SIMULTRA PROJECT

2017-1-IT01-KA202-006140

SIMULATION OF LOGISTICS AND TRANSPORT PROCESSES

INTELLECTUAL OUTPUT N°4

Manual for Traffic Officer Simulation

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AFT & POLIEDRA

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1. Introduction

This manual gives the player the pedagogical objective of the Traffic Officer's simulation game.

Then the procedure to install the game as well as the recommended operating system.

It also provides different data and information used to carry out the different stages of the game.

2. What is the Traffic Officer game?

This game simulates the daily activities of an operator working in a road freight transport company.

The transport operator is a key player within a transport company: he processes orders, organises and plans the route of the truck drivers, monitors and controls the realisation of the transport service. He operates taking into account cost-effectiveness, safety and security, corporate social responsibility and the various regulations related to transport.

The transport operator is in contact with customers, drivers and other departments from his company.

The aim of this game is to understand the main activities of the traffic officer's profession through a simulation of professional situations. It consists in putting the learner in the role of a traffic officer in the field of road freight transport who takes in charge an order, organises and follows the transport of goods.

This simulation game involves the transport of a container by road from Antwerp (Belgium) to Parma (Italy).

The player must be able to master the knowledge related to:

- Technical standards of vehicles
- Geography
- Standard contract
- European social regulations
- Calculation of a sale price

The learner is evaluated through professional role-plays or exercises that are scored all along this simulation game.

2.1 Download the tool

2.1.1 Settings

Display resolution
Recommended Resolution: 1920 x 1080 but the window is resizable in other resolutions

Operative system
Minimum Required System Version: Windows 7.
Recommended System Version: Windows 8 and Windows 10

Browser
Download of the tool can be done with the principal internet browser (Chrome – Internet Explorer – Firefox) within 32 bit.

Minimum RAM
4GB

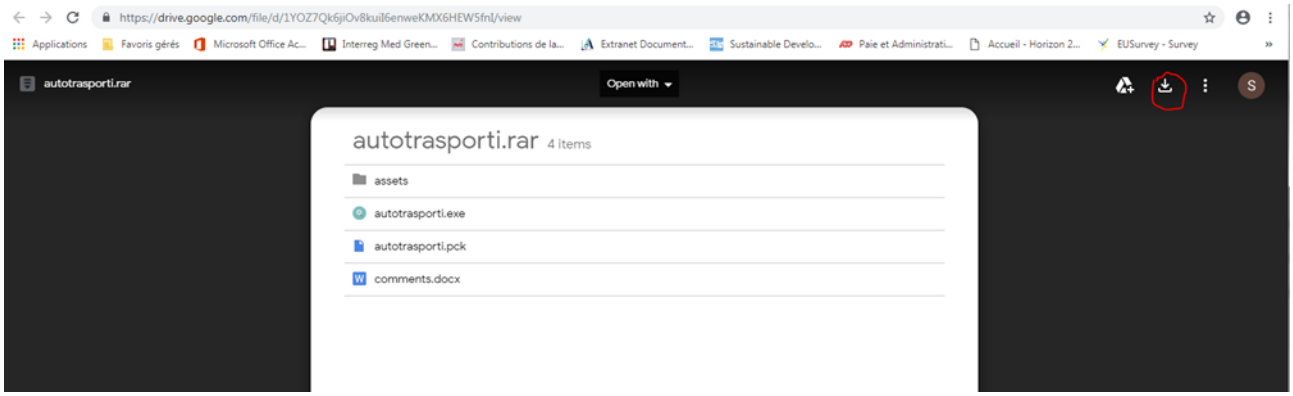
2.1.2 Download steps

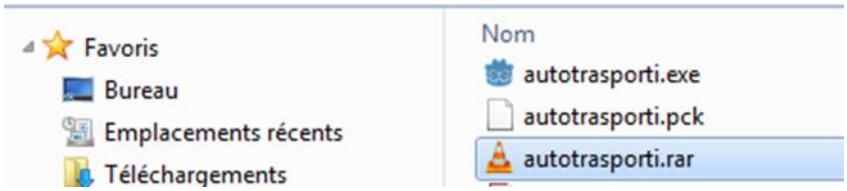
To be able to play the Traffic Officer's simulation game, you must click on the following link: https://www.simultra-project.eu/?lang=en then go to the "Games simulators" tab and choose the game: Road Transport Management.

