



Decision Support System **m** For Integrated Door-To-Door Delivery:
Planning and Control in Logistic **C**hains

Contract N°: IST- 2000- 29557

PROJECT PRESENTATION

Status : Final








Date : Monday, 26th November 2001



DOCUMENT CONTROL SHEET

<i>Project</i>	MOSCA – Decision Support System For Integrated Door-To-Door Delivery: Planning and Control in Logistic Chains
<i>Title</i>	Deliverable 1 - MOSCA Brochure
<i>Nature</i>	R : Report
<i>Available languages</i>	E : English
<i>Dissemination level</i>	Public
<i>Version</i>	2.0
<i>Date</i>	26 th November 2001
<i>Number of pages</i>	11
<i>Electronic reference</i>	MOS_Brochure 2.0
<i>Editor / Authors</i>	Massimo Marciani – FIT Paola Cossu - FIT
<i>Contributors</i>	Christiane Wiezorke – PTV (technical support) Andrea Rizzoli – IDSIA (website)
<i>Revision</i>	All partners
<i>Synopsis</i>	External information to be used for dissemination
<i>Keywords</i>	IST, Project presentation, Website

The MOSCA Consortium consists of:

Partic. Role*	Participant name	Participant short name	Country
CS		FIT	I
CO		PTV	DE
P	 Universität Karlsruhe (TH) Institut für Fördertechnik und Logistiksysteme Institut für Wirtschaftspolitik und Wirtschaftsforschung	UNIKARL	DE
P	 ISTITUTO DALLE MOLLE DI STUDI SULL' INTELLIGENZA ARTIFICIALE	IDSIA	CH
P	 UNIVERSITY OF CAMBRIDGE Judge Institute of Management cambridge's business school	UCAM-JIMS	UK
A		INTERPD	I
A		ENEA	I
A	Commissione Regionale dei Trasporti del Luganese	CRTL-PTL	CH

CS = Scientific Co-ordinator , CO = Technical/Financial Co-ordinator, P = Principal contractor, A = Assistant contractor

0. SUMMARY

This document gives an overview of the IST- 2000- 29557 - MOSCA project for public dissemination.

The document provides the information to be retrieved in the fact sheet of the project listed at <http://www.cordis.lu/ist/projects.htm> and an overview of the (public) website hosted at <http://www.idsia.ch/mosca.htm>. The private section of that website remains internal to the project members.

CONTENT

0. SUMMARY	4
1. PROJECT PRESENTATION	6
1.1 IST project fact sheet	6
1.2 Proposal information	6
1.3 Abstract	6
1.4 Objectives	7
1.5 Milestones	7
2. THE MOSCA WEB SITE	9
3. PROJECT DATA	11
3.1 General information	11
3.2 Contact details	11

1. PROJECT PRESENTATION

1.1 IST project fact sheet

This is the information to be retrieved at <http://www.cordis.lu/ist/projects.htm>

1.2 Proposal information

Proposal number: **IST- 2000- 29557**

Key action: **KA I**

Action line: **I.5.1**

Acronym: **MOSCA**

Title: **Decision Support System For Integrated Door-To-Door Delivery: Planning and Control in Logistic Chains**

Logo:



1.3 Abstract

Transport is an essential service in any society. Goods transportation ensures that products can be shipped from factories to markets. With increasing traffic volumes in urban areas and resulting traffic congestion, it is becoming difficult for freight transport to get into urban center areas. Goods transport in cities represents from 10 to 18% of the road traffic causing 40% of air pollution and noise emissions (compare also the results of COST 321).

MOSCA aims at improving several problems areas affecting freight distribution in European metropolitan areas, such as booking and reservation procedures, vehicle routing, loading/unloading areas reservations, emergency management support, effective and efficient inter-connection.

Criteria are logistics service degrees on the demand side and support planning on the supply side. Input of traffic related events and the corresponding inclusion in dynamic road network models for calculation of estimated arrival times are objectives of the supply-oriented system components. The demand-side provides data on scheduled transports and on short-term modifications to the information system. This information results from logistics process planning steps for production and transport and affect downstream supply chain operations.

The supply side is represented by local authorities, responsible for traffic infrastructure, while the demand side is constituted by production and transportation companies. Collaborative information and planning is facilitated if restrictions and adverse effects caused (e.g. by maintenance work, special events, etc.) are communicated by local authorities and vice versa planned transports by forwarders and carriers.

1.4 Objectives

The key objective of the project is to provide a set of tools for improving the efficiency of door-to-door transport of goods in urban areas by collaboratively providing demand and supply side information in one single environment/system.

The **MOSCA** information exchange includes services provided by a **central information system** which allows to:

- Support dynamic planning and control of logistics operations;
- Visualize sustainability cost;
- Proactively manage freight traffic transports;
- Dynamically publish traffic network incidents;
- Establish performance indicators of transport efficiency.

