



# Interuniversity cooperation in the area of Supply Chain Management

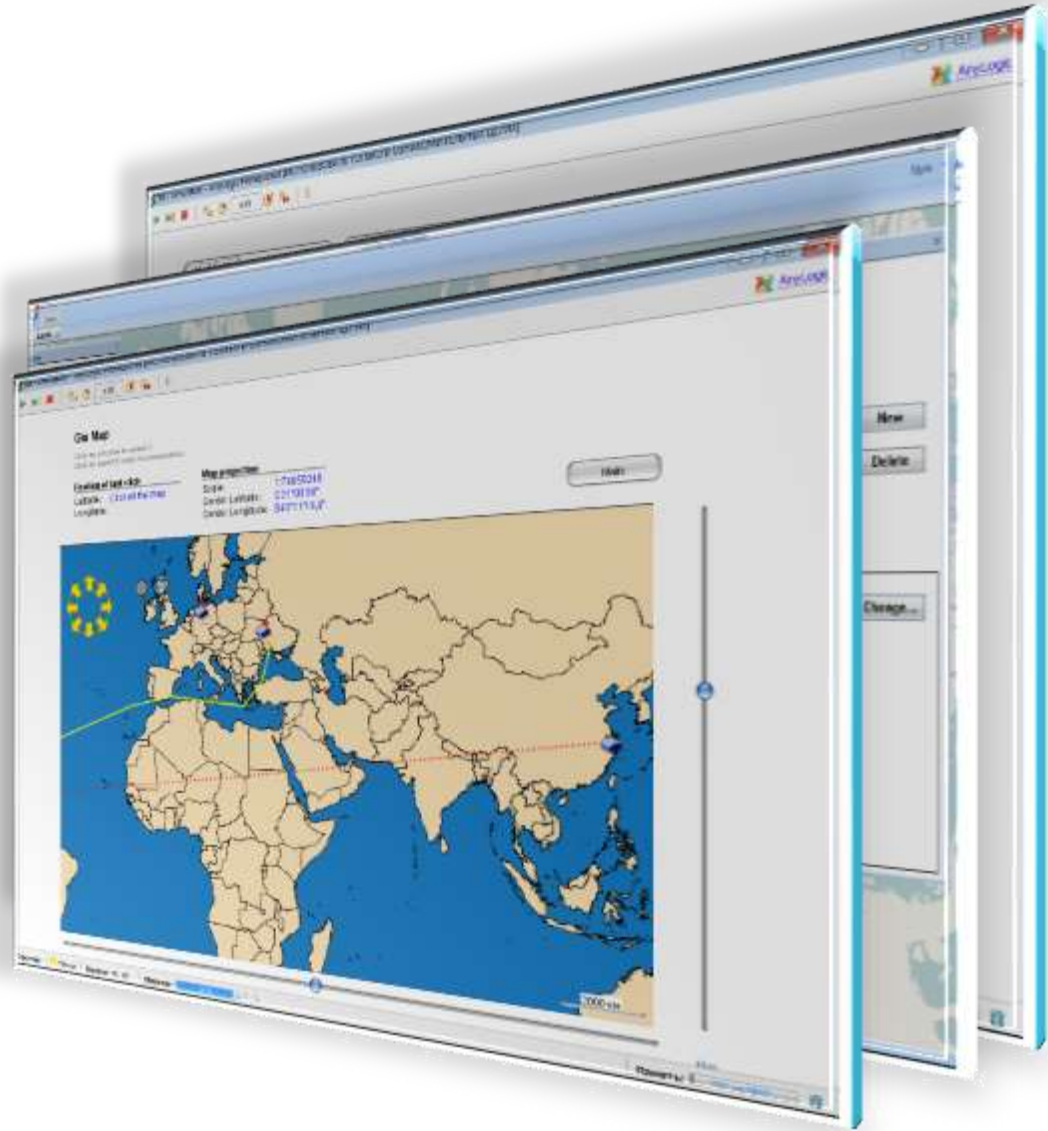
***student:***

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Kharkov-Hamburg  
2011

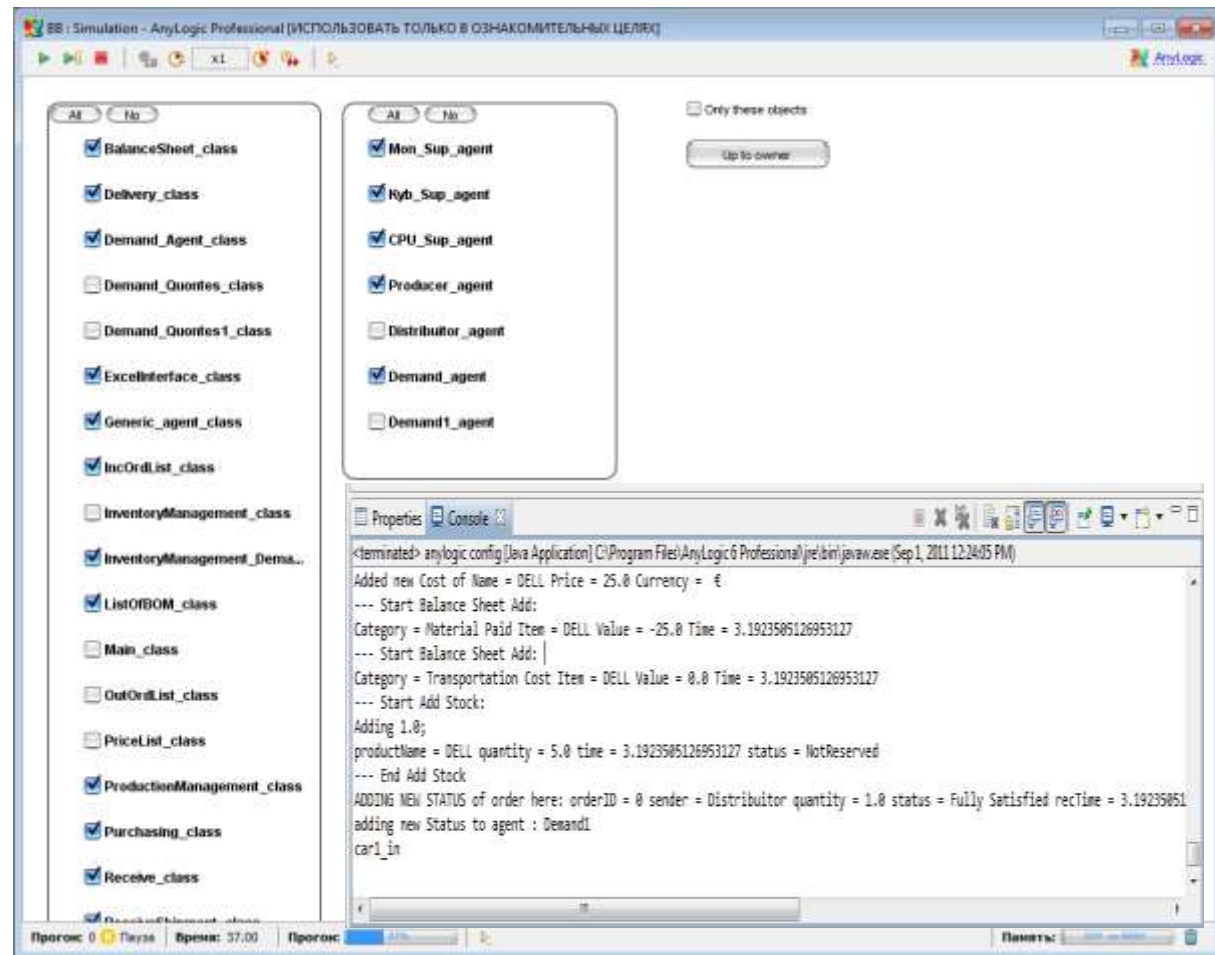
# 1. The work plan

- ❑ Development of functionality to filter of debug information;
- ❑ Development a program to build routes to transport goods among agents;
- ❑ Adding transport agents and GIS data into the model

