

# Galati – smart city? Desideratum or reality

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## **Abstract**

**Objectives** *We all want to live in a smart and innovative city. In Galati, a few steps have been taken towards its development and transformation into a Smart City. **The purpose** of the research is to analyze the steps taken to achieve this goal. **The objectives** of the article aim at drawing up a SWOT analysis for the city of Galati and the guidelines for medium and long term development strategies. **Prior work** The paper is a continuation of previous research conducted in the field of funding from the European Union and it is based on personal experience as a practitioner in public administration domain, in the management of European funds. **Approach** The chosen research method is case study, which will present some successful projects in Galati, whose implementation contributes to the economic and social development of the municipality. **Results** The study highlights both the results of the projects and the degree of fulfillment of the desideratum of transforming Galati into a Smart City. **The implications** of the study for the local public administration and for the Galati community are to be considered, for practitioners in the sense of using the information from the presented strategies, and also for the inhabitants - awareness of the positive and negative aspects of the city, of potential opportunities. **Value** The paper highlights the current status of Galati compared to other county seat cities in Romania and the desire of its inhabitants to live in a true Smart City.*

**Keywords:** *project management, development strategy, public administration*

## **1. General considerations**

Everyone has an idea of what a city is. For some of us, it's a place of constant activity, concentrated work energy, and tremendous innovation. Others see a playground filled with tempting and expensive opportunities for consumption and exploration. Detractors hear the noise, resent the crowds, and complain about congestion, unsanitary conditions, and overcrowded residential areas. Urban planners see great potential for both progress and problems. Corporations analyze

the opportunities for growth and a favorable business climate. Most everyone senses the future already exists, in some budding form, within cities, but whether one sees a paradise, a dystopia, or something in between depends greatly on economic status, geographical location, and personal experience.

“The smart city is a new way of leaving and considering the cities. The optimization of available and new resources, as well as of possible investments is required. The achievement of smart city objective can be reached through the support of various information and communications technologies. These can be integrated in a solution considering the electricity, the water and the gas consumptions, as well as heating and cooling systems, public safety, wastes management and mobility” [7].

“A city connecting the physical infrastructure, the IT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city” [6].

A smart ecosystem, proposed by Marston and van Hoof [8] considers that the rapid pace at which technology is developing, intersects with current trends in smart cities.

The concept of the smart city is far from being limited to the application of technologies to cities. In fact, the use of the term is proliferating in many sectors with no agreed upon definitions. This has led to confusion among urban policymakers, hoping to institute policies that will make their cities “smart.” [1]

Albino et al. [1] tried to clarify the significance of smart cities through a literature review and found that it first appeared in the 1990s. They concluded that it is a multifaceted phenomenon that includes, among other things, the qualities of people and communities, as well as ICT. It seems to be a lack of universality, both in its definition and in its performance measures [1, 3]. Some of the definitions include references to healthcare, for example, how a smart city is prepared to provide conditions for a healthy and happy community in the difficult conditions that global, environmental, economic and social trends can bring. Or, the use of smart computing technologies to transform components and services, of a city's infrastructure, including healthcare, smarter, interconnected and efficient [1]. In another paper, a smart city is an urban area that uses and deploys various electronic devices and sensors [2], which have the ability to collect and use data in an attempt to provide efficient and smarter resources to residents and communities.

Giffinger et al. [4] identified four components of a smart city: industry, education, participation, and technical infrastructure. This list has since been expanded in a project conducted in 2010 [5]. These components are a smart economy, smart mobility, a smart environment, smart people, smart living, and smart governance. These writers rely on the traditional and neoclassical theories of urban growth and development: regional competitiveness, transport and ICT economics, natural resources, human and social capital, quality of life, and participation of society members. Particularly interesting in the previous list of components of a smart city is the inclusion of the “quality of life.” This component emphasizes the definition of a smart city as a city that increases the life quality of its citizens [4]. However, many researchers argue that quality of life may not represent a separate dimension of a smart city, as all the actions taken in the other areas

should have the objective of raising the quality of life, so that this represents the basic component [10].

