

Vassily Fourkas

PhD Urban Cyberspace Planning
(Univ. of Manchester UK)

Civil Engineer (Aristotle
University of Thessalonika)

MONITORING THE SPATIAL IMPACTS OF THE EGNATIA MOTORWAY 2015

<http://observatory.egnatia.gr>



MINISTRY OF INFRASTRUCTURE, TRANSPORT AND NETWORKS

 EGNATIA ODOS A.E.



GREEK
GOVERNMENT



NATIONAL STRATEGIC
REFERENCE FRAMEWORK
(NSRF) 2007-2013



EUROPEAN UNION (50%)
Cohesion Fund
European Regional Development Fund (ERDF)
Trans-European Transport Networks



COMMUNITY
SUPPORT
FRAMEWORK
2000-2006



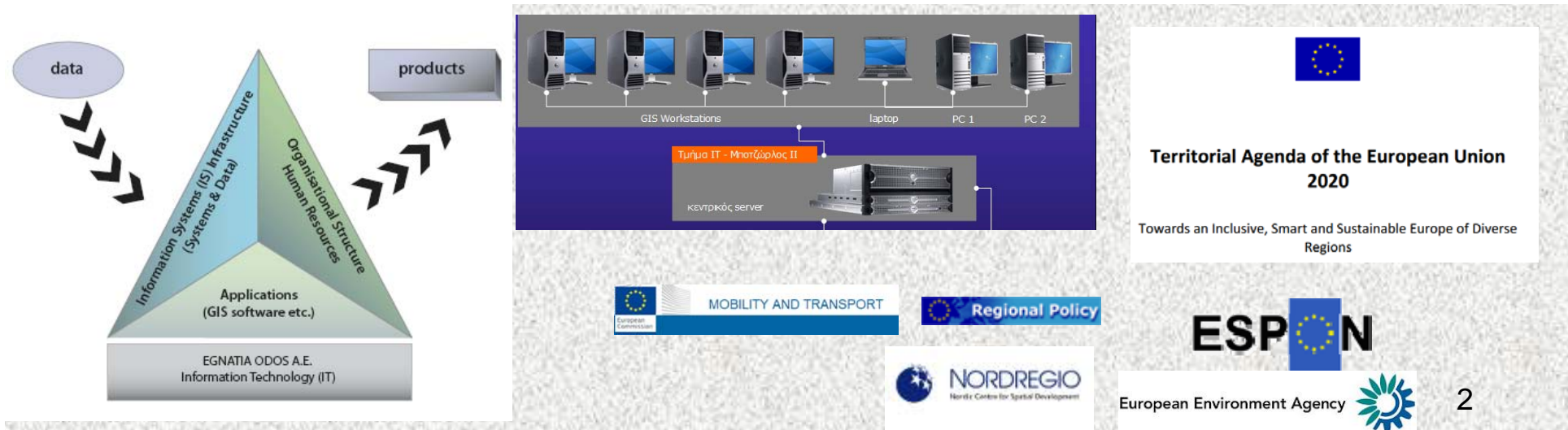
EUROPEAN
INVESTMENT
BANK

egnatia motorway observatory

monitoring and assessing the spatial impacts of the motorway

Based on documented scientific methods and an infrastructure of modern information systems, the Egnatia Motorway Observatory gathers, processes, and provides valid and updated data on indicators that concern:

- the mobility and accessibility of regions, urban centres, markets and services,
- the level of development and the territorial cohesion according to socio-economic shifts,
- the building development, the land uses and the networking of urban centres,
- the properties of the transport system and the operation of the road network, and
- the quality of the environment.



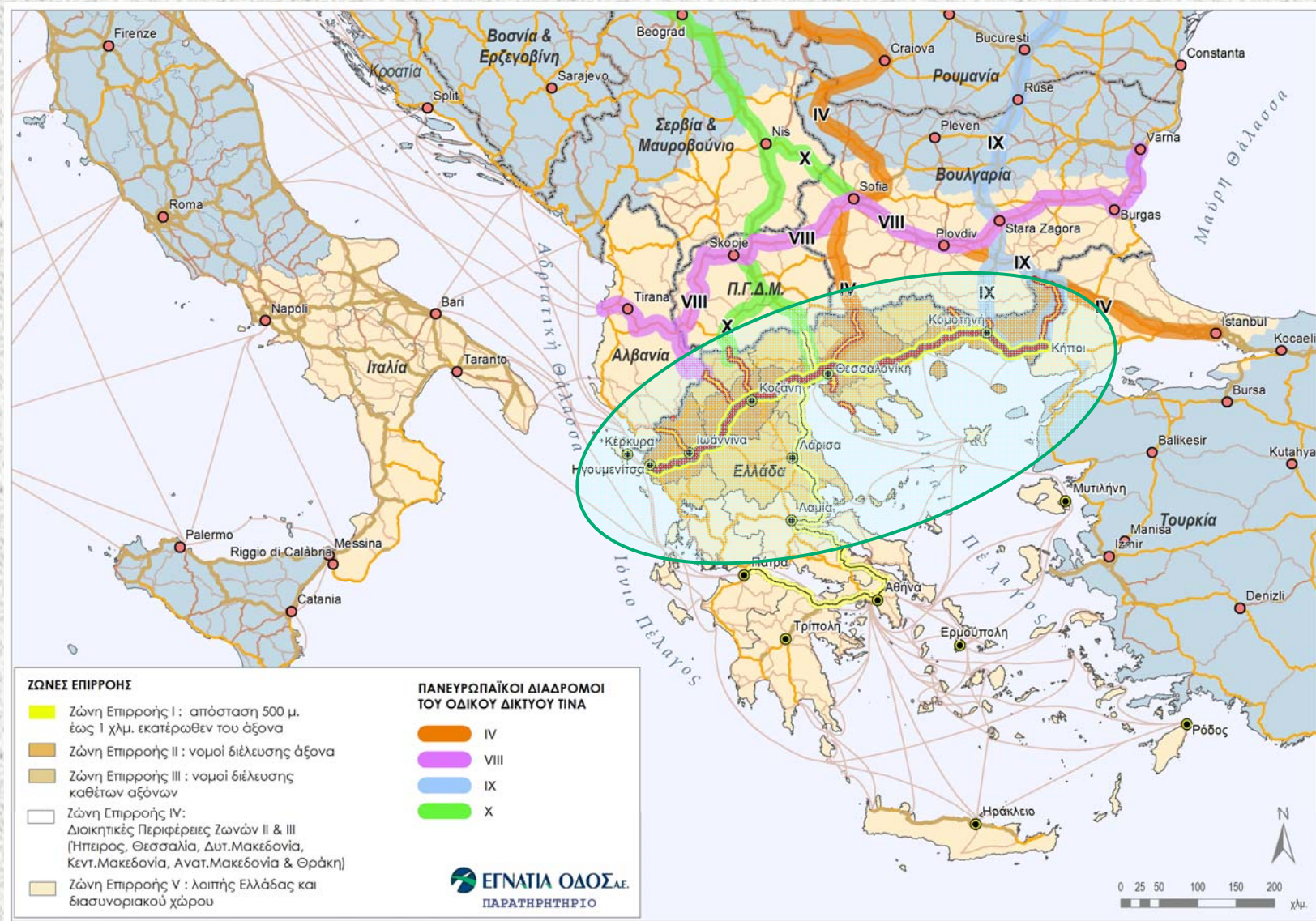
beyond motorway

- **time-distance**
- **accessibility**
- **safety**
- **mobility**
- **transportation**
- **inter-regional & commuting**
- **intra-regional**
- **cross-border**
- **TEN-T transit**

*National Transport Strategy
Operational Programs for Transport*

- **spatial networking, integration and planning**
- **regional development**
- **new development axis**

*National Spatial Planning Framework
Regional Spatial Planning Frameworks*



Greek Impact Zone Indicators

Socio-Economic and Spatial Planning Indicators

SET01	Benefited population
SET02	Market Size
SET03	Work Force
SET04	Growth and prosperity level (GDP per head)
SET05	Unemployment rate
SET06	Accessibility of transport modes
SET07	Accessibility of industrial areas
SET08	Accessibility of sites of cultural & tourist interest
SET09	Population change
SET10	Urban population changes
SET11	Hierarchy of urban centres
SET12	Population density
SET13	Composition of production by industry sector (GVA)
SET14	Composition of employment by industry sector
SET15	Foreign trade
SET16	Urban landuse changes
SET17	Industrial and commercial landuse changes
SET18	Real estate changes
SET19	Business location
SET20	Enterprise development

Environmental Indicators

ENV01	Population exposed to traffic noise
ENV02	Air pollution
ENV03	Cohesion - fragmentation of settlements
ENV04	Tunnel air quality
ENV05	Landscape restoration
ENV06	Fragmentation of natural areas
ENV07	Land use changes
ENV08	Proximity to protected areas
ENV09	Crossings with surface waters

Transportation Indicators

TRA01	Traffic volume (AADT)
TRA02	Traffic composition
TRA03	Person Movements
TRA04	Travel-time
TRA05	Time-distance
TRA06	Freight (transport of goods)
TRA07	Annual Vehicle kilometres
TRA08	Road safety
TRA09	Level of service
TRA10	Road network density
TRA11	Traffic Volume on National Road
TRA12	Trans-border movements
TRA13	Intermodal transport
TRA14	Characteristics of Vehicle Movements
TRA15	Passenger Journeys by alternative transport modes

