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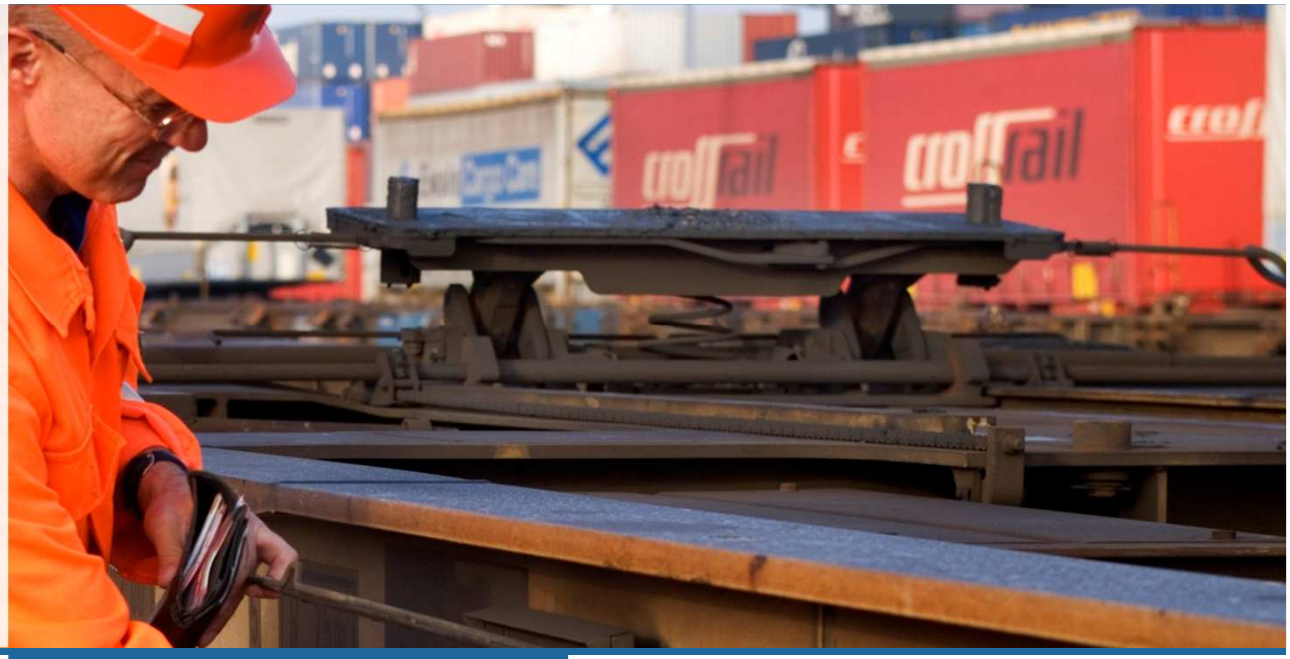

Good Practice N°02

Container Allocation Management (CAM)

Adria kombi d.o.o., 04/2013

MARCO POLO
NEW WAYS TO A GREEN HORIZON

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Container Allocation Management (CAM)

Good practice form

Good practice name	Container Allocation Management (CAM)
Type	(4) CT Terminals (5) ICT / data ex-change
Involved actors	(1) Intermodal operator (4) Terminal operator (8) Technology provider
Commercial / Functional application area	CAM system/app that supports the process of unloading / loading containers in terminals
Geographical application area	Ljubljana KT (Slovenia); possibility for implementation anywhere
Status / Time period	In operation (since 04/2012)
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Introduction (summary)

CAM (Container Allocation Management) is an app for tablets and smart phones allowing users to access data relevant for terminal operations, such as:

- trains (position, composition, orientation);
- wagons (position, capacity);
- containers (size, weight, cargo, position);
- trucks (licence plate).

The user gets all data at one place which enables him to optimally manage containers.

Data is instantly transmitted to a common database. From this database the different actors receive respective information relevant for them. The app enables real-time monitoring of all terminal movements, whereas every operator uses the data for his own purposes:

The **terminal operator** uses the app for charging the lifts, positioning of the units and for optimising loading / unloading processes.

The **intermodal operators** receive real-time information about unloading / loading, wagon number, train status etc.

Customers have access to pick-up information, delivery due time information, status of the shipment.

