



SCANNING SMART CITIES ROMANIA

**FIRST REPORT
MARCH, 2018**

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1. INTRODUCTION IN THE SMART CITY AREA

The turnkey smart solutions integrator Vegacomp Consulting made an X-Ray of the Smart City projects in Romania, based on its own experience of working with Smart City pilot projects, since 2014.

"We are present on the Smart City solutions and services market and we felt, as an active part of this ecosystem, the need for a complex research and updated report regarding the evolution and adoption of Smart City in Romania. We have centralised and identified both solutions with a high multiplication level, as well as customised projects for unique needs. Our list reunites not only Alba Iulia and Oradea, true drivers of the industry, along Bucharest, but also small towns with ambitious projects, like Balş, Mizil, Seini or Târnăveni"

Cornel Bărbuț, Vegacomp Consulting CEO.

The Smart City global market, started in 2009, reached the range of billions of dollars in 2017. In Romania, there is a shy start and a market under development. The Smart City area, which is still not fully understood, is hard to define and still relatively difficult to be accepted by the local and central authorities.

Over the last three years, there has been a lot of progress at local level, and the Smart City market has surpassed 216 Smart City projects in Romania, with an estimated value of over EUR 30 million in December 2017.

The first cities in Romania present on the Smart City map were Târgu Mureș, supported by IBM and Visa in 2010, Alba Iulia raised up by Siemens in 2015 and Bucharest - District no. 4, by a Telekom Romania - CISCO partnership in 2015.

Romania's top public administrations are headed by Oradea, the city with the highest administrative efficiency among the 320 cities in Romania, according to several studies, including the Impact Study "E-governance in the municipalities of Romania" carried out by National School of Political Sciences and Administration in 2016 and Urbanizehub.ro in 2018. Oradea has the best capital expenditure performance, with an investment of 1,225 Euros per capita over the last 8 years and with an attraction of European funds of 716 Euros per capita. It remains to be seen how much the overall investment in Romania will grow up for Smart City per capita over the next 2-3 years.

2. WORK METODOLOGY

The work methodology include sampling information from public sources covering the topic over the past year, provided by mayoralities, companies, and direct interviews with representatives of Smart City solutions provider companies in Romania.

The present version, a pilot report of the Scanning Smart City in Romania, starts from the information on a cumulative number of 38 large, medium and small cities in the country that currently have more than 200 Smart City projects in the planning phase, in progress or already completed.

Vegacomp Consulting will periodically update and reinforce all the information contained in this pilot version of the document, in order to continually present a valid picture of the development of Smart City projects in Romania.

The Smart City projects identified have been ranked in six verticals, which are consistent with recent EU reports.

SMART ECONOMY
SMART MOBILITY
SMART ENVIRONMENT
SMART PEOPLE
SMART LIVING
SMART GOVERNANCE

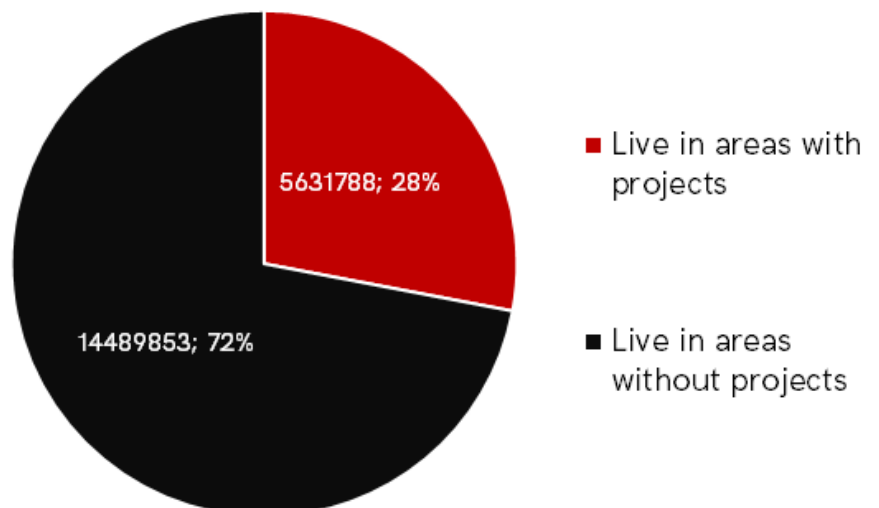
3. CITIES LISTED IN THIS FIRST REPORT

The list of cities included in the Romanian Smart City race is in continuous evolution and currently includes municipalities such as:

Alba Iulia	Seini
Arad	Sibiu
Bacău	Slatina
Balș	Suceava
Botoșani	Târgoviște
Brașov	Târgu Jiu
București	Târgu Mureș
Bumbești-Jiu	Târgu Neamț
Călărași	Târnăveni
Cernavodă	Timișoara
Comănești	Tîrgu Bujor
Constanța	Tulcea
Cluj-Napoca	
Deva	
Fălticeni	
Galați	
Giurgiu	
Gura Humorului	
Iași	
Mangalia	
Mioveni	
Mizil	
Moinești	
Oradea	
Piatra-Neamț	
Reșița	

"The cities in the list, according to the latest census, sum up a total of 5,631,788 people, and the fact that over a quarter of Romania's population lives in a city that is already walking in the Smart City era is encouraging, for us. On the other hand, we see the huge potential of these solutions, whether we take into account both the total population and the urban population left uncovered, or the inhabitants of Smart City cities that are not yet in the immediate range of these benefits," says Bărbuț.

SMART CITY PROJECTS PRESENCE AMONG THE POPULATION



The top ten cities, according to the number of projects planned, being implemented or already delivered, are:

- 1. ALBA IULIA** (72 projects)
- 2. ORADEA** (20 projects)
- 3. CLUJ-NAPOCA** (18 projects)
- 4. BUCUREȘTI** (13 projects)
- 5. PIATRA-NEAMȚ** (12 projects)
- 6. BRAȘOV** (11 projects)
- 7. ARAD** (11 projects)
- 8. SIBIU** (11 projects)
- 9. CONSTANȚA** (10 projects)
- 10. IAȘI** (8 projects)

Among the cities that embrace Smart City both in an innovative and efficient way for the residents, we can mention:

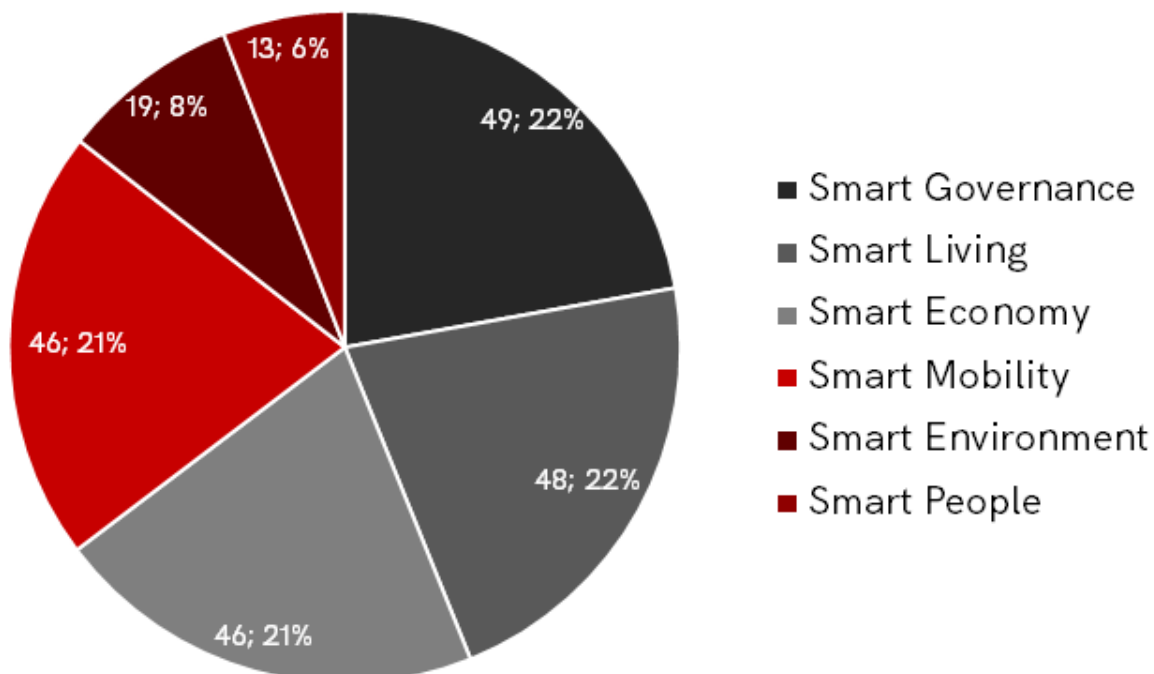
- **SEINI**, the only energy-independent city in Romania
- **TÂRGU NEAMȚ**, which runs LED lighting over its entire surface
- **GURA HUMORULUI**, with full coverage of WiFi public services