SOUTH EAST EUROPE IMPACT ZONE



ΕΓΝΑΤΙΑ ΟΔΟΣ Α.Ε.
ΠΑΡΑΤΗΡΗΤΗΡΙΟ



ΗΜΕΡΟΜΗΝΙΑ: 18/02/2015
 ΠΡΩΤΗ ΔΕΔΟΜΕΝΗ: ΜΕΛΕΤΗ ΕΠΙΔΡΑΣΕΩΝ ΤΗΣ ΕΓΝΑΤΙΑΣ ΟΔΟΥ ΣΤΗ ΝΑ ΕΥΡΩΠΗ: ΔΙΑΤΡΟΦΙΚΗ ΤΩΝ ΜΕΤΑΦΟΡΩΝ, ΠΟΛΥΚΕΝΤΡΙΚΗ ΧΩΡΙΚΗ ΑΝΑΠΤΥΞΗ ΚΑΙ ΔΙΑΤΥΧΟΡΙΑΚΗ ΕΣΤΙΝ ΣΥΝΕΡΓΑΣΙΑ (Αρ. Συμβ. 3265)
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SOUTH EAST EUROPE IMPACT ZONE

Category of polycentricity indicators (POL)

Composite indicator

POL00. Polycentricity degree

Core indicators

POL01. Population of urban centres

POL02. Market size (GDP)

POL03. Gross Domestic Product per capita

POL04. Population

POL05. Benefited population

POL06. Potential attraction of cities

POL07. Time-distance of cities

Supplementary indicators

POL08. Enterprise allocation

POL09. Movements (origin - destination)

POL10. Urban sprawl

POL11. Non active population participation

POL12. Level of unemployment

POL13. Long-term unemployment

POL14. Gross Value Added per sector of production

POL15. Employed persons per sector of production

Category of cross-border cooperation indicators (CBC)

Composite indicator

CBC00. Territorial cooperation degree

Core indicators

CBC01. Investment flows

CBC02. Trade flows

CBC03. Tourism flows

CBC04. Migration flows

Supplementary indicators

CBC05. Intensity of territorial cooperation

Category of transport intermodality indicators (INT)

Composite indicator

INT00. Potential accessibility between cities and transport terminals

Core indicators

INT01. Time-distance between cities and transport terminals

INT02. Passenger volume at passenger transport terminals

INT03. Freight volume at freight transport and intermodal terminals

Supplementary indicators

INT04. Density of land transport network per surface

INT05. Number of transport terminals

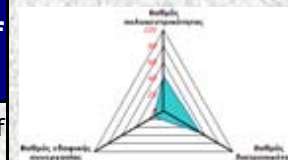
INT07. Decoupling of freight transport from economic growth

Overall composite indicator of the level of territorial cohesion in the Zone of Impact V

Quantification of the typology that describes the level of territorial cohesion in the study's macroregion.

The input for the attempt to quantify this typology derives from the values of the composite indicators, which were calculated during the analysis of each pillar, i.e the indicators POL00, INT00 and CBC00.

The value of the overall composite indicator of the territorial cohesion in the zone of impact can be calculated at regular time intervals and it can be compared to the corresponding values for previous time periods or it can be estimated for various alternative scenarios in order to produce forecasts and to set the appropriate policies towards specific targets.





TransEuropean Networks

- egnatia status
- results
- map gallery
- fotos
- reports
- newsletter
- contact
- credits

The English version of the website contains a subset of the information available in the Greek version.

For additional information you can contact us: observe at egnatia.gr

Search

Go!

THE EGNATIA MOTORWAY OBSERVATORY

Monitoring the developmental, spatial, environmental and transport impacts of the construction and operation of the axis

The Egnatia Motorway is a Trans-European Transport Networks (TEN-T) priority project. It represents a major investment in the transportation infrastructure of Northern Greece assisting the development of the region specifically and SE Europe in general.



Both the importance and the size of the investment necessitate the promotion of actions supplementary to construction that would multiply the benefits and mitigate the impacts from operation.

EGNATIA ODOS S.A. established and operates the Egnatia Motorway Observatory in order to: (a) support the integrated management of the motorway, (b) contribute to the utilization of the project in the cohesion and development of Northern Greece and the greater area of SE Europe, and (c) contribute to the harmonized assessment of

impacts of Trans-European Transport Networks on the cohesion of the European area.

The Egnatia Motorway Observatory, based on documented scientific methods and the development of modern infrastructure of information systems collects, processes, and provides valid and updated data concerning parameters such as:

- the mobility in and accessibility to regions, urban centres, markets, and services,
- the development level, the cohesion degree, the competitiveness, and the intraregional inequalities,
- the building development and the networking of urban centres,
- the properties of the transport system and the operation of the road network, and

The english version of the web site is under development. We're sorry for any inconvenience.

WATER MANAGEMENT & WASTE WATER TREATMENT IN EGNATIA ODOS MOTORWAY, Thalia Valkouma Biologist, MSc Environmentalist, MBA Head of Environmental Dpt. Egnatia Odos S.A. @ International Conference Industrial Waste & Wastewater Treatment & Valorisation 21 - 23 May 2015, Athens

proceedings paper presentation

Final Report: The role and spatial impacts of Egnatia Motorway in SE Europe: multimodal transport, polycentricity and cross-border territorial cooperation (available in greek language)

Executive summary

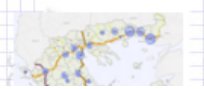
DESIGN ON EGNATIA MOTORWAY IMPACT ON SE EUROPE TRANSPORT

INTERMODALITY, MULTICENTRIC

SPATIAL DEVELOPMENT

ACKNOWLEDGEMENT special thanks are given to the Translations Dept. of EGNATIA ODOS S.A. for the continuous support in english language rendering.

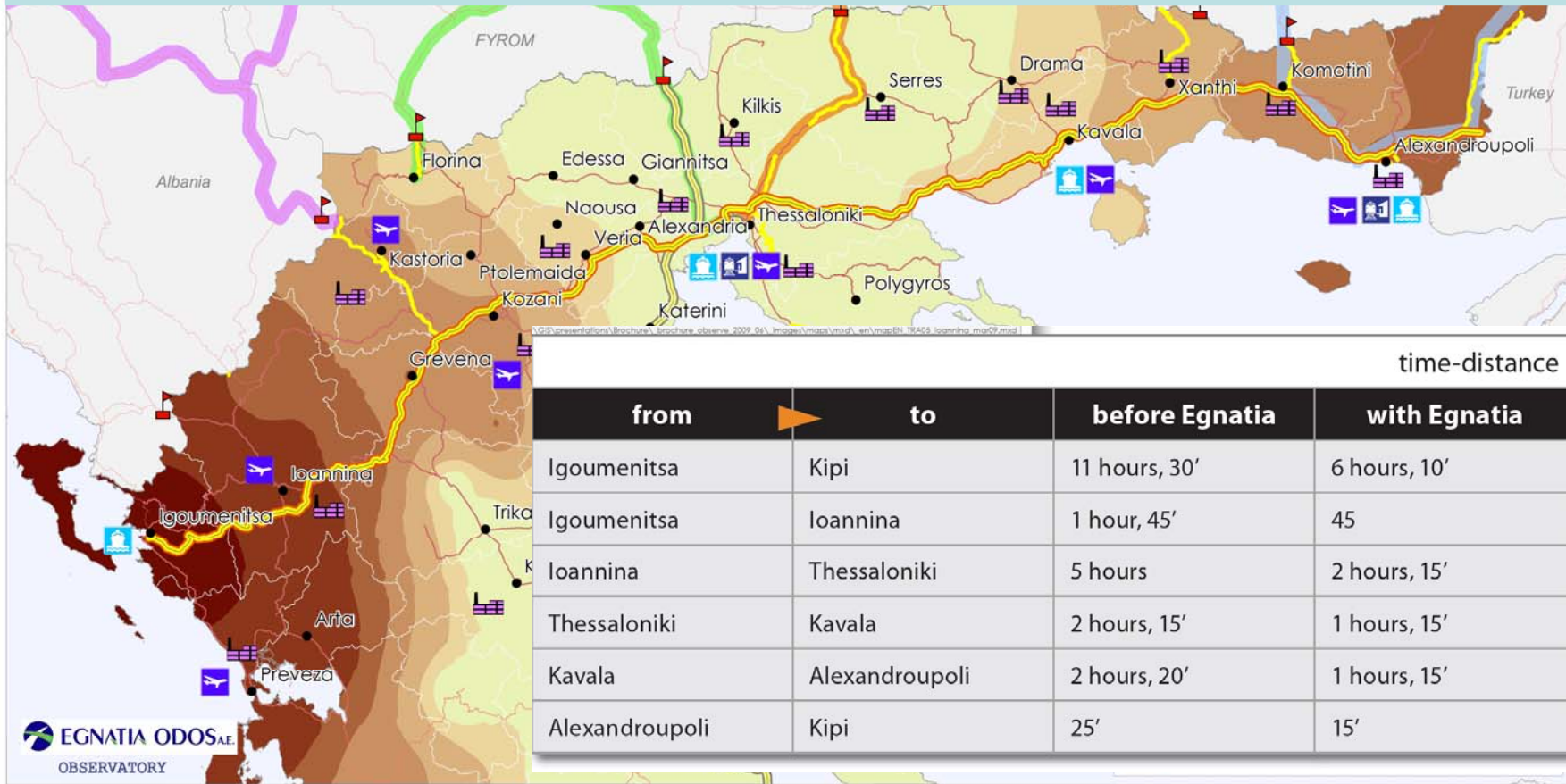
The Egnatia Observatory was examined by the research institute NordRegio as a case study of the implementation of the ESDP (European Spatial Planning Perspective) in the context of the ESPON (European Spatial Planning Observatory Network). More information on the project and access to the respective report may be found in the EPSON website