Project key sub-objectives are:

- Stimulating an optimal use of existing technologies;
- Creating an “open system” for additional modules;
- Establishing a high level of acceptance among key actors;
- Developing a user friendly interface.

An improvement in freight distribution, a rationalisation of the production chain and enhancement of business opportunities can be achieved through the local co-operation of interested key actors (operators and decision-makers).

Relevant stakeholders' representatives from both demand and supply side are involved as *User Forum* member. They will have the opportunity to systematically interact with the consortium discussing intermediate results of the research at dedicated workshops where the stockholders representatives have a seat.

1.5 Milestones

MOSCA provides a set of computer tools to assist the transport operators in planning their transport services. The approach integrates the urban goods flows and their related infrastructure within advanced urban transport models allowing authorities to plan, assess and control freight policies according to their needs while private transport operators take advantage out of the model by accessing actual traffic and other information (e.g. “works ahead” on roads or closed lanes).

Furthermore, **MOSCA** will investigate the possibility to improve transport models by registering, integrating and considering planned transport flows or even planned single transports from private shippers and transport operators.

Technologically, **MOSCA** will design an information system as a platform for future added value services with several modules (shortest path, tour planner, on-line routing, shop restocking planning) being implemented in this project. Core concept is an application server based on state-of-the-art technologies like Enterprise Java Beans, XML, UMTS, GNSS2, GPRS for mobile information, with open interfaces to services.

A module – **MOSCATOUR** - will face the problem of incorporating the dynamic model of the traffic state into the problem of vehicle routing with multiple time windows. No widely accepted algorithms are yet available and a range of methods to account for robustness will be investigated, such as stochastic travel times and simulation. This algorithmic module will be used in a software framework to provide support for e-commerce operators. This module can also be used to generate tours which comply to complex constraint sets which may have also arisen from the sustainability quantification module. It allows to include either regulative measures or additionally internalised external costs to account for environmental damage, accidents, noise, etc. The striking element is to explicitly show social costs in addition to well-known economic cost in order to evaluate if changes in behaviour occur or participants are sensitised.

A second module will focus on the problem of on-line vehicle routing algorithms – **MOSCALINE** - The function provided is to re-plan vehicle tours in presence of unexpected events such as new customer requests, traffic jams, delays in the delivery and so on. This module will be able to reorganise the next stops on the basis of the available information, knowing the current position of the vehicle and the list of the orders to be processed.

The module *urban shop delivery planning* – **MOSCASHOP** - foresees a combination of company and authority interests in a single application. Being able to retrieve actual traffic related constraints from public systems and to include them in the planning process at company level helps with starting to solve urban traffic problems at the point of origin – the need for shop inventory restocking. Moreover, the feedback of planning results improves the planning possibilities for traffic managers.

The development of an innovative *web-based logistics portal* – **MOSCANET** - allows private consumers to take an active part actively and influence the distribution of goods. Moreover, through this tool a bi-directional asynchronous information exchange between all the involved parties is achieved and, as more qualified information is available, the optimisation potential for urban goods distribution is raised. Open document exchange formats can lead to new and further software tools for logistics and demand management applications.

2. THE MOSCA WEB SITE

The MOSCA Web Site can be found at <http://www.idsia.ch/mosca> and is organised in a public and private section.

The public Web Site provides the basic information as described in section 1.1 as well as an up to date list of results, presentations, publications and reports from the User Forum. It also hosts links to related IST projects, logistic fora and standardisation activities.

The private Web Site provides a handy tool for internal project operation and remains secured from the public access.

The MOSCA project home page will look as below:



The Web Site gives an easily feel on how to retrieve information and is structured as follows:

What is MOSCA

Introduction

Overview and vision

Objectives

MOSCA Consortium

Partners

Link to partners websites

Contact Person

MOSCA Documents

Public Deliverables (this provides all public deliverables as specified in the Technical Annex)

Download the Executive Summary

MOSCA User Forum

Structure

Workshops (Meetings Schedule)

Reports

How to join User Forum

News

Main results

Download the MOSCA Newsletter

Conferences & Call for papers

Reserved area (Members only)

Information and data interchange among Consortium Members

Work related links

Other IST projects

@mail to MOSCA Infopoint

Legal information

As annex to the paper copy of this Deliverable it will be shown in pictures the MOSCA Web Site public structure.

3. PROJECT DATA

3.1 General information

- *Starting date:* 1st July 2001
- *Duration:* 24 months
- *Total costs:* 1,880,459 €
- *EC contribution:* 956,857 €

3.2 Contact details

PROJECT SCIENTIFIC CO-ORDINATOR

Name: Massimo Marciani

Organisation: FIT Consulting srl

Address: Via dei Calefati 29/e - 01028 Orte (VT), ITALY

Phone : +39.0761.490156 / 490026

Fax: +39.0761.403054

E-mail: info@fitconsulting.it