4. SMART CITY PROJECTS RANKED BY SMART CITY VERTICALS

Vegacomp Consulting has ranked Smart City projects according to Smart City Verticals recognized at European level and has developed a national ranking of named Smart City Verticals based on the number of projects implemented.

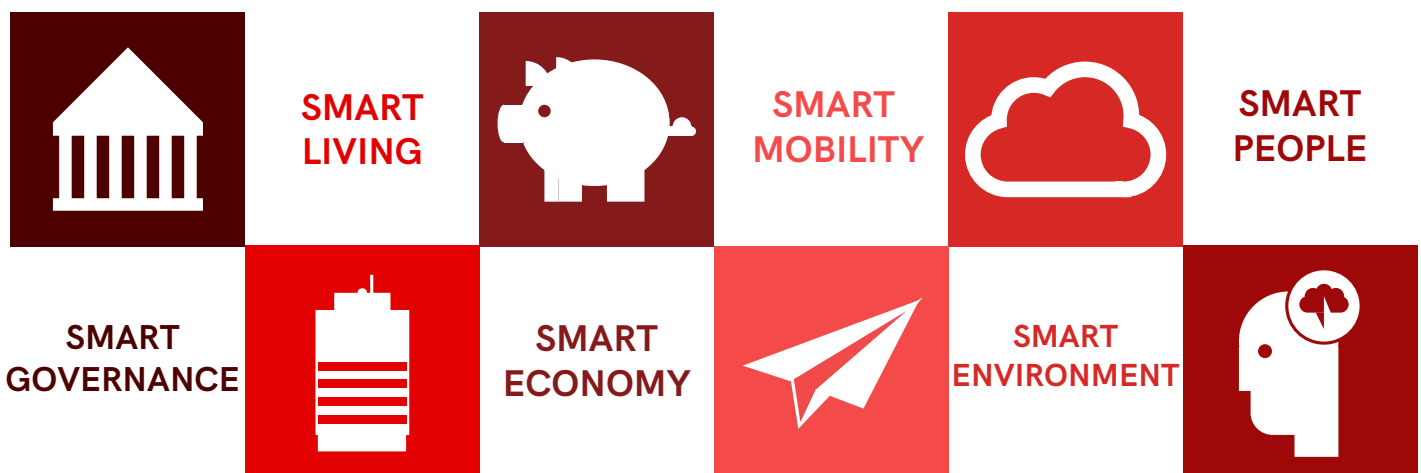
The leader is Smart Governance, covered by 49 projects, followed closely by Smart Living, with 48 projects. The third place is shared by Smart Economy and Smart Mobility, each with 46 projects in the plan, under implementation or already delivered.