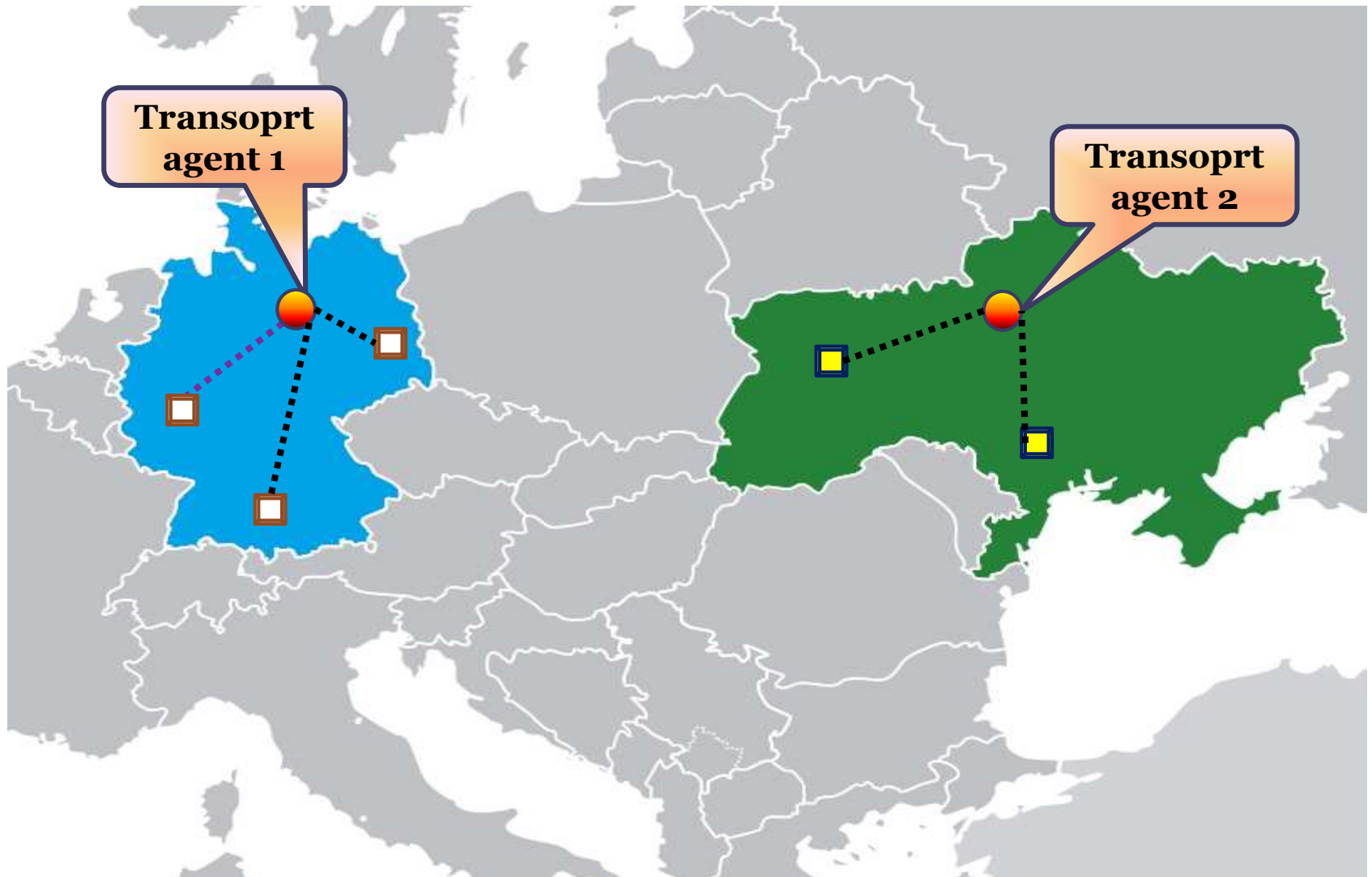


## 2. Debug information

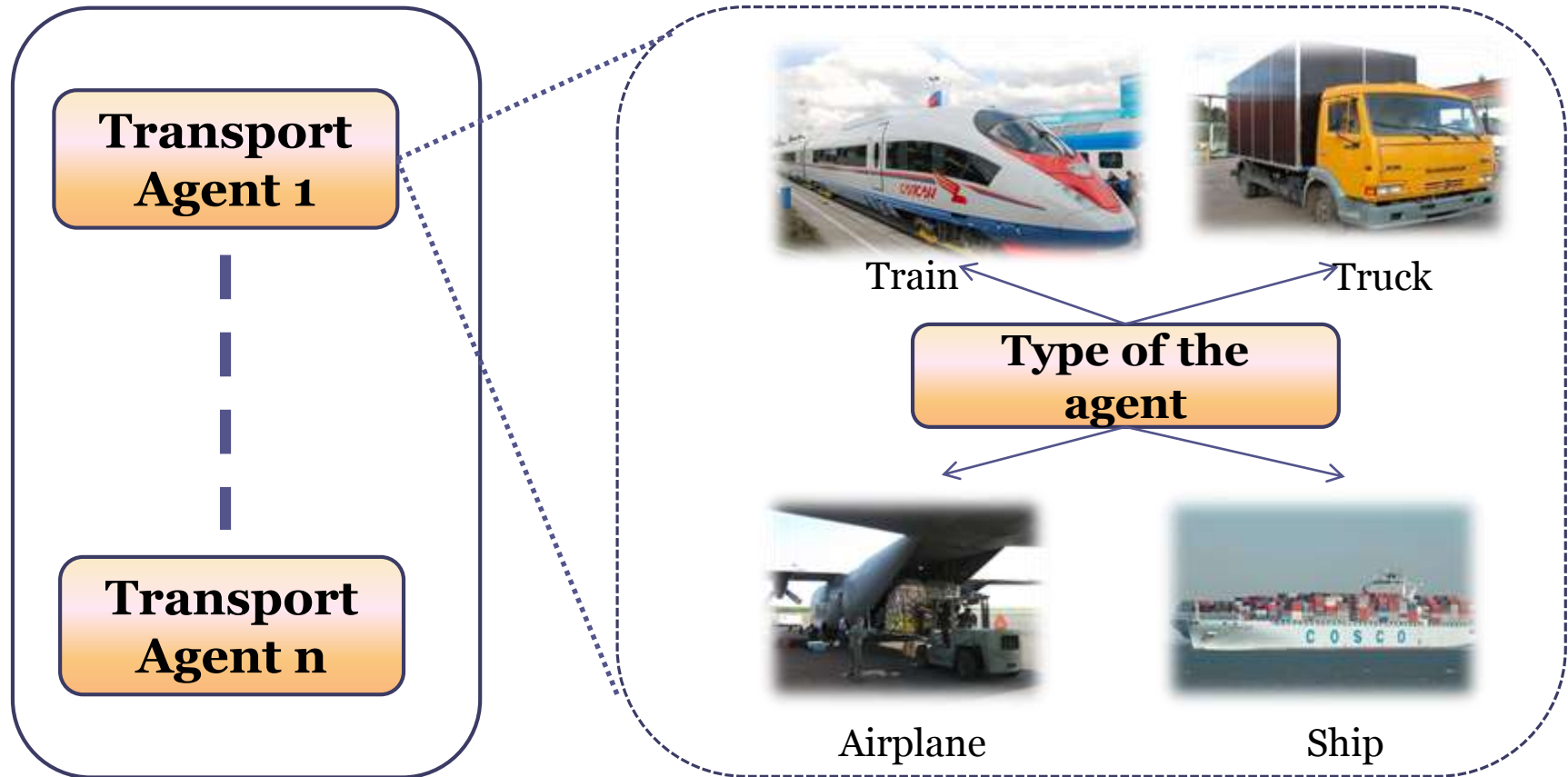
- ❑ Management output information to the console window for simulation testing;
- ❑ Filter data by objects of classes;
- ❑ Filtering data on the agents.



