LASER VALLEY
LAND OF LIGHTS

from vision to action

December 2016

LASER VALLEY

Land of Lights

When launching the "Laser Valley - Land of Lights" Vision in 2015, the authors were saying: "We dedicate this manifesto for prosperity to all those who respond to our call to involvement, we thank them and invite them to enter the world of Laser Valley - Land of Lights. United in the wish for change and evolution, together we can turn Laser Valley into reality".

And this was 2016, a year of exploration and determination to act, for that this land of of lights to start becoming reality.
This leaflet reflects the outcomes of 2016, including the activity of the working groups which were set-up following the recommendations of the socio-economic impact study developed by PricewaterhouseCoopers and the discussions with Aspen Institute Romania. These thematic groups met in October - December 2016 to identify the current challenges and the necessary actions to develop and operationalise the smart territorial development concept "Laser Valley - Land of Lights".

Our appreciation comes to all the institutions participating in the thematic working groups

Aspen Institute Romania
PricewaterhouseCoopers
ELI-NP, Horia Hulubei Institute of Physics and Nuclear Engineering
Ion Mincu University of Architecture and Urbanism of Bucharest
Technical University of Civil Engineering of Bucharest
County Council Ilfov
Măgurele City Hall
Bucharest Municipality City Hall
Autonomous Public Transport Company Bucharest
Ministry of Regional Development and Public Administration
Cadastre and Land Registration Office Ilfov
Ministry of National Education and Scientific Research
National Authority for Scientific Research and Innovation
Executive Agency for Higher Education, Research, Development and Innovation Funding
Ministry of Transport
Ministry of Public Finance
Ministry of Communications and Information Society
Ministry of National Defence
Ministry of Foreign Affairs
Ministry of European Funds
National Investment Company
European Investment Bank
European Bank for Reconstruction and Development
World Bank
UNESCO Chair on Science and Innovation Policies, National School of Political Studies and Public Administration
Association for Economic and Social Studies and Forecast
The American Chamber of Commerce in Romania
Romanian Business Leaders Foundation
Romanian-American Foundation
Romanian Clusters Association
Măgurele High Tech Cluster
The Businessmen`s Association of Romania

VICTOR ALEXANDRU IONEL ANDREI LUCIAN ANGHEL ANTON ANTON FLORIN ANTONESCU ARABELA SENA APRAHAMIAN SORIN AXINTE DAN BARNA BOGDAN BELCIU MARIAN BOANGĂR COSTIN BORC CONSTANTIN BOȘTINĂ *LUCIANA BRATU* TRAIAN BRATU ANDREI BUGA ELISABETTA CAPANNELLI ALINA CÂRCIUMĂRESCU ANA CATAUTA ADRIAN CEFALAN *CORINA CHIRILĂ* NARCIS CONSTANTIN DANIEL COSNIȚĂ **ADRIAN CURAJ** PETRE CURCĂNEANU RĂZVAN CURDUMAN YAHIA DARDARI EMANOIL DASCĂLU LIGIA DECA VLADIMIR DEȘLIU MIHAI DIMA MATEI DIMITRIU LAURENȚIU DINU RADU DORCIOMAN ANCA DRAGU TIBERIU FLORESCU **MIRCEA GEOANĂ** ALEXANDRU GEOANĂ IOANA GHEORGHIADE RADU GHEORGHIU PAUL GHEORGHIU GABRIELA GHIMIȘ DANIELA GITMAN MANUELA GUIA *COSMIN HOLEAB* DORU ILIESCU DANA IONESCU *ALINA IRIMIA* **VASILE IUGA** MIHAELA KALOGERAKOS GABRIEL LEȘ CARMEN MĂRCUȘ NICOLAE MATEESCU DAN MELINTE ADRIAN MIHAIL GEORGICA MITRACHE CONSTANTIN MITACHE *ANDREI MITREA* MARIUS MITROI ANDRADA MOICA MARIAN MOICEANU SORIN NEGREA BOGDAN NEGREA CLAUDIA NICULAE RADU PĂTRAȘCU MATTEO PATRONE VALERIU PĂUN FLORIN POGONARU ALEXANDRU POPESCU REMUS PRICOPIE VASILE PUȘCAȘ AURA RĂDUCU CLAUDIU RUNCEANU FLAVIO SCHIAVO CAMPO IRINEL SCRIOȘTEANU GEO SCRIPCARIU *CĂTĂLIN SÎRBU* DRAGOS ȘEULEANU CEZAR RADU SOARE ROMEO SUSAN RESIGA MAGDALENA SUSAN RESIGA FLORIN TALPEȘ MIHAI TĂMÂIAN IONUȚ TRINCĂ MIHAI TUDOR CORNELIA TUDORACHE IOAN URSU RADU SORIN VĂCĂREANU RADU VIZIREANU NICOLAE ZAMFIR

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MINISTRY OF COMMUNICATION AND INFORMATION SOCIETY

MINISTRY OF NATIONAL DEFENCE

MINISTRY OF FOREIGN AFFAIRS

MINISTRY OF EUROPEAN FUNDS

CNI
Compania Națională de Investiții

European Investment Bank

European Bank for Reconstruction and Development

THE WORLD BANK
IBRD • IDA

United Nations Educational, Scientific and Cultural Organization

UNESCO Chair on Science and Innovation Policies, SNSPA, Bucharest, Romania

ASPES

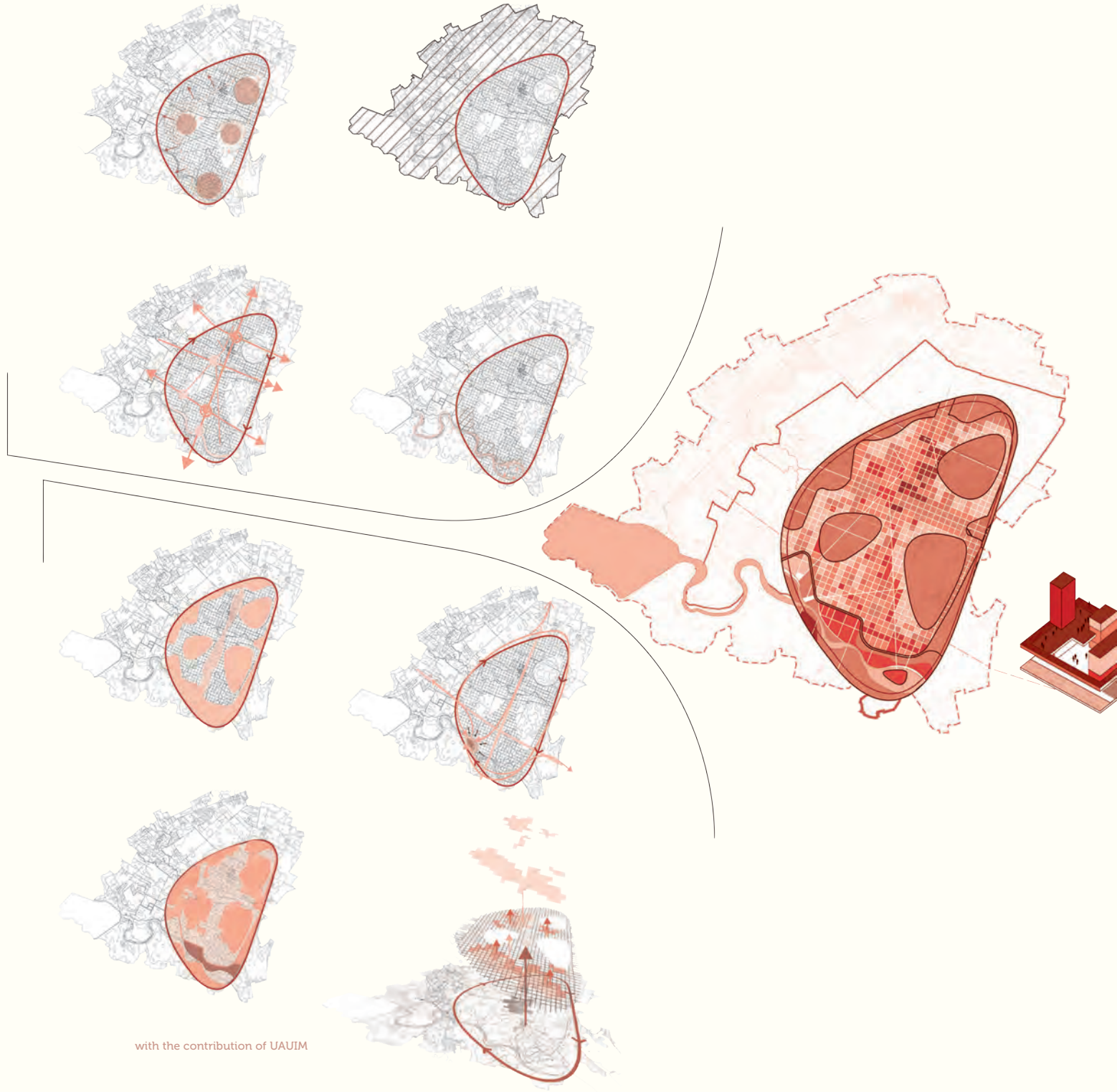
AMCHAM ROMANIA
American Chamber of Commerce in Romania