Smart Environment, with 19 projects, and Smart People, with 13 initiatives, lag behind.



5. SMART CITY SOLUTIONS IN ROMANIA BY SMART CITY VERTICALS

The most popular Smart City solutions that are also globally scalable include, in Romania: LED Street Lighting (recognized as the world's first scalable Smart City solution), smart parking, video surveillance and public WiFi, followed, in the medium term, by traffic management systems, waste management and various sensors, such as environmental ones, used to monitor air quality.

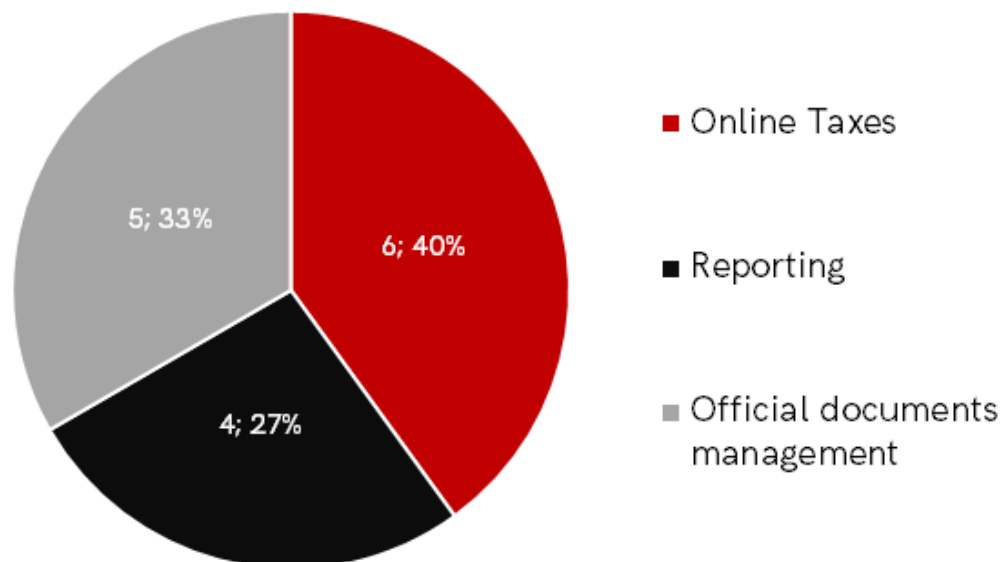




SMART GOVERNANCE

With 20 Smart Governance solutions, Alba-Iulia leads the nationwide ranking, imposes the adoption trends and moves towards smart governance with more automation, fewer errors and better results both for public administration and for population.

At national level, the most common projects in this area include: online tax computing and tax payments, interaction with the city hall, and reporting by residents for different situations (such as Civic Alert or My BraşovCity), as well as the management of official authorization documents, notifications, certificates.