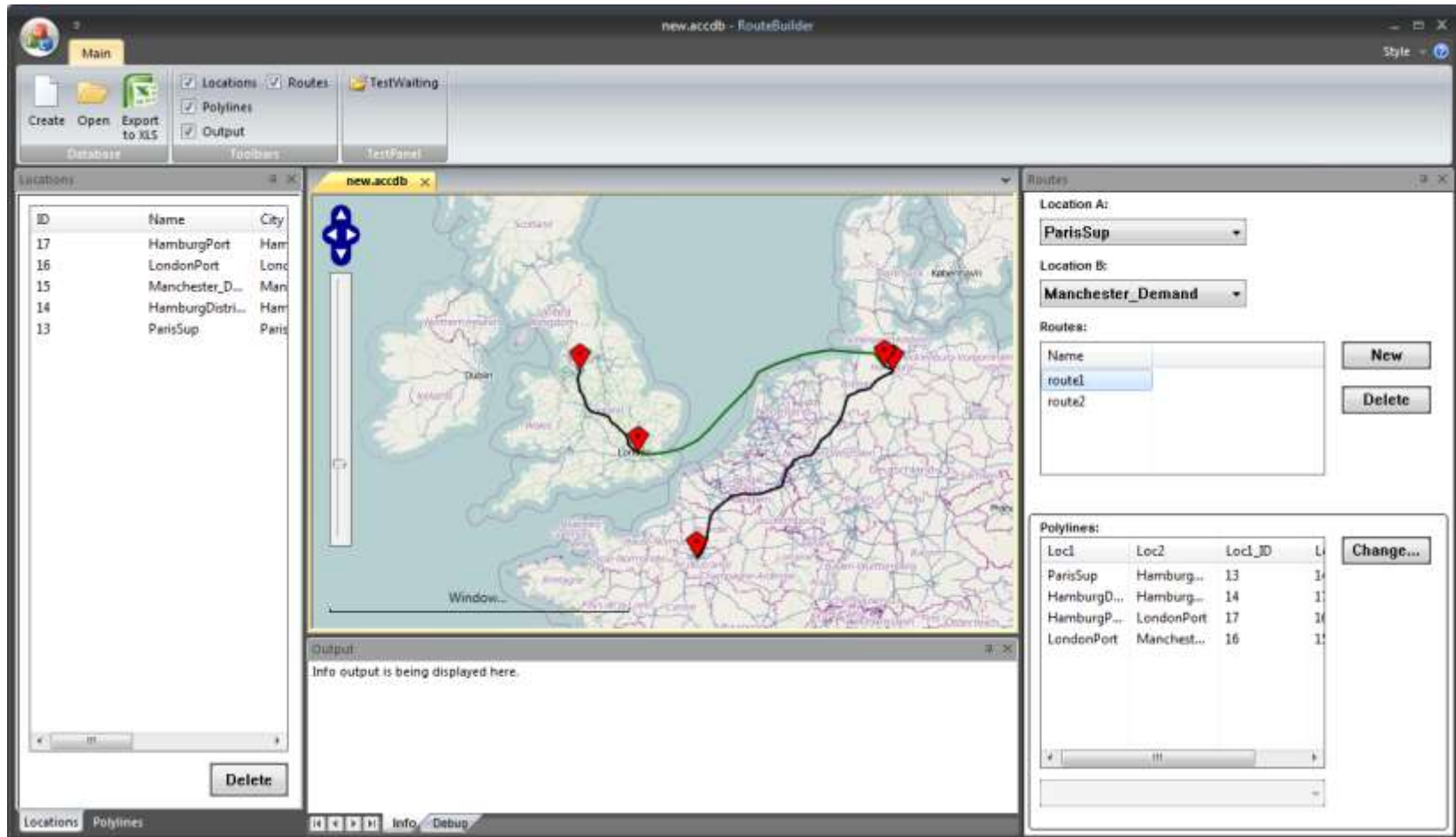
### 3. Transport logistics



## 4. Transport agents



## 5. Development a program to build routes



The main window of our program



## 6. RouteBuilder program. Step 1: Add locations

The screenshot displays the RouteBuilder application window, titled "new.accdb - RouteBuilder". The interface includes a menu bar with "Main", a toolbar with "Create", "Open", and "Export to XLS", and a sidebar with "Locations", "Routes", "TestWaiting", "Polylines", and "Output". The "Locations" panel on the left contains a table with the following data:

ID	Name	City	Country	Lat	Lon
17	HamburgPort	Hamburg	Germany	53.573339	9.701609
16	LondonPort	London	UK	51.510230	-0.007558
15	Manchester_D...	Manchester	UK	53.487017	-2.299581
14	HamburgDistri...	Hamburg	Germany	53.470671	10.035319
13	ParisSup	Paris	France	48.852735	2.300944

The "Routes" panel on the right shows a map of Europe with red diamond markers indicating the locations of the cities listed in the table. The map includes labels for various countries and regions, such as Scotland, Northern Ireland, United Kingdom, Ireland, Wales, England, France, Germany, Poland, Czech Republic, Austria, and Switzerland. The "Delete" button is visible at the bottom right of the "Locations" panel.

