#Smart City

Smart City Scan of Romania

Vegacomp

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Chapter I-First Edition, March 2018

I.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 Balș, 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 Mureş, 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.

I.2 WORK METODOLOGY

The work methodology include sampling information from public sources covering the topic over the past year, provided by mayoralties, 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

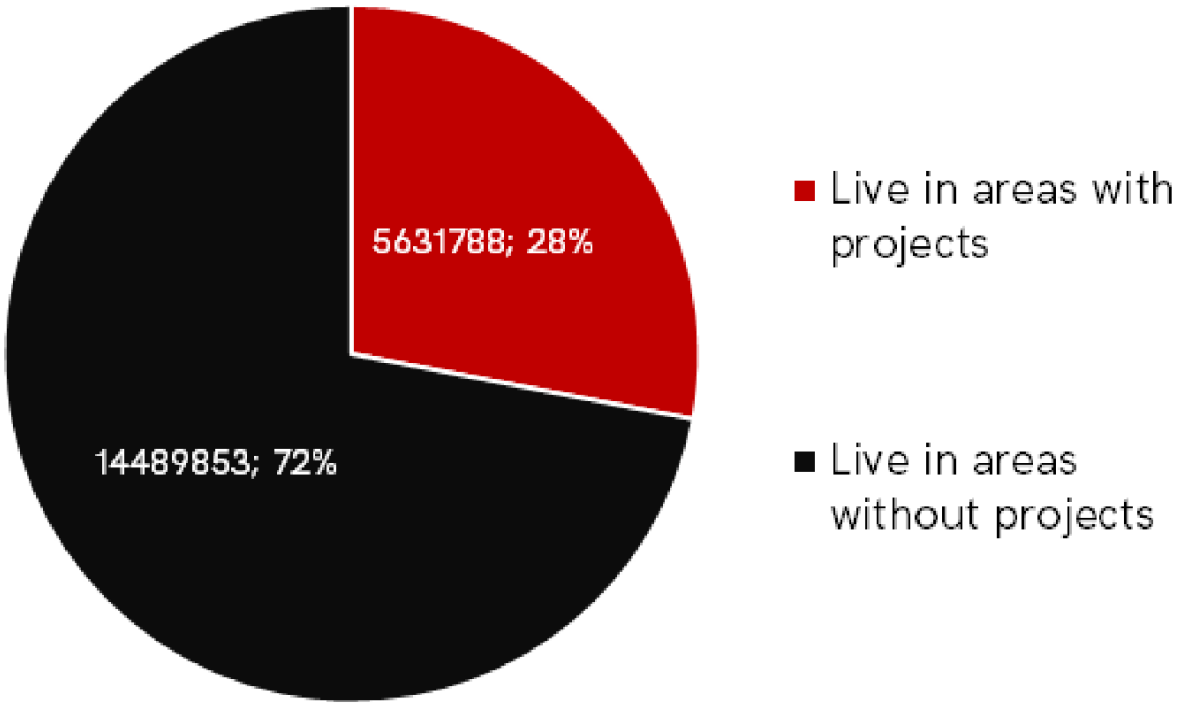
I.3 CITIES LISTED IN THIS FIRST REPORT

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

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

"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:

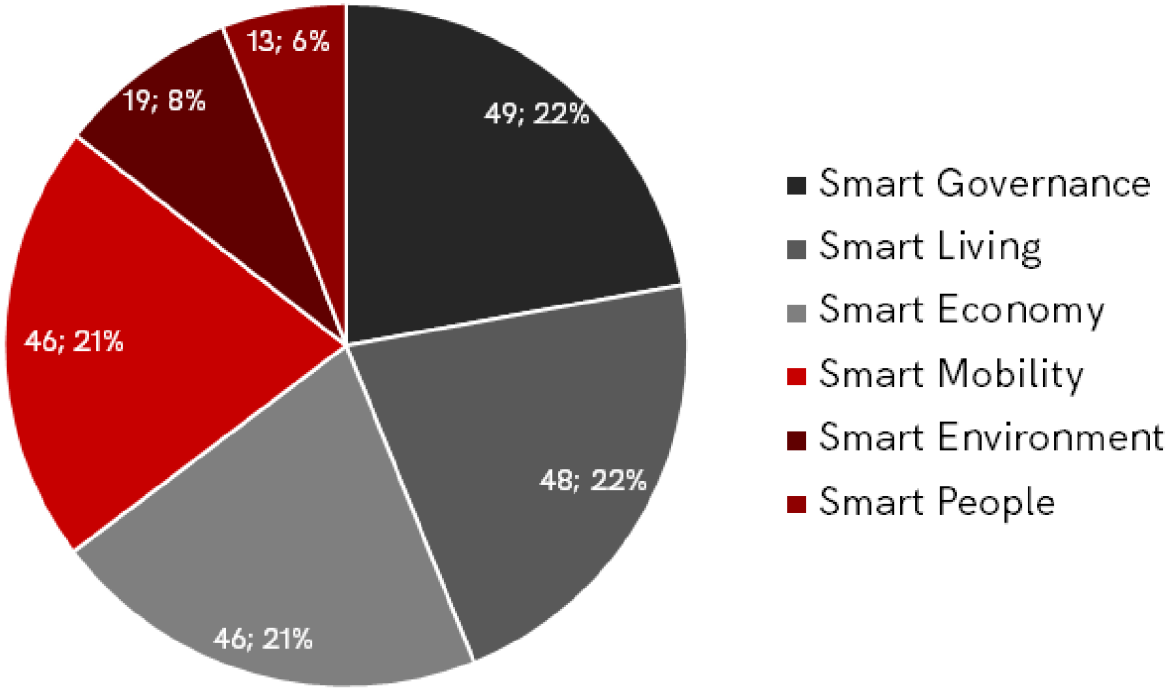
- **SEINI,** the only energy-independent city in Romania
- **TÂRGU NEAMȚ**, which runs LED lighting over its entire surface
- **GURA HUMORULUI**, with full coverage of WiFi public services

I.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.



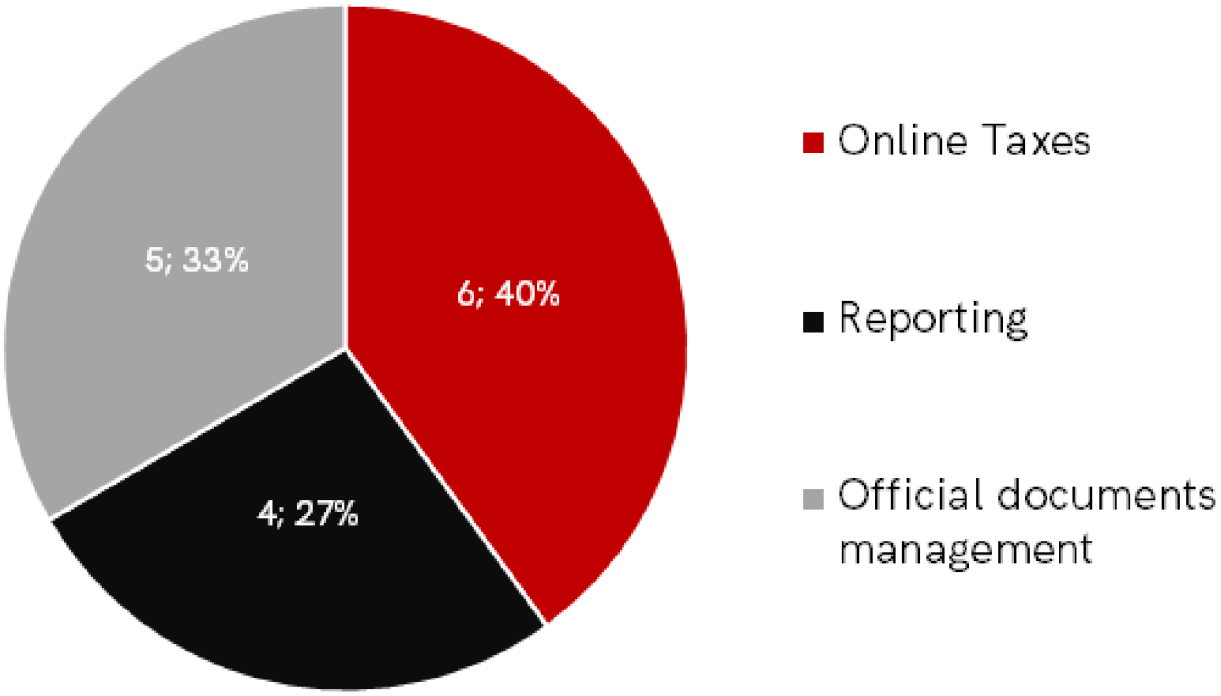
I.5 SMART CITY SOLUTIONS IN ROMANIA BY SMART CITY VERTICALS

🏛 SMART GOVERNANCE

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.

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.

