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WHITE PAPER

TOLL COLLECTION SYSTEMS

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1. SICE TOLL COLLECTION SYSTEMS

With more than 30-years' experience in the development of toll collection systems, international systems integration company SICE implements tolling solutions all around the world with designs adapted to each specific situation.

The services and solutions offered by SICE to the usual requirements in this area are:

- A secure toll collection control solution that supports all operational models and technologies to be integrated.
- Open, modular and flexible technical architecture that offers scalability and growth possibilities with minimal investment.
- A proven, tested, robust and operational technological solution, which can be adapted to local features with only minor changes, reducing risks and lead times.
- Human resources with very extensive knowledge of toll business, technology and project management, which can collaborate with the client when defining their business processes and strategies, etc.

SICE develops, manufactures, installs and integrates all the subsystems associated with a toll system. In addition, it maintains, provides technical support and participates in system operations.

SICE can provide solutions for any type of toll system during all business phases. The solutions offered by SICE in various application areas are: Conventional Toll, Multi-Lane Free-Flow Toll, Shadow Toll, Mixed Toll and associated BackOffice subsystems.

1.1. CONVENTIONAL TOLL

With this model the road user pays for use at the toll stations located along the infrastructure.
Through the following tasks, SICE makes it easy to adapt to requirements for centralized management, based on standard hardware and its own software applications:

- Sizing of stations and selection of road types (manual, automatic, toll, etc.)
- Selection of payment methods (cash, credit card, TAG devices, etc.)
- Design of auxiliary systems (CCTV, pre- and post-classification, communication, interphone system, queue detection, etc.)
- Development of software for all equipment
- Supply, installation, maintenance and remote control of system equipment.
- Centralized validation and consolidation of toll transactions.

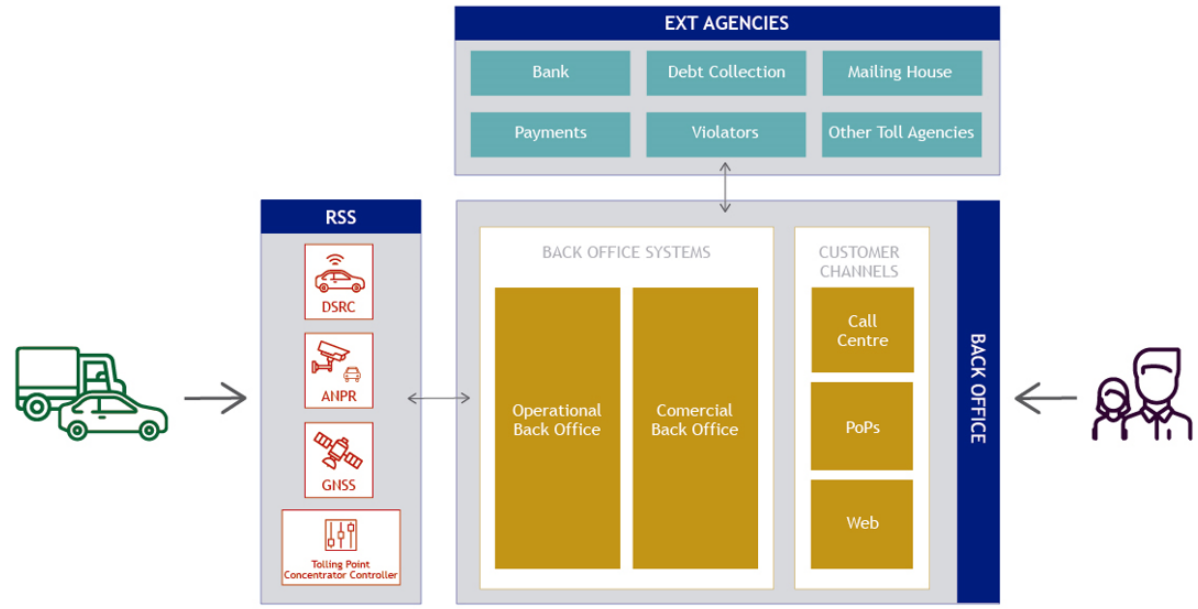
1.2. SHADOW TOLL SYSTEM

Payment is made through governmental agencies by the contracted Concessionaire, which use the infrastructure, without interfering with the flow of traffic.
SICE offers solutions to measure the quantity and quality of traffic, as well as audit systems and control center solutions. It also provides the following services:

- Data acquisition stations (DAS), video audit system, communication equipment, auxiliary equipment and a control center
- Development of DAS software, communication and the control center.
- Installation, commissioning and maintenance of system hardware and software
- Integration with the SICE traffic management ITS application (SIDERA).

1.3. MULTI-LANE FREE-FLOW TOLL SOLUTIONS

The Free-Flow toll system manages electronic payment without interfering with the flow of traffic, using license plate recognition or electronic devices (tag).
SICE offers complete or partial solutions for Multi-Lane Free-Flow tolls, including road equipment (technical doors and booths, detection and classification equipment, antennas, cameras, auxiliary equipment.) as well as operations management, customer systems, accounts management and communication with external entities.



1.4. SICE BACKOFFICE SYSTEM

SICE's BackOffice Solution (OCBOS) provides flexibility in terms of products, services and task management and it has been designed for multi-concession and multi-service scenarios (tolls, parking, etc.). It allows complete integration with SICE toll solutions and focuses on low operational costs. It is made up of an Operational BackOffice and a Commercial BackOffice.

The SICE's Operational BackOffice (TOS) includes the adaptation and consolidation of toll transactions, video processing if required and the generation of operating reports. On the other hand, the SICE's Commercial BackOffice (BIS) converts traditional toll information into business information through the following functions:

- Collection of information recorded by on-site equipment
- Data verification, validation and finalization
- Pricing and billing
- Management of unauthorized vehicles
- Report generation
- Supply of a large number of customer services (SMS, fax, website, etc.)
- Communication with external entities (Other concessionaires, traffic infraction/debt management agencies, collection agencies, banks, customer contact channels, etc.)
- Management of stock and life cycles for different payment methods (TAGs, concessionaire cards, etc.)

2. SICE'S LANE BASED TOLLING SYSTEM

SICE's lane based Tolling System is a comprehensive and modular 3 levels toll collection solution that allows toll road users to pay for the use of an infrastructure with a wide variety of means and modes of payment at physically independent lanes in toll plazas. It allows the operators of a tolling infrastructure

the collection of tolls in a totally controlled, auditable and flexible way, assuring that road users pay the amount to be paid and toll collectors declare the amount to be collected.

All 3 levels involved in SICE's lane based Toll Collection System (lane, plaza and control center) can work together or be integrated with higher levels solutions, keeping always the philosophy of robustness, flexibility, capacity and efficiency that have been considered by SICE since the initial tolling installations.

The SICE's Lane-base Tolling System is a 3 level centralized modular software solution that allows a great flexibility during implementation and operation phases, and a high level of adaptability to different hardware architecture platforms.

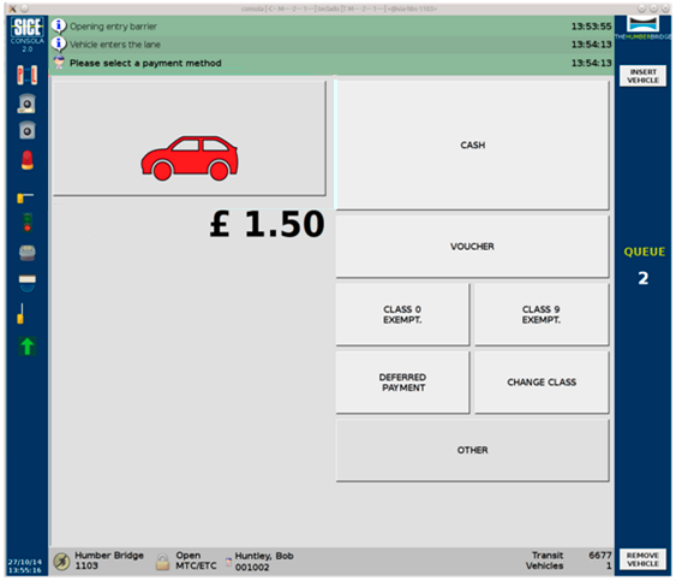
Some of the key features that the SICE's Lane-based Tolling System provides to Tolling Operators are as follows:

- Designed to allow an uninterrupted operation for 24 hours a day, 365 days a year
- Traffic flow physically channeled in lanes with or without automatic barriers
- Toll collection in manually assisted, automatic mode (paying at Automatic Payment Machine) and/or dynamic mode (electronic toll collection via tag)
- Flexibility in toll payment means; cash, foreign currency, credit/debit bank cards, concessionaire or professional cards, electronic transponders
- Open, closed and mixed toll schemes
- Pre and/or post automatic classification systems, video-enforcement and LPR systems
- Based on commercial-of-the-self hardware, and in-house software applications
- Liquidation process of toll collectors shifts, passage validation both local and centralized
- Toll plaza supervision in local and/or remote mode
- Centralized validation, consolidation and administration functions
- Plaza-based or Control Centre based reporting capabilities
- Interoperability with other toll systems

2.1. LANE LEVEL

Lane Application is the software running on the Lane Controller CPU that handles all the lane elements to allow the following functionalities:

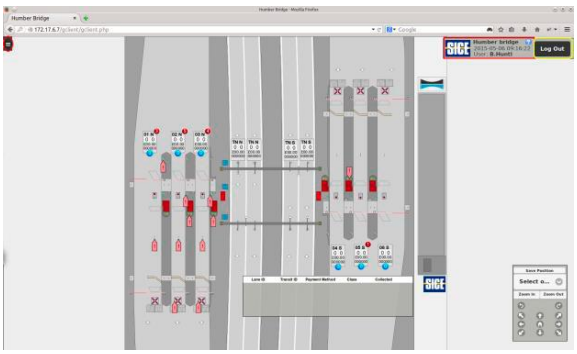
- To run the checking processes when the lane is starting up
- Detection of transits when the lane is closed
- To handle the opening and the closing of the lane
- Management of all the peripherals and elements that compose the lane
- Reception of remote orders to be executed from the Plaza Level
- Reception of tables from the Plaza Level
- Generation and Storage of information each time a vehicle goes through the lane
- Generation and Storage of information regarding the status of the peripherals
- Transmission of the generated information to the Plaza Level
- To handle the logic that controls the going through of the vehicle in the lane
- To handle the logic that controls the payment methods
- To handle the algorithm to classify the vehicle according to the applicable classes



2.2. PLAZA LEVEL

SICE's Plaza level application supports both barrier-based lanes and AET Toll Zone transactions. The main Plaza Application functionalities are the following:

- Transmission and reception to and from the lanes, and to and from the Control Centre
- Data received storage and analysis
- Alarms received from lanes processing/system devices status
- Lists management
- Storage of data transmitted and received to and from Control Centre (redundancy)
- Lanes configuration management
- Plaza Server configuration and reporting management
- Plaza Server monitoring and maintenance management
- Monitoring of the Lane elements
- Time Synchronization management
- Service task management (internal processing)
- Orders to Lane management
- Management of the toll collector cash-up
- Management of the collection pick up



2.3. ADDITIONAL FUNCTIONALITIES

Other remarkable features that the 3 levels Lane-based Tolling System of SICE has are as follows:

- Integration of all kind of electronic toll collection protocols and manufacturers
- Integration with several Video Management Systems for synchronized digital video auditory
- Same software application for all kind of lanes in the same process
- Capability of providing hybrid lane-based and open road tolling lanes in the same system
- Provision of auxiliary systems; interphone, general purpose CCTV system, public address, queue detection systems, etc.