In the last decade, initiatives have also emerged in Romania to transform cities into “smart cities”. In this process, some factors play an important role - for example, the economic factor that led to the existence of disparities between development regions in Romania. It favors the implementation process of smart city projects in more developed regions due to the ability to attract large private companies to invest and it creates the favorable context to contribute as municipalities with their own funds to the co-financing of such projects. Thus, the regions favor the development of smart city initiatives in the three most developed regions of the country: the Ilfov Region, the North-West Region and the West Region, while the other regions are left behind.

Another factor with a decisive role in the implementation chain of projects in Romania for the smart city are transnational organizations, mainly European Union programs, which are almost an exclusive source of funding for these projects for local authorities. Consequently, local authorities (most often municipalities) submit projects in accordance with these grants and not necessarily in accordance with local priorities.

## 2. Case study - Galati Municipality

Galati is located in the eastern part of Romania, in the southern extremity of the Moldova plateau, on the left bank of the Danube, at the confluence of the Siret and Prut rivers, near Lake Brates, the largest body of water in this part of the country. The life of human communities was directly influenced by the Danube, the second longest river in Europe. Due to the deep sailing line to the area of Braila, the Danube is declared maritime (i.e. seagoing ships can sail, if the water level at the mouth of the Danube in Sulina and St. George is quite high).

### 2.1. SWOT analysis for the city of Galati

The results of the socio-economic analysis give an overview of the current resources available to the community, highlighting for each issue the strengths, weaknesses, development opportunities to be exploited, as well as possible risks/threats to be eliminated/avoided [1]. The SWOT analysis was performed on areas of interest, as follows:

#### The Economic domain

Strong points	Weaknesses
Location on the banks of the Danube	Outdated technologies, machinery and equipment
Existence of the Free Zone	The industrial park is unused
The industry has a significant share in municipal GDP	Fishing industry in decline
Developed tertiary sector (trade, financial services, ICT)	Lack of foreign and domestic investors
Large number of university graduates	Highly skilled labor migration
Existence of RDI institutions in the fishing and naval field	Low average salary
	Lack of PPP type initiatives

<p><b>Opportunities</b></p> <p>Construction of the multimodal platform in the Port of Galati</p> <p>Attracting European funds for SME development,</p> <p>Development of fish farming and aquaculture</p> <p>Investments in research - development - innovation</p>	<p><b>Threats</b></p> <p>Unstable, unstimulating legislation for business development</p> <p>High labor costs</p> <p>Decrease in the number of employees due to labor migration</p> <p>High costs for technology modernization</p>
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### Transport and urban infrastructure

<p><b>Strong points</b></p> <p>Diversified public transport (bus, trolleybus, tram)</p> <p>Important traffic node (wide gauge railway and river route)</p> <p>The largest river port and important river operators</p> <p>Direct access to the TEN-T river network (Danube)</p> <p>Experience in project management for infrastructure rehabilitation</p>	<p><b>Weaknesses</b></p> <p>Non-modernized roads, lack of highways / express roads, airport</p> <p>Heavy road traffic</p> <p>High percentage of unmodernised streets</p> <p>Degraded port infrastructure</p> <p>Used vehicles for public transport</p> <p>Lack of detours</p> <p>Lack of infrastructure for electric vehicles</p> <p>Insufficient parking spaces</p> <p>Outdated water network</p> <p>Existence of neighborhoods not connected to the water and sewerage network</p> <p>Degraded district heating network and the bankruptcy of centralized supply operator</p>
<p><b>Opportunities</b></p> <p>Promoting alternative and multimodal transport</p> <p>Accessing European funds for the development of road / rail / river transport infrastructure</p> <p>Use of structural funds for energy efficiency of public buildings</p> <p>Possibility to attract structural and cohesion funds for modernization / extension of the water / sewerage network</p> <p>Possibility to use electric vehicles for public transport</p>	<p><b>Threats</b></p> <p>Delayed modernization of transport infrastructure</p> <p>The large number of vehicles affects road traffic</p> <p>The increase in traffic influences the number of accidents</p> <p>High maintenance costs for public transport vehicles</p> <p>The undersized electricity network compared to the increased number of users</p> <p>Outbreaks of infection in areas not connected to the water and sewerage network</p>