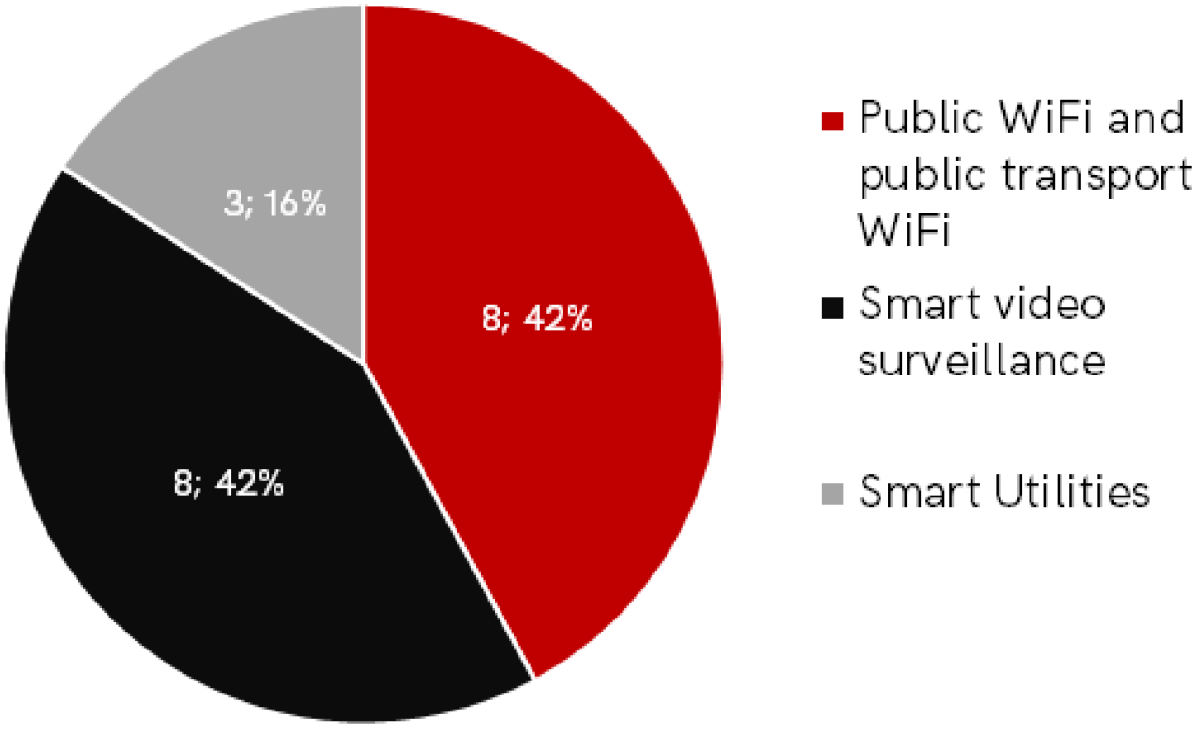
At national level, the most common projects in this area include: online tax computing and tax payments, interaction with the city hall, and reporting by residents for different situations (such as Civic Alert or My BraşovCity), as well as the management of official authorization documents, notifications,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

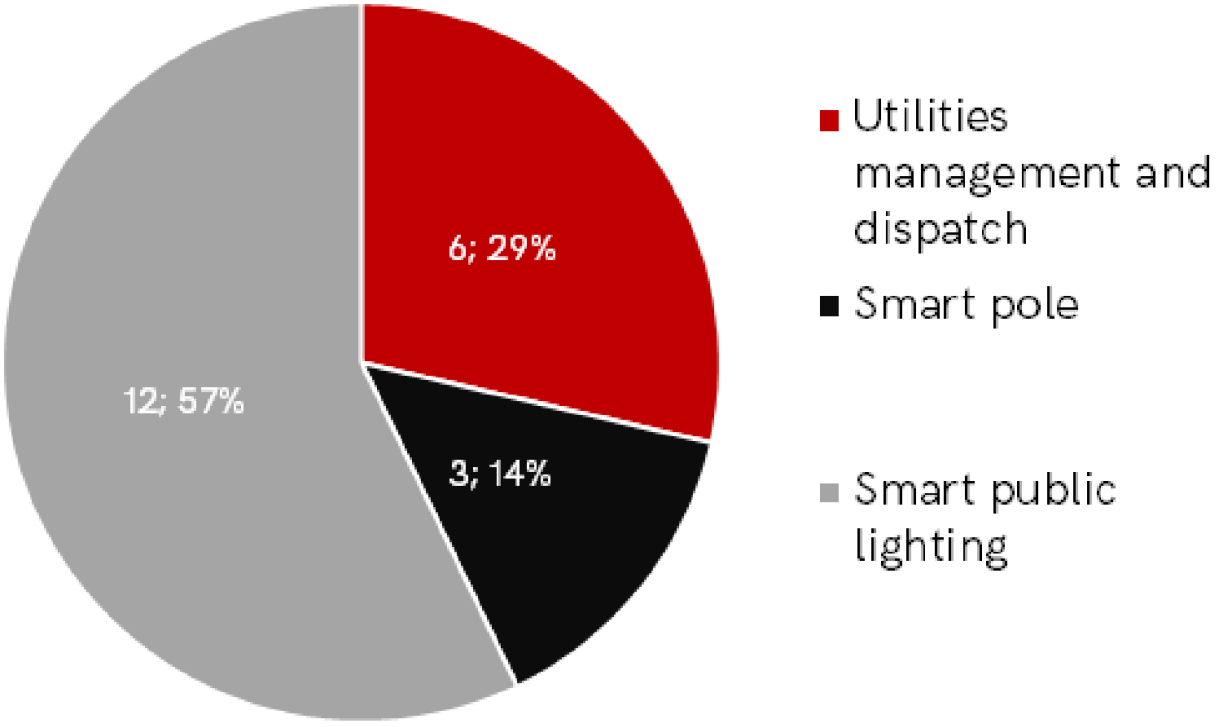
Also, a popular version derived from this solution is the installation of WiFi in public transport, along with smart video surveillance and power consumption measurement and management for the benefit of individual users, as well as companies and municipalities.



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.

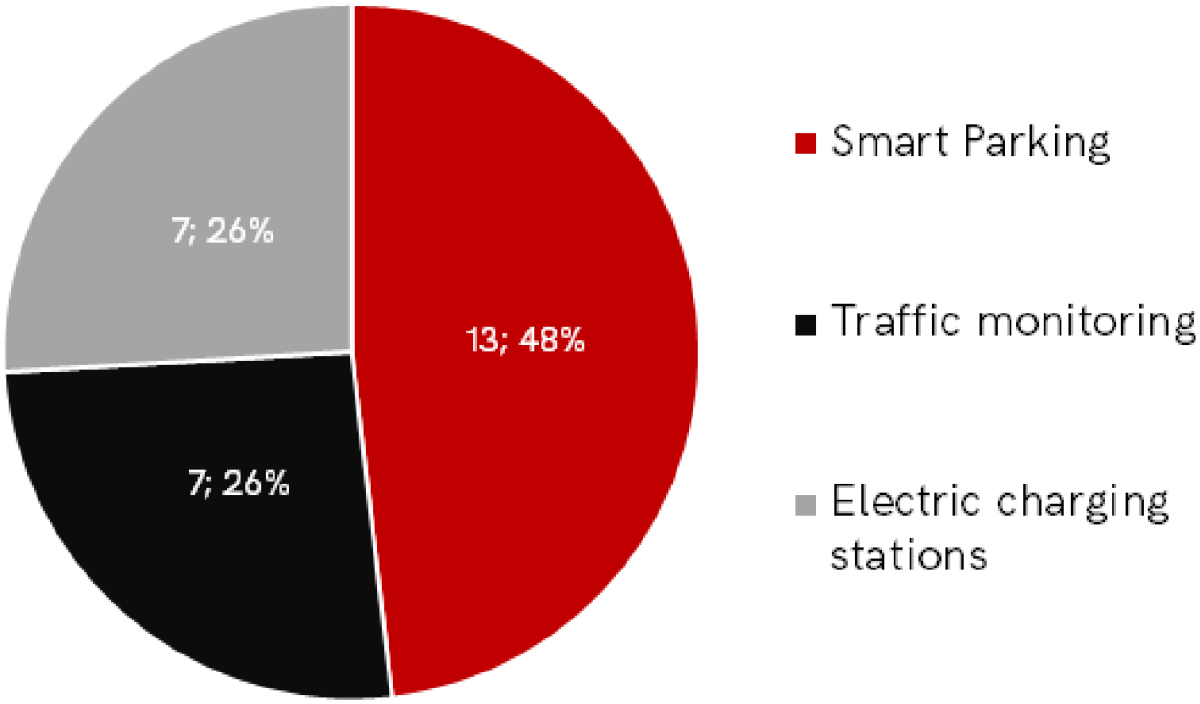
The top is led by smart LED public lighting, adopted in larger or smaller areas by most municipalities. We also see smart metering and reporting systems for the utilities, and the podium is closed by the smart poles that can either provide WiFi connectivity or power up electric car charging stations, 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.