ROMANIAN BUSINESS LEADERS

ROMANIAN - AMERICAN FOUNDATION

Clustero

MHTC



with the contribution of UAUIM

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DEVELOPMENT ACCELERATOR

WWW.LASERVALLEY.RO

Laser Valley - Land of Lights is about capitalising on the uniqueness of the scientific and technological Pan-European research infrastructure Extreme Light Infrastructure - Nuclear Physics (ELI-NP), about valorising the scientific, technological and talent hub already existing in the city of Măgurele, Ilfov County, about taking advantage of the geographic location, neighbouring the Southern area of Bucharest and close to the Danube River, about creating an economic growth pole as a regional science, innovation and entrepreneurship ecosystem, about integrated disruptive development ('game changer') and about an accelerator of territorial transformation.
In essence, it is about an accelerator for Romania's development.

Laser Valley - Land of Lights targets an entire territory, covering several counties in Romania with high implications for the development, transport and European mobility Axis represented by the Danube, with expectations regarding its association as a strategic, flagship project to the EU Strategy for the Danube Region (EUSDR). The years 2018 (the centennial of Romania's Great Unification) and 2019 (Romanian EU Council Presidency) are opportunities and challenges for Laser Valley as well. Due to its uniqueness, size, complexity and potential socio-economic impact, the project is among the most challenging in post-1989 Romania - certainly the largest in terms of smart territorial development.

The success of Laser Valley - Land of Lights depends on the successful action of the state, as an entrepreneurial state, on the public-public partnership (local - central administration), on the public-private partnership and on the private initiatives, both individually but, especially, orchestrated. The public commitment at Government level, the local administration commitment, the stakeholders' involvement and national and international communication are also key drivers for concrete results.

The need for an open governance structure for the development of Laser Valley is a major conclusion of 2016. This structure is instrumental for the coordination of interventions, for the exploitation of the exceptional potential and for delivering positive impacts on competitiveness and welfare.

As ELI-NP is an example of continuity, ever since 2009, when it was assumed by the Government, we strongly believe that Laser Valley - Land of Lights already has the necessary dynamics to be on the agenda of any Government, at least for the next decade.

2011

FOREIGN INVESTORS COUNCIL RANKED ELI-NP AMONG THE TOP FIVE INVESTMENTS IN ROMANIA

FIC estimated in 2011, even before the building of ELI-NP started, that the project might attract investments of EUR 1 billion in the period 2012-2019 - and after completion it might attract additional investments, especially for the development of secondary facilities in the medical field.
FIC estimated that ELI-NP could generate on the medium term a GDP increase by 0.6% (implicitly an increase by 0.5% of the state budget contributions) and 12,700 jobs.

2012

FEASIBILITY STUDY FOR THE ELI-NP PROJECT

According to the study, the national and regional benefits induced by ELI-NP are: economic, by increased productivity facilitated by innovation in goods, services and processes; for education and research - unique experimental capacities, higher attractiveness of advanced study programmes, niche doctoral research; international visibility.
The total direct impact of ELI-NP on the GDP is estimated at EUR 770 million (between 2012-2030).

2016

PRICEWATERHOUSECOOPERS DEVELOPED THE ELI-NP SOCIO-ECONOMIC IMPACT STUDY

The Laser Valley - Land of Lights regional ecosystem will create 12,000 jobs and will generate an annual turnover of EUR 1.26 billion, with EUR 500 million impact on GDP and EUR 120 million in taxes collected to the state budget.

FROM VISION TO ACTION

The Laser Valley project is the outcome of a series of complementary initiatives that shaped the concept of smart urban development and of a science, innovation and entrepreneurship ecosystem as a regional and European competitiveness pole, generated by the scientific and technological uniqueness of ELI-NP.

2010 ELI-NP White Book

The report - collecting the contributions of more than 100 top researchers worldwide - includes detailed descriptions of the scientific and technological background of the implementation and applications of the ELI-NP research infrastructure - within the ELI Pan-European infrastructure.

2011 KPMG Study "Research and innovation. A Romanian growth engine"

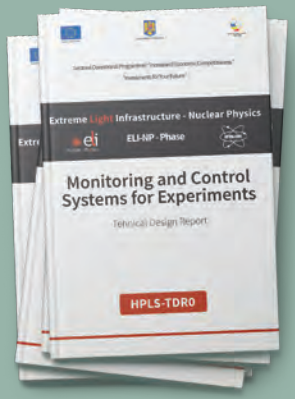
Integrating the discussions on ELI-NP at that moment, Măgurele is described as a "hotspot for science and business, a place where people will like to live and work". Various landmark projects are announced: a technological park for ICT and life sciences, a national institute of advanced studies, a concentration of universities (Politehnica of Bucharest, University of Bucharest and Carol Davila University of Medicine and Pharmacy). ELI-NP is seen as "Romania's chance to be at the core of developments" - not just to own an unique European research infrastructure, but also to develop a high-tech and innovation cluster - "Măgurele, the city of lights", by promoting public-private partnerships and by synergic use of national, European Cohesion, and private funds.

2011 Foreign Investors Council ranked ELI-NP among the top five investments in Romania

FIC estimated in 2011, before the building of ELI-NP started, that the project might attract investments in amount of EUR 1 billion in the period 2012-2019 - and after completion it might attract additional investments, especially for the development of secondary facilities in the medical field. FIC estimated that ELI-NP could generate on the medium term a GDP increase by 0.6% (and implicitly an increase by 0.5% of the state budget contributions) and 12,700 jobs.

2015
Tehnical Design Reports

This is the first coherent and comprehensive documentation of the future experiments at ELI-NP. There is a collection of 15 reports of almost 1,000 pages to which over 100 researchers from all over the world have contributed.
The reports were published at the beginning of 2016 in Romanian Reports in Physics.



rrp.infim.ro/2016_68_S.html

euraxess.gov.ro/flipbook_laser/book.swf

2015
The Vision of „Laser Valley - Land of Lights”

In 2015, UEFISCDI organised a participatory vision exercise for the smart territorial development model and the outcome of that consisted in the „Laser Valley - Land of Lights” concept, as well as in the main directions of development for the town of Măgurele and the neighbouring areas.

2016
The international urbanism competition for Laser Valley

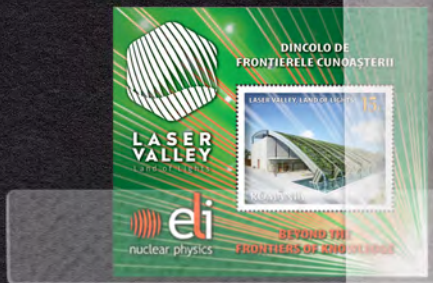
“Ion Mincu” Architecture and Urbanism University and the Technical University of Civil Engineering from Bucharest have jointly organised with the Ministry of Education an international competition of ideas illustrating the Laser Valley - Land of Lights urban vision for the year 2035.

laservalleycompetition.ro

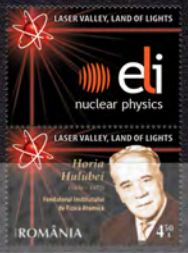
2016

Commemorative postage stamps by Romfilatelia

The postage stamp issue "Beyond the Knowledge Frontier, Laser Valley - Land of Lights" highlights the recent scientific and technological history which makes us confident that we have the creativity and the power to accomplish great projects.