### Health

<p><b>Strong points</b></p> <p>Important regional medical center</p> <p>Developed private medical sector</p>	<p><b>Weaknesses</b></p> <p>Old / inadequate hospital buildings</p> <p>Outdated medical equipment</p> <p>Low number of hospital beds</p>
<p><b>Opportunities</b></p> <p>Accessing European funds for the rehabilitation and endowment of hospitals</p> <p>Accessing European funds for the rehabilitation and endowment of specialized outpatient clinics</p> <p>Accessing European funds for the qualification of medical staff</p>	<p><b>Threats</b></p> <p>Migration of medical staff abroad / private sector</p> <p>Increased morbidity</p> <p>High occupancy rate in hospitals</p>

### Education

<p><b>Strong points</b> Diversified network of educational institutions Diversified educational offer in high schools and universities</p>	<p><b>Weaknesses</b> Old / not modernized buildings in the educational network Educational offer not correlated with the demands of the business environment</p>
<p><b>Opportunities</b> Accessing European funds for the rehabilitation and modernization of educational institutions</p>	<p><b>Threats</b> The decrease of the number of students due to the low birth rate and the aging of the population The financial difficulties of poor families for the schooling of students School dropout</p>

### Social assistance

<p><b>Strong points</b> Existence of a significant number of public and private service and social providers</p>	<p><b>Weaknesses</b> Small number of social workers Insufficient capacity of social service centers in Galati</p>
<p><b>Opportunities</b> Development of family-type social services for children Increasing the involvement of NGOs in providing social assistance</p>	<p><b>Threats</b> Migration of specialized personnel due to the low level of salaries in the field Worsening the living conditions of vulnerable categories Increasing the degree of social exclusion</p>

### Tourism and culture

<p><b>Strong points</b> Location on the banks of the Danube Existence of numerous museums / monuments / patrimony buildings Accommodation and public catering services</p>	<p><b>Weaknesses</b> Degraded historical monuments Lack of a tourist information point Untapped tourist potential Important undeveloped tourist attractions (Danube bank, Lake Brates)</p>
<p><b>Opportunities</b> Unlocking the potential offered by the Danube Accessing European funds for the rehabilitation and endowment of patrimony buildings Development of leisure tourism</p>	<p><b>Threats</b> Degradation of heritage objectives Insufficient investment in tourism Lack of adequate tourist promotion</p>

### Environment protection

<p><b>Strong points</b> Favorable geographical position Existence of specialized institutions in the field and qualified human resources Existence of the Air Quality Plan in Galati</p>	<p><b>Weaknesses</b> Small number of NGOs in the field Lack of procedures for assessing contaminated sites</p>
<p><b>Opportunities</b> Accessing European funds in the field of environmental protection and biodiversity Promoting investments in areas with ecological risk</p>	<p><b>Threats</b> Extreme natural phenomena (drought, floods, heavy snow) Air pollution with dangerous noxious substances Industrial platforms with risk of pollution</p>

## *2.2. Strategic development objectives*

In line with the SWOT analysis, several guidelines for medium and long-term development strategies have been highlighted.

The strategic objectives of the Sustainable Development Strategy 2021-2027 of the Municipality of Galati, which aims at achieving the general vision for 2027 and fulfilling the mission assumed, were formulated in accordance with the political objectives of the Cohesion Policy of the European Union Agenda 2030:

- OS1. Development and promotion of SMART solutions in order to ensure an innovative and smart economic and social transformation
- OS2. Sustainable and integrated urban development, promoting energy efficiency and a transition towards clean energy
- OS3. Development of sustainable urban mobility and connectivity at regional, national and European level
- OS4. Sustainable development in the social, economic and environmental fields, focused on integration and social inclusion
- OS5. Promoting the development of cultural, tourist and leisure patrimony, through hard and soft type investments
- OS6. Strengthen administrative capacity in order to ensure decision-making coherent, efficient and transparent and maximizing the use of national budgetary funds and at the level of the functional urban area [9].