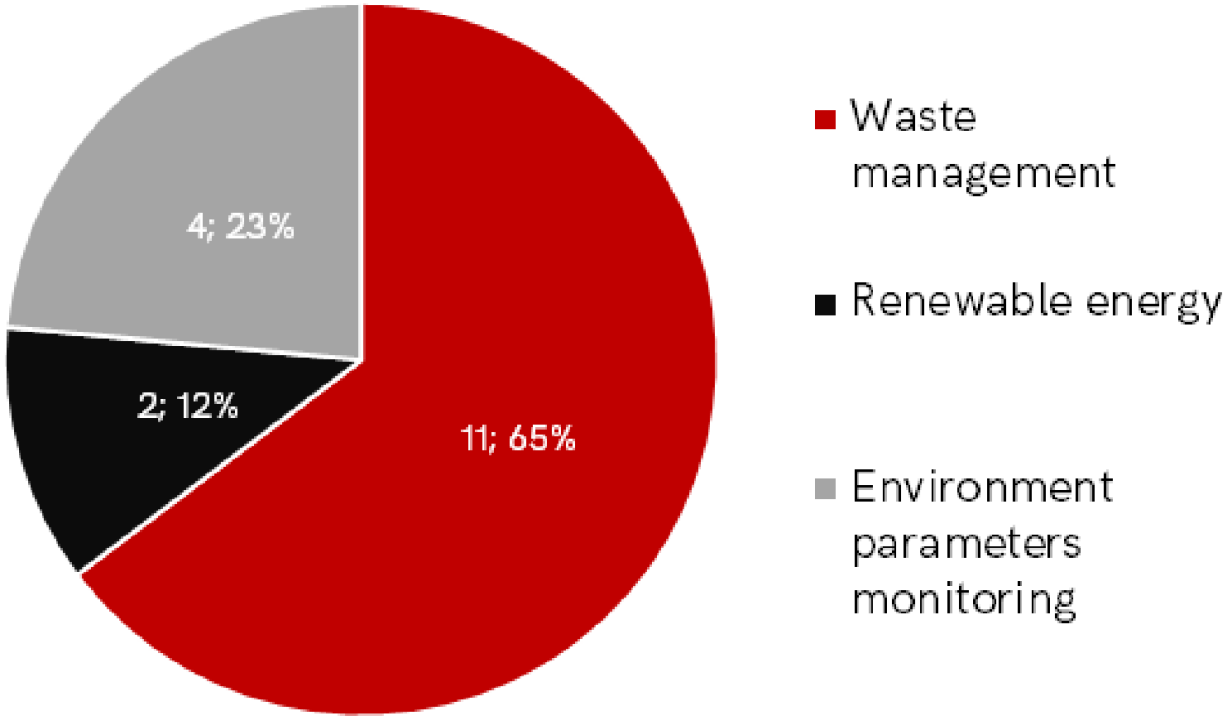
We identified, among the various projects in this field, solutions that are leading from the numeric point of view of implementation, such as optimizing parking lots and paying for parking, traffic monitoring, public transport fleet monitoring, or car charging services.



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.

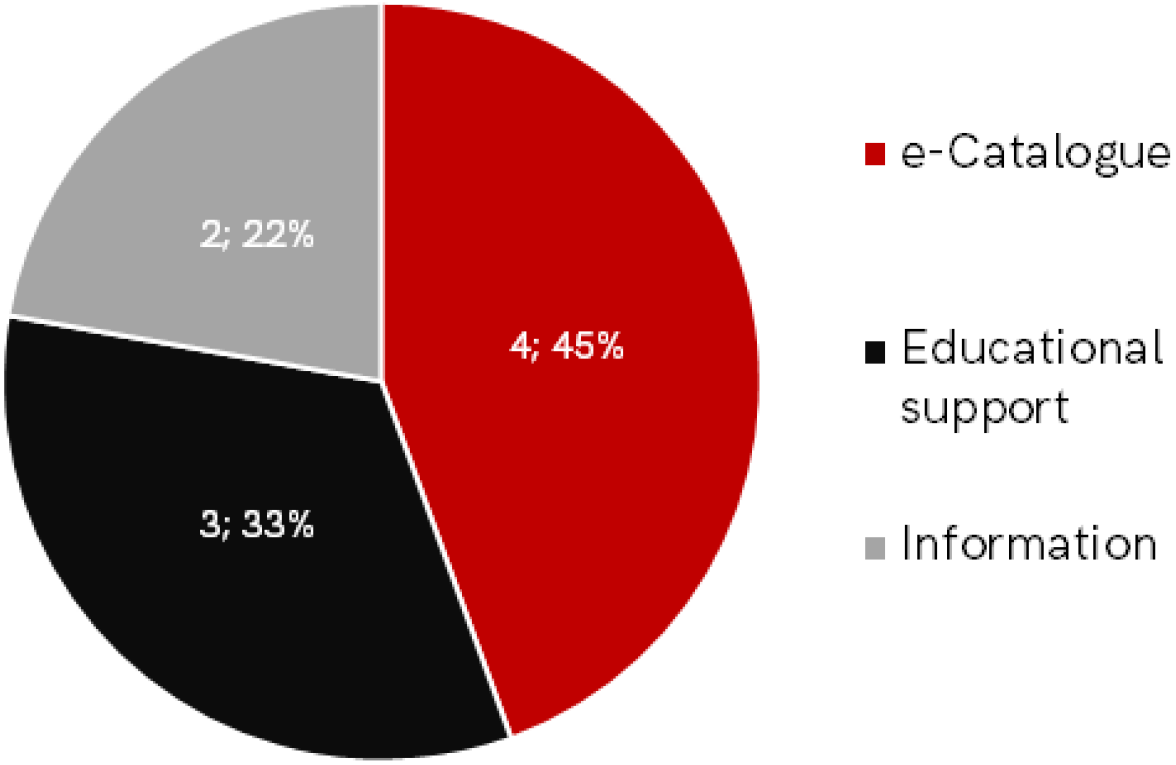
At national level, such solutions involve an above average complexity, and adoption is still geographically limited. We noted that solutions for intelligent waste management, renewable energy and monitoring of various environmental parameters are beginning to show up.



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.



I.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 projcts, 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.

I.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)

I.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 Mureş, 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

I.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.

Chapter II-Second Edition, September 2018

II.1 SMART CITY INDUSTRY NEWS

The smart solutions turn-key integrator Vegacomp Consulting brings an updated report, with new information, strategies and smart projects that emerged in the country between March and September 2018, six months after publishing its first scanning of Smart City projects in Romania.

"We have been present in the Smart City solutions and services market since 2015, and this spring of 2018, we have started developing the first comprehensive study and the first updated report on the evolution and adoption of Smart City in Romania. Now, six months after the first edition of the report, we have identified both new solutions with a high level of replication and new projects, strategies and municipalities that complement the Smart Cities landscape in Romania. In fact, Smart City Strategy is the key phrase of this updated edition of the report," says Cornel Bărbuţ, CEO of Vegacomp Consulting.

The Smart City market, started in 2009, was worth billions of dollars in 2017. In Romania, there is a shy start and a building-up market in the Smart City area, which is still not fully understood, hard to define and still relatively difficult to accept, from the perspective of the authorities.

If, at the beginning of March, we were talking about a Smart City market that exceeded 216 projects in Romania, six months later we add 100 new initiatives to the list, either at the projects stage, under implementation or already completed.

To the first set of cities described in the first edition of the report, new names - such as Avrig, Hunedoara or Odobeşti are added, showing that the speed of the Smart City deployments is not directly related to the size of the municipality that adopts the new generation of services.

II.2 METODOLOGY

The methodology, like in the first edition of the report, includes the collection of information from public sources that covered the subject over the past year, but this time the paper places more emphasis on first-hand information provided by municipalities. Data provided by companies, obtained through direct interviews with representatives of Smart City solution providers in Romania, is also used.

The current version of the Scanning Romanian Smart City Report already gathers information on 41 large, medium and small cities in the country that currently have 316 Smart City projects in the planning phase, in progress or already completed.

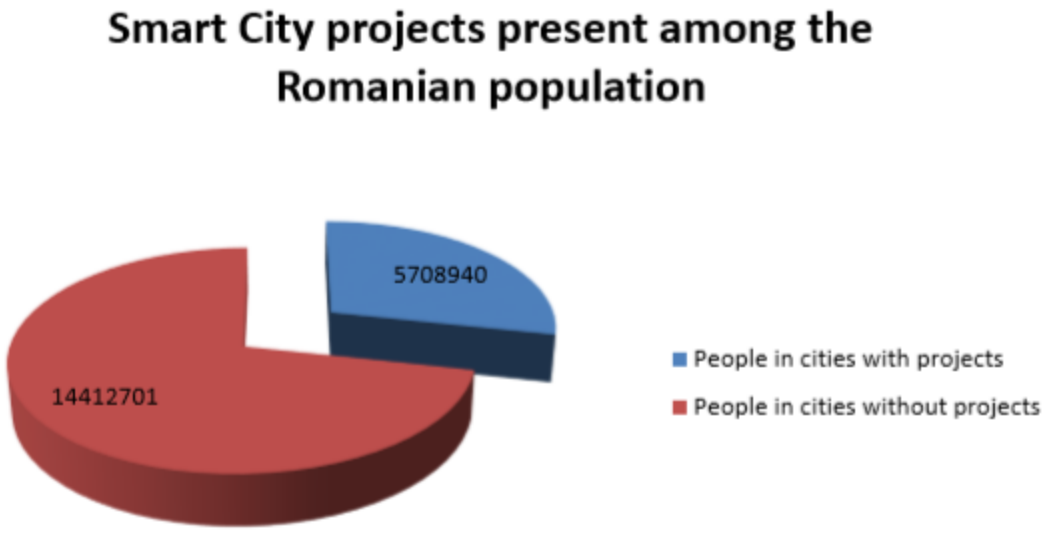
Vegacomp Consulting will periodically update and reinforce all the information contained in this new version of the document, in order to continually present an accurate image of the Smart City development in Romania.