Container Allocation Management (CAM)

Starting position (gaps) – framework for a new software

- **Ljubljana KT** chosen as **research and development platform**
- Allocations of containers to wagons and associated transhipment processes were based on **loading plan** (paper document**)**
- Personnel is often confronted with **changes in loading plan** (re-allocation containers to wagons) due to following reasons
  - Available pins on a wagon do not match the containers planned for it
  - Distance between storage position and planned wagon position not optimal (other suitable wagon in train set might be closer than the originally planned)
- **Important information only available when staff is on field** e.g.
  - container pin positions of wagon
  - container storage position

→ **Practical software needed** that allows to **update / modify default loading plan directly on the field**

Starting position (challenges) – required software features

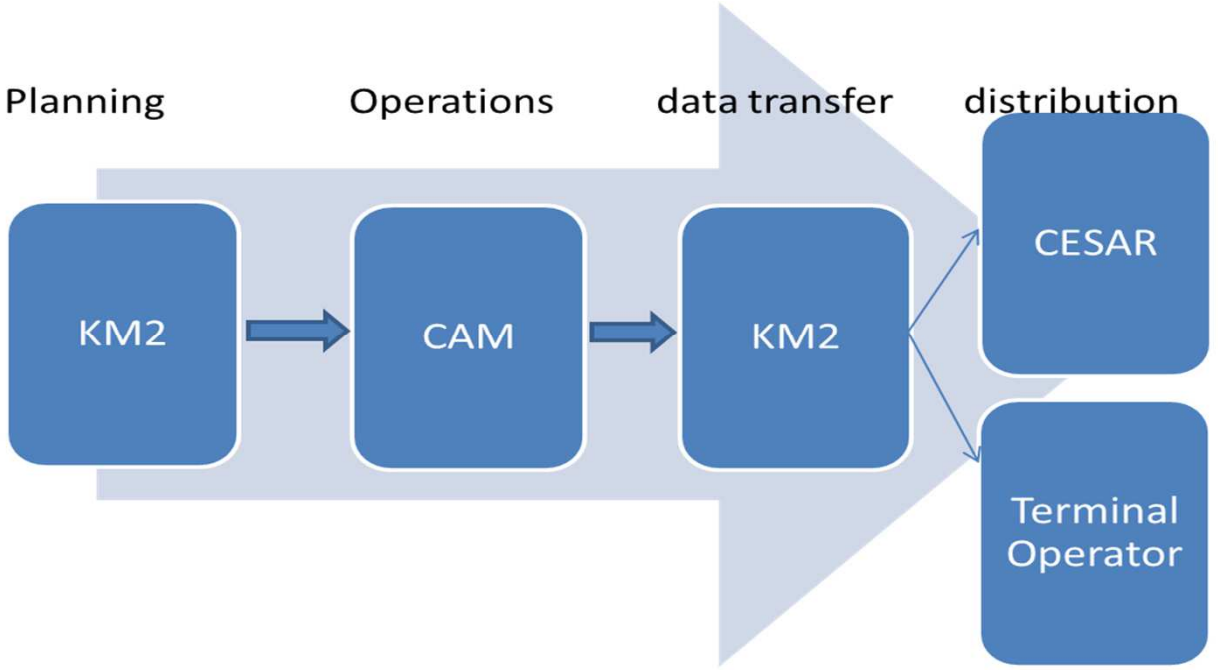
- Unloading trains
- Loading trains
- Container yard position information
- Gateway solutions
- Easy-to-use application
- Use with tablet computers or smart phones
- Multi-user system

Starting position – first attempt of technical solution

- **First technical solution**
  - Handheld computers
  - Windows mobile OS
- **Problems**
  - System rejected by staff
  - Doubts about longevity of devices
  - Insufficient screen (e.g. overview over trains not good)

Concept and components - overview

1. Train operator prepares loading plan for outgoing trains in KM2 system
2. This loading plan is sent to CAM
3. CAM user loads according to plan and makes any necessary changes
4. Information about movements is sent back to the KM2 system
5. KM2 processes data & sends the status reports to operator's systems



Concept and components – expected benefits of Android app

- Ease of use
- Great overviews
- Drag & drop functions
- Graphics

Application of solution - overview

- **IT provider Regulussoft d.o.o.** developed the CAM software system, after analysing the problems with until then used handheld computers
- CAM allows **drag & drop functions** leading to ease-of-use and simplicity
- **First resistance** among the field workers at the terminal, but finally overall acceptance
- Widely **used tool at terminal of Ljubljana**

Application of solution – main screen: train list (screenshot)