spatial impacts

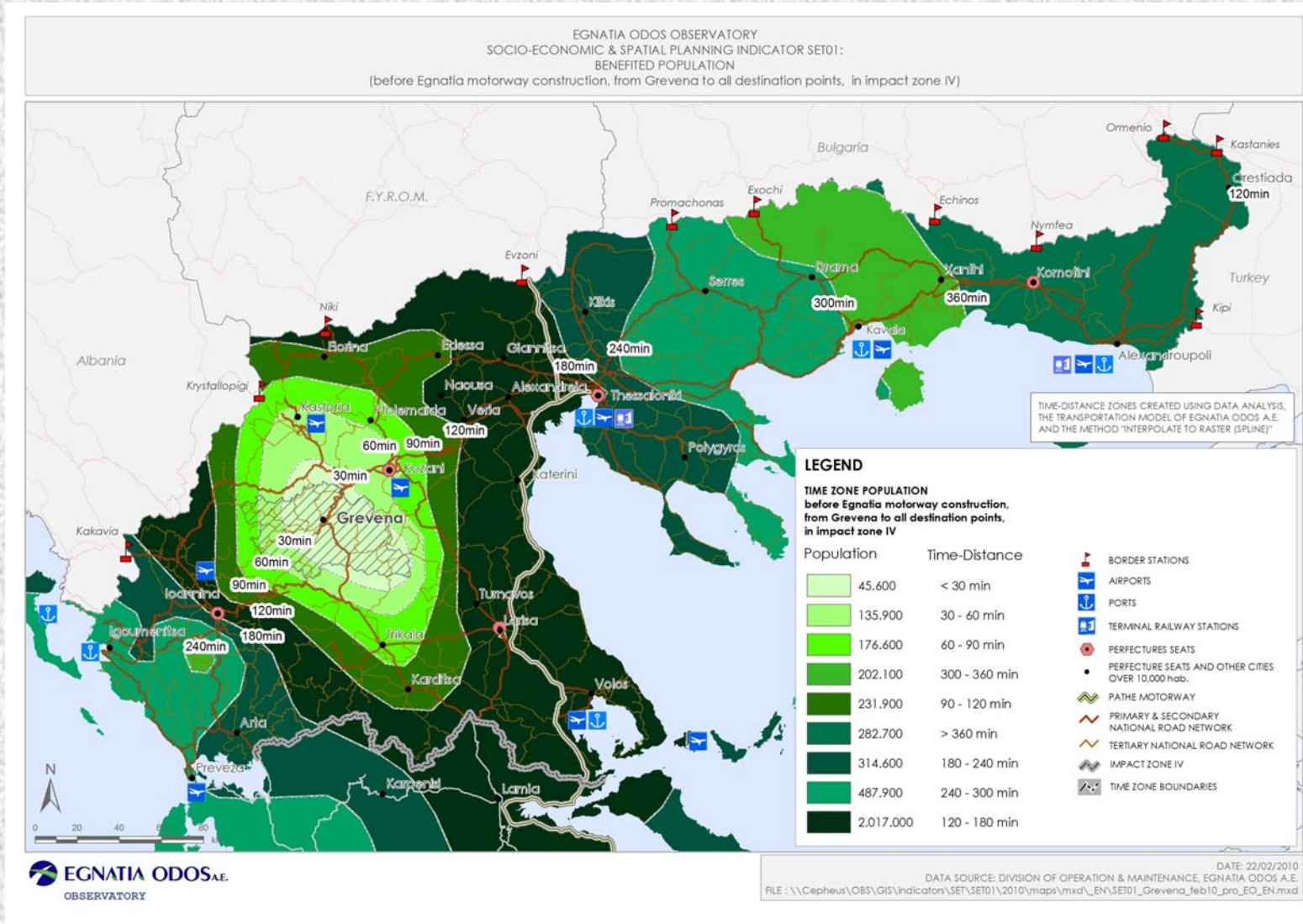
accessibility & mobility

The time-distances between cities, terminal stations and transit centres have been on average decreased by 50%.