Smart City projects retain their classification in the same six Verticals, consistent with recent EU reports: Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living and Smart Governance.

II.3 CITIES INCLUDED IN THE REPORT

The list of cities entering the Smart City race is continuously evolving and currently includes 41 municipalities such as Alba Iulia, Arad, Avrig, Bacau, Bals, Botosani, Brasov, Bucharest, Bumbeşti-Jiu, Călărași, Cernavodă, Constanţa, Cluj-Napoca, Deva, Fălticeni, Galaţi, Giurgiu, Gura Humorului, Hunedoara, Iaşi, Mangalia, Mioveni, Mizil, Moineşti, Odobeşti, Oradea, Piatra Neamţ, Reşiţa, Seini, Sibiu, Slatina, Suceava, Targoviste, Târgu Jiu , Târgu Mureş, Târgu Neamţ, Târnăveni, Timişoara, Tîrgu Bujor and Tulcea.

"The cities in the list now sum up a total of 5,708,940 people, the equivalent of over a quarter of Romania's population, according to the latest census. We see, however, a relatively small increase in the adoption of Smart solutions, among the population that was not yet covered. In addition, most new Smart City projects and solutions are developing in already covered areas, and access, as the geographical area does not expand much, remains limited in terms of progress," says Bărbuț.



The top ten cities, based on the number of projects planned, being implemented or delivered, are Alba Iulia (103 projects), Hunedoara (23), Oradea (19) Cluj-Napoca (18), Avrig (15) Bucharest (13), Piatra-Neamț (12), Brașov (11), Arad (11), Sibiu (11), Constanța (11).

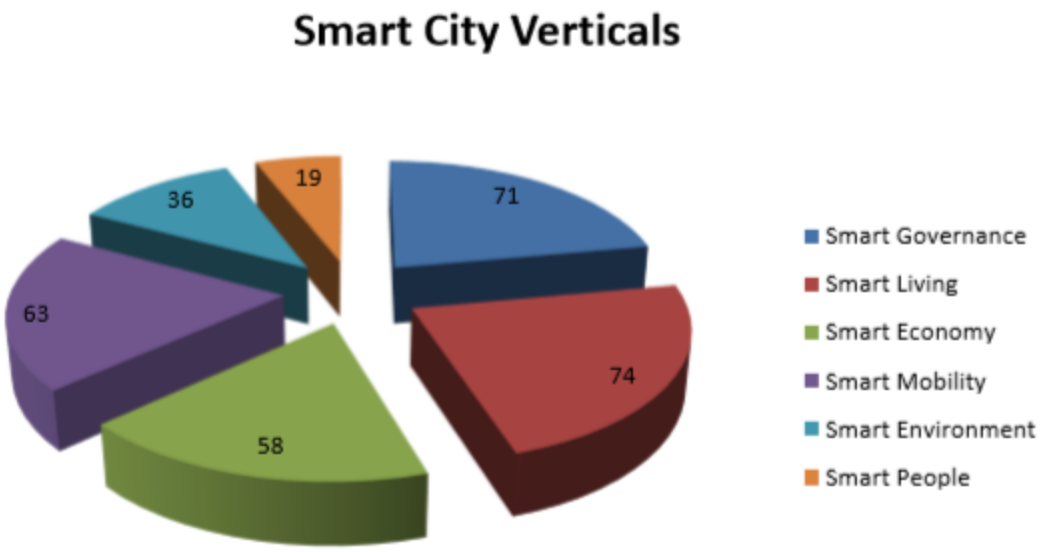
Among the cities that embrace Smart City in both an innovative and geographicallysignificant way, we can mention:

- **Alba Iulia**, who takes the Smart area straight to the blocks of tenants, through a management application for real estate administrators
- **Avrig**, with a project targeting urban contribution to tackling climate change
- **Hunedoara**, with an electronic investment map

II.4 SMART CITY PROJECTS RANKING BY VERTICALS

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

The new leader is the Smart Living Vertical, with 74 projects, which takes the first place from Smart Governance, leaders of the charts in spring, now reaching 71 projects. Places three and four are occupied by Smart Mobility, with 63 projects, and Smart Economy, 58 projects, both equal categories back in March. Smart Environment, with 33 projects, and Smart People, with a low growth, up to just 16 initiatives, follow at a considerable distance.



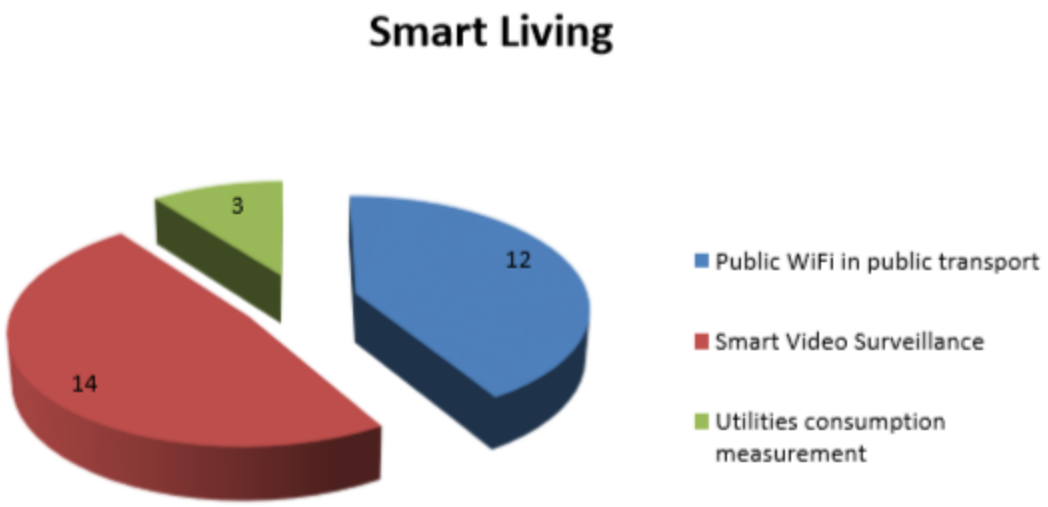
II.5 SMART CITY SOLUTIONS IN ROMANIA, BY VERTICALS

The most popular Smart City solutions identified in Romania and also globally scalable include street lighting, smart parking, video surveillance and public WiFi services, followed, on the medium term, by traffic management systems, waste management and various sensors, such as environmental ones, used to monitor air quality.

SMART LIVING

Intelligent solutions that increase the comfort of the residents are the new leader of the Smart Verticals ranking and are found, on a growing scale, in the cities of Romania. The most spread solution, easy to replicate and adapt, regardless of the size of the local community, is the public WiFi internet, in the major points of interest in cities, both outdoor and indoor - one of the most commonly adopted solutions of the Smart Living concept, in Romania.

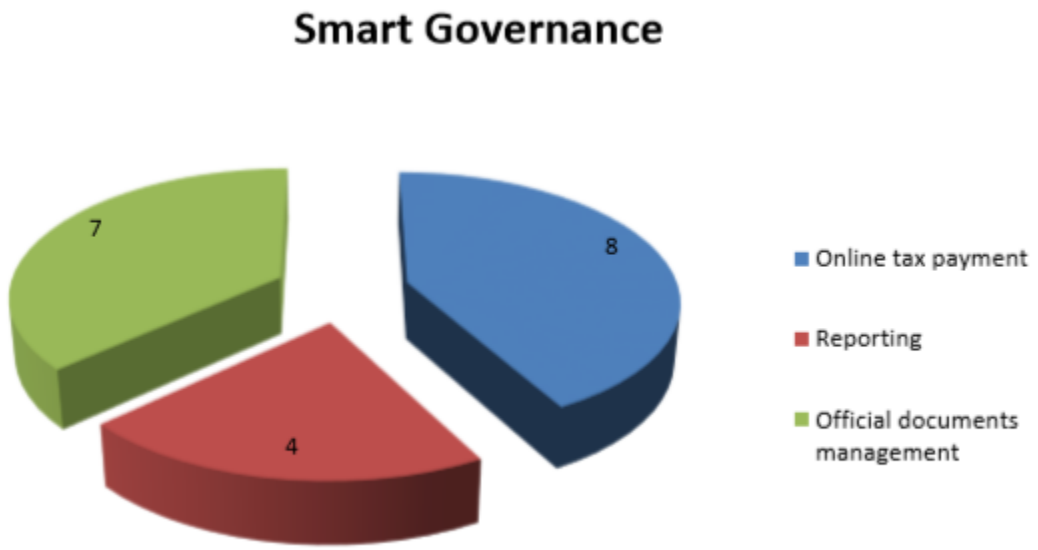
High the top is also a popular solution derived from the one described above - the installation of WiFi internet services in public transport, along with smart video surveillance, which stands out in the ranking, from the next solution - measuring and managing the utility consumption.