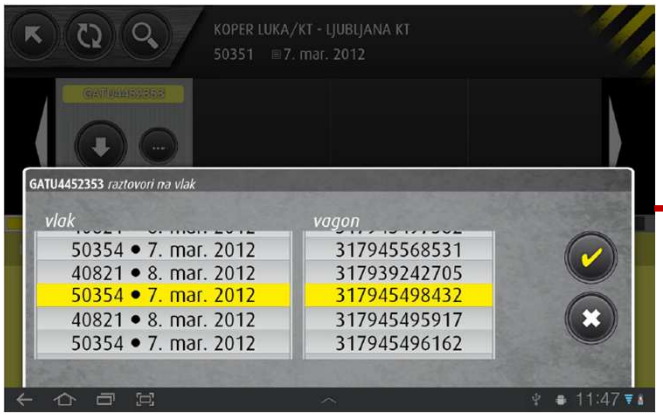
Source: Adria kombi

Application of solution – unloading of containers (screenshot)

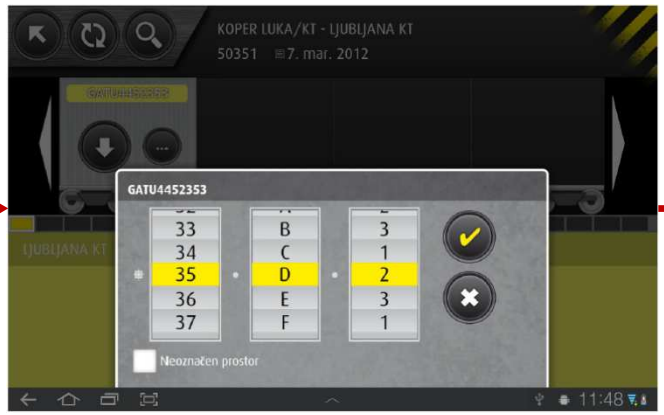
Source: Adria kombi

Container Allocation Management (CAM)

Application of solution - arriving containers (screenshots)

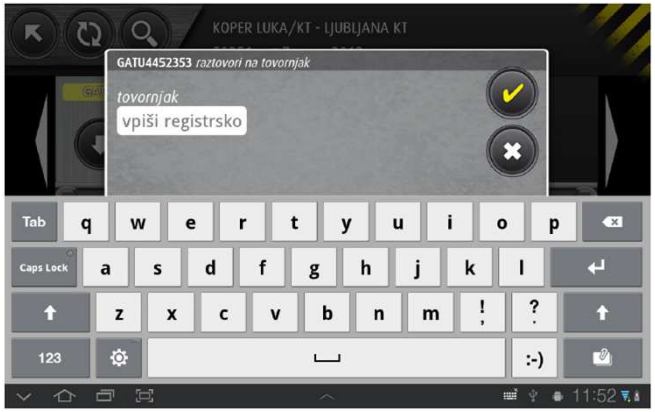


Select container in arriving train



Select container storage position

Storage position 35 D 2 in depot



Registration of pick-up truck

Source:
Adria kombi

Application of solution – departing containers (screenshots)

Single containers

Multiple containers
The system matches container length and weight to wagon capacity