Then please download the files named autotrasporti.rar. Once downloaded, go to the download folder on your computer and extract the data from the file. Among the extracted files, you will find the file ending in .exe.

Select the autotrasporti.exe, make a right click and choose: open (or double click on it).

The game will open directly.





2.2 Recommendations

For a good visualization of the data (ex: drop-down menu) during the game we advise you to use a mouse.

Calculator may also be useful for some steps of the game.

2.3 Navigation

2.3.1 How to play?

To start the game choose the appropriate language and click on “Play”:

Control keys:

Control keys:

- Mouse: movement, selection
- Keyboard: completion

Navigation bar and buttons:

According to the stages of the game you will meet different elements to progress in the game:

This navigation bar allows you to exit the game or to progress through the game at certain stage:

Click on “Next” to move forward and “Exit” to leave the game.

Please note that when you leave the game it is not possible to restart from the stage where you stopped in the game.

When you want to reply to a question: either put the relevant data into the boxes and click on “Update” or select the right answers and press “Validate”:

Game duration: 45 min

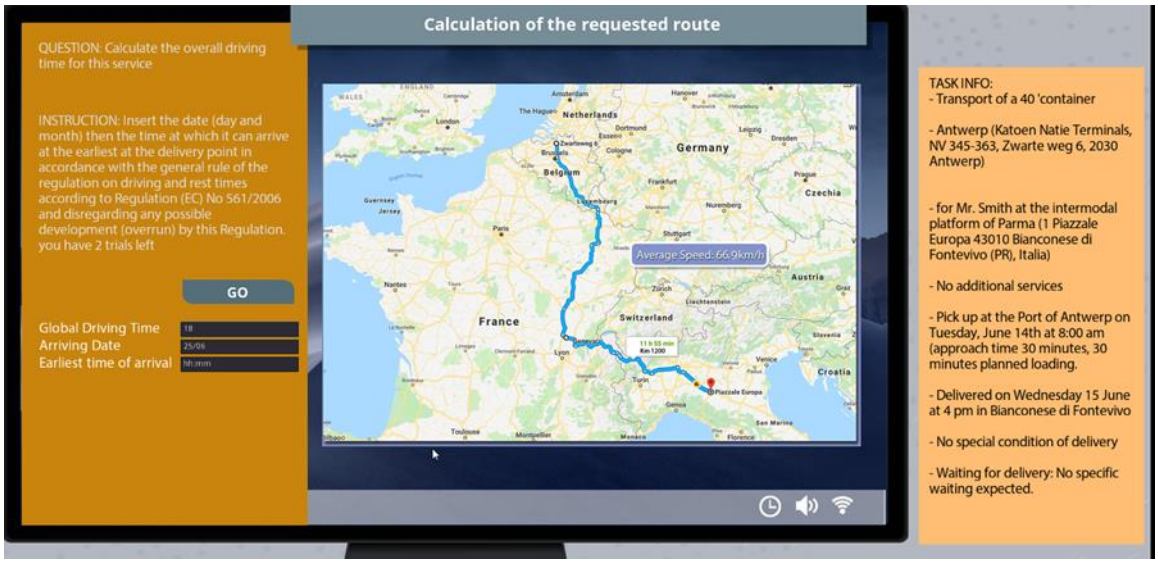
2.3.2 Guideline to complete the game

During the game, you will be asked to answer different questions and exercises: data entry, calculation and reflections exercises…

→ Some guidelines for calculation exercises:

First example:

This exercise asks you to calculate the global driving time and the earliest time of arrival regarding European regulations.



To answers this exercise, complete **only the fields with numbers**. For example, if the global driving time is 15h you must enter 15.

Also, the result of the global driving time must be rounded to the nearest whole number.