spatial impacts

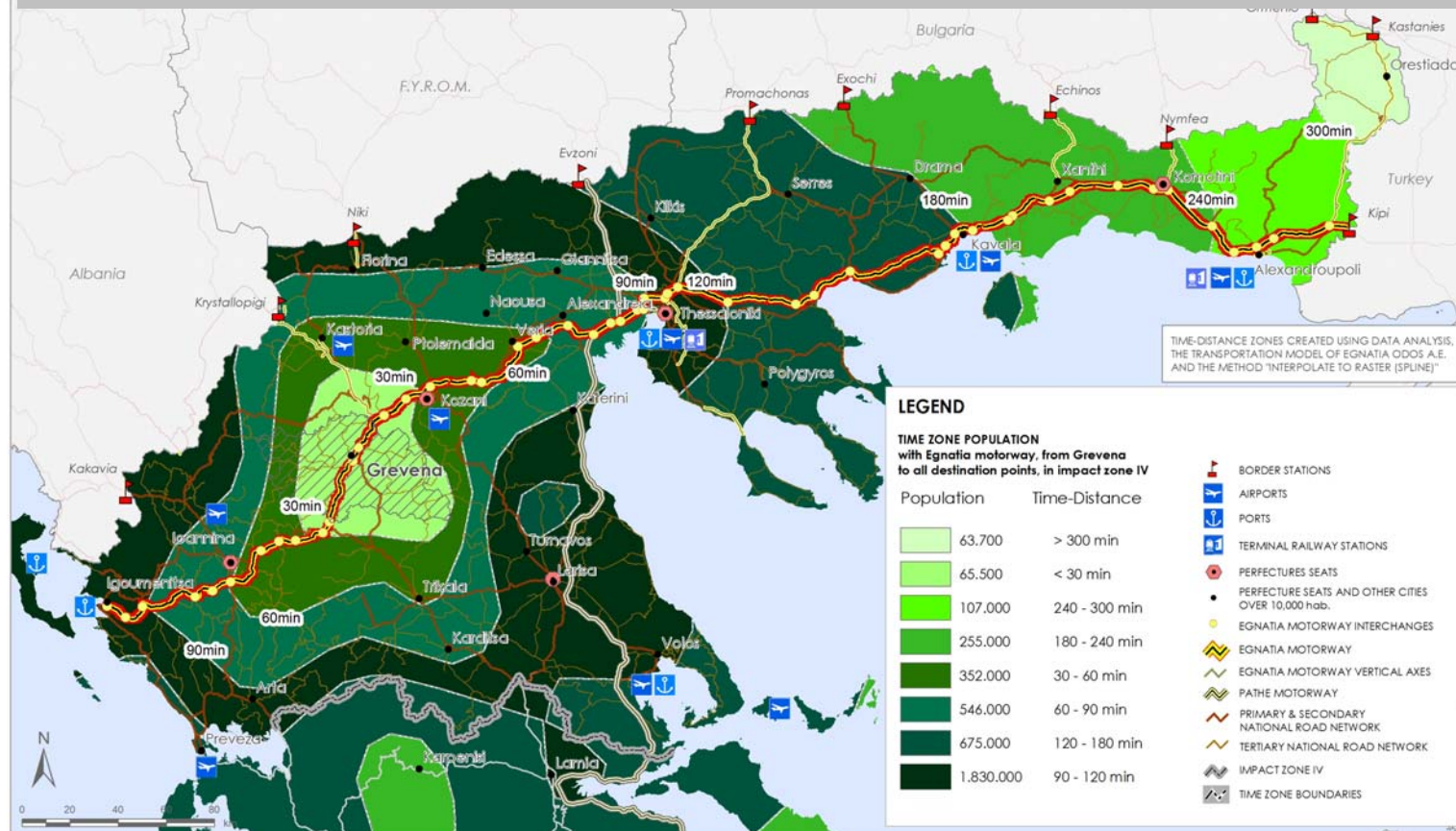
accessibility & mobility



spatial impacts

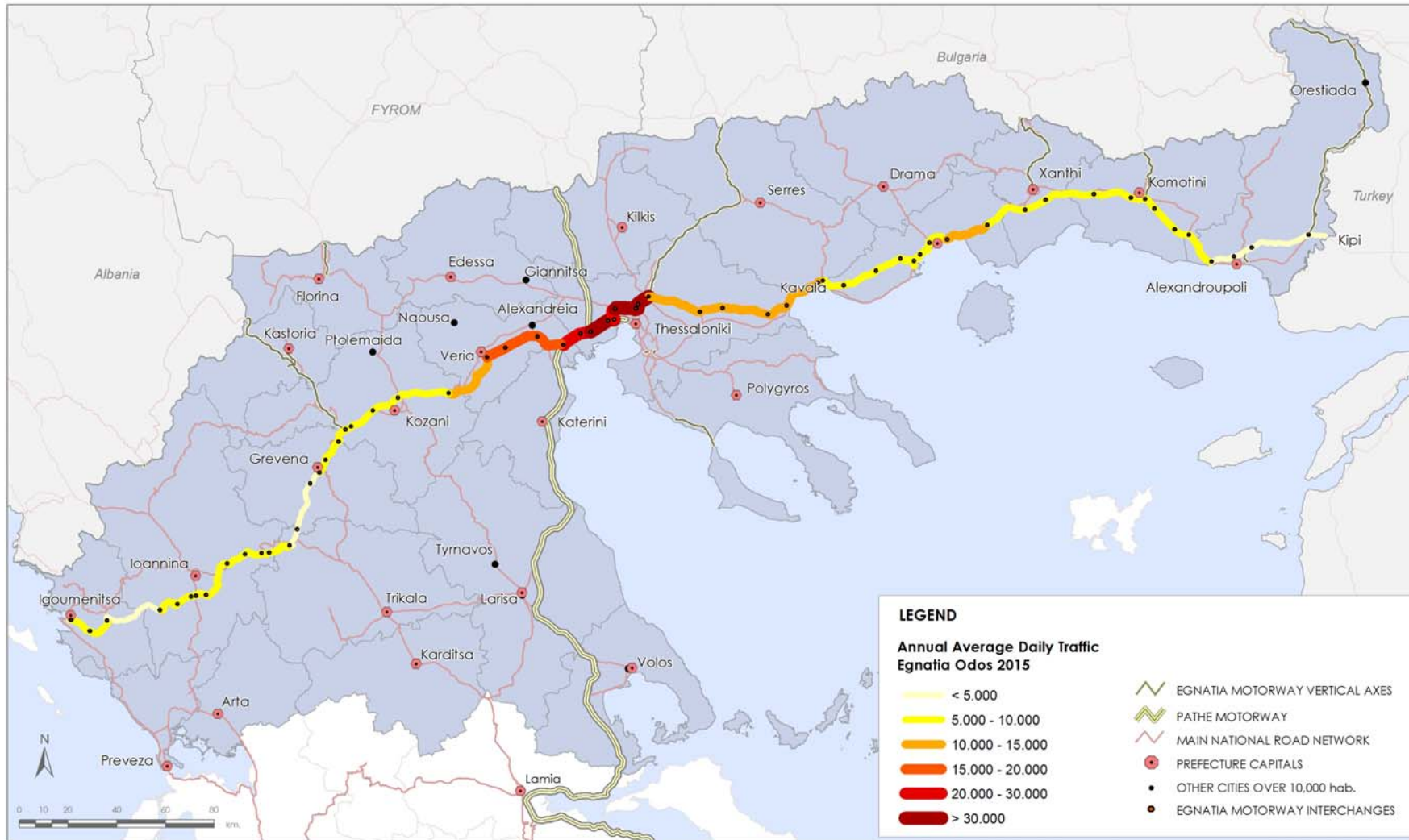
accessibility & mobility

The percentage of people that have access to urban centres within 30 minutes has been increased by 50%.



accessibility & mobility

EGNATIA ODOS OBSERVATORY
 TRANSPORTATION INDICATOR TRA01:
 Annual Average Daily Traffic - Egnatia Odos 2015



DATE : 31/08/2016
 DATA SOURCE : TRAFFIC DEPARTMENT, EGNATIA ODOS A.E.
 FILE : \\Cepheus\obs\GIS\Indicators\TRA\TRA01\2016\maps\mxd\EN_2015\TRA01_2016_08_EMHK_2015_EN.mxd

accessibility & mobility

system of traffic counters



accessibility & mobility

The accidents have been decreased by more than 70% data concerned with the routes served by the Egnatia motorway for the years 2000 and 2015



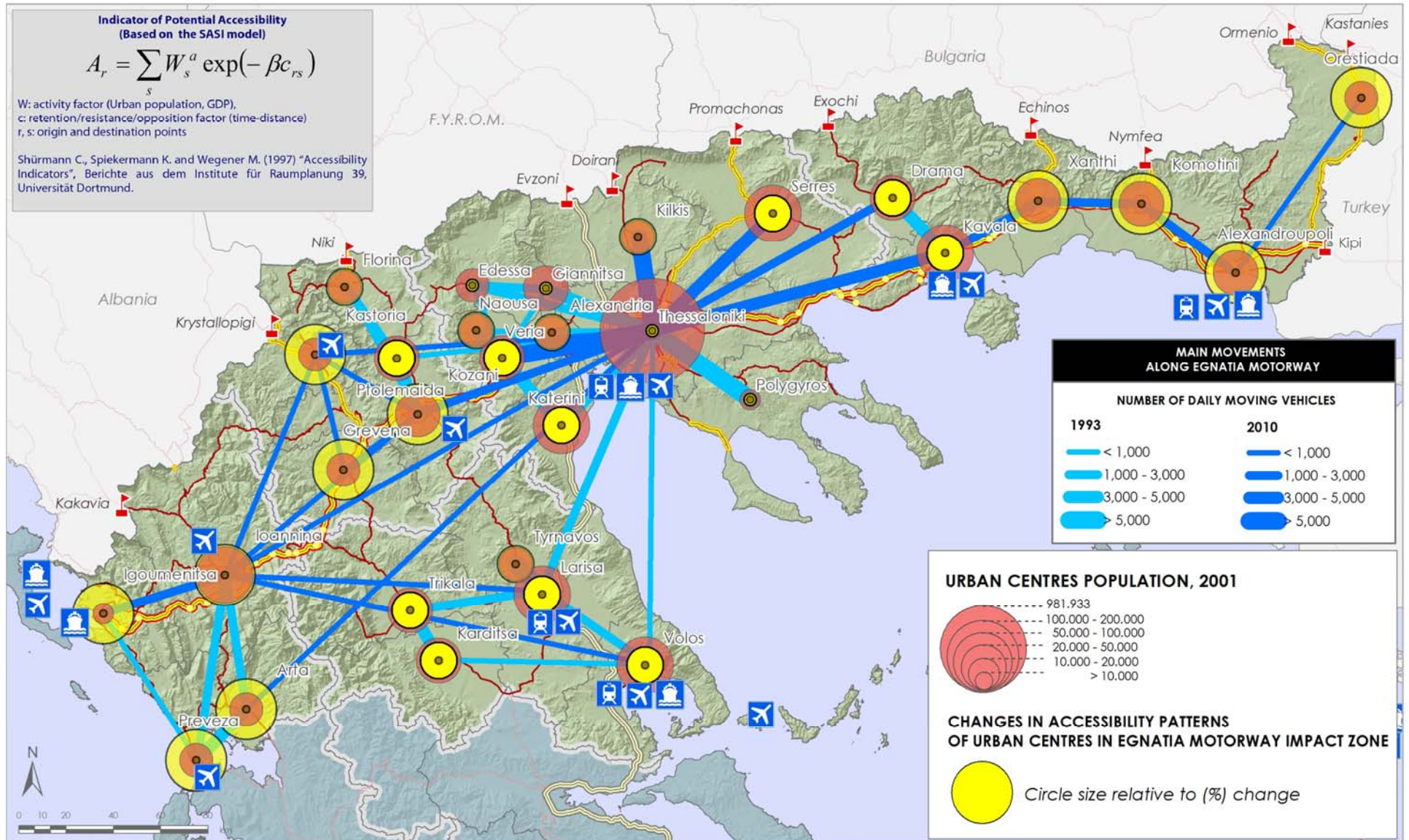
OVERVIEW OF SPATIAL INTEGRATION WITH EGNATIA MOTORWAY

Indicator of Potential Accessibility (Based on the SASI model)