🏛 SMART GOVERNANCE

With already 25 Smart Governance solutions, Alba-Iulia has strengthened its leadership position at national level and now imposes the adoption trends as well as the moves towards Smart Governance with more automation, fewer errors and better results both for both the public administration, and the benefit of the population.

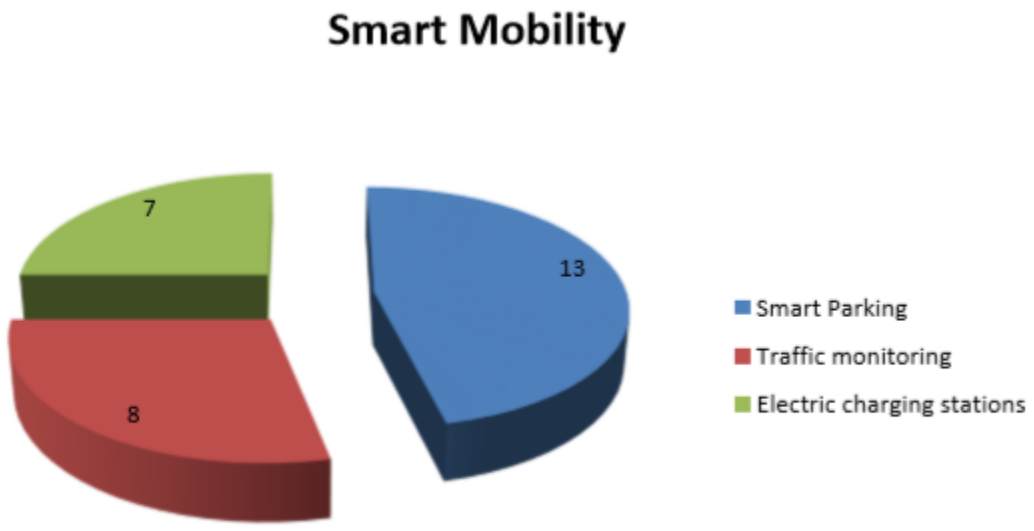
At national level, the most common projects in this area include, in this edition: online payment of taxes, interaction with the city hall and residents reporting various issues, and management of official documents such as permits, notifications, and certificates.



SMART MOBILITY

Even if the vertical rose and took over the third place in the ranking, we do not see major changes, in terms of number of solutions adopted or implemented, but rather a series of purchases or donations of electric vehicles. Whether we are talking about more efficient and faster transport, about on-the-go connectivity, electric cars that communicate with each other and about centralized mobile applications or mobile applications 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, in more extended areas, in the cities of Romania.

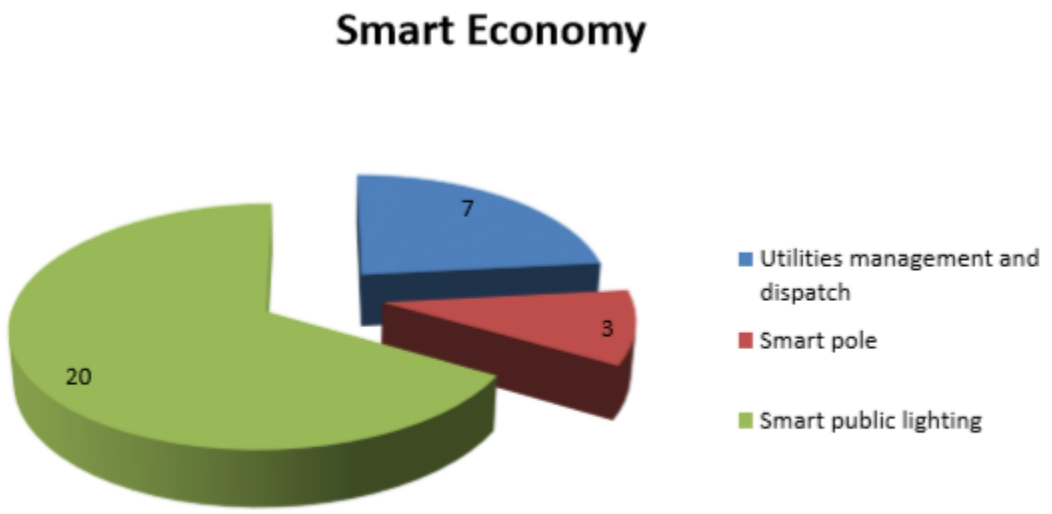
We also identify, amongst the various projects in this area, the same deployment of solutions like: parking optimization and payment, traffic monitoring, public transport fleet monitoring, or charging stations for electric cars.



SMART ECONOMY

With a presence outside the top 3 of this report, intelligent solutions designed to simplify the lives of residents, but also to generate medium and long-term savings, along with better resource management, traceability and, last but not least, increased energy efficiency are adopted by a large number of municipalities monitored by this report.

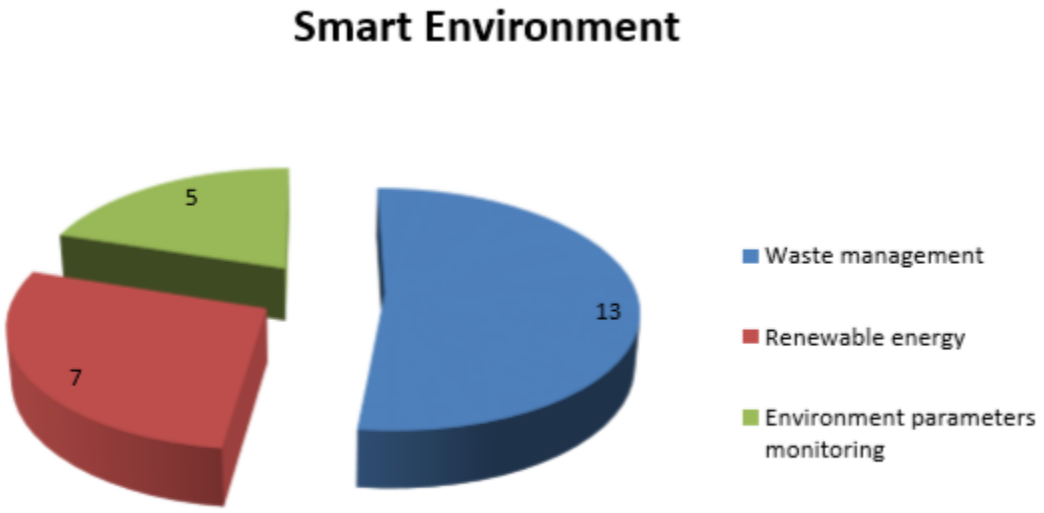
The top is driven, by far, with a growing gap versus the following solutions, by the intelligent public lighting, adopted on larger or smaller surfaces by most municipalities. In the ranking, metering and reporting systems for utility consumption follow, with a modest evolution over the last six months, and the podium is closed by the smart poles that can either emit WiFi or carry photovoltaic cells, or communicate in real time the parameters of the meters mounted on them.



SMART ENVIRONMENT

Technology evolves to both enhance and protect the environment, as well as to provide more and more intelligent elements to the public in open, public spaces.

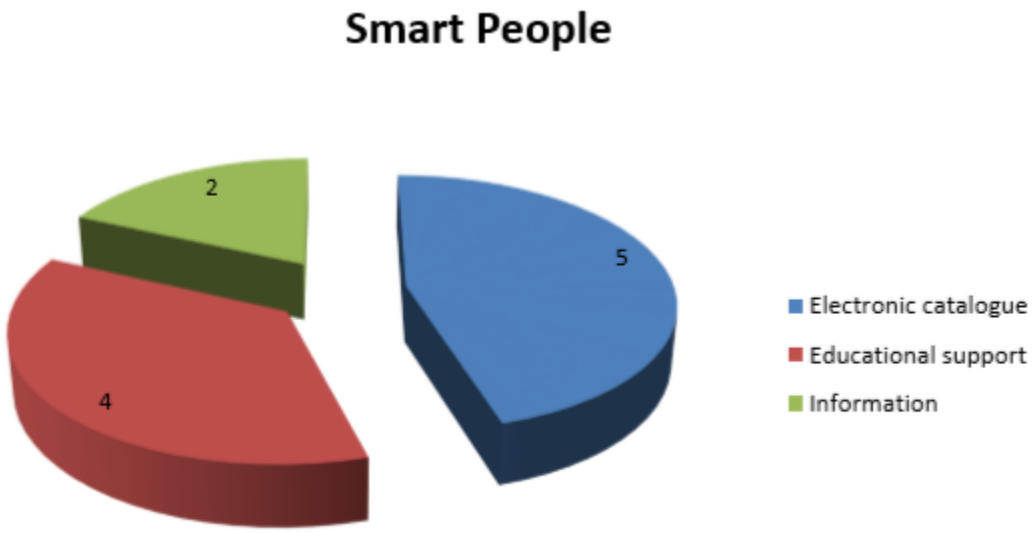
At national level, solutions of this type involve an above average complexity, and adoption is still geographically limited, by accessibility. We notice a speed-up in terms of solutions for smart waste management, renewable energy - which has the highest increase by adoption level in the last six months among the municipalities in Romania - and monitoring of various environmental parameters.