3. SICE'S ROADSIDE EQUIPMENT FOR MULTI-LANE FREE-FLOW TOLLING

SICE's Roadside Equipment (RSE) for Multi-Lane Free-Flow Tolling (MLFF) is a traffic registration solution that controls all traffic using an infrastructure to allow toll collection in an all-electronic and unattended manner without interfering in any way with traffic conditions. It is complemented with back office toll solutions, which can be either from SICE (OCBOS platform) or from third parties

It allows operators of a toll infrastructure to perform the complete and efficient registration of vehicles to assign toll charges in a controlled, auditable and flexible manner, ensuring that all users pay the required amount or evidences are taken for the subsequent management of possible offenders.

SICE's Roadside Equipment (RSE) maintains the philosophy of robustness, flexibility, capacity and efficiency that has been considered by SICE since its first toll facilities.

SICE's MLFF Roadside Equipment (RSE) is a proven solution of different subsystems and modular software that provides a very high reliability rate of the information collected and allows a high level of adaptability to different country requirements or business rules of each concession.

The modular design of the SICE's solution allows integrating equipment from different manufacturers to be installed in the gantries that form a tolling point.

According to the electronic toll technologies supported in each country/project, the SICE's MLFF RSE system incorporates 5.8 GHz microwave antennas (DSRC) or 900 MHz radiofrequency antennas (RFID). According to the parameters that define the classification of vehicles (dimensions, number of axles, etc.) SICE's MLFF RSE system incorporates laser-type sensors and/or sensors embedded in the pavement.

According to the requirements of front and/or rear license plate captures, SICE's MLFF RSE system is adapted to install cameras for automatic license plate recognition or capture of context where appropriate.

With long time knowledge and experience in the installation of highways gantry/cantilever structures, the aesthetic design and materials of the structures can be adapted in each project to the client's requirements, or the needs / possibility of carrying out maintenance tasks without cutting the lane to traffic.

SICE's MLFF Roadside Equipment (RSE) provides certain key features for Toll Operators. Some of them are:

- It is designed for uninterrupted operation 24 hours a day, 365 days a year in all traffic and meteorological conditions
- Traffic flow totally free, without physical divisions in lanes or obstacles on the road
- Toll collection in totally unassisted mode and by all-electronic means (detection and automatic classification of vehicles for the collection of electronic toll via tag and/or license plate)
- Valid for open, closed and mixed toll systems
- Based on third-party hardware and proprietary software applications
- Toll Point server (concentrator and controller) that allows managing different toll zones/segments, as well as conventional toll lanes (for example for cash payment)
- Both local and / or remote supervision of the toll point
- Interfaces for the centralized management of image review, validation, consolidation and administration
- Interoperability with other toll systems

3.1. GANTRY MOUNTED EQUIPMENT

The equipment installed on the road, mainly in gantry structures without interrupting the flow of traffic through it, has the following elements:

- Sensors in charge of detecting vehicles, as well as their dimensions, speed and shape to proceed with the automatic classification and triggering of other components of the system.
- Electronic Toll Collection antennas and readers, either RFID or DSRC, in charge of obtaining data of compatible transponders installed inside the vehicles.
- Cameras for automatic recognition of license plates (rear and/or front) together with the support infrared lights to capture images in any light condition.
- Digital Video Audit cameras to provide context images for each transit.