## *2.3. Successful projects in Galati*

The case study presents several implemented or in progress projects, in the city of Galati, whose realization contributes to the economic and social development of the city. The project leader is the City Hall of Galati or Galati County through the Galati County Council, depending on the ownership of the building / land related to that investment. The projects target various fields - road infrastructure, education, health, patrimony buildings, etc. the financial allocation by domains being presented in figure no. 1:

### **Transport and urban infrastructure**

- Extension and modernization of the bypass variant of Galati municipality, financed by ROP 2014-2020, Priority Axis 6 - Improvement of road infrastructure of regional importance (SUERD), partnership Galati County and Galati Municipality, total project value: 135 million lei, proposed results: 10.5 km of extended and modernized road (bypass of Galati) and construction of a Hoban bridge.
- Modernization of tram and road lines Traian Vuia, Henri Coandă, George Coșbuc Streets (Henri Coandă Section - Al. Măcelaru Street), financed by ROP 2014-2020, Priority Axis 4 - Supporting sustainable urban development, beneficiary Galati Municipality, total project value: 104 million lei, proposed results: rehabilitation of the tramway, rehabilitation and modernization of public passenger transport stations, construction or modernization of

bicycle lanes and sidewalks as well as rehabilitation of the roadway of the road infrastructure.

- Modernization of tram and road lines Siderurgistilor streets and December 1, 1918, financed by ROP 2014-2020, Priority Axis 4 - Supporting sustainable urban development, beneficiary Galati Municipality, total project value: 104 million lei, proposed results: road rehabilitation of trams, rehabilitation and modernization of public passenger transport stations, construction or modernization of bicycle lanes and sidewalks as well as rehabilitation of the roadway of road infrastructure.
- Providing Automatic Travel Tariff Collection, Passenger Information and Vehicle Fleet Management Systems for the Municipality of Galati” (e-ticketing), funded by ROP 2014-2020, Priority Axis 4 - Supporting sustainable urban development, beneficiary Galati, total project value: 26 million lei, proposed results: automatic tolling system (e-ticketing), passenger information and fleet management.

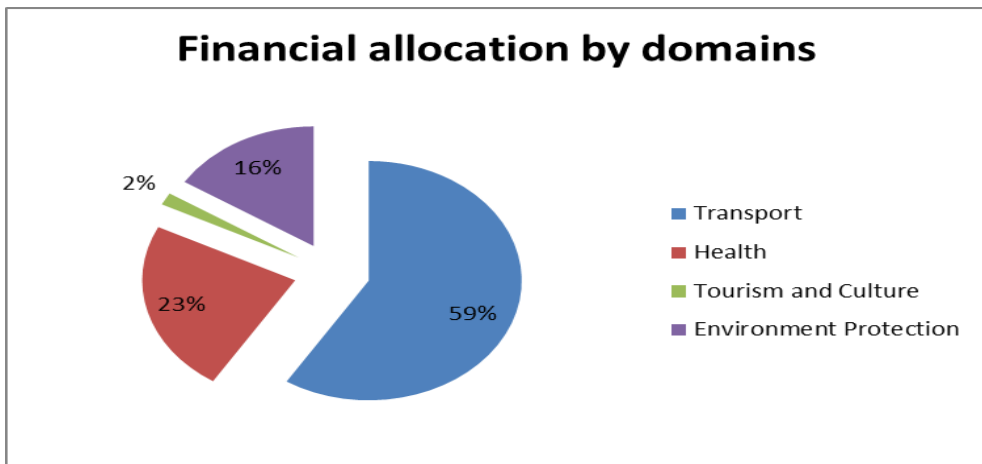


Fig. 1. Financial allocation by domains  
**Source:** Processing information from projects