SMART PEOPLE

Education and public information are one of the global priorities in the Smart City area, but in Romania, this research again shows it as the last one by adoption, punctually implemented, often as a pilot project, in educational units that have the necessary resources to innovate, in the communities more open to new, effective and measurable solutions.

Outstanding areas, although not significant by evolution in the past six months, include information systems for citizens, e-catalogs for pupils and educational support for various knowledge development areas.



II.6 SMART CITY STRATEGIES

We are opening a new chapter of the report, dedicated to Smart City Strategies adopted by local municipalities. In each edition of the report, we will present a set of strategies, from municipalities varying both in size and geography, but also with different objectives.

If, at the level of Bucharest, the City Hall has started the tender for the Smart City Strategy in December 2017, was won by Deloitte Romania this spring, other cities have done significant steps in this regard, including: Târgu Mureş, Cluj-Napoca, Oradea, Iaşi, Constanţa, Turda and Satu Mare.

ALBA IULIA

Perhaps the best known city in Romania when it comes to Smart City, Alba Iulia has a strategy that combines the component of utility objectives with - a differentiating element an the Romanian market - a quantitative objective for the implemented solutions.

The uniqueness of the project lies in the fact that all the intelligent solutions agreed in collaboration protocols with 35 private companies are implemented and tested in Alba Iulia on the companies' own budgets and ensure interoperability with other providers of intelligent solutions for the municipality.

The aim of the project is to pilot 100 smart solutions for Romania's 100 years anniversary, thus providing a digital foundation for development, a work experience generating good practice models in the local administration and a team of specialists able to provide consultancy and help any other interested municipality. The project currently (n.r. September 2018) counts 103 solutions agreed with various partners.

The goal of the project is to turn Alba Iulia into a smart city, an exhibition of intelligent solutions that operate in a real environment within the Alba Iulia infrastructure, which can be visited by tourists or the Romanian public throughout the year 2018, when Alba Iulia is at the heart of all events dedicated to the celebration of the 100th anniversary of the Romania's Great Union.

HUNEDOARA

The municipality is aware that digitization is a mandatory element and, although the town hall is the initiator of the strategy, it considers that the synchronized efforts of the entire local community are needed.

Increasing the general level of knowledge, the promotion of open technologies, electronic standardization and interoperability, as well as the increase of cyber security are among the objectives of the municipality.

Some of the completed and ongoing projects include:

- Video surveillance systems for citizen safety - 2011
- Mobile Interactive Application - 2017
- Investment Map - 2012
- Issuing of free passes - via SMS and web portal - 2015
- Electronic archiving - 2017
- Request tracking / submissions - 2005
- Online payments with bank card - 2010
- Ticketing system - 2016
- Integrated informatic system
- Free WiFi access point in Tineretului Park
- Live video camera
- Anti-burglary video surveillance systems
- Optimized pedestrian alley
- Upgraded official site
- Web Portal and Electronic Payment
- Self-service terminal
- Computerized application for payment terms notifications, tracking mechanism
- Participatory budget
- Management of activities
- Modernizing transport through investments in environmentally-friendly public transport
- Ecologic public lighting
- Revitalized historic center
- Support regeneration of the city

ODOBEȘTI (VRANCEA)

The city of Odobesti aims to develop a wireless network that will cover the entire area of the locality and integrate the following concepts: GIS - utility networks monitoring and land and road property limits - smart parking, electronic catalog, wireless surveillance camera, smart-points for standard documents and forms, the city's electronic map, online TV channels, media archives, streaming camera for live city videos, virtual tour of the city.

Odobeşti has implemented, up to now, the wireless Internet network, which covers about 70% of the city's surface, and the electronic catalog, while wireless internet has been introduced in all schools in the city. The implemented projects are:

- Electronic catalog - Odobeşti Technological Highschool
- Electronic catalog - Odobeşti Technical High School
- Integrated wireless system acquisition

SLATINA

The municipality aims to reconnect the historic center, peripheral districts and major public spaces to the urban circuit, thus increasing the functionality, competitiveness and attractiveness of the city. At the same time, in order to strengthen its position as a regional center, Slatina will invest in the development of human capital and modernization of public infrastructure and services.

To this end, in order to develop, at the level of 2020, Slatina undertakes the following actions:

- Sustainable Urban Mobility Plan for the Slatina Municipality
- Developing a network of intelligent and autonomous local public transport stations - Intelli Bus Hub Net
- Integrated project to modernize the public transport system
- Integrated payment system for community services, including public transport
- Integrated urban traffic and mobility management system and rules enforcement, safety and security
- Support system to facilitate pedestrian transport

II.7 COMPANIES INVOLVED IN SMART CITY PROJECTS

We currently have active, in Romania, the world's two leading Smart City solutions providers: Siemens and CISCO.

In addition to these names, the list of companies identified as involved in Smart City projects includes, but is not limited to: Aquatim, Avitech, BCR, Cluj IT - Arxia, Cluj IT - Cloud Soft, Cluj IT - Hyper Media, Cluj IT - Life is Hard, Cluj IT - Optima & Artsoft Consult, Cluj IT - Parking Plus, Cluj IT - Solar Eco Systems, Cluj IT - Trencadis, Dahua, Direct One, Eco Mobilitate, Enel, ETA2U, Euro Jobs, Fast Order, Flash Lighting Services, Industrial Software, IT Center for Community, KMW Services, Luxten, Microsoft, Mobilis, Nova Apaserv, Orange România, Parkomatic, Romstal, Telekom România, Siemens, TPark, UTI, Vegacomp Consulting, White City Code, ZTE

II.8 THE SMART CITY EVENTS MARKET

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

- ARSCM, Romanian Smart City and Mobility Association, smart city events leader, with two editions of Smart City Urban Projects, the Smart City Magazine quarterly, Smart City caravan (launched on September 22, 2017 and landed in Bucharest,Brasov, Iaşi, Piatra Neamţ, Alba Iulia and Deva), Smart City courses (the first "Introduction to Smart City" course, held in Bucharest, February 21-23, 2018; the second in Bucharest, June 27-29, 2018).
- SNSPA (five annual Smart Cities Conferences)
- Mobile Communications (two editions of the Smart City - Future City conference in 2013 and 2016, the first Smart City in Romania eBook published in 2016)
- Smart Cities of Romania (three annual edition of "Smart Cities of Romania" exhibition fairs, usually organized at Polytechnic)
- Concord Communication, together with the National Foundation of Young Managers and Good News (events organized in the country: 30-31 May 2017 in Bucharest, 20 September 2017 in Calarasi, 24-25 October in Bucharest and 3 National debates in 2018: 23 March at Iasi, 16-17 May in Bucharest and 8-9 October in Alba Iulia)
- The Diplomat (two Smart Transformation Forum editions, the third being scheduled for September 27, 2018)
- Different Angle Cluster together with the Embassy of the Netherlands in Romania (two Different City - Smart City editions in Bucharest and one in Constanta)
- ROMANIA-SMART (two Jump to Smart editions)
- Siemens (Siemens Siemens City Edition 2018, January 31, 2018)

II.9 FINANCING SOURCES FOR SMART CITY PROJECTS

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

1. Local budget - for example, for the the strategies in Cluj-Napoca, Oradea, Târgu Mures, Sibiu or the Smart City Audit in Târnăveni,
2. European funds - LED street lighting projects, i.e. the project by Siemens for Alba Iulia,
3. Private sources (companies - Smart City solutions providers) - in Alba Iulia, for example, all solutions are provided with the funds of private companies,
4. Other states - USA, with the Smart Campus project in Politehnica in Bucharest (ISPE is the consultant of the American consulting company for this project)

II.10 CONCLUSIONS

The Smart City market in Romania is still in its infancy, but it is on the rise, even if the evolutionary level is not spectacular.

The multitude of events with and about Smart City in 2017 generated an awareness of the Smart City phenomenon among local and central authorities that were planning to allocate local budgets for profile projects in Romania in 2018. There is also a growing trend towards learning and theorizing Smart City concepts.

The over 300 nationally implemented Smart City projects represent an early stage of this concept - a phenomenon that has huge growth potential - and represent an image of the development of the Romanian society and economy in the current European and global context.

Smart City in Romania attracts experienced foreign suppliers of solutions, such as Siemens, CISCO, ZTE, but also private companies and Romanian startups. 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 Romanian borders. At the same time, we estimate an increase in the number of Smart City solutions providers with international experience on the Romanian market, as well as a competition between Romanian cities to attract Smart City investors and providers in the coming years, in order to contribute to the advance in the quality of life of the inhabitants.

Chapter III-Third Edition, March 2019

III.1 SMART CITY MARKET NEWS

The turn-key smart solutions integrator Vegacomp Consulting enters the second year in which it presents, on a semi-annual basis, the scan of Smart City projects in Romania. The third edition brings an even better filtering of the classified projects, new information about the municipalities' local developments and strategies, and for the first time interviews with key players in this emerging market.