## 7. RouteBuilder program. Step 2: Add ways

The screenshot shows the RouteBuilder program interface. The main window displays a map of Europe with a red line connecting Paris and Hamburg. A dialog box titled 'Add polyline' is open, showing the following details:

- Name: RoadLine\_ParisSup\_HamburgDistributor
- Type: Road
- CloudMade (selected) / Manual
- Time(days): 1

The dialog box has 'OK' and 'Cancel' buttons. A green box highlights the 'CloudMade' and 'Manual' options, and an orange box highlights the 'Type of the way creation' text.

The main window also shows a 'Polylines' panel with a table of existing polylines:

Name	Type	Distance(km)
RoadLine_Pari...	Road	883.075000
Train	Train	876.830129

Buttons 'Add' and 'De' are visible below the table. The 'Points' panel shows a list of coordinates:

Lat	Lon
49.611147	3.004413
50.317839	3.509784
50.958851	4.740252
51.289827	5.992694
51.563831	7.574725
51.754657	8.409686
52.362595	8.915057
52.843002	9.090838



## 8. The calculating distance algorithm between two geo-locations

2D(Map)



**Using of Vincenty's iterative method to calculate the distance between two points on the surface of a spheroid.**

3D(Earth spheroid)



## 9. RouteBuilder program. Step 3: Create routes

The screenshot displays the RouteBuilder application window. The main map shows a route from KharkovSup (Location A) to MadridDemand (Location B). The route is highlighted in green, passing through several intermediate locations marked with red diamonds. The interface includes a sidebar with a compass and a scale bar, and a right-hand panel with controls for location selection, route management, and a table of polylines.

