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Business Performance Sustained

**eXensys – Integrated Logistics**

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

## Table of Contents

**Introduction** ..... 3

**Overview** ..... 3

**Benefits** ..... 11

**Conclusion** ..... 12



Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

## Introduction

Integrated Logistics Management is the element of the supply chain process responsible for moving goods and materials. The movement of raw materials, components, and finished products, from supplier to manufacturer to distribution center to the customer, represents a significant portion of the final cost of the product. The efficient and effective management of inter and intra organization logistics activities, helps reducing the final cost of the product, hence generates significant value in the supply chain, which is finally passed on to the customer.

Apart from the above the ability to track goods while they are in transit is a part of providing quality service to the customer.

## Overview

eXensys Integrated Logistics Management empowers the organization to handle the complex logistics requirements viz. Inbound Logistics, Out Bound Logistics and Reverse Logistics. The system also equips the organization to utilize their own fleet, hiring fleet from the market or to operate in a scenario, which is the mixture of both.

When it operates on utilizing organization owned fleet, and then it focuses on, reducing the direct and indirect operational cost, and increasing the efficiency through optimum capacity utilization and strict monitoring. When it operates in procuring fleet from the market mode, the system focuses on getting the best price for the tendered load, optimizes the route through required consolidation and deconsolidation of loads. The system can also be configured to operate in a mix mode of the above two i.e, simultaneously, the organization can execute logistics operations by its own fleet and can also hire fleet from the market for the same.

It comprises of the following sub-processes:

- Fleet Management
- Logistics Planning
- Logistics Execution
- Logistics Monitoring

### Fleet Management

eXensys Integrated Logistics' Fleet Management is a comprehensively handles all the regular Fleet Management functionalities along with the Fleet Maintenance. The module offers highly configurable set of Unit (Vehicle) commissioning and decommissioning transactions. The unit comprises of a truck head and one or more trailers along with their other accessories. The module handles the post-usage decommissioning and disposal processes.

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

Apart from the owned fleet, the system also maintains the Carrier and the hired fleet, along with their rate information. The system provides ample flexibility to the Traffic manager, to choose from highly configurable price list, covering all sorts of loads, modes of transport and carrier availability.

“To Keep the fleet-down time to the least”, is one of the most occult task faced by many fleet owners. To keep the fleet up-time to the maximum, fleet owners go for vivid maintenances. eXensys Fleet Management offers Preventive Maintenance, Corrective Maintenance and Supportive Maintenance.

#### *Preventive Maintenance*

The system maintains the Preventive Maintenance schedule of the entire fleet. Prompts for the Preventive Maintenance, even when the vehicles are on operations or keeps them off from the same, based on the configuration settings. The system facilitates the Inception, Preparation and Execution of the Job Card, tracking down to the level of the tasks, resources and material, thus provides accurate Job Costing.

#### *Corrective Maintenance*

The system provides corrective maintenance for the fleet to support their operations under critical conditions. The corrective maintenance comprises of the following

- Accident Maintenance,
  - Break Down Maintenance
- and support maintenances viz.
- Spare-part Repairs
  - Tools Conditioning.

The system provides absolute tracking of the Job execution along with the job costing.

### **Logistics Planning**

eXensys IL’s Logistics Planning Process handles complex logistics planning requirements, through its various sub-components viz. Shipment Formation, Load and Load Lines, ALPS(Advanced Logistics Planner and Scheduler) comprising of Route Optimization and Delivery Lines formation, Carrier Optimization with Active Fleet Determination and Load Tendering. The details of the same is given below.

#### *Shipment Formation and Confirmation*

eXensys Integrated Logistics - Logistics Planning’s Shipment formation process, is tightly integrated with all reference points of In-Bound, Out-Bond, Intra Organizational and Reverse Logistics, Viz, Sales Orders, Purchase Orders, RMA (Return Material Authorizations, ISTs etc.. The system auto-generates the shipments based on the load and the transit information provided in the respective transactions. Subsequently the shipments goes thorough the confirmation process, with specification of a host of transit parameters.

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

### *Building Load and Forming Load Lines*

eXensys IL – Logistics Planning’s Load Building process, builds the loads out of the generated shipments. This process can break one shipment into multiple loads or can consolidate multiple shipments into a single load. Apart from the same, the system provides the load specifications Type and Nature of Cargo, Shipment Basis of Cargo etc. The system supports Palletized, Bulk ( In State of Matters), Containerized and Piece Shipments cargo.

With the necessary transit information, the system forms the Load Lines, based on their destinations, transshipment points and TCD Centers ( Transportation Cross Docking ).