“We have an active presence in the Smart City solutions and services market since 2015 and, after the first year when we delivered two snapshots of the Romanian market, 2019 brings the third edition of the report, more balanced, better calibrated and with more direct information from the source - the players who have a decisive influence on the Smart City market. Thus, we will see, in this report, in addition to a leadership change of Smart City verticals, a first series of interviews with representatives of the municipalities that have already taken important steps in this area that will bring us behind the curtain, and an even better image of local development,” said Cornel Bărbuț, CEO, Vegacomp Consulting.

Romania is boarding the Smart City train for the first time in 2009, with only a set of concepts and ideas that gradually turn into the first completed projects. The market reaches, at the end of the last year, a value in the range of billions of euros. However, the potential is steadily rising and municipalities are heterogeneously evolving - from true industry leaders, power-engines that push the intelligent city further, to cities where the Smart City concept remains difficult to define and accept, or just a topic of discussion, without concrete actions and projects.

If in the autumn of 2018 we were talking about a Smart City market that exceeded 300 projects in Romania, in March, this year, we reach 330 initiatives either in the project phase, under implementation or already completed.

III.2 METHODOLOGY

The methodology, consistent with the first edition of the report, included the collection of information from public sources that covered the subject over the past year, but this time places more emphasis on first-hand information provided by municipalities, and has a stricter set of criteria for including the listed projects. Also, data provided by companies and obtained through direct interviews with representatives of Smart City solution providers in Romania is used.

The current version, the third edition of the Scanning Smart City in Romania, already collects information on 45 large, medium and small cities in the country that currently list 330 projects either in the planning stage, in progress or already completed Smart City.

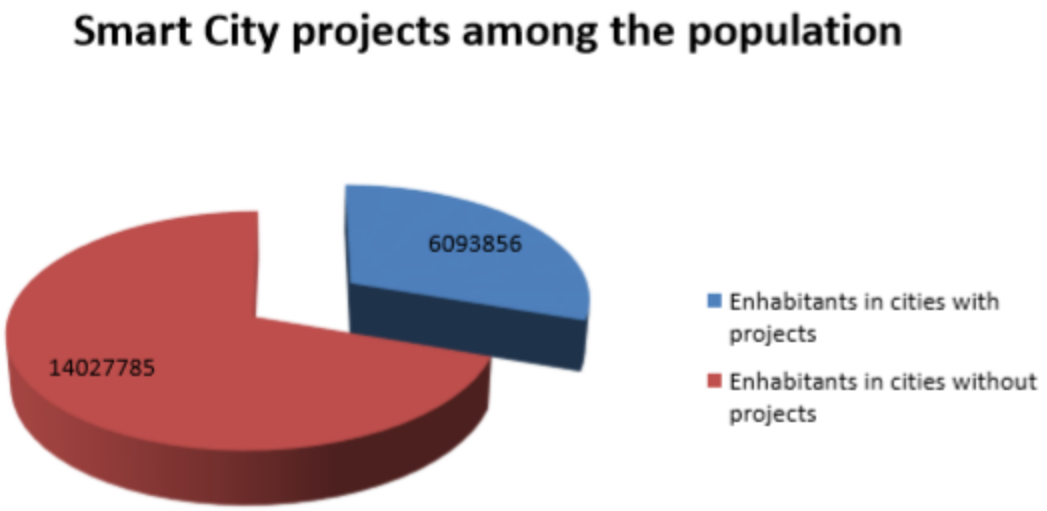
Vegacomp Consulting will periodically update and consolidate all the information in this new version of the document, in order to continually present a proper image of the Smart City developments in Romania.

The identified Smart City projects maintain their listing within the same Smart City Verticals - Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living and Smart Governance, in line with the European Comission reports (for more info please visit: https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en)

III.3 CITIES LISTED IN THE REPORT

The list of cities listed in the Smart City report is continuously evolving and includes, at present, municipalities like Alba Iulia, Arad, Avrig, Bacău, Balș, Brașov, Bucharest, Bumbesti-Jiu, Călărași, Cernavodă, Comănești, Constanța, Cluj-Napoca, Deva, Fălticeni, Galați, Giurgiu, Gura Humorului, Hunedoara, Iași, Lugoj, Mangalia, Mizil, Moinești, Odobești, Oradea, Petroșani, Piatra Neamț, Predeal, Reghin, Reșița, Satu Mare, Seini, Sibiu, Slatina, Suceava, Târgoviște, Târgu Jiu, Târgu Mureș, Târgu Neamț, Târnăveni, Timișoara, Tîrgu Bujor, Tulcea and Turda.

“The cities in the list now sum up a total of 6,093,856 residents, almost a third of the population of Romania, according to the latest census. We see, however, a relatively small increase in the adoption of Smart City Solutions among the population that was not previously covered – a natural conclusion, given that the first edition of the report was a measurement from scratch and the next two represented real-time coverage developments. In addition, most new Smart City projects and solutions are developing in areas already covered, where there have already been such projects, and access, as the geographical area does not extend much, remains limited, in terms of progress. We note and appreciate the shift in initiative, from private providers to the City Halls, as well as the concern for data centralization and integration of Smart City Solutions," said Bărbuț.



The top cities, by number of planned, implementing or delivered projects, is: Alba Iulia (103), Brașov (20), Timișoara, Bucharest (19), Arad, Iași (18), Cluj-Napoca (16), Sibiu (13), Oradea, Avrig (12), Constanța, Piatra Neamț (11), Hunedoara, Slatina (6).

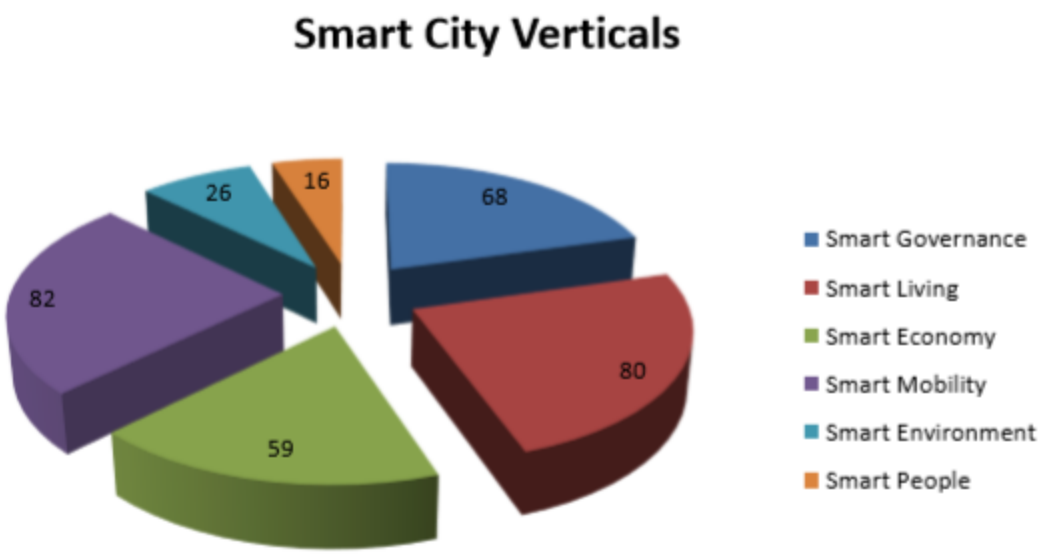
We note that the number of City Hall employees dedicated to Smart City projects and infrastructure is growing, like the examples in Satu Mare or Bucharest's District 4.

III.4 SMART CITY PROJECTS RANKING BY VERTICALS

Vegacomp Consulting continues to rank Smart City projects according to the verticals recognized by European standards and has developed a national ranking of Smart City verticals, based on the number of projects implemented so far.

The new leader is the Smart Mobility Vertical, covered by 82 projects, closely followed by Smart Living, which enlists 80 projects. The podium is completed by Smart Governance, with 68 projects, and the fourth place goes to Smart Economy with 59 projects. The last two positions are claimed by Smart Environment, with 26 projects and Smart People, with 16 initiatives.

The leading position has passed from Smart Governance in the first edition, with 49 projects, to Smart Living in autumn 2018, with 74 projects and reflected the current needs and desires of the Romanian society and the business environment. A shift from the desire for transparency, de-bureaucracy, to improving living conditions can be seen this spring, through the desire for urban mobility, as a solution to a major problem in Romania - the lack of mobility infrastructure.


Smart City Verticals
68
80
59
82
26
16
Smart Governance
Smart Living
Smart Economy
Smart Mobility
Smart Environment
Smart People

III.5 SMART CITY SOLUTIONS ADOPTED IN ROMANIA, BY VERTICALS

The most popular Smart City solutions identified in Romania and, at the same time, the most commonly used world-wide as well, include: smart street lighting, smart parking, video surveillance and public WiFi, followed on the medium-term by traffic management systems, waste management and its sensor component, such as environmental sensors, used to monitor air quality.