$$A_r = \sum_s W_s^a \exp(-\beta c_{rs})$$

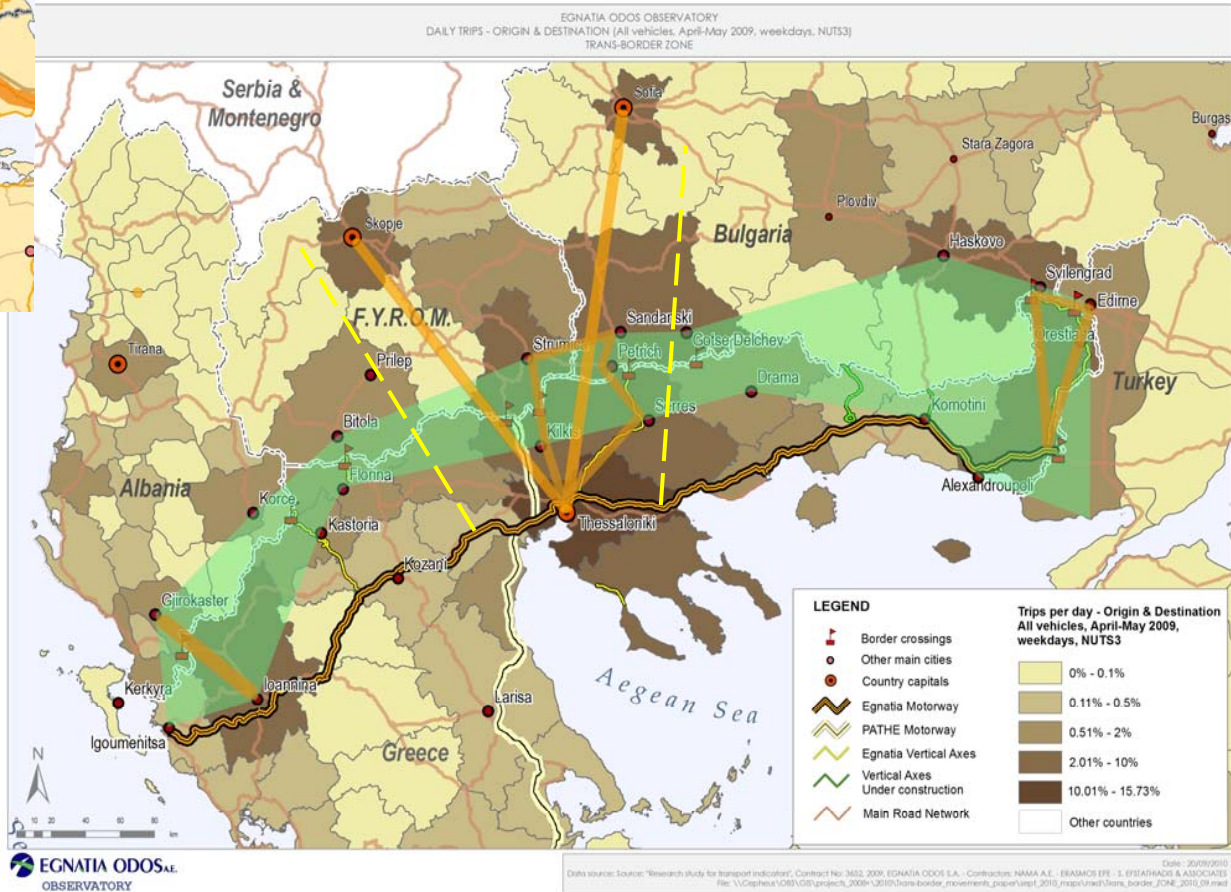
W: activity factor (Urban population, GDP),
c: retention/resistance/opposition factor (time-distance)
r, s: origin and destination points

Shürmann C., Spiekermann K. and Wegener M. (1997) "Accessibility Indicators", Berichte aus dem Institute für Raumplanung 39, Universität Dortmund.