**Location A:** KharkovSup  
**Location B:** MadridDemand

**Routes:**

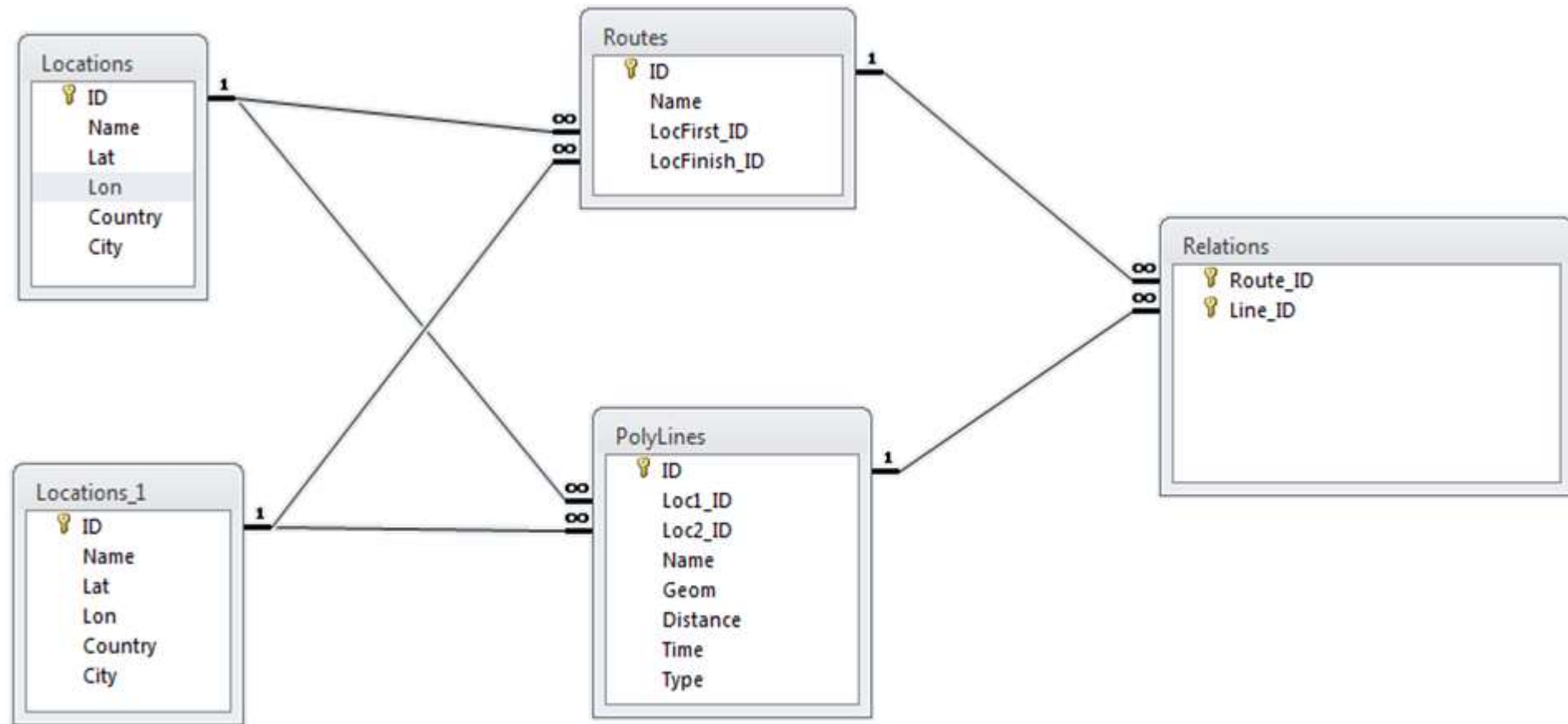
Name
rotuel

**Polylines:**

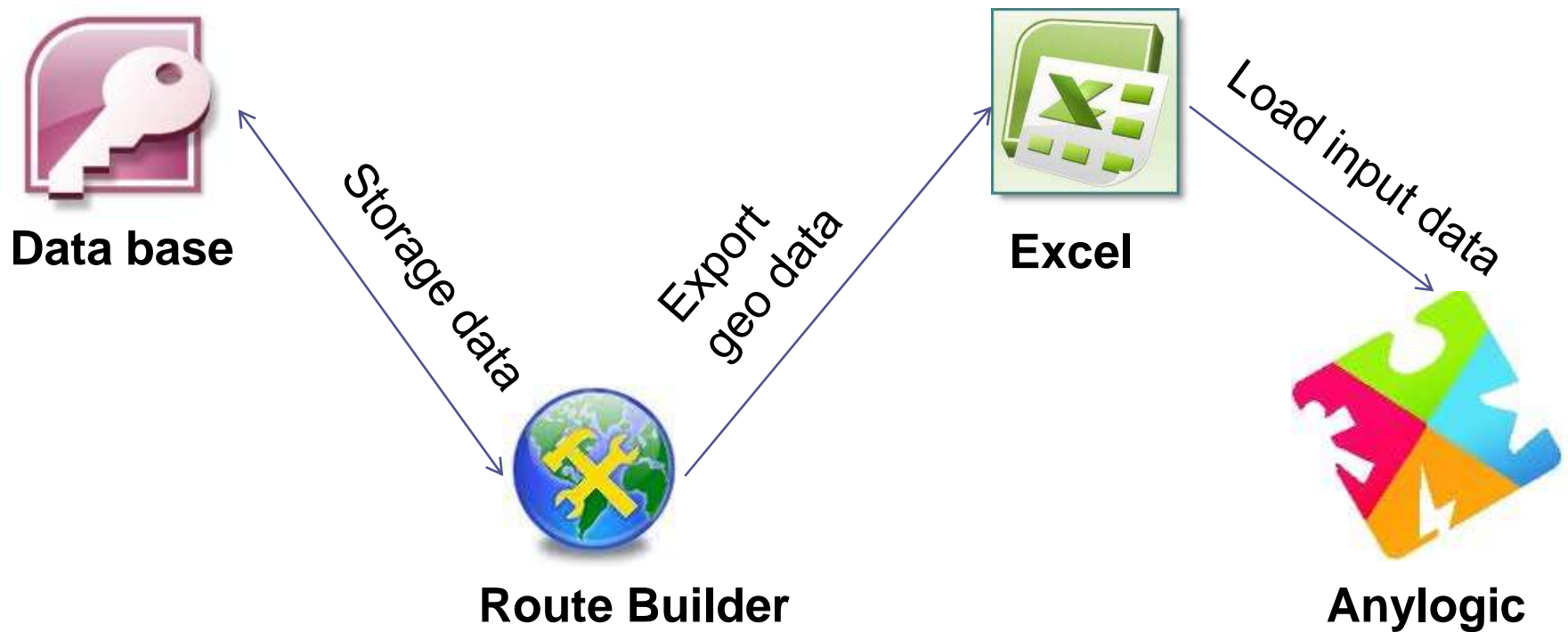
Loc1	Loc2	Loc1_ID
KharkovSup	OdessaPort	26
OdessaPort	Bareslona...	27
BareslonaP...	MadridDe...	30