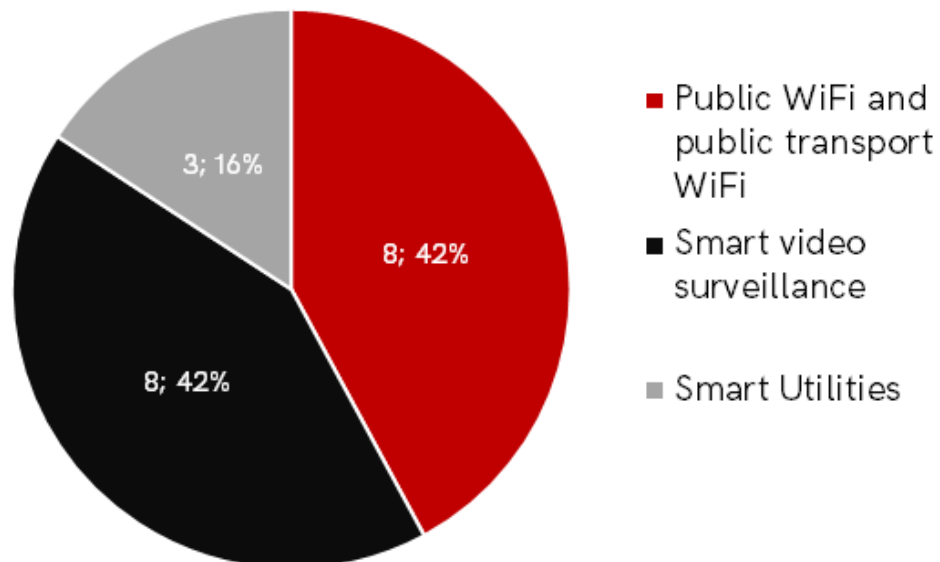


SMART LIVING

Intelligent solutions that increase the comfort of the inhabitants are found, on a growing scale, in the cities of Romania.

The easiest solution to implement, the public Wi-Fi in the cities' main points of interest, both outdoor and indoor, is currently one of the most commonly accepted declinations of the Smart Living concept in Romania.

Also, a popular version derived from this solution is the installation of WiFi in public transport, along with smart video surveillance and power consumption measurement and management for the benefit of individual users, as well as companies and municipalities.

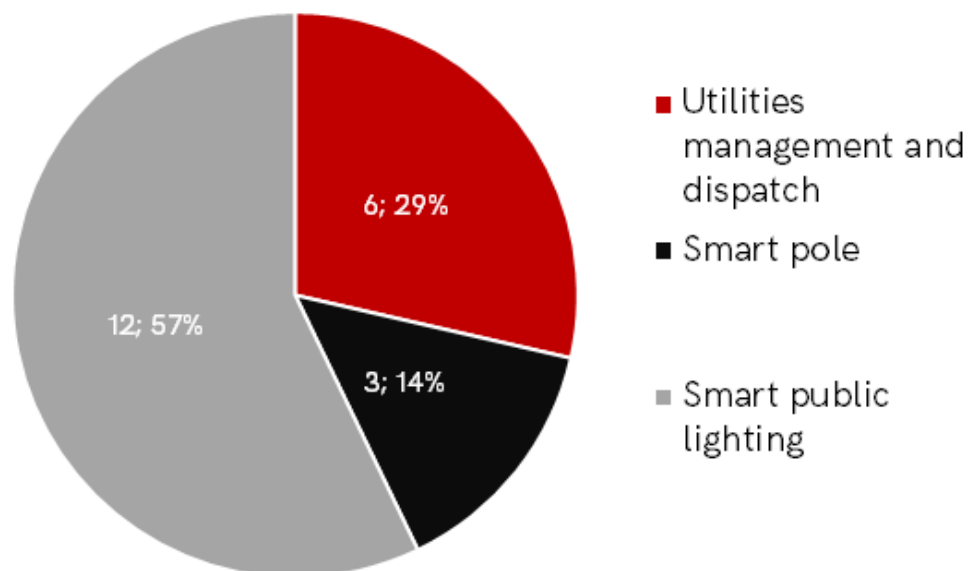




SMART ECONOMY

Smart solutions designed to simplify the residents' lives, but also to generate economies in the medium and long term, along with better resource management, traceability and, last but not least, increased energy efficiency are adopted by a large part of the municipalities monitored by this report.

The top is led by smart LED public lighting, adopted in larger or smaller areas by most municipalities. We also see smart metering and reporting systems for the utilities, and the podium is closed by the smart poles that can either provide WiFi connectivity or power up electric car charging stations, outdoor digital display panels or air quality monitoring stations, or video cameras for surveillance, or different IoT sensors such as wireless outdoor parking sensors.