3.2. TECHNICAL SHELTER OR CABINET

The servers and SW applications that allow managing all the elements installed in the gantry, concentrating information of the toll point, and communicating with the tolling operational back office. The main functionalities of the applications that run in the technical shelter/cabinet equipment are the following:

- To manage all the peripherals and elements that compose each toll zone
- To generate, consolidate and store information each time a vehicle passes through the toll collection area
- To receive remote orders to be executed on the transactions generated
- To generate and store information about the status of peripherals
- To transmit and receive information to and from the gantry equipment and to and from the Control Center Back Office Systems
- To manage the configuration of all lanes associated with each toll zone of a tolling point
- To monitor the elements of the Roadside Equipment
- To manage time synchronization
- To manage communications between all the equipment of the tolling point, as well as with the Control Center
- Optionally, to store all video captured by the audit cameras and allow remote monitoring.
- To provide safe power to all equipment of the tolling point, both gantry and technical shelter/cabinet.

3.3. ADDITIONAL FUNCTIONALITIES

Other important features that the SICE's MLFF Roadside Equipment solution presents are the following:

- Integration of all types of protocols and toll collection manufacturers
- Integration with several CCTV management systems for synchronized video auditing
- Ability to provide hybrid toll systems based on conventional toll lanes and multi-lane free-flow lanes in the same location.
- Supply of auxiliary systems; Intercom, general purpose CCTV system, access control, support lighting, etc.
- Auxiliary systems for identification of declared occupancy in vehicles (for HOT / HOV systems)

4. SICE'S TOLLING OPERATIONAL BACKOFFICE - TOS

SICE's Tolling Operational Back Office Software platform (TOS) is the operational system component of SICE's comprehensive back office solution (OCBOS) offered for All Electronic Tolling (AET) & Open Road Tolling systems (ORT). The TOS component of OCBOS has been developed as a result of specific tolling needs identified by SICE in previous implementations where massive amount of electronic tolling transactions are needed to convert in billable events.
The main drivers of this product are:

- To provide a full auditable tool to convert without losses all tolling transactions coming from roadside equipment into billable events to be sent to commercial back office platforms.
- To bring a cost-effective, flexible and dedicated back office tolling solution easy to customize to each project specifics (pricing schemes, image review strategies, trip building capabilities, maintenance monitoring) independently of the roadside equipment provider.

The TOS component of OCBOS platform is a modular software solution that allows a great flexibility during implementation and a high level of adaptability to different hardware architecture platforms.

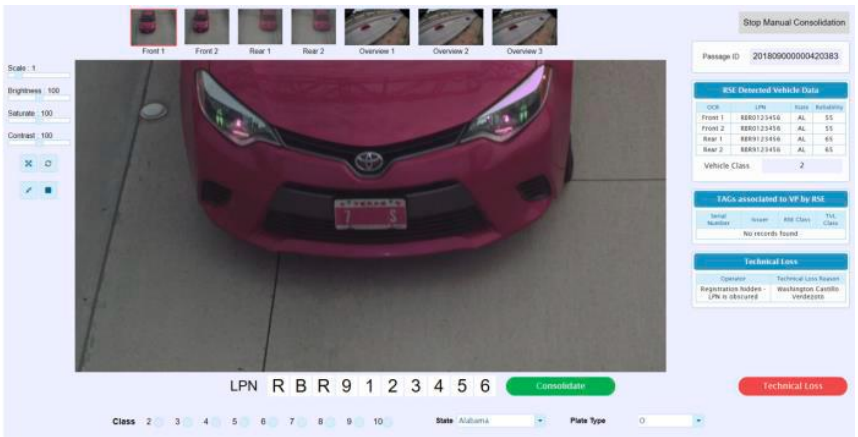
It can be integrated with either SICE's ORT Roadside Equipment, or with any existing roadside system. It can also be integrated with either SICE's Commercial Back Office SW component of OCBOS platform (BIS), or with any other CRM/ERP system.
With two well-defined subsystems named Toll Management Subsystem (TMSS) and Operations & Maintenance Subsystem (OMSS), the TOS performs all transaction processing functions while providing the operator with all necessary tools to audit, monitor and control all data collected and processed by the system.
Some of the key features that the TOS solution provides are:

- Dedicated channels for verification & validation of each type of information exchanged with the RSE.
- Offline messages recovery if communications is lost with the RSE.
- Construction of business transaction using data collected from the RSE.
- Trip Construction for trip-based tolling.
- Advanced Automatic Video Identification tools for optimization of Image Review (own solution or integration with third parties).
- Configuration of multiple tolling products (e.g. video tolling, tag) and configuration of applicable toll rates, including dynamic pricing (own solution or integration with third parties).
- Configuration and action management for each trip/transaction (e.g. low balance notifications).
- Homogenization of transactions coming from different RSE systems.
- Security and auditory management.
- System monitoring and reporting tools.
- Multiconcessionaire, Multiprovider (RSE) and Multiservice (e.g. tolling, parking).

4.1. TOLL MANAGEMENT SUBSYSTEM (TMSS)

Processes all the information exchanged between Roadside System (RSE) and Commercial Back Office (CSC/BOS), including Image Review. It is composed by the following modules:

- Toll Station interface and Customer Service Interface: Interfaces with the RSE of one or several providers (information, images, lists and tables), and with the Commercial Back Office.
- Transactions Processing: Used to process all the information from the RSE and ensure that it is sent to the CSC/BOS with the specified format, including Trip Construction where applicable.
- Toll Rating: Assigns the appropriated toll rate to each transponder, LPN or violation transaction received from the RSE.
- Actions Management: Launches different actions/notifications/alarms based on configurable rules. Also distributes images for storage.



4.2. OPS. & MAINT. SUBSYSTEM (OMSS)

Provides the necessary tools for the operators to monitor and audit the system, used from an administrative perspective.

It is composed by the following modules:

- Alarms: Used to collect and monitor the alerts generated in the RSE, TOS and CSC/BOS levels.
- Parameterization: In charge of allowing the operator to configure all the parameters that ultimately define the TOS behavior.
- Audit: Detects errors, irregularities and deviations in the processed information.
- After evaluation, corrective actions for each case are suggested to be undertaken (includes Transaction Viewer functionality).
- Security: Responsible for storing all the required information in order to control the system access by users, defining all functionalities that each user type can carry out within the system.
- Reporting: Design, management and visualization of the reports that have to be generated in the system (allows COTS software).

4.3. ADDITIONAL FUNCTIONALITIES

Other important functions that the TOS system provides are:

- Management of Image Review workflow, including functions such as queue management based on operator roles and workload monitoring.
- Ability to handle multiple formats to exchange information with the commercial back office and other interfaces (RFC, ASCII, XML).
- Capability to process over 6 million transits and 2 million images per day.
- Provides a comprehensive and user friendly set of interfaces that allow the user to do a full trace of information across TOS processes.

5. SICE'S COMMERCIAL BACKOFFICE SW - BIS

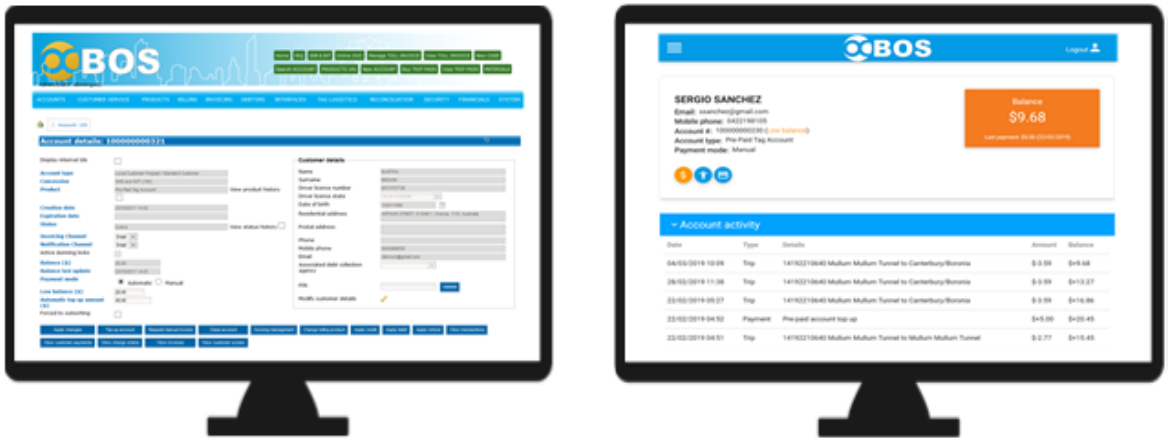
SICE's Commercial Back Office Software platform (Billing and Invoicing System or BIS) is the commercial system component of SICE's comprehensive back office solution (OCBOS) offered for conventional Electronic Toll Collection (ETC), All Electronic Tolling (AET) & Open Road Tolling systems (ORT).