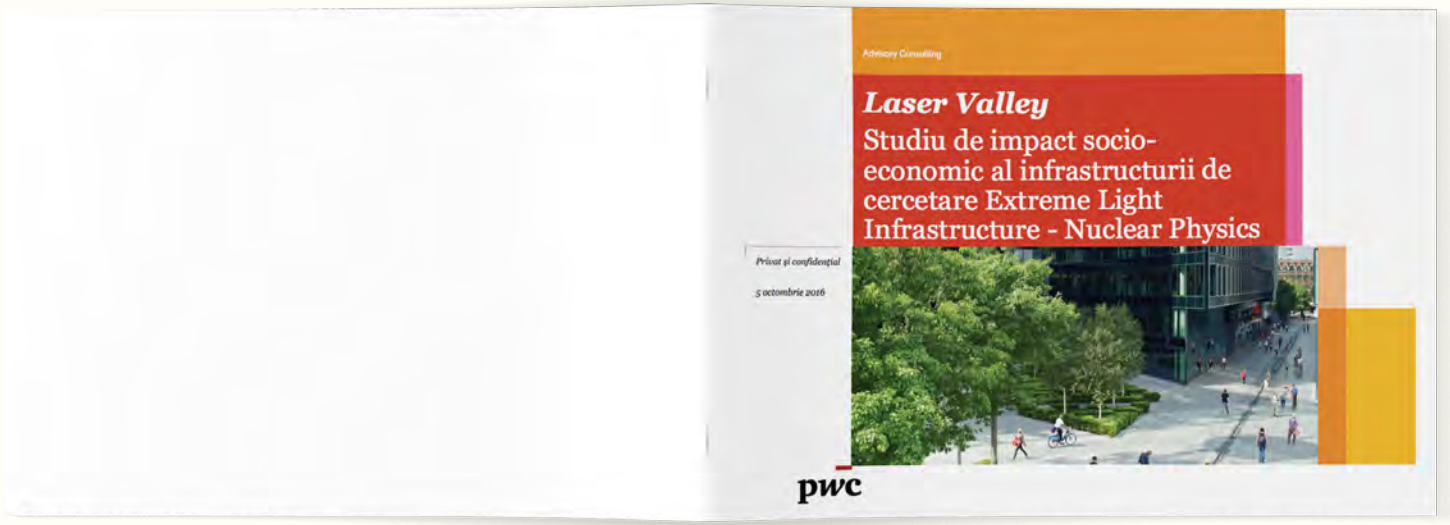
laservalley.ro/Home_files/directory/album_filatelic.pdf



2016

Socio-economic impact study on ELI-NP

PricewaterhouseCoopers developed the "Socio-economic impact study on ELI-NP", which highlights the main development axes of the Laser Valley - Land of Lights ecosystem: technological development, academic-scientific development and social development. The study analyses international practices, the situation of the host territory and connectivity, the Romanian legal and strategic framework, proposes a set of actions for the development of Laser Valley, and emphasizes the importance of having a governance mechanism in place.



Estimated socio-economic impact of ELI-NP:

- more than 12,000 jobs
- EUR 1.26 billion annual turnover
- EUR 500 million contribution to GDP
- EUR 120 million additional tax revenue

/Studiu_de_Impact_ELI-NP_en.pdf

SMART TERRITORIAL DEVELOPMENT

south of Bucharest, north of Danube

The substantiation of the "Laser Valley - Land of Lights" vision is scale-dependent. Consequently, we need an in-depth analysis of three different perspectives which all contribute to building a coherent and consistent profile for the entire project: a *local perspective*, focused exclusively on the city of Măgurele; a *metropolitan perspective*, focused on aspects related to the accessibility of the city centre, on the city interface with Bucharest, and on the valleys of the three rivers crossing the area, with the lakes, the delta and the existing forests; a *territorial perspective*, mainly focused on the economic competitiveness of a vast territory it influences, in South of Bucharest and North of the Danube - especially Giurgiu and Ilfov counties.

The developments will be various and complementary, falling under several axes:

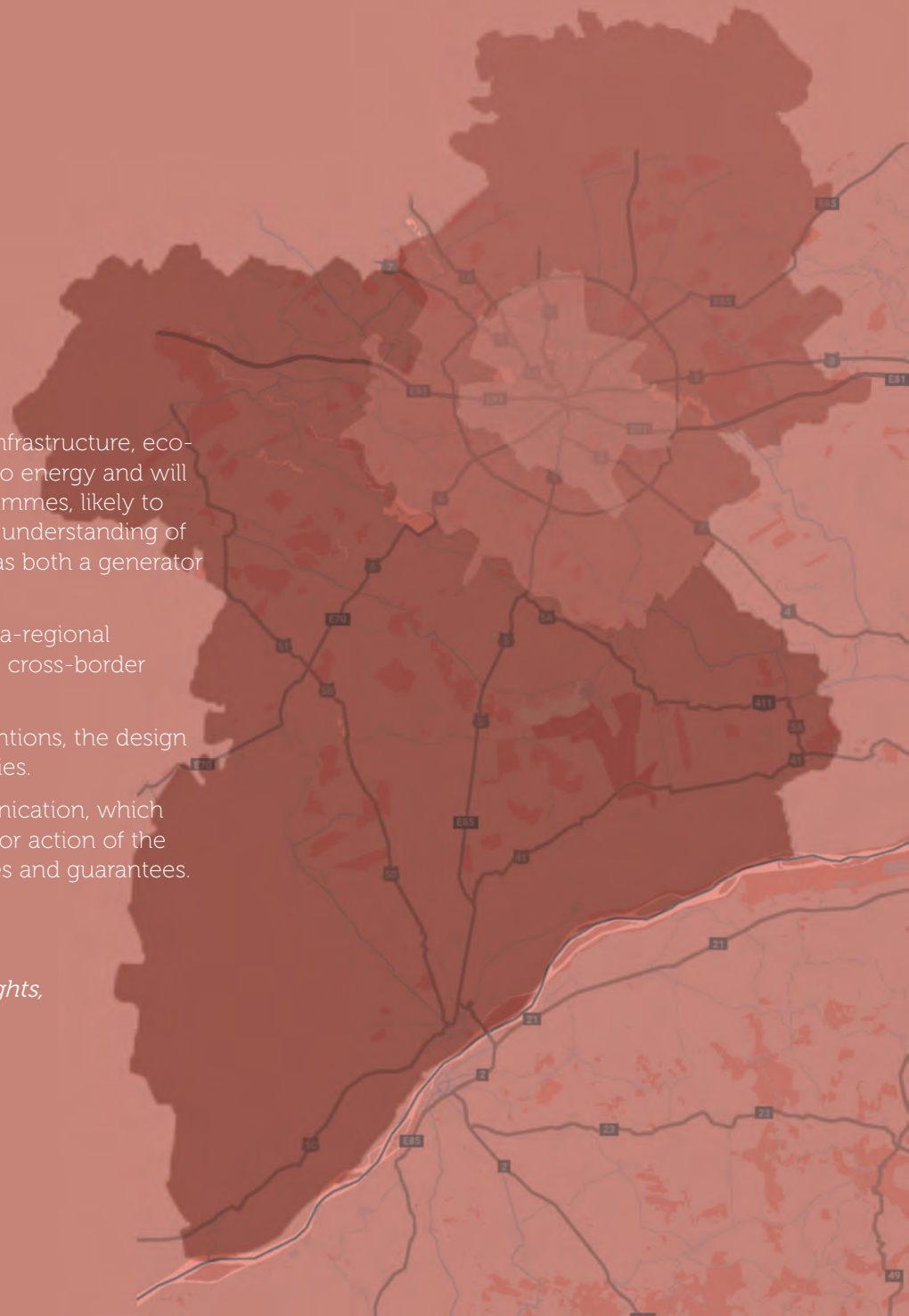
They will capitalise on ELI-NP as an unique research facility which may generate an international scientific and technological pole of excellence together with the existing hub in Măgurele, which includes seven national research-development institutes and an university, and also the connection with Bucharest and the concentration of universities, research and talent resources there.