Source: Adria kombi

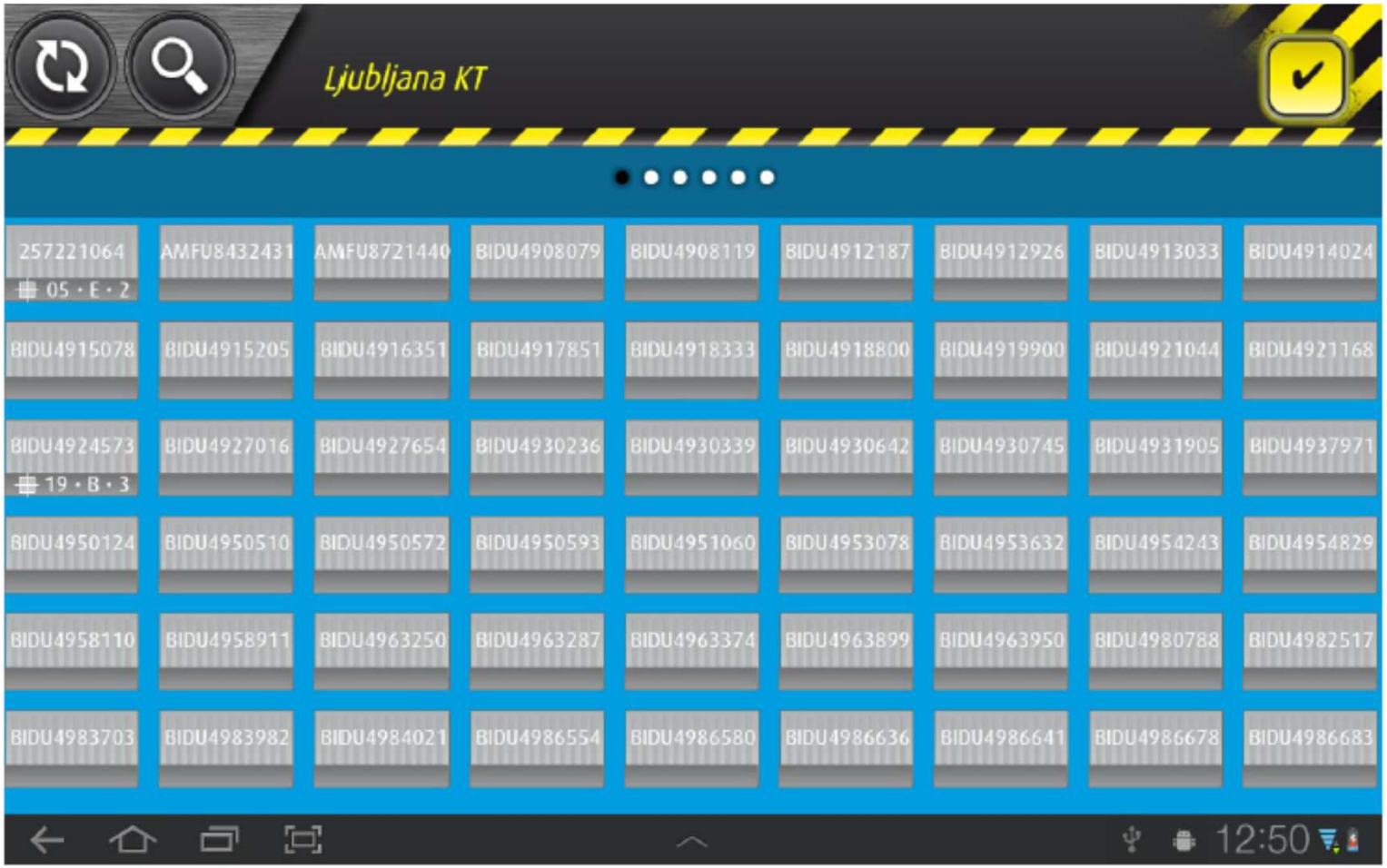
Application of solution – train manipulation (screenshots)

(1) Drag black slider circle to the left

(2) New screen appears (Slider circle yellow) to manipulate wagons

Source: Adria kombi

Application of solution – train manipulation (screenshot)



Source: Adria kombi

Application of solution – communication with other systems

- **CAM communicates with several systems**
  - Terminal operator system
  - CT Operator system (Adria kombi)
  - Trainspotting system
    (developed by Adria kombi for
    train arrivals and scheduled departures)

- **CAM is ready to include / communicate with**
  - Port system (vessel arrivals)
  - Automatic gate system of the terminal
  - GPS monitoring of trucks serving terminal
  - other trainspotting systems

Application of solution – communication trainspotting / CAM

- **Trainspotting System sends data to CAM**
  - Train arrivals to certain terminal
  - Train departures from certain terminal
  - Train composition and orientation

- **Future information will also include**
  - Train ETA to the destination terminal
  - Estimated pick-up time of each container

Conclusions and benefits

Better information flows and operation management with CAM

- Real-time information about loading/unloading of container units
- Status of units (damaged, missing, etc.)
- Train completion
- Loading optimisation
- Gateway solutions
- Near future interconnectivity with Trainspotting Software (for positions of approaching trains)

Further exploitation

- **Further planned developments**
  - Broader interconnection with different train/wagon movement systems
  - Personnel planning option and work effectiveness monitoring
  - Dangerous goods recognizer and interactive list for dangerous goods
  - Automated gate control of container terminals with cameras and OCR

- **Commercial usage**
  The CAM / KM2 systems are property of Adria kombi; therefore any commercial exploitation of these systems has to be negotiated with Adria kombi.

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Adria kombi d.o.o., 2013, www.cosmos-project.eu