For the date complete the field with DD/MM -> 18/07

Second example:

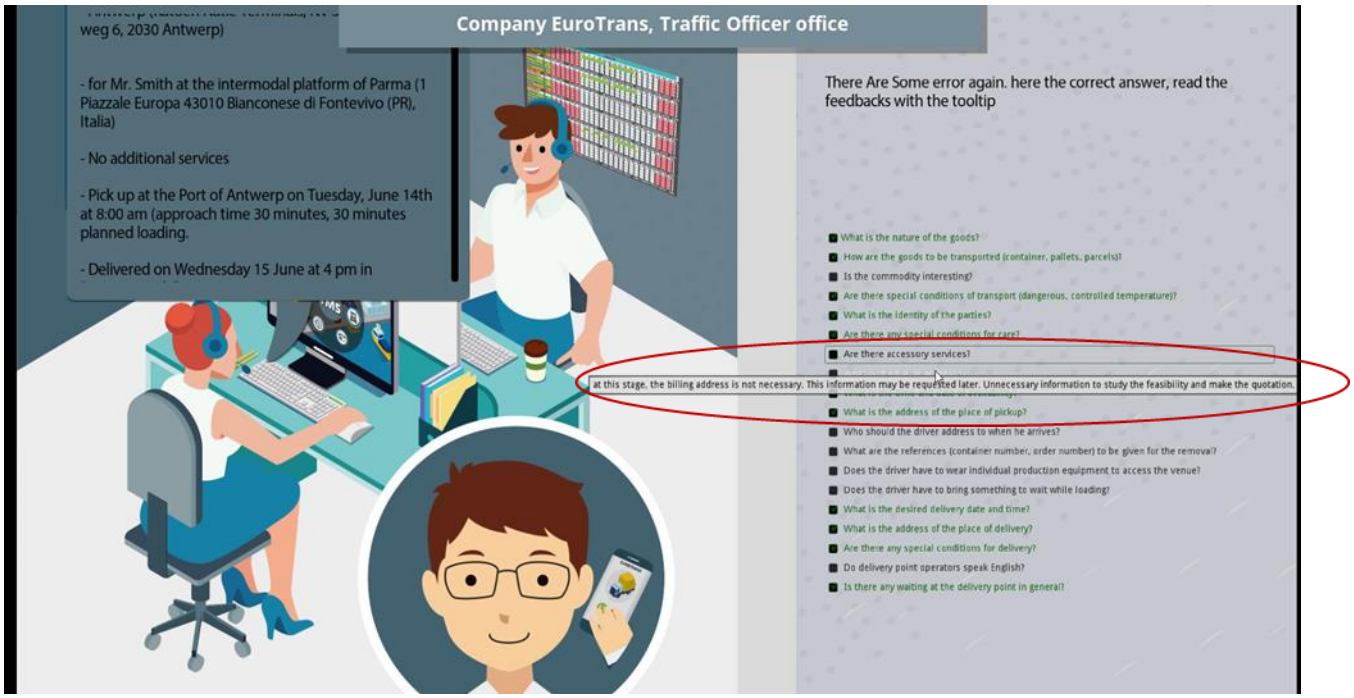
For this exercise, you will have to calculate the price of the service.

In this exercise, complete each field with numbers. If some answers require decimal numbers, please use (.), e.g.:15.23
e.g.: 46.00

→ Some guidelines for reading the feedbacks:

The learner will have two attempts for each exercise. After having answered twice, he/she will receive feedbacks explaining the correct answers.

In these cases, read the feedbacks hovering with the mouse over the different fields of answers.



In other stages, the feedbacks will appear automatically (see picture here above).

3. Game's principles

3.1 Order receipt

The learner (the traffic officer) receives an order for a transport service by phone. His/her challenge is now to determinate the requirements and constraints of a transport service order to ensure its successful completion.

Summary of the customer requirements :

- Transport of a 40 ' container
- From Antwerp (Katoen Natie Terminals, NV 345-363, Zwarte weg 6, 2030 Antwerp)
- To Mr. Smith at the intermodal platform of Parma (1 Piazzale Europa 43010 Bianconese di Fontevivo (PR), Italia)
- No additional services
- Pick up at the Port of Antwerp on Tuesday, June 14th at 8 am (approach time : 30 minutes, loading : 30 minutes)
- Delivery on Wednesday 15th June at 4 pm in Bianconese di Fontevivo
- No special condition for delivery
- Waiting for delivery: No specific waiting expected.