Will foster the multiplication effect which can be generated by the links with knowledge-intensive sectors both as providers for the ELI-NP needs, and as beneficiaries from the economic use of research outcomes. They will generate an area of creativity, innovation, experiments and testing - an entrepreneurial and innovative ecosystem.

Will foster the creation of scientific, technological and industrial parks, inspired by public initiatives, by public-private partnerships and by private initiatives.

Will influence lifestyle through living areas, creativity and recreation areas which capitalise on the natural capital, and through various complementary educational facilities with a strong experimental component in the Science Village.

The ecosystem will have a strong international component, because there will be people from all over the world living and working in Laser Valley.



Will implement the concepts of smart infrastructure, eco-green technologies, smart eco-living, zero energy and will entail detailed urban regeneration programmes, likely to target Măgurele first, leading to a deeper understanding of the geography and of the host territory, as both a generator and a beneficiary of smart development.

Will put a new focus on initiatives at meta-regional level and on the Danube Strategy, on the cross-border component and on *smart specialisation*.

Will require integrated territorial interventions, the design and operationalisation of funding synergies.

Will focus on predictability and communication, which will create the need and the framework for action of the entrepreneurial state - incentives, facilities and guarantees.

Because Laser Valley is the Land of Lights, a place where you enjoy working and you enjoy living.

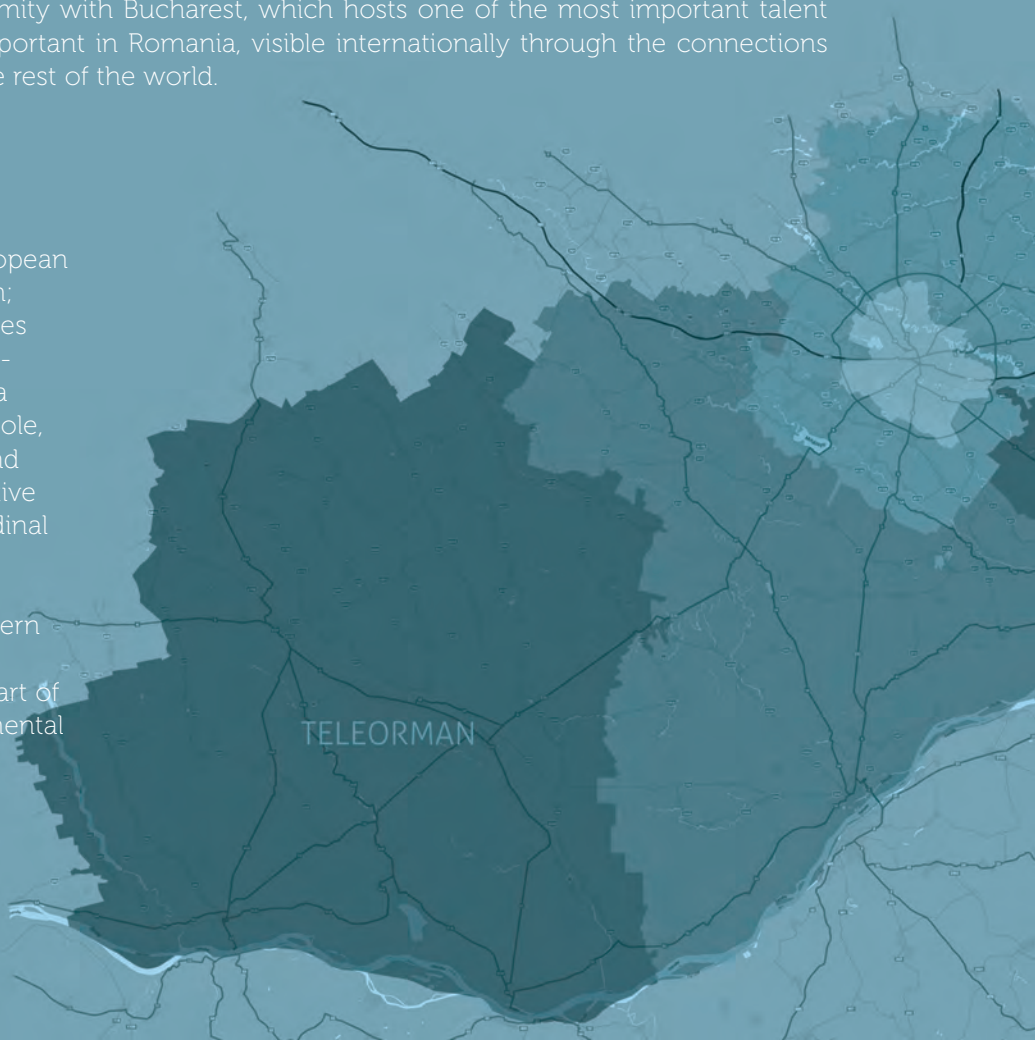
BEYOND LASER VALLEY

Territorial competitiveness

The territorial logic in which the Laser Valley - Land of Lights project is anchored indicates three modelling drivers:

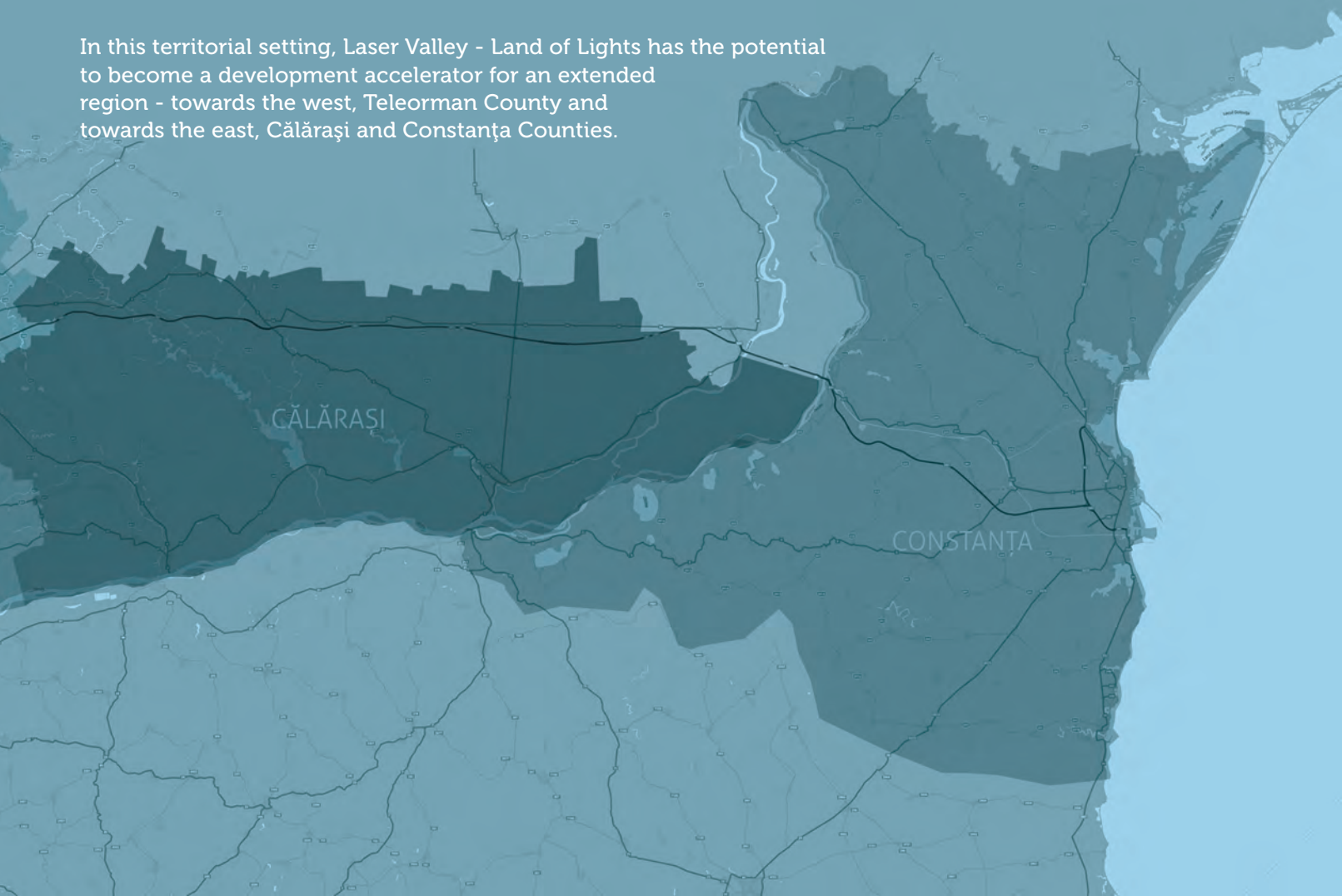
The first driver is its immediate proximity with Bucharest, which hosts one of the most important talent pools in the region and the most important in Romania, visible internationally through the connections linking Bucharest with Europe and the rest of the world.

