

The Management System is build up modularised. The implementation depends on the specific front-end devices and business processes used.

The following **main modules** are available:

- **Device Management:** This module configures and supervises all kinds of devices. The system manages devices or device groups, configuration data, parameters, applications or software can be released and the devices, their operation is monitored and critical system status announced.
- **Products and Tariffs:** This module manages the products and tariffs. Products and tariffs are imported from third party systems and exported to the devices. Products and tariffs can be edited. The export to different sales channels, device groups and even specific devices is managed.
- **Sales:** All kinds of sales transactions are imported to the sales module. The sales transactions are exported to the superior systems. Additionally reconciliation, settlement, clearing and various report functions are available.
- **Fare Dodger:** This module manages the whole fare dodger process. The module configures the fare dodger application, receives the incidents and exports them to the superior systems.
- **Action List:** This module manages for example hot-lists or blocked-card-lists. The module imports and exports these lists and allows editing and configuration.
- **Shift and Staff:** This module manages staff and shifts. The module imports and exports shift data and allows editing and configuration. It allows the communication with staff. Messages and instructions can be distributed at individual persons or groups.
- **Card:** This module manages smart cards. The whole lifetime from issuing, personalisation, hot-listing until end of life is monitored. This module has interfaces to CRM, sales and action list for example.
- **CRM:** The customer relationship module manages customer data, customer cards, customer products until action lists and the customer payment process. In addition a customer web interface is possible.

- ITCS Intermodal Transport Control System
- Vehicle Communication
- Real-time Passenger Information
- Depot Management System

The system is supported by **cross-section modules**. To them belong:

- **Data Base:** This module manages the data base or several different data bases, if necessarily.
- **User:** This module manages all kind of users of the devices as well the management system. All users can be assigned to user groups or sub-groups. All applications are multi-language.
- **Processes:** This module manages the processes of the transaction management system. All transactions are monitored and validated. The module supervises the whole processes including transaction authentication.
- **Interfaces:** This module manages the different internal and external interfaces, the whole import and export processes.
- **Reporting:** There are several reporting functions. For quick administration and management overview we provide several graphical evaluations, real time.

The Management System is **web-based**. There is no application needed on the clients up to a Browser. The system works on different data base systems, like for example **MySQL**. The system can be implemented **Linux** environments. The system works on a dedicated server, a virtual system or a server in the www.

The system is build up **customer-specific**, by usage of standard modules, which will be customer-specific configured to the requirements, and if necessary added by new modules or developed further.

We only use **XML** data and XML interfaces, in order to ensure a greatest possible adaptability and flexibility. We use **UML** for design, specification, realization, implementation, documentation, user manual up to test and system acceptance.