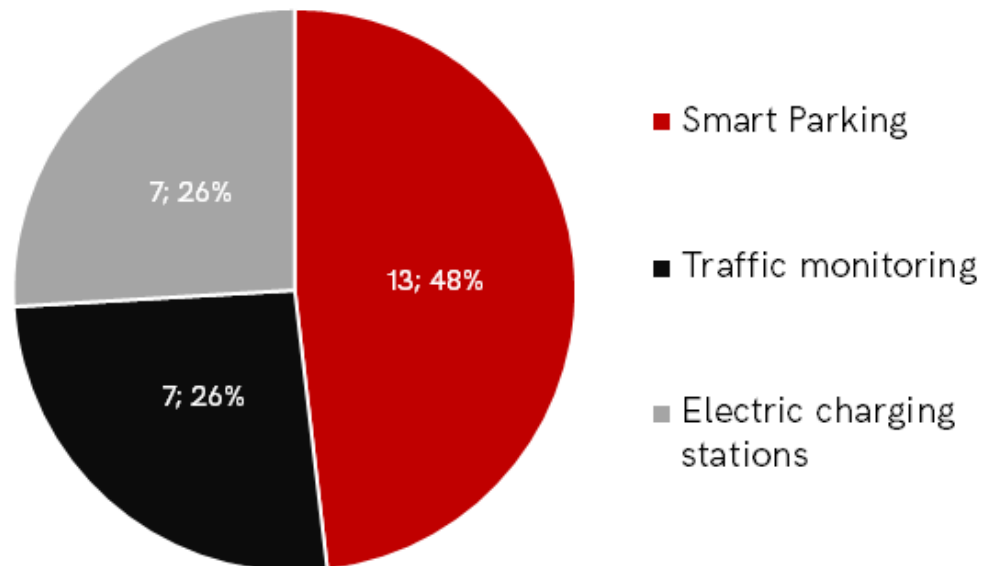




SMART MOBILITY

Whether we are talking about more efficient and faster transport, about on-the-go connectivity, electric cars or bicycles that communicate with each other or mobile apps that make it easier for the public to access two or more points of interest, Smart Mobility takes steps, first as a test and, gradually, on larger areas, also in the cities of Romania.

We identified, among the various projects in this field, solutions that are leading from the numeric point of view of implementation, such as optimizing parking lots and paying for parking, traffic monitoring, public transport fleet monitoring, or car charging services.

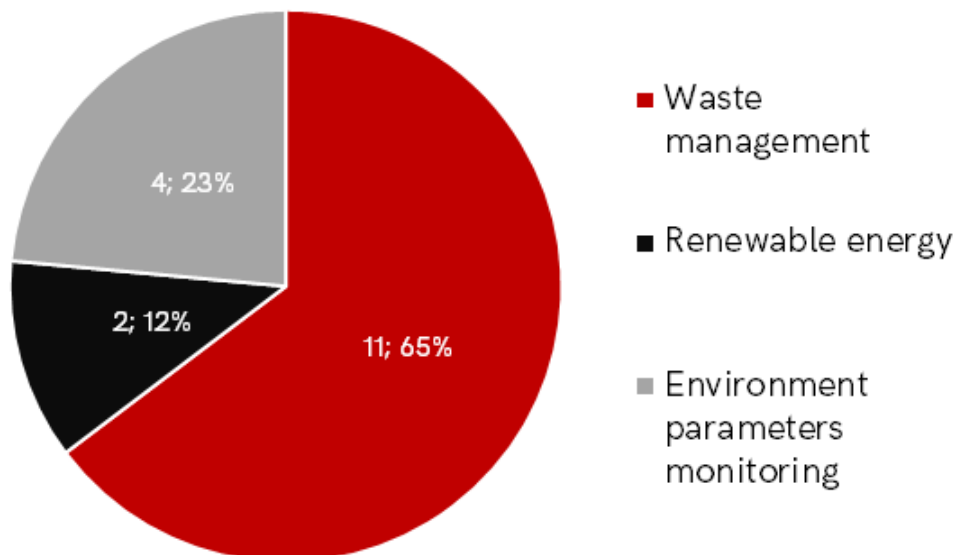




SMART ENVIRONMENT

Technology evolves to both enhance and protect the environment, and to provide more and more smart elements to the citizens in open and public spaces.