The second driver is the Danube axis, supported ever since 2011 by the European Union Strategy for the Danube Region; it includes several pairs of Danube cities which may generate systematic cross-border cooperation between Romania and Bulgaria: Turnu Măgurele - Nicopole, Giurgiu - Ruse, Oltenița - Turtucaia and Călărași - Silistra. Shifting the perspective from this transversal to a vast longitudinal view, the Danube is so far the only waterway which enables Romania's contact and interaction with the Western Europe and Asia.
Therefore, it becomes the southern part of Romania's continental and intercontinental economic integration axis.

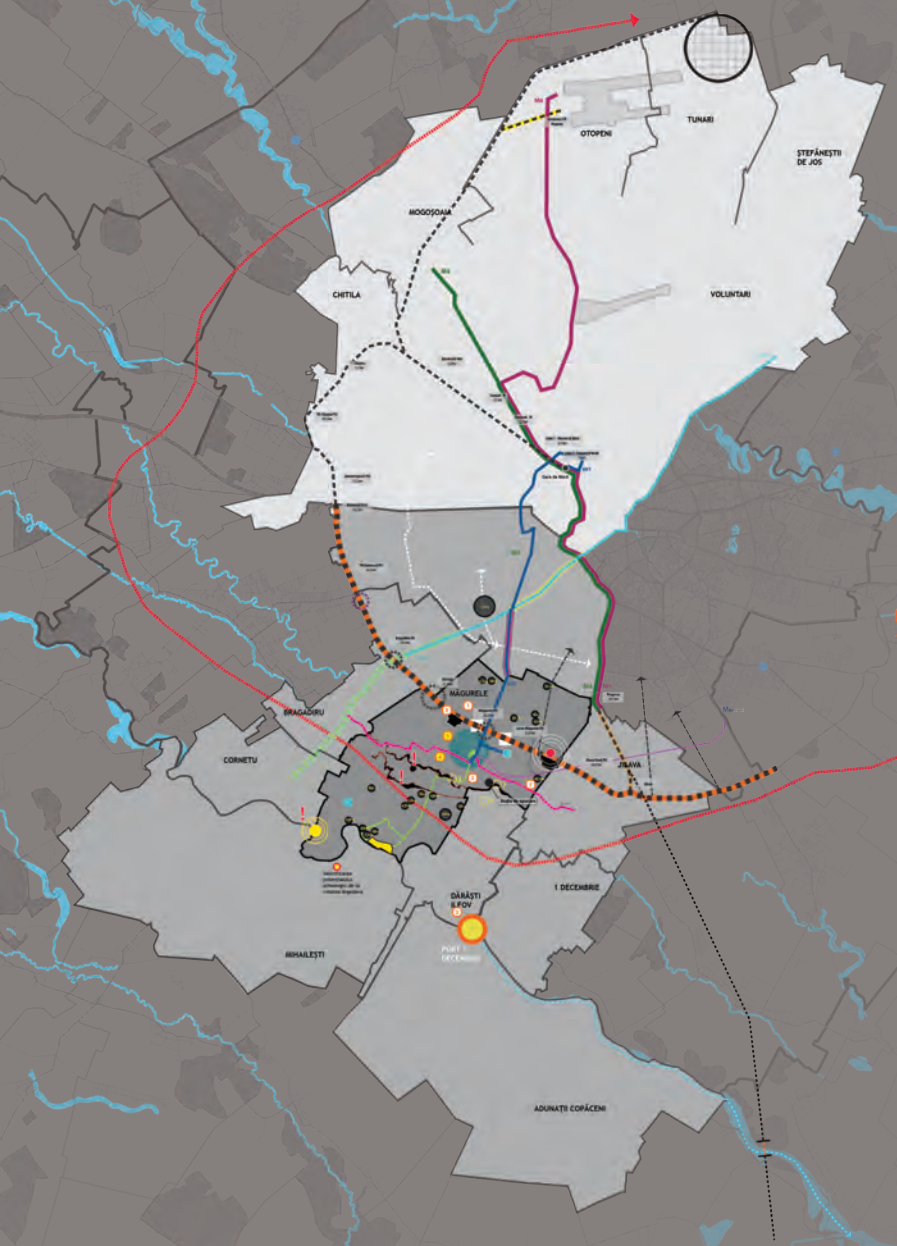


The third driver is the Black Sea - as an area of international exchange and Bucharest as direct hinterland of the Port of Constanţa, the largest commercial port to the Black Sea. The inland influence of Constanţa is transmitted through the intermodal corridor consisting of the high speed railway connecting Bucharest to Constanţa, the A2 highway and the navigable Danube together with the Danube - Black Sea Canal. Thus, the intermodal corridor completes Romania's international economic integration axis. Currently, this axis lacks two important elements: the Bucharest - Danube Canal, a project of medium- and long-term interest, and a direct railway connection between Bucharest and Giurgiu, of immediate interest, reflected in the priorities of the Ministry of Transport.

In this territorial setting, Laser Valley - Land of Lights has the potential to become a development accelerator for an extended region - towards the west, Teleorman County and towards the east, Călăraşi and Constanţa Counties.