The BIS component of OCBOS has been developed as a result of specific tolling needs identified by SICE in previous implementations where other software applications were used. The main drivers of this product are:

- To cover GAPs and eliminate components of other COTS ERP/CRM/FI solutions that are not specific to tolling.
- To bring a cost-effective, flexible and dedicated back office tolling solution easy to customize to each project specifics (tolling products, enforcement politics, interfaces, and roadside equipment).

The BIS component of OCBOS platform is a modular software solution composed by different functional modules, each of them performing different functionalities regarding customer accounts management, and providing a comprehensive coverage of all functions required by an integral back office solution.

It can be integrated with either SICE's Tolling Operational Back Office System (TOS), or with any existing host system. It provides a comprehensive user interface that offers the ability to seamlessly access all the information stored and processed by the system, giving great levels of flexibility to SICE's integral back office solution. Hence, making the implementation / adaptation process to each project requirements a smooth procedure.



BIS hardware platform is based on a standard system's architecture for an easy business integration. Some of the key features that the BIS solution provides are:

- Ability to configure and manage a wide variety of tolling products for each of the toll accounts created in the system.
- Supports different sources of billable events (e.g. fees, deductions, interoperable accounts).
- Online processing of customer's account movements (e.g. events billing, account top-ups).
- Multiple options for invoicing generation and processing (e.g. definition of groups per invoice, advanced scheduling, invoice simulation).
- Customer Relationship Management (claims or enquiries).
- Debtors and dunning management.
- Assets management (e.g. transponders, smart cards).
- Reconciliation of interoperable payments.
- Security management.
- Data Analysis, monitoring and reporting tools.
- Public and private web portal (for customers or agents operations).

5.1. BUSINESS TRANSACTIONS TRACEABILITY

BIS processes traceability of business transactions:

- Billing processing flow
- Debtors processing flow
- Invoicing processing flow

5.2. INTERFACES

Typical interface integration includes both; internal systems under the control of a tolling agency, as well as external.
BIS monitors all interfaces with internal and external systems.

- Operational BackOffice Systems
- Contact center
- Call Center (with or without IVR)
- Asset warehouse
- Mailing house
- Enforcement agencies
- Payment gateways
- Vehicles Licenses Plates Databases
- Interoperable entities
- Customers ERP

Designed for Fast Interfaces Development, key for an agile and cost-effective implementation of the solution and future improvements.

5.3. ADDITIONAL FUNCTIONALITIES

Provides invoicing details:

- Invoice number
- Invoicing period (start/end dates)
- Payment's due date
- Final toll rate amount (base&taxes)
- Discounts applied (if any)
- Invoice generation for review (PDF & XML)

Allows direct access to image(s) review.
Manages Billing & Tolling event details:

- Event type (e.g. pre/postpaid)
- Event status (e.g. invoiced/pending)
- Toll rate applied (base value)
- Discounts applied (if any)
- Vehicle information (e.g. class, plate number)
-