3.2 Order processing

3.2.1 Calculation if a road route

First, the student (the transport operator) must calculate the time required to complete this itinerary. The objective is not to establish a route that is best suited in terms of operation or profitability, but to calculate the time required completing the route which is pre-defined by the simulation game and includes regulatory constraints such as the ban on transit through Switzerland.

To calculate the distance of a route, using an online service such as https://www.viamichelin.fr/web/Itineraires allows you to define the route.

In the game simulation, this online service is reproduced with a pre-defined route simulation defining the total distance to be covered.

Formula to calculate the vehicle travel time for a transport service:

Distance to be covered / Average Speed of the vehicle

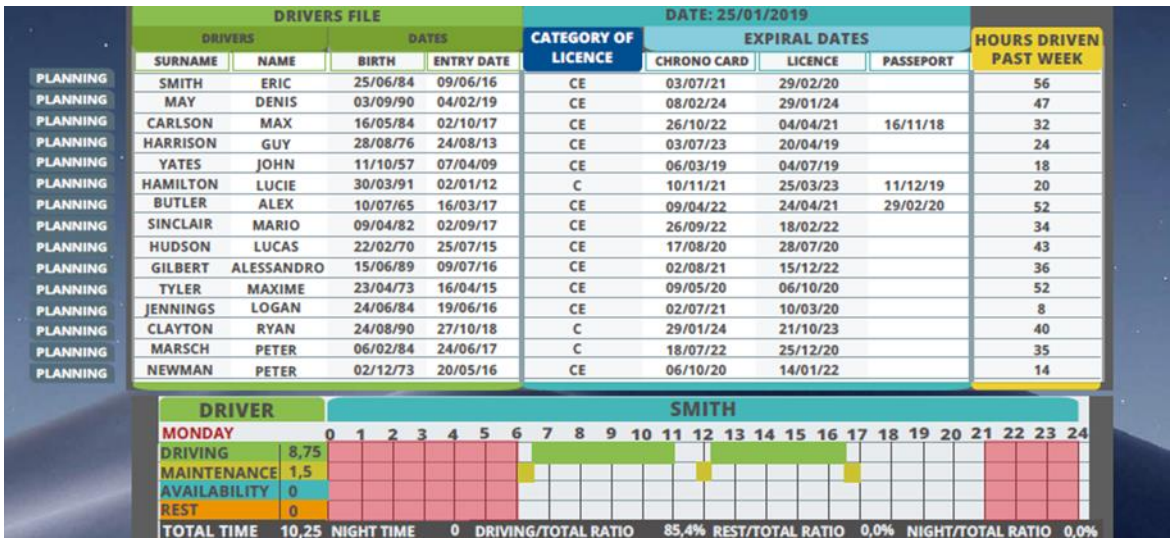
Once the distance and travel time required for this service has been calculated, it is necessary to take into account the mandatory maximum driving and rest periods that a road freight driver must respect in relation to the application of Regulation (EC) No 561/2006 of 15 March 2006 on driving and rest periods.

Regulation (EC) No 561/2006 provides a common set of EU rules for maximum daily and fortnightly driving times, as well as daily and weekly minimum rest periods for all drivers of road haulage. The aim of this set of rules is to avoid distortion of competition, improve road safety and ensure drivers' good working conditions within the European Union.

Maximum daily driving time	• Daily driving period **shall not exceed 9 hours** • With an exemption of twice a week when it can be extended to 10 hours • A maximum weekly driving time of **56 hours** and 90 hours over two consecutive weeks
Continuous driving	• **4 h 30** maximum
Breaks / Driving interruption	• **After driving 4h30, breaks of at least 45 minutes should be taken** • The breaks can be separable into 15 minutes followed by 30 minutes
Daily “normal” rest Split Double - manning	• **Daily rest period shall be at least 11 hours** of consecutive rest per 24-hours period • Daily rest can be **split into 3 hours** rest **followed by 9 hours** rest to make a total of **12 hours daily rest** • Drivers must complete their route in 30 hours and have a daily rest period of at least 9 consecutive hours within that period
Daily "reduced" rest	• Period of at least 9 hours and less than 11 hours (possible up to three times between two weekly rest periods)
Weekly rest	• The regular weekly rest period is 45 hours with the possibility of a reduced rest period of 24 hours over two consecutive weeks with an obligation to compensate with an equivalent rest period taken as a whole before the end of the third week.