### Health

- Increasing energy efficiency for the County Emergency Clinical Hospital “St. Apostol Andrei”, financed by ROP 2014-2020, Priority Axis 3 - Supporting the transition to a low carbon economy for eligible activities, beneficiary Galati County, total project value: 69 million lei, proposed results: structural consolidation of the outpatient building, the introduction of alternative systems from renewable sources to ensure at least 10% of energy needs.
- Expansion, modernization and endowment of the Emergency Reception Unit, the County Emergency Clinical Hospital “St. Apostol Andrei “Galati”, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment priority 8.1., Specific objective 8.2.,

Operation B - Emergency reception units, total project value: 6.6 million lei, proposed results: Extension works of the existing building and endowments (computed tomography and other medical equipment necessary for the modernization of emergency medical services).

- Extension, rehabilitation, modernization and endowment of the Integrated Specialty Outpatient Clinic of the County Emergency Clinical Hospital “St. Apostol Andrei”, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment priority 8.1., total project value: 12 million lei, proposed results: rehabilitation, modernization and extension works of the Ambulatory building and medical equipment for various specialties.
- Extension, rehabilitation, modernization and endowment of the Integrated Specialized Outpatient Clinic of the Galati Pulmonology and Phtisiology Hospital, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment priority 8.1., Total project value: 9.5 mil. lei, proposed results: rehabilitation works, modernization and extension of the building, acquisition of medical endowments and equipment (including 1 CT scanner).
- Extension and redevelopment of the Radiotherapy Section, the County Emergency Clinical Hospital “St. Apostol Andrei” Galati, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment Priority 8.1., Total budget value Galati County 4.9 million lei.
- Equipping the Integrated Specialist Outpatient Clinic of the Clinical Hospital for Infectious Diseases “St. Pious Parascheva”, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment Priority 8.1., Total project value: 2.7 million lei, proposed results: acquisition of medical equipment for detecting chronic diseases (hepatitis) and diseases with endemic-epidemic potential.
- Modernization, Extension and Integrated Outpatient Clinic - Emergency Clinical Hospital for Children “St. Ioan” Galati, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment priority 8.1, beneficiary Municipality of Galati, total project value: 15.6 million lei, proposed results: integrated outpatient modernization.
- Rehabilitation, modernization, extension and endowment of the Emergency Department - Emergency Clinical Hospital for Children “St. Ioan” Galati, financed by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment priority 8.1, beneficiary Municipality of Galati, total project value: 10.9 million lei, proposed results: rehabilitation, modernization and endowment Reception department - emergencies
- Rehabilitation, Extension and Equipping of the Specialized Outpatient Clinic of the Psychiatric Hospital “Elisabeta Doamna” Galati, funded by ROP 2014-2020, Priority Axis 8 - Development of health and social infrastructure, Investment Priority 8.1, beneficiary Galati, total project value: 14.5 million lei, proposed results: rehabilitation, extension and endowment of the specialized outpatient clinic.