At national level, such solutions involve an above average complexity, and adoption is still geographically limited. We noted that solutions for intelligent waste management, renewable energy and monitoring of various environmental parameters are beginning to show up.

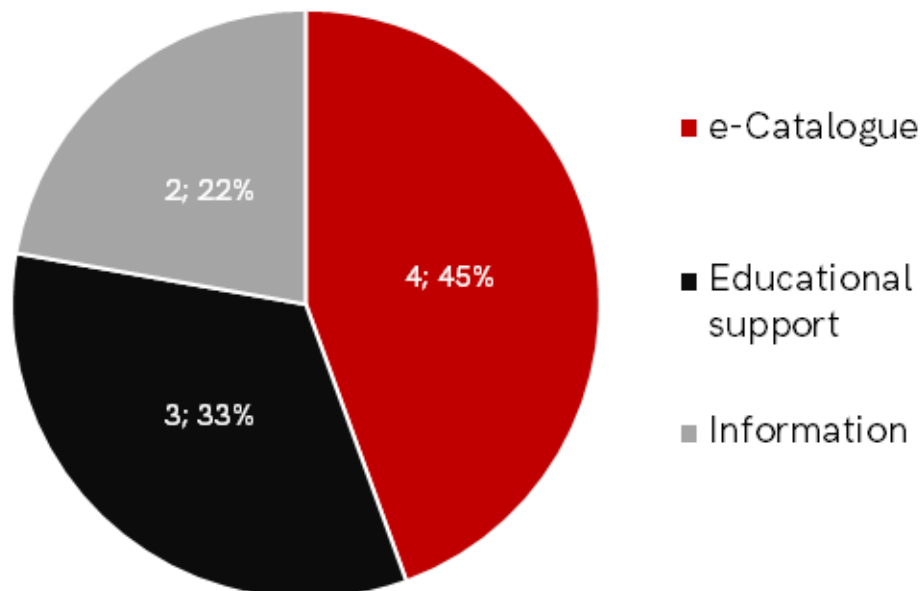




SMART PEOPLE

Education and public information is one of the global priorities in the Smart City area, but in Romania, the first research shows it as the last one in terms of adoption, implemented, often as a pilot project, in educational institutions that have the resources to innovate and are more open to new, effective and measurable solutions.

Most common areas include: citizen information systems, e-catalogs for pupils and educational support for various knowledge development themes.



6. COMPANIES INVOLVED IN SMART CITY

The world's two leading Smart City solutions providers, Siemens and CISCO, are currently active in Romania.

In addition to these names, the list of companies identified as involved in Smart City projects includes, in alphabetical order, but is not limited to: Aquatim, Avitech, BCR, Cluj IT cluster with 10 companies (Arxia, Cloud Soft, Hyper Media, Life is Hard, Optima, ArtSoft Consult, Parking Plus, Solar Eco Systems, Trencadis, White City Code), Dahua, Direct One, Eco Mobility, Enel, ETA2U, Huawei, IT Center for Community, KMW Services, Luxten, Microsoft, Mobilis, Nova Apaserv, Orange Romania, Parkomatic, Romstal, Telekom Romania, Siemens, TPark (Piconet), UTI, Vegacomp Consulting and ZTE.

Aside from these companies, there is a much larger list of Romanian and foreign companies interested in providing Smart City solutions, but who prefer to wait for Smart City budgets from the authorities instead of via own investments.

We report the presence of other Smart City projects, both through web sites and mobile apps:

- <http://smartmycity.ro/>
- <http://mysmartcity.ro/>
- <http://www.smartcity.org.ro/>

and public authorities also present the two Smart City guides achieved so far in Romania:

- ***Small guide for the cities which want to become (more) intelligent*** by Association of City Managers from Romania (AAPRO) in 2015, at its second edition in 2017

- ***Smart City for Smart Communities - Guide towards future*** published by the Ministry of Communications and Information Society in December 2016.