**HeadLine:** HeadLine\_KharkovSup\_Odes...

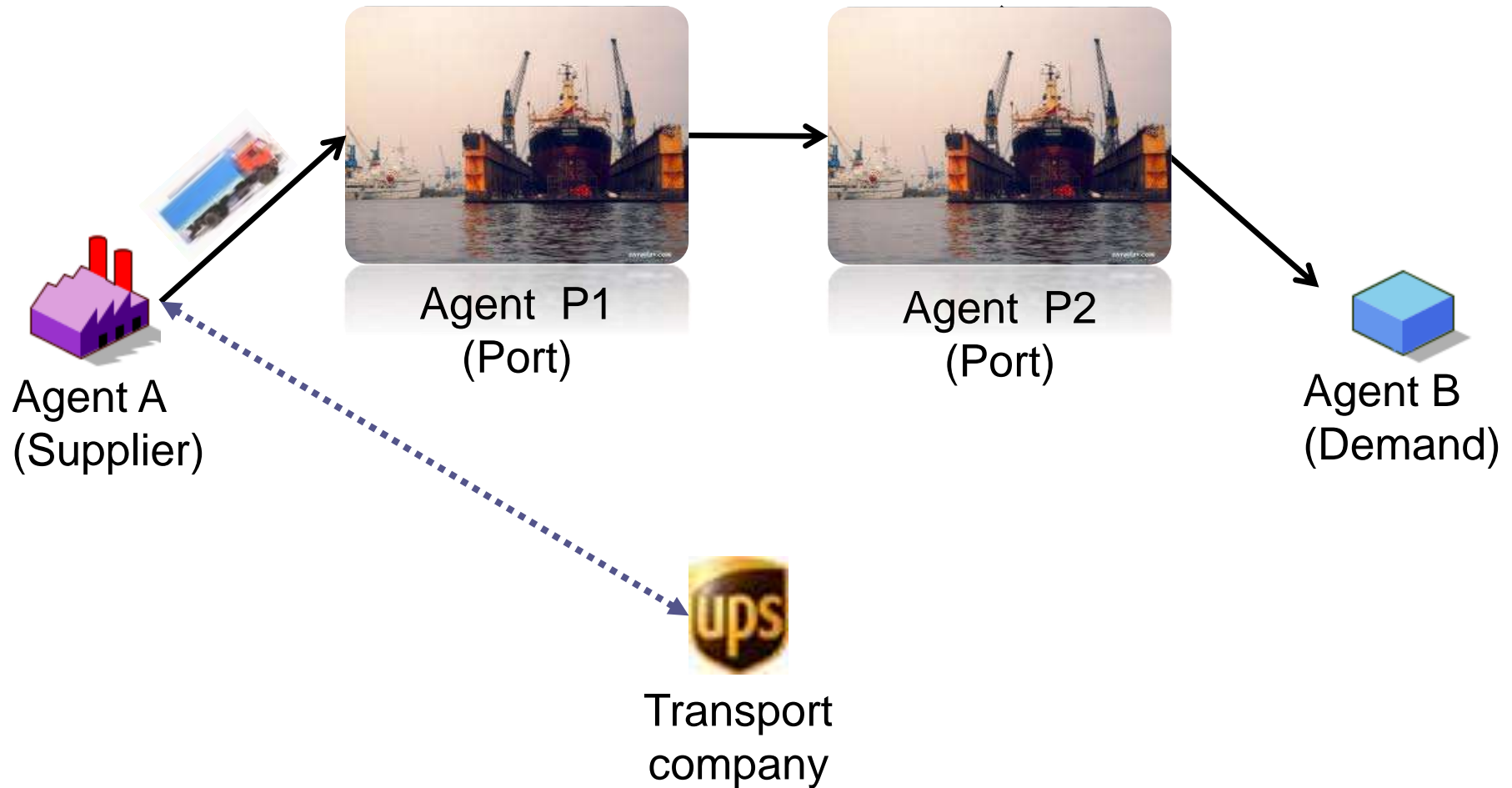
# 10. Database structure



# 11. Input data for simulation

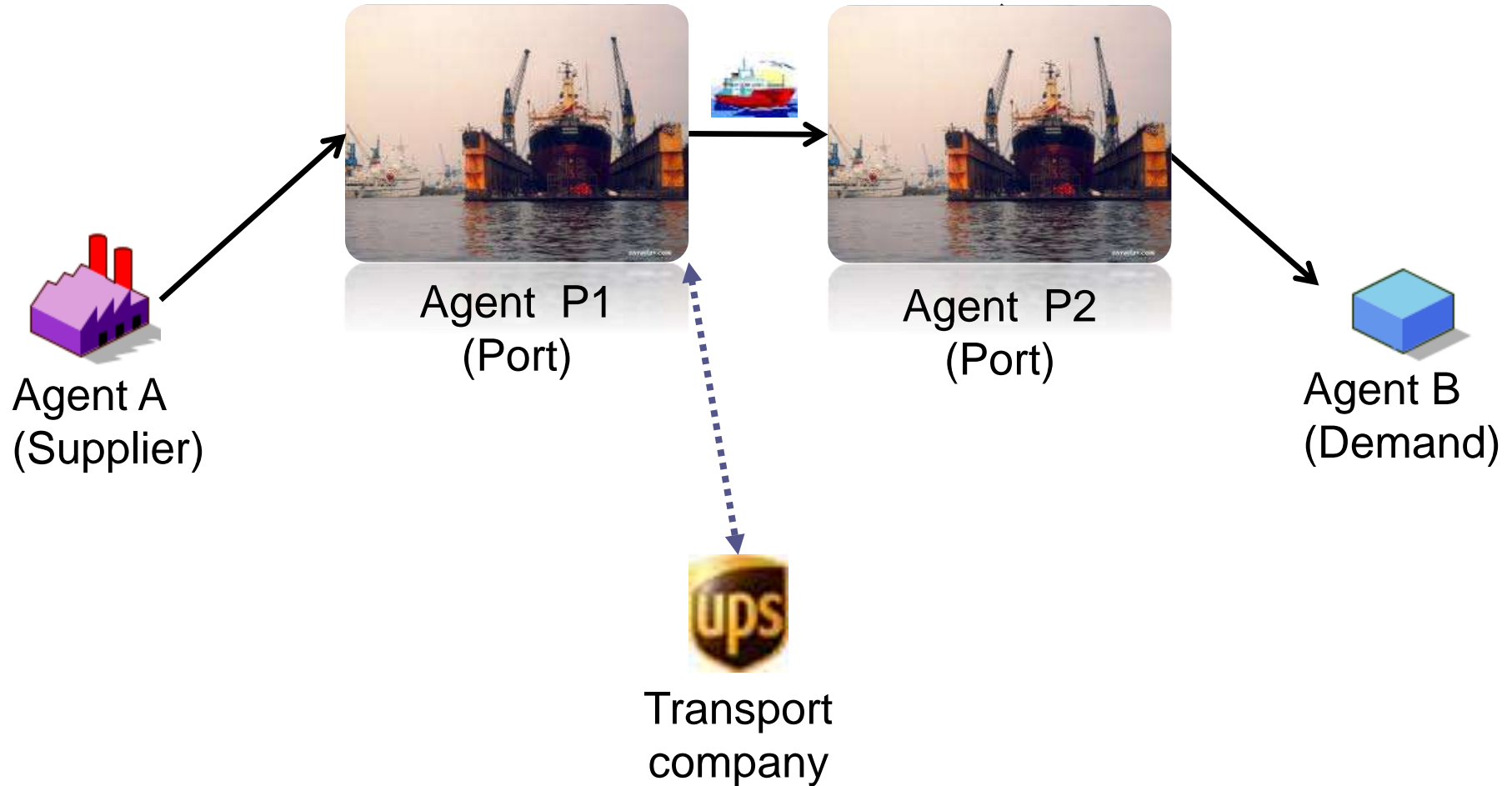


## 12. Messages between agents for transportation of products

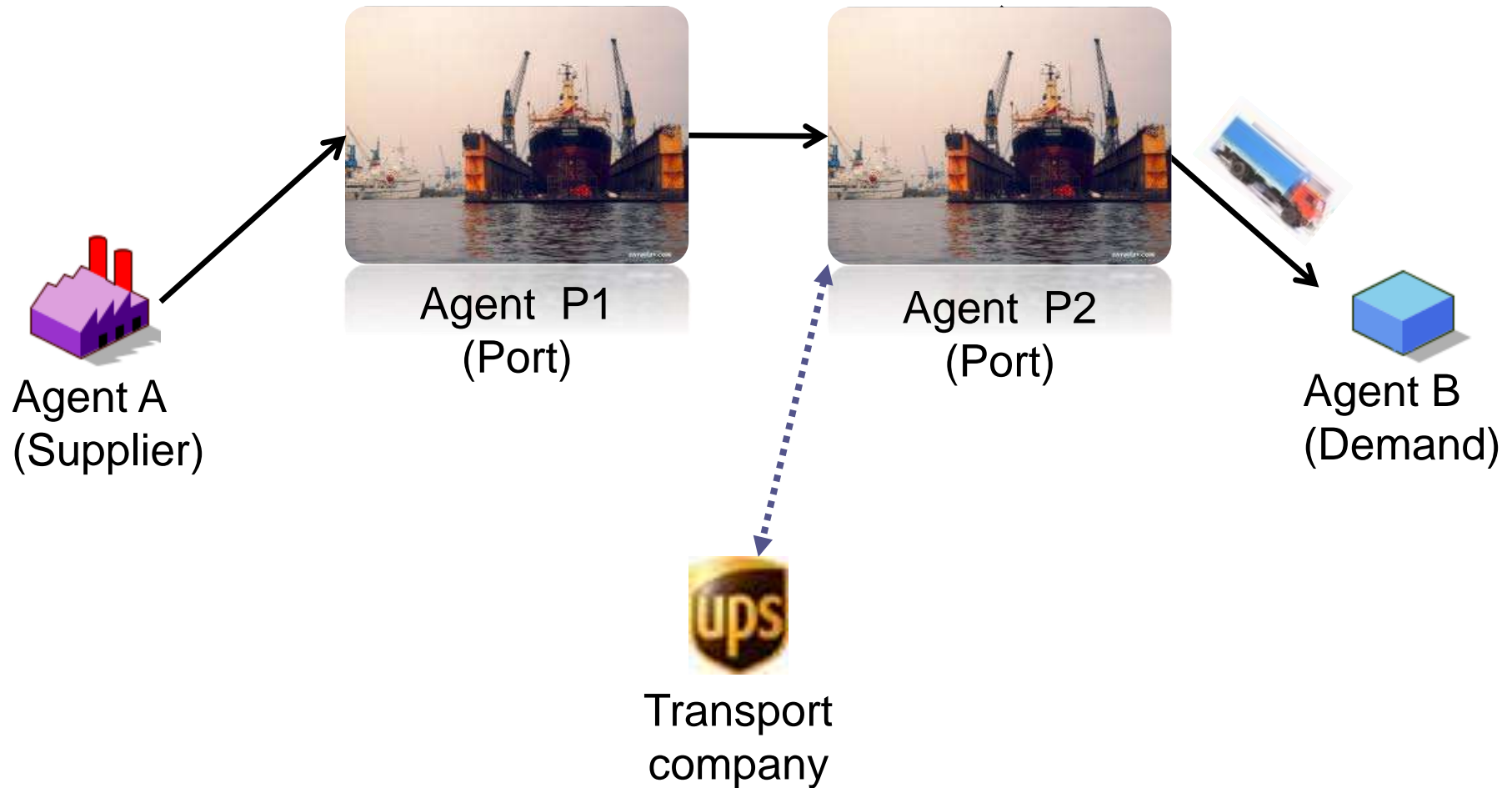




## 12. Messages between agents for transportation of products



## 12. Messages between agents for transportation of products



# 13. GIS Map

## Position of last click

Latitude:  $1029^{\circ}17'44,8''$

Longitude:  $B15^{\circ}05'36,7''$

## Map projection

Scale: 1:158100496

Center Latitude:  $C31^{\circ}00'00''$

Center Longitude:  $B28^{\circ}00'00''$

Main





A photograph of a red brick building with arched windows and a large tree, with the text "Thank you for your attention!" overlaid. The building is a multi-story structure with a classic architectural style, featuring arched windows and a prominent entrance. A large, leafy tree stands to the right of the building, and a few people are visible walking on the sidewalk in the foreground. The entire image is framed by a decorative, torn-edge border.

Thank you  
for your attention!