### *Advanced Logistics Planner and Scheduler*

eXensys IL – Logistics Planning’s ALPS process, forms the delivery lines, Assigns the carrier, for all the load-lines formed in the Loading Building processes.

It enlists all the Loads Lines, destined for a common route. The system gives the flexibility to select route then the load-lines and vice-versa. These load lines are then assigned to either to the Load Tendering process or to the private fleet based trips management.

### *Route Optimization*

After receiving the movement and storage requirements, the system forms loads for other hubs and legs, as per the route assigned to each of the loads. Then the user manually runs the route optimization (RO) component of ALP. Based on the common transit points, cross docking centers, transshipment points and mode of carriage, the system forms the shipment.

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### *Load Tendering*

The system activates the Load Tendering process, if the planner has been allocated external carrier for the load or shipment. The system then allows the user to float RFQs in the market and registers quotes from the different transport vendors, directly to the application, through its web-services component. After the same, the system provides the option to the user to either enter into a contract for the said no of loads and shipment, or to execute any existing contract. On the other hand it also allows the user to go for a Transportation Procurement Order of external nature, against the specific transportation vendors. After the due execution of the Transportation Procurement Order, thorough the Logistics Execution sub-module, the system makes them available for vendor payments. Logistics Execution involves the critical processes, comprising of the beginning to the execution, monitoring the execution and closing the execution while covering the complete logistics life cycle.

### *Trips Management*

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

The trips management handles the planning and execution at the tactical level. Here in the system generates a trip, does the planning and finally starts the execution of trips.

Further on the planning process a Trip is initiated. A trip can be of predominantly 2 types:

- Regular Operation Trip
- Heavy Lift Operation Trip

Again each of the above type of the trip will have the following 2 sub-types:

- Internal Trips ( Meant for organization's internal purposes )
- External Trips ( Meant for Customer service )

The process runs through multiple stages, viz, Initiation, Preparation and Execution. At each of these stages the system performs specific planning activities.

### *Trip Initiation*

In the Initiation phase the system processes the Admin, Carrier and the Route information. The details of the same is given below.

#### *Carrier Optimization*

The Carrier Optimization provides the carrier information, either through the process of Active Fleet Determination or through the process of Load Tendering.

The carrier optimization process works internally based on the configurations settings. The user activates the necessary configuration elements which are instrumental for activating either of the following environments:

- Planning on Owned Fleet
- Planning on Hired Fleet
- Planning on Both Sorts of Fleet

#### *Active Fleet Determination*

Based on the above configuration settings, the system triggers the Active Fleet Determination (AFD). The algorithm at its initial level segregates the fleet and considering the AFD input. Then the carrier allocation segregates the carriers based on their mode of transit, and type, category & nature of the consignment to that of the shipment. On appropriate validations the system finally allocates the carriers, in case of the hired fleet, it states the carrier requirements with their specification.

AFD is a complex set of algorithms, used to determine the current pool of available units for the proposed trip. The AFD considers the following

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White Paper		W. E. F. dd/mm/yy

- Maintenance Status
- Driver Availability
- License or Registration
- Insurance
- Return Trip bound units and their availability
- Transshipment bound units and their availability
- Provisional stay of the units and their availability

For example:

1. All Individual components of the Unit
2. Unit as a Whole.

In the due process of the execution of AFD, the system considers an array of configuration set-up values.

*Load Tendering* – ( Please ref To the Logistics Planning Section)

The user also assigns the Driver over here. The availability of the driver is also determined by algorithms, along with the inputs from the configuration set-ups.

### ***Trip Preparation***

After the Initiation phase, the process goes through the Preparation phase. Here in the system takes the reference to the Delivery Lines generated in ALP and populates the load details. The necessary information regarding the loading and the un-loading are provided over here. Here in the system either processes the load for its entire delivery line or for parts of it.

In the Trip Preparation, the user gives tentative details of the Consignment. The system accommodates the following consignment types viz Palletized Cargo, Bulk Cargo, Container Cargo, Piece Shipments, or any combination of the above, across all the trailers attached to the unit.

### ***Fuel Slip Generation***

The user can generate the Fuel Slips for the fuel requirements of the trip. The Fuel Engine calculates the total fuel requirements of trip, based on Road Conditions, Tonnage Load and Type of Trailers.

Apart from the same, the system gives the most cheapest and the most convenient fuel stations, of the route, along with the quantities and schedule of fuel to fill in.

The system generates automatic purchase orders, for the fuel purchase, with reference to the Fuel Slip generation.