7. SMART CITY EVENTS MARKET

The list of companies identified as involved in organizing Smart City events includes, but is not limited to:

- **ARSCM**, the Romanian Smart City and Mobility Association, Smart City events leader, Smart City Map of Romania, two Smart City Urban Projects, The Smart City Caravan (launched on 22 September 2017 and arrived in Bucharest, Braşov, Iaşi, Piatra Neamţ, Alba Iulia and Deva, with a follow-up in 2018 in Cluj-Napoca, Timişoara, Călăraşi, Constanţa, Oradea, Pitesti and Craiova), Smart City training courses (the first Smart City Introduction course was in Bucharest, 21-23 February 2018 and the next one is scheduled in May 2018 in Cluj) and Smart City Industry Awards (two editions)
- **SNSPA** (five annual Smart Cities Conferences)
- **Mobile Communications** (two editions of the Smart City - Future City conference in 2013 and 2016)
- **Smart Cities of Romania** (three annual editions of "Smart Cities of Romania" exhibitions usually organized at the Polytechnic University)
- **Different Angle Cluster**, together with the Embassy of the Netherlands in Romania (two Different City editions - Smart City in Bucharest)
- **The Diplomat** (two Smart Transformation Forums)
- **ROMANIA-SMART** (two Jump to Smart editions)
- **Siemens** (Siemens Smart City Edition 2018, January 31, 2018)

8. FINANCING SOURCES FOR SMART CITY PROJECTS

The funding sources for Smart City projects implemented so far in Romania are:

- 1. Local budget** - for example, for strategies, in Cluj-Napoca, Oradea, Târgu Mureș, Sibiu or Smart City audit, in Târnăveni.
- 2. European funds** - LED street lighting projects, as well as the project by Siemens for Alba Iulia.
- 3. Private sources** (companies - Smart City solutions providers) in Alba Iulia, for example, all solutions are provided via private companies funds, estimated at over one million Euros
- 4. Other states** - USA, with funding of the Smart Campus project at Politehnica in Bucharest and an American consulting firm for implementation

9. CONCLUSIONS

The Smart City market in Romania is still in its infancy, but it is growing exponentially.

The multitude of events with and about Smart City in 2017 generated an awareness of the Smart City phenomenon among local and central authorities, which are planning to allocate local budgets for adequate projects in Romania in 2018.

The over 216 Smart City projects implemented at national level represent an early stage of this concept - a phenomenon that has a huge potential for growth and represents an image of the development of Romanian society and economy in the current European and global context.

Smart City in Romania attracts foreign suppliers of experienced solutions, such as Siemens, CISCO, ZTE, but also private companies and Romanian start-ups. The growth of the Smart City market is expected to continue, which will also generate the development of solutions and projects by Romanian companies outside the national borders.

At the same time, we estimate an increase in the number of Smart City solution providers with international experience on the Romanian market and a competition between Romanian cities to attract Smart City investors and providers in the coming years, in order to contribute to the growth the quality of life of the inhabitants of the Romanian cities.

The next Smart City Radiography for Romania will be published on October 15, 2018.

Founded in 2004, **Vegacomp Consulting**, a turn-key integrator, builds on a team of over 24 years of experience in telecommunication, especially on fiber optic networks, in Romania and internationally, and focuses its projects on solutions development that combine telecoms and energy. Vegacomp Consulting brings forth innovative solutions for the development of future networks, generated by its own R & D department, both in the country and abroad. The company has been focusing its work on LoRa technology for the past two years and has been active in the Smart City industry since 2014. Vegacomp Consulting has implemented 4 Smart City projects in Romania (in Bucharest, Constanta, Piatra Neamt and Alba Iulia) and is a Smart City solutions provider (wireless parking sensors based on LoRa products in Romania - Smart Parking present in 5 cities in Romania, Smart Metering solution for WAGES meters - water, gas, electricity and heat and Smart Pole retro-fit solution), including the City Hall in Alba Iulia.

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