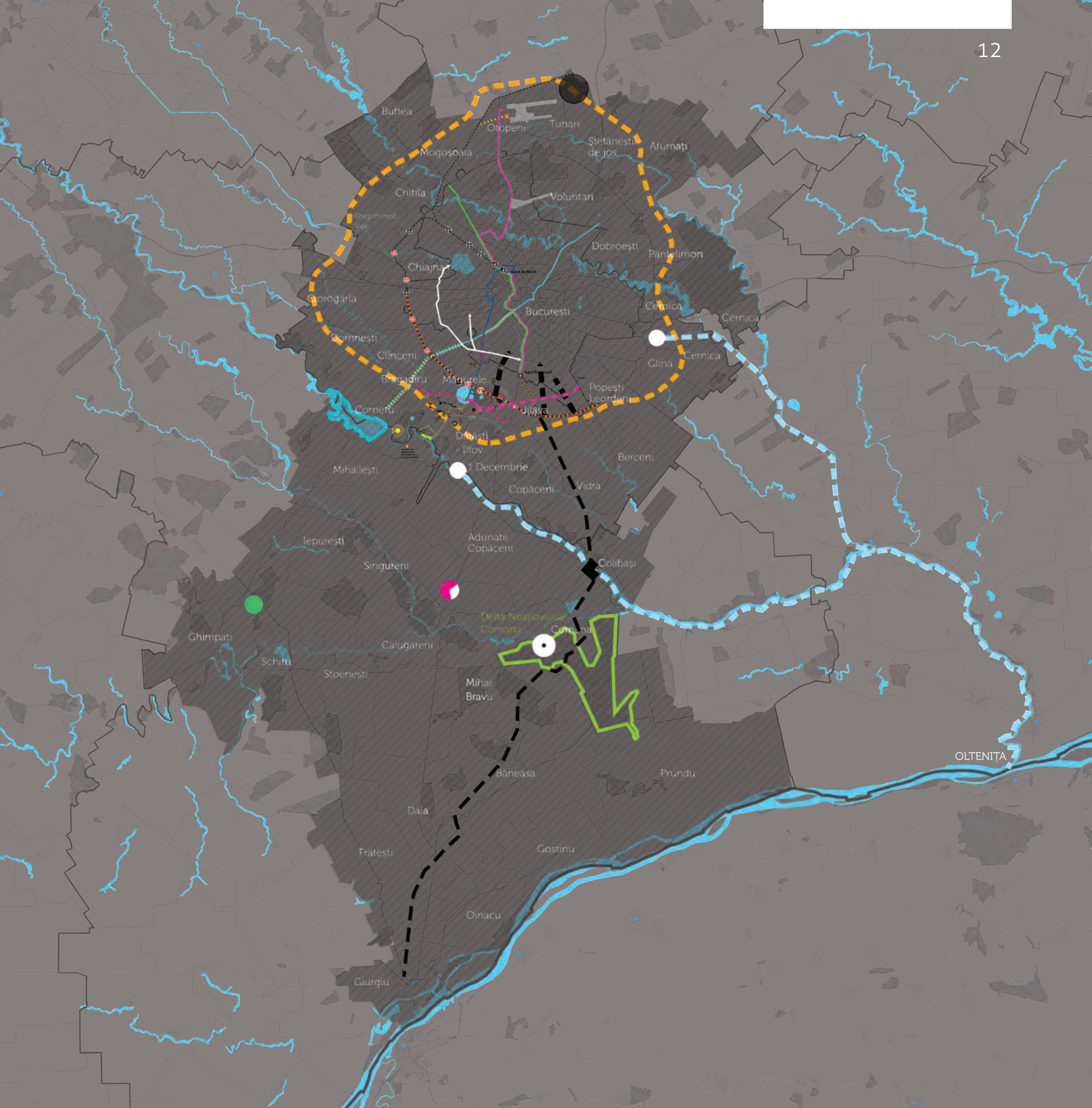
A CONNECTED VALLEY



Laser Valley includes the southern area of Bucharest. It is directly relevant for the development of the Giurgiu and Ilfov Counties, but also for nearby Teleorman and Călăraşi Counties. It is core centered on the city of Măgurele, the ELI-NP host.

The modernisation and completion of Bucharest' south ring road, the operationalisation of the railway which will provide urban rail link between the Central - North Station and Progresul Station and, on longer term, the interconnection with the Subway lines 4, 6 and 1, the train connection to Giurgiu, the external ring road, and the solution to the southern access route to Bucharest will all contribute to the mobility in the area and will provide access to and from the Valley to the airport, downtown Bucharest, and the Danube River.

The operationalisation of the project proposed by the Ministry of Transport for the Bucharest' belt railway and the implementation of the Sustainable Urban Mobility Plan Bucharest - Ilfov will bring a crucial contribution to the connectivity of the *Valley.*


Buftea
Otopeni
Tunari
Ștefănești de Jos
Afumați
Mogoșoaia
Chitila
Voluntari
Dobroești
Pantelimon
Chiajna
Ciorogârla
București
Cernica
Cernica
Domnești
Clinceni
Glina
Cernica
Bragadiru
Măgurele
Popești Leordeni
Cornetu
Jilava
Dărăști - Ilfov
1 Decembrie
Berceni
Mihăilești
Copăceni
Vidra
Adunații Copăceni
Iepurești
Singureni
Colibași
Delta Neajlovului Comana
Comana
Ghimpați
Călugăreni
Schitu
Stoenești
Mihai Bravu
Băneasa
Prundu
Daia
Frătești
Gostinu
Oinacu
Giurgiu
OLTENIȚA

The Vision developed in 2015 - which emphasized the need of an increased accessibility in the area and launched the idea of 30 minutes connections from the center of Măgurele to the Henri Coandă Airport and to the Bucharest city centre - starts to become a reality through the new project on the ring railway announced by the Ministry of Transport at the end of 2016 (urban trains covering a 68 km area around Bucharest).

Laser Valley leaflet, 2015

30' / 30' / 30',
the challenge for connectivity in the area, as identified by the Laser Valley Vision in 2015.

Existing railway station

Proposed station, construction of 100 m platform

Multimodal node

Railway-subway connection

Railway stage 1

Railway stage 2

Railway stage 3

The first trains should be operational starting 2017 and connect the Progresul Station and the Bucharest central North railway station, with stops in Chiajna, Domneşti, and Măgurele. In the area of the laser in Măgurele; the railway project sets out the construction of two stops: one at the intersection with the existing road which connects Bucharest to Măgurele and one that would connect with the science park ("Laser Valley" on the map).

The railway ring with urban trains project is closely related to the project aiming to provide a direct connection with the Henri Coandă International Airport. The plan is to build in 2017 a railway passage under the National Road 1 (DN1) which would make operational by 2018 the direct line connecting the Bucharest North railway station and the Airport. Thus, there will be direct train connections which will provide transport from the airport to Laser Valley within 30 minutes:

"When the direct railway to Otopeni Airport is operational, we shall be able to provide interesting connections. For example, direct trains from Otopeni Airport to the Măgurele Laser or to Jilava, which will arrive at destination within 30 minutes."
Railway Reform Authority
December 2016, Hotnews

Măgurele city - with all its public research facilities and the Science Park, "Henri Coandă" International Airport, Bucharest city centre, the recreation areas and the Danube River, but also the northern part of Bulgaria will be virtually closer. This could lead, on a longer term, to the development of a *cross-border high-tech coridor*.

Laser Valley leaflet, 2015

Laser Valley leaflet, 2015

The important investments in the public transport system, both those already announced by the Ministry of Transport - to ensure mobility with urban trains within the territory and to the Laser Valley area - and the investments announced by the integrated urban mobility plan for Bucharest and Ilfov will change the whole community pattern. Besides public transport, there will be pedestrian and bicycle lanes, a shared eco-cars system to ensure mobility between the educational and scientific facilities, the science, innovation and entrepreneurship hubs, the business and commercial areas, the city centre, the Mihăileşti Lake, the 1 Decembrie Port and all the green recreation areas, and the future city of education, science and experiments - Science Village.

THE SMALL CITY OF BIG SCIENCE Sustainable urban environment

Măgurele offers an unique geographic location for an urban area situated at the crossroads of Bucharest, Romania's capital city - with its economic, social and cultural dynamics, Măgurele - the small city of big science, with its hub of talents and research infrastructure - and the exceptional natural capital of the neighbouring areas - from the Mihăileşti Lake to the 1 Decembrie Port and the Neajlov Delta with its lowland forests and rivers, not far from the the Danube.

If science is at home here and it provides the core for a generic starting point, the development of Măgurele focuses on creating a sustainable urban environment, as part of the smart and sustainable territorial development - Laser Valley. Starting from a new, science driven development approach, Măgurele may play an important role, even become the leader in promoting innovation in the fields of environmental technologies and sustainable development.
The construction of ELI-NP in Măgurele already includes an energy efficiency solution, unique in size and in terms of its technological approach.
The next crucial step could be to set energy efficiency and smart infrastructure targets for all the urban development: from smart-grids to communications, resource management, waste collection and recycling, to connectivity - Smart City solutions.
This type of development entails special dynamics and raises a challenge for both those directly involved and those who look from the outside. The new solutions validated here may influence the future development of other communities as well.