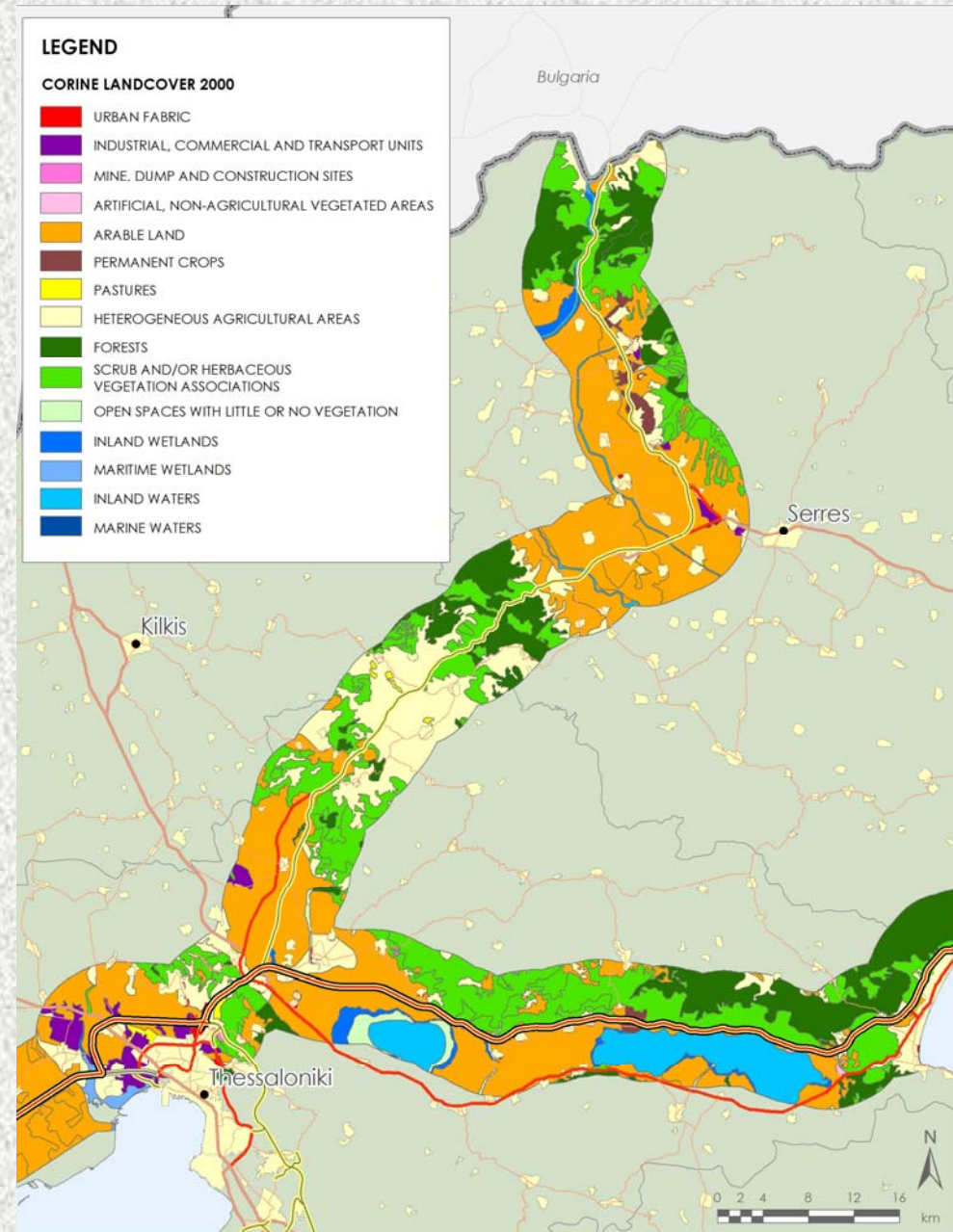


spatial impacts

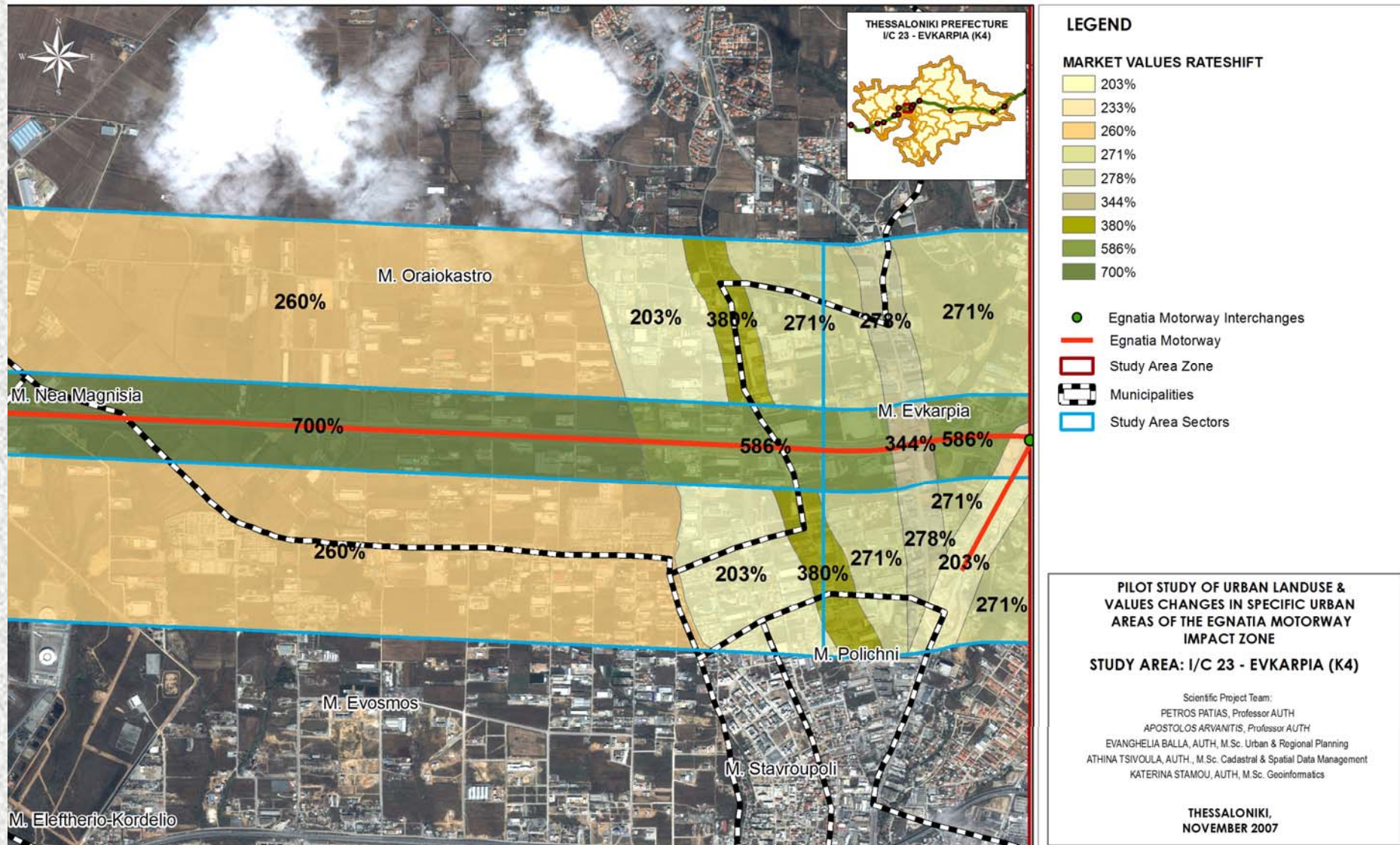
balance & networking



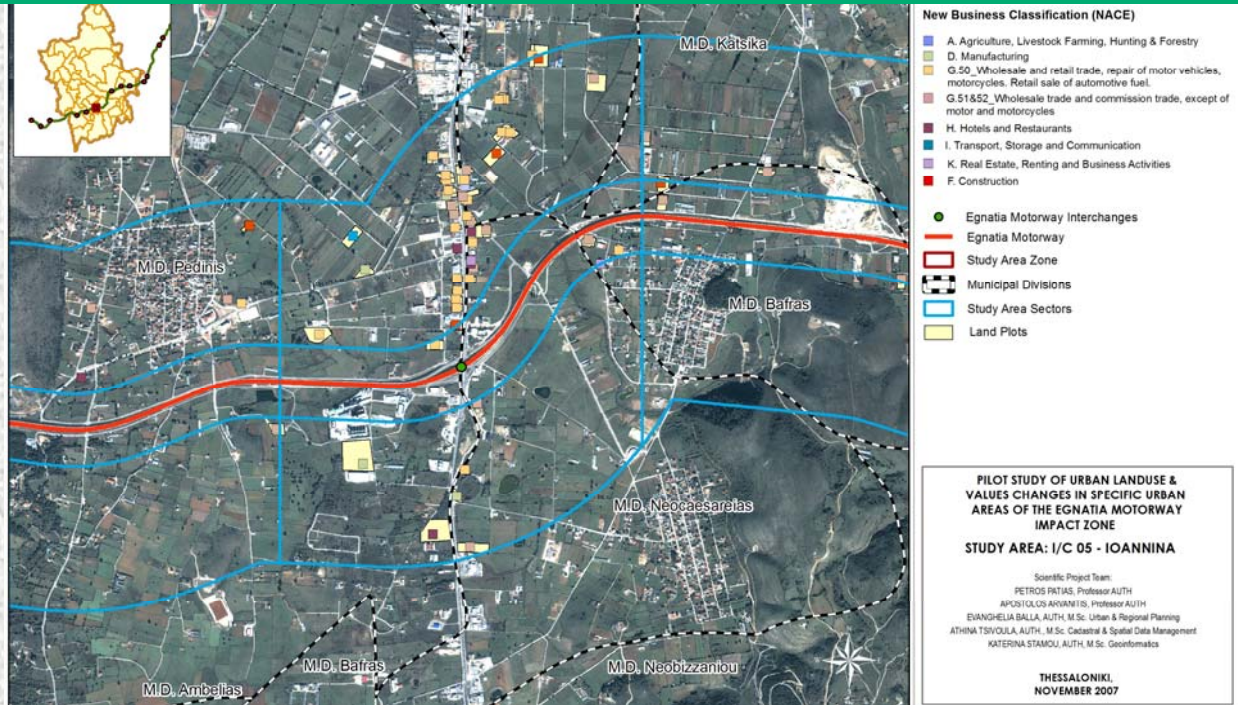
land & environment



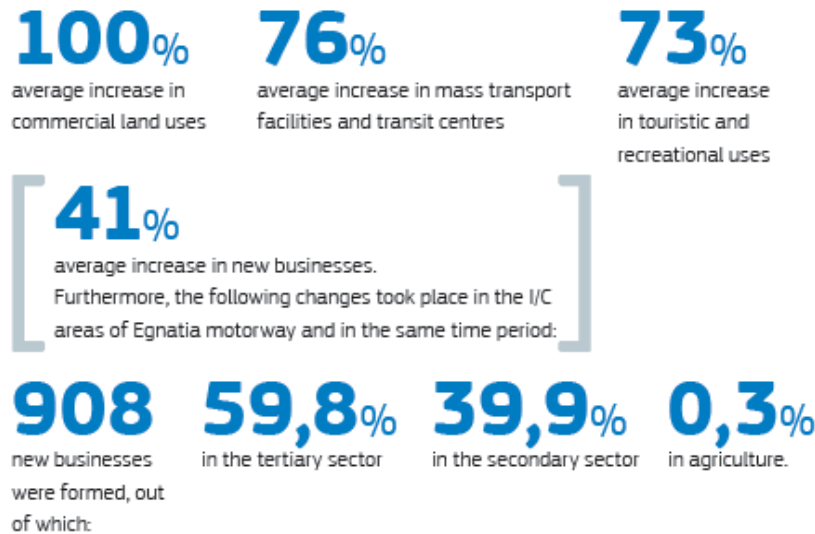
land & environment



land & environment



Between the years 1999 and 2009 and in the areas affected by the 17 intersections of the Egnatia Motorway, the following were recorded:



spatial impacts

land & environment



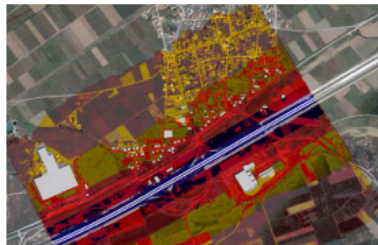
Road traffic noise and pollutant emission levels

For the full monitoring of road traffic noise and pollutant emission levels, the Observatory collaborates with the EGNATIA ODOS A.E. Environment Unit (Division of Operation, Exploitation and Maintenance) which performs regular noise counts and air pollutants measurements in the built-up areas at both sides of the motorway putting an emphasis on road sections that are seriously affected by road traffic noise, as well as on those crossing sensitive ecosystems. In addition, special studies are conducted regarding the "Measurement and Mapping of Road Traffic Noise in Residential Areas in the vicinity of the Egnatia Motorway", complying with the requirements set in Directive 2002/49/EC.

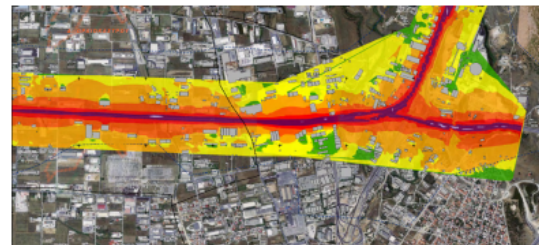
The construction and opening to traffic of the largest part of the motorway has led to the bypass of many existing settlements and their statutory borders, thus improving the quality of life by reducing the percentage of population exposed to traffic noise.



Traffic noise map 1

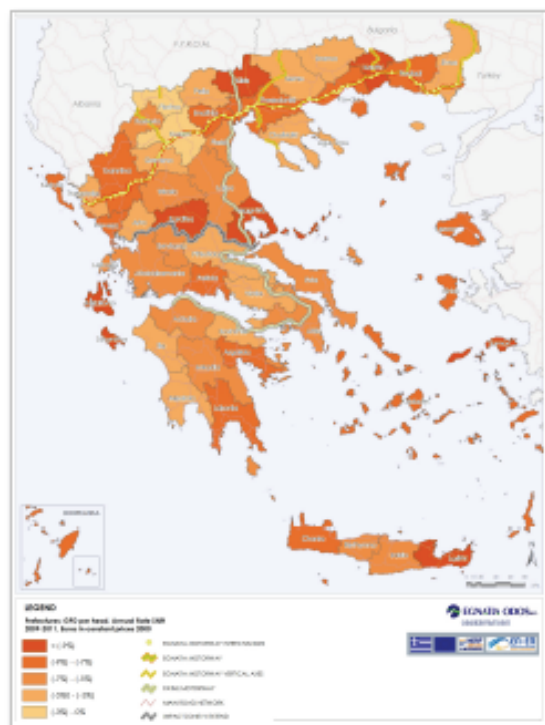


Traffic noise map 2

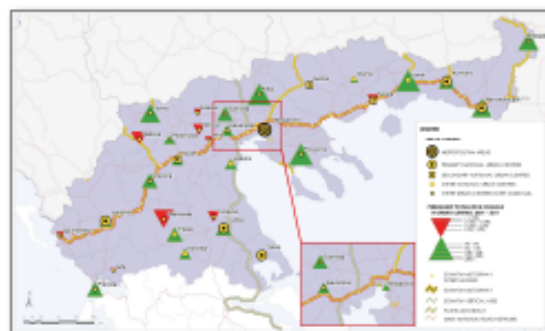


cohesion & development

Map of annual rate shift. GPD per head



Map of permanent population change in urban centres



Zone IV, which includes the five Regions crossed by the Egnatia Motorway (Eastern Macedonia & Thrace, Central Macedonia, Western Macedonia, Epirus and Thessaly) represents:



In Zone IV there are 9 airports, 5 ports, 48 developmental infrastructures sites, out of which 34 are statutory receptors.