### **Tourism and culture**

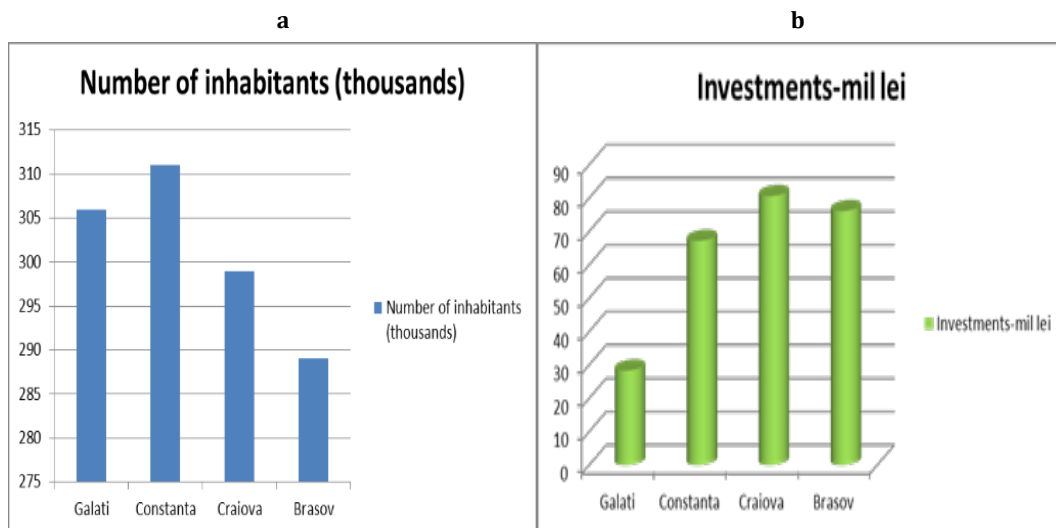
- Zătun 2 fisheries leisure base, financed by the Operational Program for Fisheries and Maritime Affairs 2014-2020, Measure 1 Promotion and support of activities leading to diversification; job creation; added value; continuous learning; innovation within the Union Priority no. 4 (PU4); Increasing employment and increasing territorial cohesion, Measure III.3. - Implementation of Local Development Strategies, total project value: 2.3 million lei, proposed results: arrangement of the Leisure Base with specific fisheries
- Escapeland - Development and promotion active tourism in the Black Sea Basin, financed by the Black Sea Basin Operational Program 2014-2020, total value Budget value Galati County 396 thousand euros, proposed results: arranging an Adventure Park in Galati,
- Consolidation, restoration and arrangement of the “Casa Cuza Vodă” Museum in Galati, financed by the ROP 2014-2020, Priority Axis 5 - Improving the urban environment and preserving, protecting and sustaining the cultural patrimony, Investment priority 5.1. Conservation, protection, promotion and development of natural and cultural heritage, total project value: 2.7 million lei, proposed results: consolidated, restored and arranged heritage building, digitization of the museum.
- Restoration and arrangement of the “House of Collections” Museum (former Ținc Pharmacy) in Galati, financed by ROP 2014-2020, Priority Axis 5 - Improving the urban environment and conservation, protection and sustainable capitalization of cultural heritage, Investment priority 5.1. Conservation, protection, promotion and development of natural and cultural patrimony, total project value: 3.5 million lei, proposed results: consolidated, restored and arranged heritage building, digitization of the museum.

### **Environment Protection**

- Integrated waste management system in Galati County, financed by the Large Infrastructure Operational Program 2014-2020, Priority Axis 3.1., Total project value: 103.5 million euros, proposed results: construction of a mechanical-biological treatment facility in the municipality Galati, construction of waste depot and transfer stations, composting, sorting in Galati county.

### **3. Conclusion**

Galati is ranked 6th in the country, depending on the number of inhabitants, with 306 thousand inhabitants, being overtaken (figure no. 2) by Constanta with 311 thousand inhabitants and followed by Craiova, with 299 thousand inhabitants and Brasov with 289 thousand (statistics on January 1 2020) [11].



**Fig. 2.** (a) Inhabitants; (b) Investments in Galati compared to municipalities with similar numbers of inhabitants  
 Source: Processing information provided by INSSE and municipalities

But, from the point of view of the gross domestic product, Galati is overtaken by all four municipalities. The declining number of births and the increased mortality lead to an accentuated decrease of the population in Galati. The existence of an aging population determines a growing need for medical and social services. At the same time, Galati is facing one of the highest unemployment rates in the country. Thus, in June 2020, Galati had an unemployment rate of 5.66 percent, being surpassed only by Teleorman, Mehedinți, Buzău and Dolj.

Investments are the engine of development of a city, the money invested generating other money, materialized in other investments, jobs, well-being. In 2019, Galati City Hall allocated from the budget 28.3 million lei for investments (figure no. 2), while Craiova 80.6, Constanta 67.2, Brasov 76.1 [12]. We consider that, in accordance with the results of the presented projects, important steps have been taken in transforming Galati into a “smart city”.

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