By adding the driving times, driving breaks and mandatory rest periods to the overall travel time to carry out the transport, the earliest possible arrival date and time is obtained.

3.2.2 Choice of Driver(s)



DRIVERS FILE — DATE: 25/01/2019

	DRIVERS		DATES		CATEGORY OF LICENCE	EXPIRAL DATES			HOURS DRIVEN PAST WEEK
	SURNAME	NAME	BIRTH	ENTRY DATE		CHRONO CARD	LICENCE	PASSEPORT	
PLANNING	SMITH	ERIC	25/06/84	09/06/16	CE	03/07/21	29/02/20		56
PLANNING	MAY	DENIS	03/09/90	04/02/19	CE	08/02/24	29/01/24		47
PLANNING	CARLSON	MAX	16/05/84	02/10/17	CE	26/10/22	04/04/21	16/11/18	32
PLANNING	HARRISON	GUY	28/08/76	24/08/13	CE	03/07/23	20/04/19		24
PLANNING	YATES	JOHN	11/10/57	07/04/09	CE	06/03/19	04/07/19		18
PLANNING	HAMILTON	LUCIE	30/03/91	02/01/12	C	10/11/21	25/03/23	11/12/19	20
PLANNING	BUTLER	ALEX	10/07/65	16/03/17	CE	09/04/22	24/04/21	29/02/20	52
PLANNING	SINCLAIR	MARIO	09/04/82	02/09/17	CE	26/09/22	18/02/22		34
PLANNING	HUDSON	LUCAS	22/02/70	25/07/15	CE	17/08/20	28/07/20		43
PLANNING	GILBERT	ALESSANDRO	15/06/89	09/07/16	CE	02/08/21	15/12/22		36
PLANNING	TYLER	MAXIME	23/04/73	16/04/15	CE	09/05/20	06/10/20		52
PLANNING	JENNINGS	LOGAN	24/06/84	19/06/16	CE	02/07/21	10/03/20		8
PLANNING	CLAYTON	RYAN	24/08/90	27/10/18	C	29/01/24	21/10/23		40
PLANNING	MARSCH	PETER	06/02/84	24/06/17	C	18/07/22	25/12/20		35
PLANNING	NEWMAN	PETER	02/12/73	20/05/16	CE	06/10/20	14/01/22		14

DRIVER: SMITH — MONDAY (0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24)

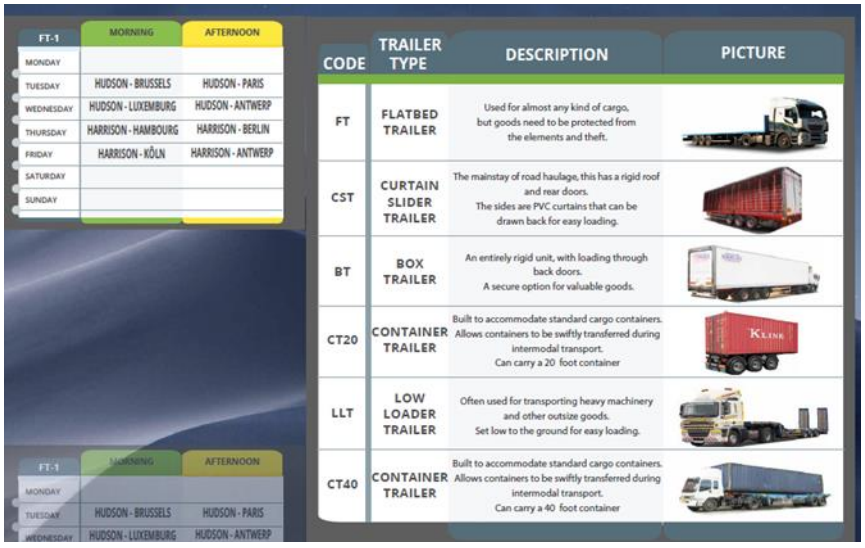
DRIVING	8,75
MAINTENANCE	1,5
AVAILABILITY	0
REST	0