In the years 2001-2011, the total population in the Zone of the five Regions was decreased by 0.29%, a decrease percentage that is lower than the one for the whole of Greece (-1.09%). The population in the majority of the Prefectures shows a negative trend, while the largest urban centres, except for Kavala and Veria, show an increase in their population. In the last twenty years (1991-2011), the urban population in the Zone has increased by 16.8% (by 11.6% in 1991-2001 and by 4.7% in 2001-2011).

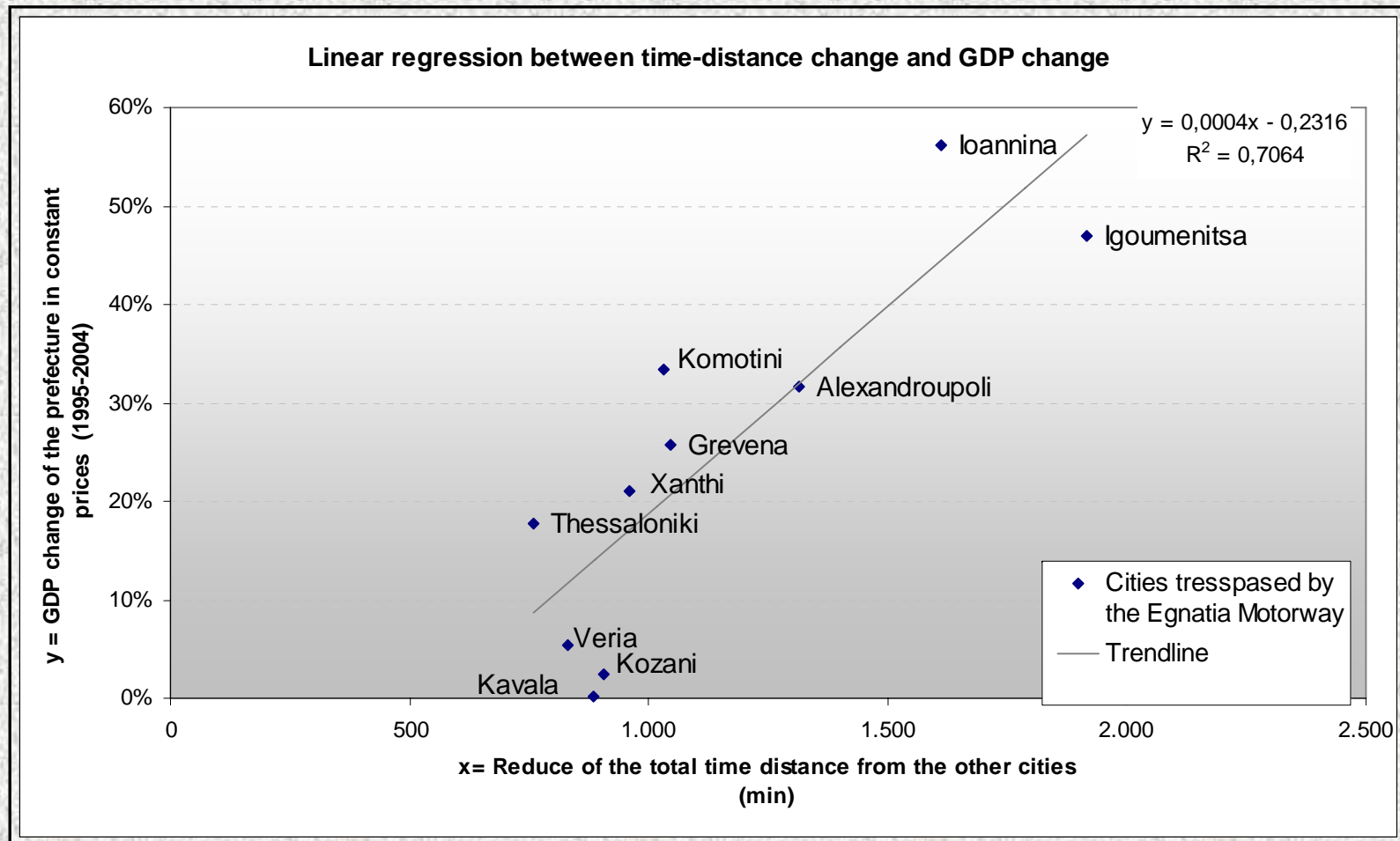


Tourism

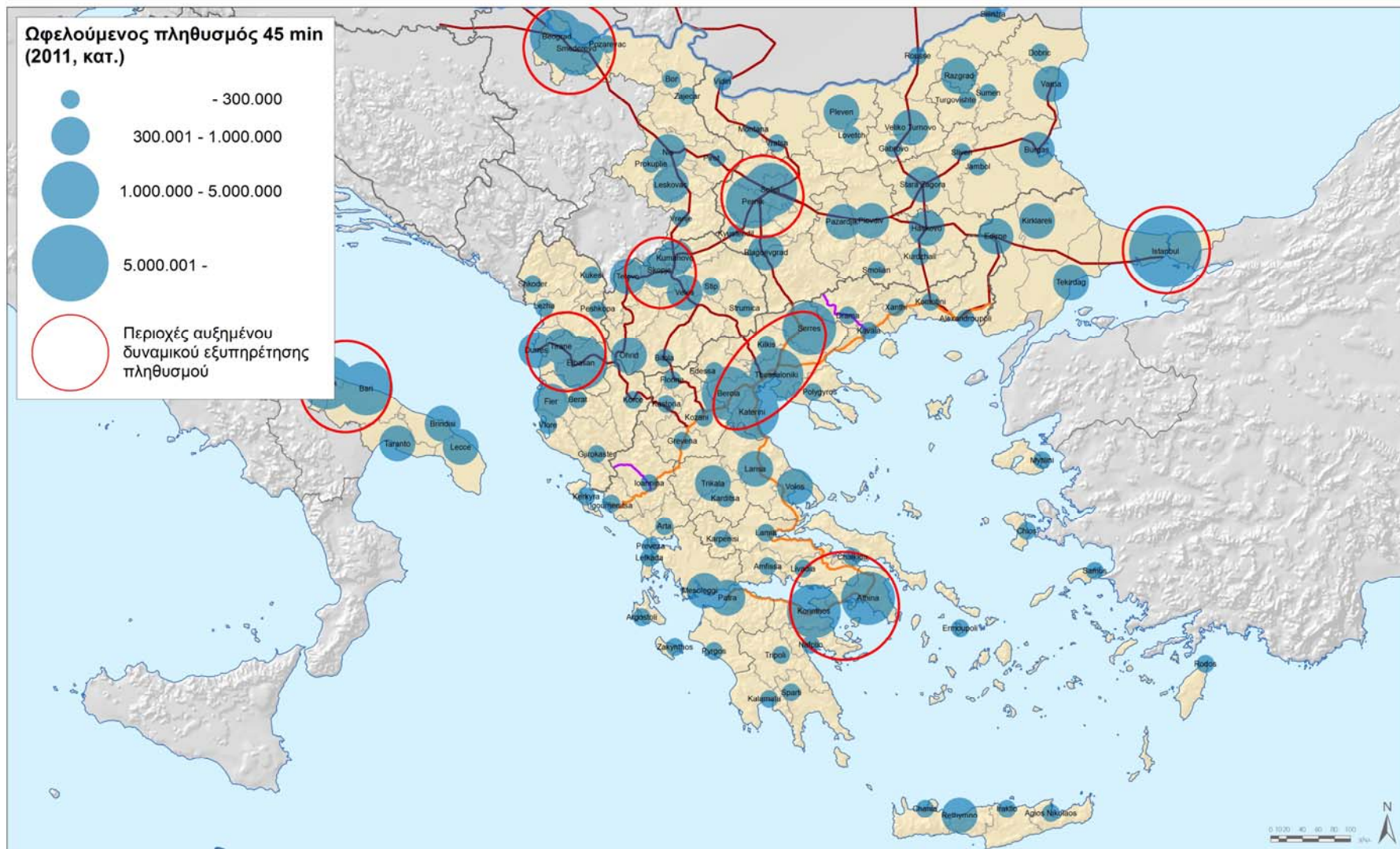
For the period 2007-2012, the 5 Regions of Zone IV represent 25.5% of the arrivals regarding all kinds of tourist accommodation establishments, in the whole country. With regard to overnight stays at tourist accommodation establishments in this period, Zone IV represents the 19% of overnight stays in the country, while the fullness of hotels was in average 35%. As far as the tourist accommodation establishments are concerned, throughout the period, the number for such establishments in Zone IV was increased by 5.5% while for the whole country has increased by 4.5%.