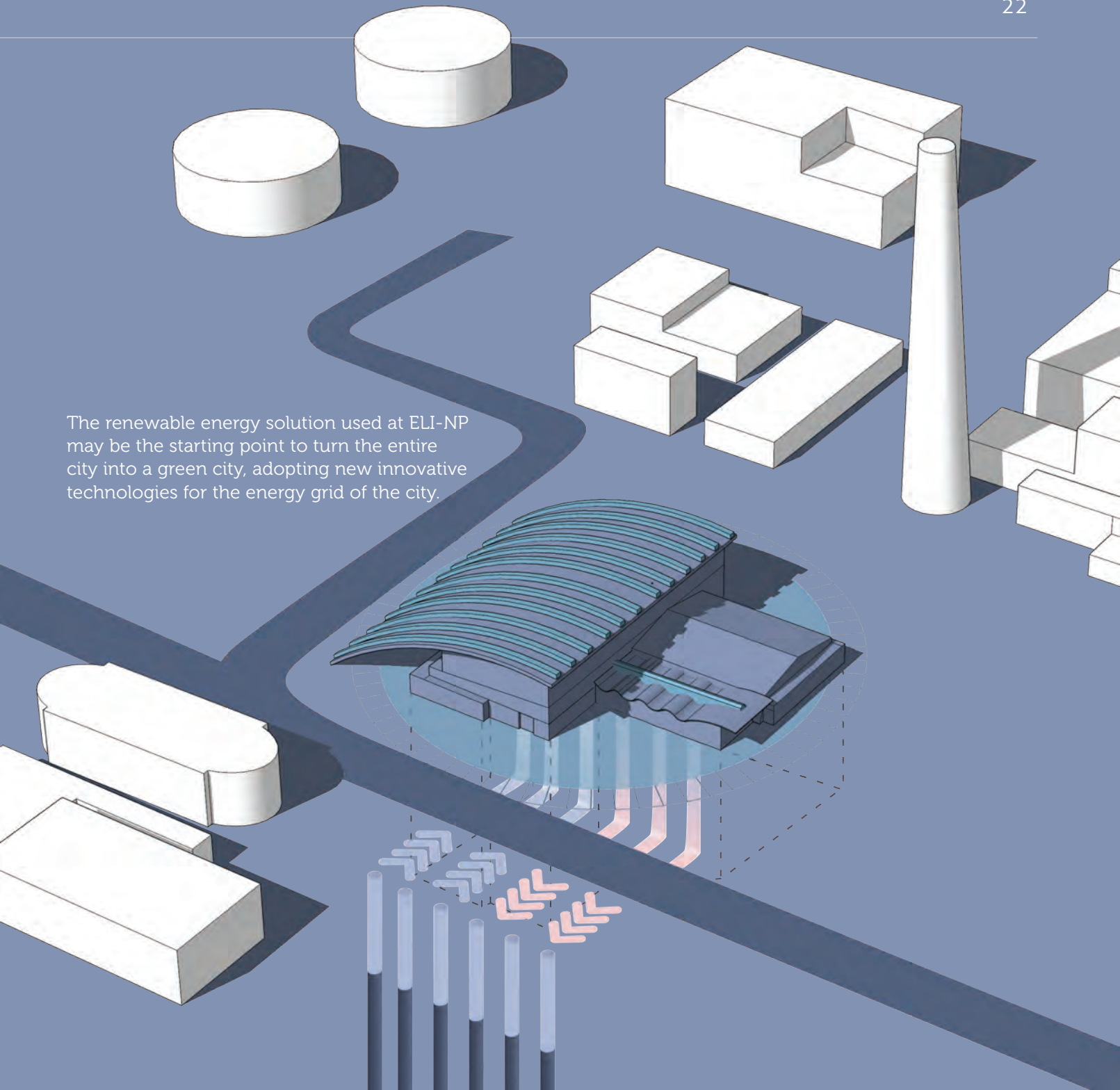
An inspired and coordinated *open* approach, would turn this whole area into an example of smart territorial development of the entire region south of Bucharest and north of Danube with Magurele as city of science, inspiration and entrepreneurship, a vibrant living environment, as land of lights.

Unique geography for an unique urban area of the "small city of big science" located at the crossroads of Bucharest capital city, the research infrastructure in Măgurele and the exceptional natural capital of the neighbouring areas

Laser Valley leaflet, 2015

Energy efficiency and smart infrastructure

The laser in Măgurele is hosted by an ecological building, currently the largest building in Europe supplied with energy from unconventional sources - 3.9 MW geothermal energy generated by 1,080 water wells dug at 120 m depth each, covering an area of about 27,000 m^2. The borehole thermal energy storage (BTES) conditioning system used at the ELI-NP centre is an European first for such applications and ranks fourth worldwide.



The renewable energy solution used at ELI-NP may be the starting point to turn the entire city into a green city, adopting new innovative technologies for the energy grid of the city.

Urban reconstruction and regeneration

The Laser Valley - Land of Lights concept envisages the urban regeneration of the city of Măgurele, the ELI-NP host, located at the heart of the territory, and its development as a *Smart Green City*.

Laser Valley leaflet, 2015

A necessary action for the immediate future is to develop a substantiation study / plan for an urban reconstruction and regeneration project in the city of Măgurele. The infrastructure in the area - in terms of both connectivity and the water, sewage, energy, gas, communication grids - will be developed according to *smart infrastructure principles*.
Urban regeneration in Măgurele aims at planning and building public spaces for high quality of life: redesign the city centre area, create a park and a pedestrian area between the student dorms, balance the traffic, solve the parking space problem, restore the abandoned buildings in the city centre, etc.


P. O. Laser Măgurele
(km cf. ex. 56+476.85)
Possibility Park & Ride
Flyover development / extension
Redeployment of South railway, passenger traffic (Gara de Nord - Progresul)
Gendarmerie
24 km
23 ha
4 ha
ELI-NP Research Centre
6,2 ha
Urban regeneration area
Future Science Park Area 20-60 ha
Oteteleșanu Park development
Sewage treatment plant
Horia Hulubei National Research Institute of Physics and Nuclear Engineering
SABAR
CIOROGÂRLA
Area requiring ecological reconstruction Ciorogârla and Sabar

Top research applications which will improve community life

The city of Măgurele hosts, besides the ELI-NP centre, other six research institutes and the Faculty of Physics of the University of Bucharest, active in the following fields: *physics and nuclear engineering, lasers, plasma and radiation, space sciences and material physics*.

A wide range of possible applications will be explored by the international community of users and will serve a wide range of research topics which will find applicability in fundamental research (atomic nucleus, astrophysics, quantum electrodynamics), security and terrorism prevention (research on detection of special materials of strategic interest, ionizing radiation imaging), ecology and environmental (research on new radioactive waste diagnosis and processing methods), materials science and engineering (effects of intense radiation fields on materials), nuclear medicine and life sciences (use of accelerated particle beams supported by lasers in hadrontherapy, new medical imaging techniques), radiopharmaceuticals (methods to produce new types of radioisotopes) and high-tech industry.

with the contribution of UAUIM

The use of scientific applications and technologies developed here, in the research centres and by companies, will impact the quality of life.

Scientific applications in medical areas, adapted to community needs and scalable, will lead to the provision of high quality medical services by using innovative technologies and personalized care.

Laser Valley leaflet, 2015

Laser Valley leaflet, 2015

A VIBRANT ENVIRONMENT, A DIVERSITY OF OPTIONS

Science, education, creativity, innovation and entrepreneurship

The Laser Valley - Land of Lights concept, with the urban hub Măgurele as core pole, is about creating an ecosystem of science, innovation and entrepreneurship focusing on the man-nature-technology symbiosis.
The natural environment is the main element in connecting the prevailing functions (work, education, housing, culture, sports-recreation), in the development of a vibrant, creative and innovative community and in providing high quality of life for the new international community of researchers, engineers, and students, for the business community as well as for the local community.

From an architectural and urban planning perspective, the central area of Măgurele is dominated by the seven national research institutes and by the Faculty of Physics of the University of Bucharest. For that matter, future developments will have to take into consideration both the urban regeneration of the area and the public education, research, and experiment facilities.