TOTAL TIME 10,25 NIGHT TIME 0 DRIVING/TOTAL RATIO 85,4% REST/TOTAL RATIO 0,0% NIGHT/TOTAL RATIO 0,0%

- **Parameters to be taken into account:**

- Adapted permit
- Validity of the driving licence
- Validity of the initial qualification and periodic training of the driver (FIMO and the FCO in France)
- Medical check-up
- Availability
- Driving time already completed during the week

3.2.3 Choice of Vehicles



FT-1	MORNING	AFTERNOON
MONDAY		
TUESDAY	HUDSON - BRUSSELS	HUDSON - PARIS
WEDNESDAY	HUDSON - LUXEMBURG	HUDSON - ANTWERP
THURSDAY	HARRISON - HAMBOURG	HARRISON - BERLIN
FRIDAY	HARRISON - KÖLN	HARRISON - ANTWERP
SATURDAY		
SUNDAY		

CODE	TRAILER TYPE	DESCRIPTION	PICTURE
FT	FLATBED TRAILER	Used for almost any kind of cargo, but goods need to be protected from the elements and theft.	
CST	CURTAIN SLIDER TRAILER	The mainstay of road haulage, this has a rigid roof and rear doors. The sides are PVC curtains that can be drawn back for easy loading.	
BT	BOX TRAILER	An entirely rigid unit, with loading through back doors. A secure option for valuable goods.	
CT20	CONTAINER TRAILER	Built to accommodate standard cargo containers. Allows containers to be swiftly transferred during intermodal transport. Can carry a 20 foot container	
LLT	LOW LOADER TRAILER	Often used for transporting heavy machinery and other outsize goods. Set low to the ground for easy loading.	
CT40	CONTAINER TRAILER	Built to accommodate standard cargo containers. Allows containers to be swiftly transferred during intermodal transport. Can carry a 40 foot container	

- **Parameters to be taken into account:**

- Characteristics of the goods to be transported
- Vehicle characteristics
- Vehicle availability
- Combination possible (tractor + trailer)

Formula to calculate the payload (CU) of the vehicle:

CU: **Maximum Allowable Weight – Tare Weights**

3.3 Communication of the price for a transport service

The price for a transport service according to the trinomial tree is based on three terms:
- A kilometric term (TK) for variable costs (tolls, etc.);
- A time term (TH) for fixed costs related to the driver;
- A daily term (TJ) for fixed costs related to the vehicle (without the driver) and the structure.

Cost of the service according to the trinomial method:

- Cost per kilometer = Kilometer term **(TK)** x total number of kilometers travelled for the transport operation (laden journey, approach and empty return kilometers to the company)
- Cost per hour = Hourly term **(TH)** x number of the driver's driving hours required for the operation (driving + other times)
- Cost per day = Daily term **(TJ)** x number of days the vehicle is used for the transport operation (including empty journey time)

Operation price of a service = cost of the service + profit margin

3.4 Assignment of the order inside the TMS (Transport Management System)

➢ **What is a TMS?**

A TMS is a Transport Management System, a software to manage and control transport operations.
It is a subset of supply chain management (SCM) that deals with the planning, execution and optimization of the physical movements of goods. In simpler terms, it's a logistics platform that enables users to manage and optimize the daily operations of their transportation fleets.

3.5 Carbon footprint

CO2 emissions: **Emission factor (expressed in Kg CO2/tonne.km) x number of km travelled x number of tons transported.**

3.6 End of the game

The total number of points for each step has been defined as follows:

- for the first try, for each correct answer, the learner will receive 1 point.
- for the second try, for each correct answer, the learner will receive 0.5 points.

At the end of the game, the learner will attain a score out of 100 points and receive a certificate.