spatial impacts

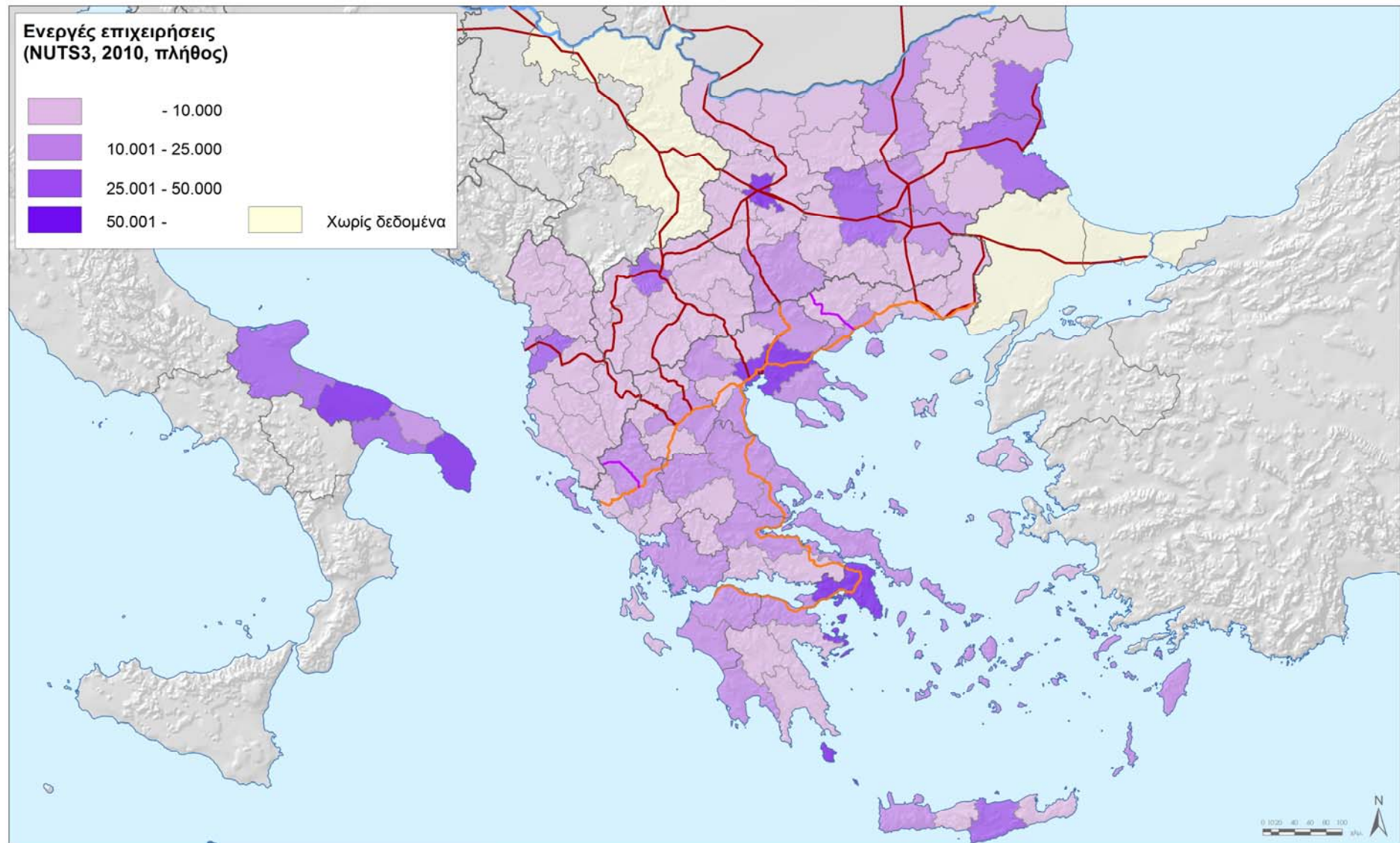
cohesion & development



Accessibility index for benefited population in 45mins travel zones



Enterprise allocation, NUTS3, 2010



COMPLETED STUDIES

Report on the status of the Egnatia Motorway Impact Zones.

Pilot study on the urban planning changes in three selected urban areas in the Egnatia Motorway direct impact zone.

Study on urban planning changes in land uses, in the setting-up of businesses and in land values in the vicinity of 17 Egnatia Motorway intersections.

Measurement and mapping of road traffic noise.

Study on transport indicators: freight and combined transport, characteristics of trips at border stations and trips with alternative means

Study on accessibility indicators for areas of special interest and mass transport in the zone of the regions crossed by the Egnatia Motorway.

Study on the assessment and future prospects of the Observatory.

Study on the Egnatia Motorway impacts on the intermodality of transports, the polycentric spatial growth and the cross-border cooperation in SE Europe.

Study on annual calculations and analyses of the environmental indicator "water quality".

Study on annual monitoring and analyses of the environmental indicator "air quality".

Study on annual monitoring and mapping-analyses of the environmental indicator "population exposed to traffic noise".

RESEARCH STUDIES PLAN

Origin – Destination survey study aiming at recording the characteristics of vehicle movements on the Egnatia Motorway and its vertical axes.

Study on the accessibility indicators for the sites of special interest.

Research study on freight, combined transport, characteristics of trips at border stations, and trips with alternative means of transportation.

Study on land use changes, the setting-up of businesses, and land values.

Study on annual calculations and analyses of the environmental indicator "water quality".

Study on annual monitoring and analyses of the environmental indicator "air quality".

Study on annual monitoring and mapping-analyses of the environmental indicator "population exposed to traffic noise".

INDICATIVE REPORTS AND PUBLICATIONS

Cross-border trips in Northern Greece: recording the corresponding spatial interactions.

Transport policy and territorial cohesion: the case of the Egnatia Motorway in Northern Greece.

Entrepreneurship in the Egnatia Motorway Impact Zone.

Determination of Functional Urban Areas based on daily commuting.

The role of the Egnatia Motorway and its vertical axes in the polycentric growth of their impact zone.

1st Report on the Spatial Impacts of the Egnatia Motorway: mobility– cohesion – balance - environment.

"From the endogenous dynamic perspective, the project was innovative. With the creation of the Egnatia Odos and its Observatory, it brought about a new organisational scheme for the management of public infrastructure projects in Greece and, moreover, developed new knowledge and expertise for the construction of road infrastructures, while minimising their impacts on the landscape. The impacts on institutional quality could have been much higher, if the innovations introduced by the project had been applied in a consistent manner. In particular, an ad hoc private law company, such as the Egnatia Odos, could have been established also for the upgrading of PATHE motorway, which was started in the same period and is still underway." (Page 3)

EX POST EVALUATION OF INVESTMENT PROJECTS CO-FINANCED BY THE
EUROPEAN REGIONAL DEVELOPMENT FUND (ERDF) OR COHESION FUND
(CF) IN THE PERIOD 1994-1999

THE EGNATIA MOTORWAY



PREPARED BY:
CSIL, CENTRE FOR INDUSTRIAL STUDIES, *MILAN*

PREPARED FOR: EUROPEAN COMMISSION
DIRECTORATE-GENERAL
REGIONAL POLICY
POLICY DEVELOPMENT
EVALUATION

MILAN, AUGUST 29, 2012



«The accumulated expertise, experience and network of relationships and partnerships developed by the Observatory, create a very important system to record and process data and to monitor the effects of road network in Northern Greece. In this context, the future of the Observatory as a valid mechanism may be associated with the gradual expansion of the scope of its activities to the entire network of roads in the country and the wider region of SE Europe, linking decision making for the transport infrastructure to priorities of spatial development».

Conclusion of the EVALUATION AND PERSPECTIVES OF THE EGNATIA MOTORWAY OBSERVATORY (Ref. Assoc. 5212) - completed in February 2014.
http://observatory.egnatia.gr/06_extras/6_4_reports.htm



The Observatory was examined by the research institute NordRegio as a case study for the implementation of the ESDP (European Spatial Planning Perspective) in the context of the ESPON programme (European Spatial Planning Observatory Network - project 2.3.1: Application and effects of the ESDP in Member States, 2007, URL: http://www.espon.eu/main/Menu_Projects/Menu_ESPON2006Projects/Menu_PolicyImpactProjects/esdpimpact.html)



- **support the integrated management of motorways**
- **support of transport planning and regional development policies**
- **information, data & reports for agencies and citizens**
- **contribute to the harmonized assessment of TENs-T impacts on the territorial cohesion**



Funding

- (i) 2000-2002, DG Transport; 295.000 € (exc. VAT 18%)
- (ii) 2003-2009, O.P. "ROAD AXES, PORTS AND URBAN DEVELOPMENT" (OP-RAPUD), OF THE 3rd COMMUNITY SUPPORT FRAMEWORK; 1.146.670,30 € (exc. VAT 18%)
- (iii) 2010-2015, O.P. "IMPROVEMENT OF ACCESSIBILITY 2007-2013", "TECHNICAL SUPPORT FOR THE PRIORITY AXES OF THE COMMUNITY SUPPORT FRAMEWORK"; 662.253,72 € (exc. VAT 23%)
- 2016-2023, preparation of proposal to O.P. "Transport Infrastructures, Environment and Sustainable Development" – "Priority 16 "Cohesion Fund Technical Assistance"

remarks

- Wide-range data series' gathering and processing
- Systematic monitoring of motorway's operation and impacts through indicators
- Continuous territorial impact assessment
- Diffusion: data, factsheets, thematic and expert reports, maps, presentations etc
- Tool for strategic planning for transport and regional development
- **Big issue**: getting practical insight in planning and decision making processes



<http://www.egnatia.gr>

<http://observatory.egnatia.gr>

	GREEK GOVERNMENT		NATIONAL STRATEGIC REFERENCE FRAMEWORK (NSRF) 2007-2013
	EUROPEAN UNION (50%) Cohesion Fund European Regional Development Fund (ERDF) Trans-European Transport Networks		COMMUNITY SUPPORT FRAMEWORK 2000-2006
	EUROPEAN INVESTMENT BANK		