ELI-NP with its future developments, in terms of both scientific facilities and technological infrastructure, the science park, and all its related developments, will generate a major concentration.

> It is likely that this *science, education, innovation and entrepreneurship* axis will generate spectacular developments both in Ilfov county and in the southern part of Bucharest.

The science park will provide the conditions and best location for an international cognitive computing facility and will foster the concentration of various actors, public and private, in cyber security. The universities of Bucharest will be interested in locating their own facilities in this area dense with skills and resources, while many others will wish to capitalise on the diversity of the scientific, business and entrepreneurial environment. This density and proximity will radiate development and will encourage cooperation, including cross-border cooperation with Bulgaria; Călugăreni, located not far from Magurele, is the host of the first private industrial park, a high-tech park focused on life sciences.

What is the ideal location for the Science Village - an area of experiments and education for children, close to the miracle of extreme lights and to the hub of research facilities waiting to be visited and to inspire, close to nature and integrated by nature?

What will they visit, where will they camp, how will the creativity camps be integrated?

with the contribution of UAUIM

Laser Valley leaflet, 2015

Education through science will contribute to the development of social values, will develop responsible citizens and will encourage orientation towards scientific careers.

Augmented reality will provide the perfect space for creativity, education and cooperation.

Laser Valley leaflet, 2015

Students will have access to education, research and experimental facilities, to creative public spaces and will be able to validate their ideas in ideea incubators, entrepreneurship hubs and business accelerators.

Laser Valley leaflet, 2015

City of science, inspiration and entrepreneurship, a vibrant living environment in the Laser Valley

with the contribution of UAUIM

The participation of citizens and of the broader Laser Valley community in co-design sessions using augmented reality techniques will turn the public space into a meeting place of the present with future ideas, of locals with people from all over the world.
And the natural beauty, the uniqueness of the extreme lights and the cosmopolitan environment will offer the scene and drive the initiatives for a festival of lasers, music, design, holograms and creativity.

with the contribution of UAUIM

An environment conducive to movement, which valorises the natural capital. A recreation pole in the middle of nature, for people to relax and interact. Bicycle lanes, camping areas.

with the contribution of UAUIM

Housing based on diversity, a social and functional mix, renewable energies and waste management, urban agriculture and biological architecture and on a positive energy balance. People live closely connected with nature.

LASER VALLEY

In a nutshell

Smart technological development centered on the city of Măgurele

Măgurele City	4.500 ha
Măgurele Science Park	20-60 ha
Măgurele Science Village	5-10 ha
Urban regeneration (Măgurele city centre)	60-80 ha

More than 12,000 new jobs

EUR 1.26 billion annual turnover

EUR 500 million taxes collected to the state budget yearly

Various transport options

- Biogas / electric - buses
- Electric car-sharing
- Train, tramway
- Bicycle lanes
- Better accessibility to recreation areas (rivers, forests, delta, lakes)
- 30 minutes / 30 minutes / 30 minutes - Airport, Bucharest city centre, Danube River

LAND OF LIGHTS

Resources

Office space, housing, schools, university

Mix of housing, business, science, cultural facilities and natural facilities (river, forests, Neajlov River delta)

Environmental target for all development projects (fossil fuel-free by 2030)

Energy target for all developments

An ‘understood’ territory, ready for smart territorial development

A Science village which will attract more than 500,000 students / year, starting with 2020

A science park with a core of 20 ha; a hub of public research facilities; companies, business incubators and accelerators, a cognitive computing and cyber security research pole

BEYOND 2016 | Necessary actions

2017

macro strategic

- Governance structure and mechanism for the Laser Valley - Land of Lights concept development
- Development strategy and implementation plan for the Laser Valley - Land of Lights project
- Railway connectivity (CFR)

communication international visibility

- Continue the political efforts in order for EU-ERIC (the European Research Infrastructure Consortium for Extreme Light Infrastructure) to be hosted or co-hosted by Romania

mezo territory

- Initiate a PATZ (Zonal Territory Arrangement Plan) study for the Laser Valley territory
- Clarify the PUG (General Urban Plan) of Măgurele and the PUZ (Zonal Urban Plans) of the areas of interest
- Systematic land registration for the localities of interest
- International competition for project ideas on *smart infrastructure*
- Feasibility Study for Măgurele Science Park
- Feasibility Study for Măgurele Science Village
- Feasibility Study for Măgurele Cognitive Computing Centre
- Feasibility Study for an institute of advanced studies

micro core territory

- International competition for project ideas on the *urban regeneration* of the city of Măgurele

2018

- Development of the Integrated Territorial Intervention concept
- "General Connectivity Plan": stages and time frame
- The conference "Doing business in Laser Valley"
- Actions to include Laser Valley - Land of Lights together with ELI-NP as a *flagship project* associated to the Danube Strategy
- *High-Level political and stakeholders meeting:* RO-BG, together with the European Commission - DG Regio, the Committee of the Regions, on "Smart cross-border territorial development"
- Promoting Laser Valley - Land of Lights at international events (business and regional development)

Understanding the territory is essential, in parallel with and complementary to the ongoing actions. All the Laser Valley - Land of Lights initiatives depend on a set of integrated territorial projects which, in turn, should be part of a clear and realistic legal, economic and social context. Therefore, the project's substantiation is closely related to the following actions: clarification of the land's situation following land registration actions; harmonisation of provision of various urban planning documentations which govern and regulate the development of the entire area, and development of smart territorial development policies. Some of these actions are already ongoing.

A favourable framework for planning such a project is the Intercounty Zonal Territory Arrangement Plan (PATZ-IJ), which will generate zonal territorial policies on concrete issues of common interest. This plan will underpin the design and negotiation of the socio-economic profile and the zoning of the territory, based on the development opportunities for the companies and on the workforce available, as well as on the location of facilities and equipments.

This type of plan is designed to preserve the natural heritage and specific urban characteristics as well as to enable rational use of land within the structural organisation of the construction perimeter.

A GOVERNANCE MODEL FOR

Considering the recommendations from the Socio-Economic Impact Study on ELI-NP developed by PwC in partnership with Aspen Institute Romania and in dialogue with international funding bodies - EIB, EBRD and WB, we concluded that a sound substantiation of joint decisions and actions for the development of Laser Valley - Land of Lights requires a governance mechanism, preferably an open method of coordination.

This mechanism should coordinate the development of the science, innovation and entrepreneurship ecosystem in Laser Valley - Land of Lights by:

- providing a public-public and public-private dialogue platform;
- providing the necessary institutional framework to prepare the development strategy and the implementation plan;
- substantiating an Integrated Territorial Intervention in Măgurele, around ELI-NP and the hub of facilities and talents, to contribute to the development of a knowledge region;
- coordinating communication and dialogue with the international funding institutions;
- informing the Government, Parliament, local public administration, businesses and citizens on a regular basis.

DEVELOPING LASER VALLEY LAND OF LIGHTS

Such an open coordination could be ensured, at least in the initial stage, by a High-Level Working Group (HLWG) at the Center of Government (CoG), assisted by a Technical Assistance / Project Management Team, located at the Government headquarters.

A possible proposal for the initial membership and operation of the HLWG would consider the coordination of the group at Prime Minister or Deputy Prime Minister level; the working group would be hosted by the Secretariat General of the Government, and have an executive leadership consisting in a High Representative of the Prime Minister. The initial membership of the HLWG should include representatives of the central and local administration (minister / secretary of state, president / vice-president of county council, mayor / deputy mayor): the Chancellery of the Prime Minister, Ministry of National Education, Ministry of Research and Innovation, Ministry of Transport, Ministry of Public Finance, Ministry of Economy, Ministry for Business, Trade and Entrepreneurship, Ministry of Regional Development, Public Administration and European Funds, Ministry of Environment, Ministry of Water and Forests, Bucharest Municipality City Hall, Ilfov County Council, Giurgiu County Council, Măgurele City Hall, ELI-NP Project Director, National Agency for Cadastre and Land Registration. The group meetings may invite experts / professionals as session guests.

Facilitated by:

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