The advanced fuel algorithm, gives the following out put:

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White Paper		W. E. F. dd/mm/yy

- The Total Amount of Fuel Required for the Trip
- The Fuel Stations from which the fuel has be supplied or bought
- The Proposed date and time of purchase

The algorithm optimizes the following:

- The minimum possible fuel consumption
- The tank capacity
- The Fuel Price, across different fuel stations
- Assigning priorities to Organization owned Fuel stations.
- Grace Fuel and Distance assignment.

### Logistics Execution

Logistics Execution involves the critical processes, comprising of the beginning to the execution, monitoring the execution and closing the execution while covering the complete logistics life cycle. The processes involved are Trip Order, Trip Initiation, Trip Generation, Trip Execution, Loading, Un-Loading, Gate Pass IN or OUT.

#### *Trip Execution*

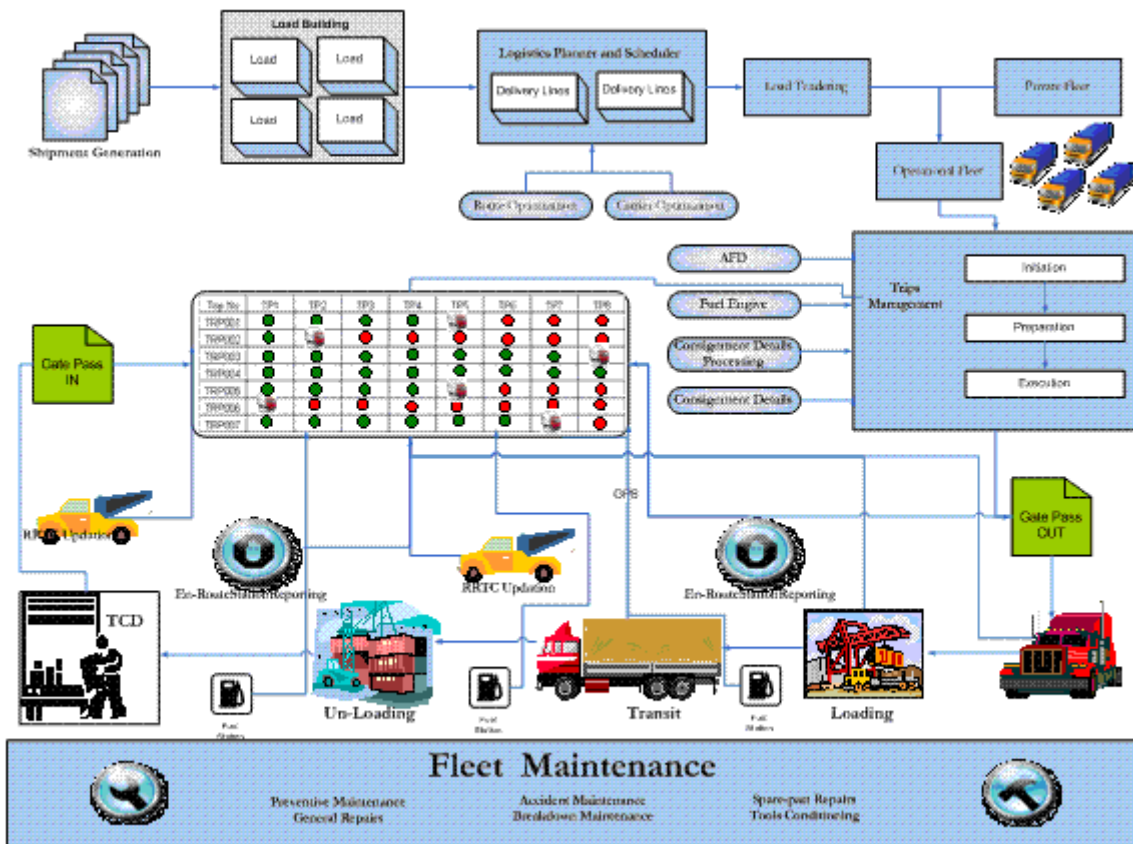
The user can conduct a pre-cautionary check of its trailers, on the following parameters. The same is controlled by configuration elements.

- For the Said Load
- For the State of Matter
- For the Commodity types.
- For the dispatch Types.

The system also conducts a check on the Living allowance generation and disbursement.

#### *Generation of Transit Details*

The Route and the Transit details auto-populate based, on the attached route. The transit details gives the expected date and time of arrival, date and time of departure at all the transit points and also enlists and gives trigger for the business operations to be performed at these transit points.



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### Loading

The Loading transaction notes the exact details of the loading, across different consignment types and for all the trailers, along with the loading duration, of the trip. The same also captures the expenses occurred during the complete loading process. It also captures the details of material handling equipments and any other 3rd party services taken during the process.

With respect to a trip, the system allows multiple Loading transactions, based on the configuration settings.

