD: 02-06-2022 19:35 (Zulu) ETD: 02-06-2022 20:00 (Zulu) SPOT Z4

Characteristics	Questions - answers
23	ULD loaded according to loading sequence ? Yes 02-06-2022 20:46:30 PDA N°27
24	TREPEL nbr - succession
25	Indication Transpalette Nbr 1 - succession
26	Driver1 ID - succession
27	Indication Pallet Transporter Nbr 2 - succession
28	Driver2 ID - succession
29	Remark / Observations 02-06-2022 20:54:15 PDA N°27
30	Remark / Observations
31	Belly FWD door closed 02-06-2022 20:54 02-06-2022 20:54:17 PDA N°27

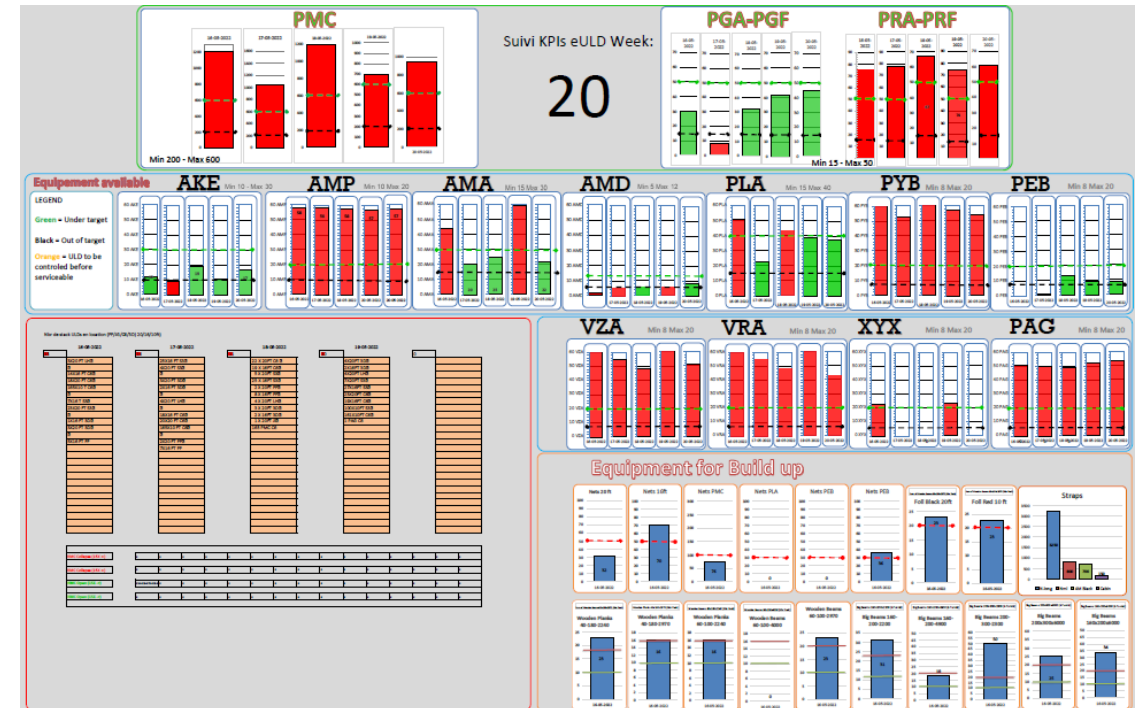
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27 months of digital transformation - bringing all resources together (field operators, management, IT department) – huge success



Be ready for the future!

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Thank you for your attention

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