### Un-Loading

Finally the unit reaches the un-loading location of the customer, and offloads the consignments. The un-loading Officer presides over the whole activity of the off-loading. eXensys Operations Management System captures the un-loading details with respect to the loading detail and monitor the variance. Further to it is does the quantity variance analysis and provides penalization for the concerned. The un-loading process always gets executed always with reference to the Loading or Manifest generation process.

The source of the quantity variance can be one of the following. The Variance and respective the Course of Action is mentioned here below.

- Damage ( Action: deduction from the Driver's Incentive )

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

- Shortage ( Action: deduction from the Driver's Incentive )
- Extra (Action: No action, given to the Customer )
- Pilferage. ( Action: deduction from the Driver's Incentive )

DEPS Physical Report copy has to be uploaded into the server.

The proposed system also account for the Off-Loading expenses under different heads. The system also allows to key in the Material handling Equipment (MHE) details along with their costing. The proposed system further accounts the MHE usage into the eXensys Financial Management system capturing the vendor details.

## Logistics Monitoring

eXensys Logistics Monitoring provides exhaustive monitoring of the fleet management, operation execution, transit and operational expenses

### *En-Route Station status Updation*

This transaction gives the Expected Date and Time of Arrival and Expected Date and Time of Departure, at the selected En-Route station, for all the active trips, which passes through the same. The user updates the Actual Date and Time of Arrival and Actual Date and Time of Departure of the units.

### *Traffic Monitoring Status Updation*

This transaction can be accessed by mobile devices. Any Operational entity can report and record the location, along with the date and time. The same gets recorded, and based on the kind of status updations the system updates other transit details of the trip.

### *Central Traffic Command Structure*

This is a master dash board, which shows all the trip details of all the active tri, classified under different parameters. On this screen the user can know the as on status of the unit, based on its different business functions. The dash board allows the user to accept online updations by various sources mentioned above.

### *Accident*

Accidents are often eventuality of fleet operations. Upon access of this transaction on mobile devices, any of the operational entities can record an accident with its minute details. The system also gives alerts to the designated authorities, at the set frequency, till any maintenance activities are initiated against the same. It also notifies the instant requirement for a relief or connecting trip, along with the observations of the accident.

### *Breakdown*

Breakdowns are often eventuality of fleet operations. Upon access of this transaction on mobile devices, any of the operational entities can record a breakdown with its minute details. The system also gives alerts to the designated authorities, at the set frequency, till any maintenance activities are initiated against the same. It also notifies the instant requirement for a Relief or Connecting Trip, along with the observations of the breakdown.

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

## Benefits

- Minute tracking of all the Operational Elements with absolute cost measurements empowers enterprises with strict cost control.
- Logistics Planning through ALP, optimizes the logistics resources, hence directly contributes to the bottom line.
- The Load Tendering process allows the transport partners to view the tendered loads and posting their Quotations with response to that.
- The comprehensive Load Tendering process, empowers the Organizations to have the best rates from the logistics services.
- This transport procurement process empowers the partners to plan their resources.
- Optimized Route, Carrier and Fuel Consumption, lowers the operational cost, hence directly affects the bottom line positively.
- Dynamic Tracking System gives absolute visibility of the stock in movement.
- Managing special situations , viz Accidents, Break Downs, Transshipments effectively, yields greater customer satisfaction
- DEPS Tracking with POD ceases the revenue leakages.

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy

## Conclusion

eXensys IL provides comprehensive logistics solutions comprising of in bound, out bound and reverse logistics for enterprises having owned fleet, hiring fleet or a mixture of both. The solution handles the end-to-end logistics life cycle, right from the logistics request processing; to scheduling carrier and optimizing route, fuel consumption & load; to loading / unloading, freight costing and payments, with the capability to maintain the fleet and monitor their movements.

Precisely it provides a comprehensive solution for logistics planning, logistics execution and logistics monitoring along with the fleet management. Thus, eXensys IL plans, executes and monitors each and every movement and storage of material across the supply chain.

eXensys IL enables organizations to plan their out bound, in bound and reverse logistics needs with optimization of organizational resources and operational expenses through a host of planning instruments. It helps organizations to operate in a mixed environment of owned and hired fleets. Further the system provides absolute visibility to the logistics execution activities, viz., loading, unloading, traffic monitoring, online tracking, etc. Apart from the above, the system is configured to handle special situations, viz., accident, breakdown, in-transit stock transfer and the necessary support processes for the same. eXensys IL monitors the logistics execution with respect to its planning parameters. The monitoring process comprises extensive tracking capability through the en-route station status tracking, traffic monitoring status tracking and central traffic command structure. Further the system extends its capability to integrate real time third party tracking tools, viz., GPS / GIS technologies.