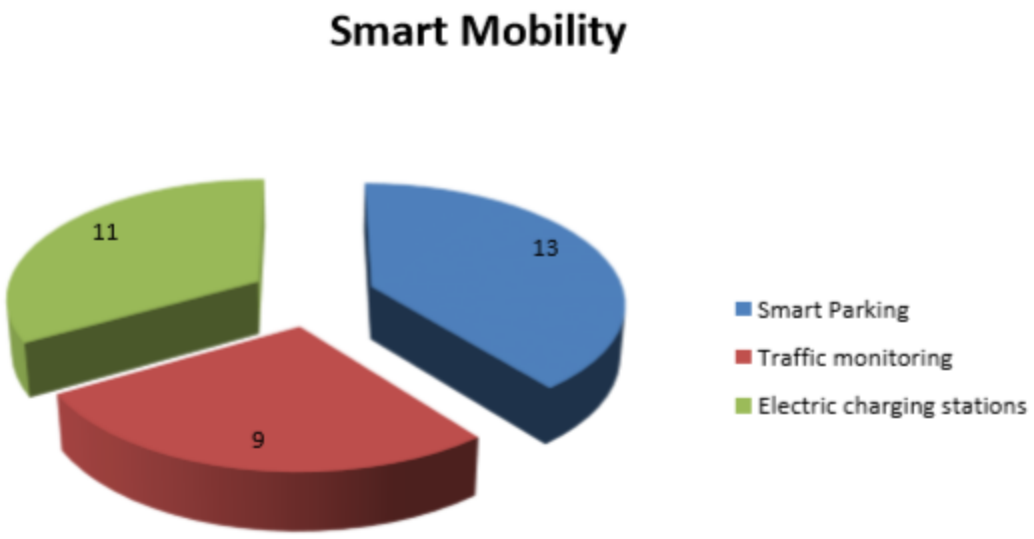
SMART MOBILITY

The new leader by adoption of projects grows mainly due to a series of acquisitions or donations of electric cars and electric buses. The Smart Mobility area makes steady steps, in wider areas, in the Romanian cities.

Usually, these projects rely on a more efficient and faster transport, on-the-go connectivity, electric cars that communicate with each other and centralized, or mobile applications that make it easier for the general public to access two or more points of interest.

We identify, this time as well, amongst the various projects, the same solutions that are leading from the point of view of implementation, only this time with smaller differences among them, such as: parking optimization and payment, traffic monitoring, the monitoring and efficiency of the public transport fleet or the car charging services.

We also note the involvement of all four energy distributors in Romania in providing an infrastructure for electric vehicle loading stations: ENEL, which announced at the end of 2018 that it will install 2,500 electric vehicle charging points in Romania over the next four years; EON, which started the first "electric" highway in Romania, Iasi - Targu Mures, which will be equipped with 40 electric charging stations; CEZ and ELECTRICA.



As Smart Mobility is the leader of the new report, the solution deserves more dedicated space meant to explain the usefulness, benefits and rationale for a growing adoption.

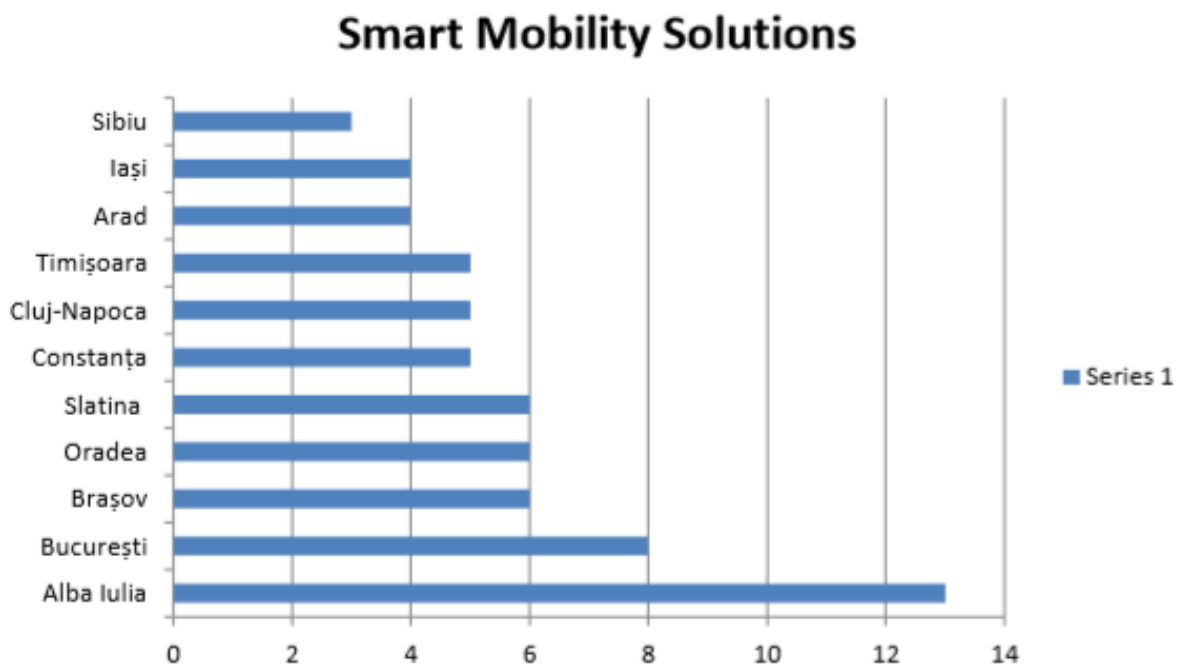
Beyond just being another simple alternative to regular transportation, Smart Mobility is a concept built on the principles of flexibility, efficiency, safety, low environmental impact and integration, regardless of the variety of means of transport.

More and more cities see benefits in the pillars that Smart Mobility is founded upon as a direction and begin to integrate the vertical from the very municipal planning stage, through the optimization and improvement of Urban Mobility Plans, obsolete as format and outdated as an utility. Each city has a limited road structure, and Smart Mobility brings a layer of efficiency through optimization – merging transportation, traffic monitoring, planning and management, alternative transport, sensors and applications designed to measure congestion and provide alternatives.

At the border of smart mobility and eco-efficiency, lies the growing number of initiatives for a "green" transport, found more and more often in Romania. Among the examples, we not only list the charging stations for electric cars, whether public or private, but also the projects ran by some municipalities to migrate from a fleet of fossil fuelled public transport to electric or, in an intermediate step, hybrid.

In an applied approach to Smart Mobility in Romania, we see a high competition between the top cities and their municipalities, at the forefront of the Smart City national industry.

Thus, Alba Iulia lists no less than 13 Smart Mobility solutions, București – 8, Brașov, Oradea și Slatina – 6, Constanța, Cluj-Napoca and Timișoara – 5, Arad and Iași – 4, Sibiu – 3.



The rest of the municipalities in the country have one or two Smart Mobility projects, often at the pilot stage, and a period of measuring the results and efficiency, before continuing, expanding the scale, and covering more the cities with innovations in this vertical.

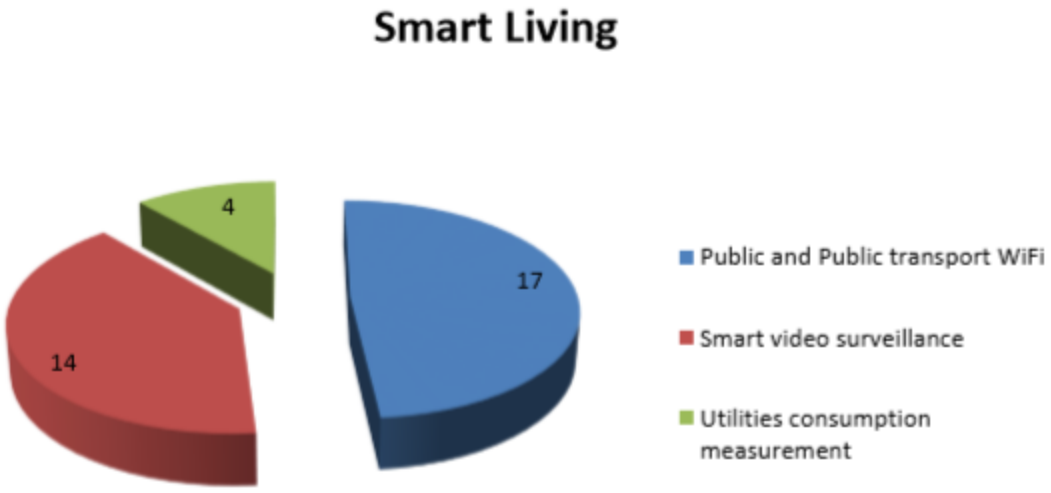
Of course, there are still many major cities with a large enough population that have not yet embraced the concept, either by lack of funds or by a completely different strategy, where the number one Smart City vertical in Romania still does not have its place.

Another remarkable example is the District 4 City Hall in Bucharest, which, with the involvement of an entire department of over 40 employees, has considerably increased the number of parking solutions for the inhabitants. They have inventoried all residential parking places - over 40,000 - and occupying / contracting a parking space is now done only through the mobile application developed by the City Hall, eliminating the papers and written documents from this complicated process. There are also many other solutions to increase urban mobility that show that something can be done in Romania, in this particular direction.

SMART LIVING

Smart solutions that increase the residents' comfort come down to the second position of the Smart verticals ranking, but at a very small gap versus the leader. Just like in the previous reports, the easiest solution, highly replicable and adaptable, regardless of the size of the local community, remains the public WiFi internet within the city's major points of interest, both outdoor and indoor – the most often adopted implementation of the Smart Living concept in Romania.

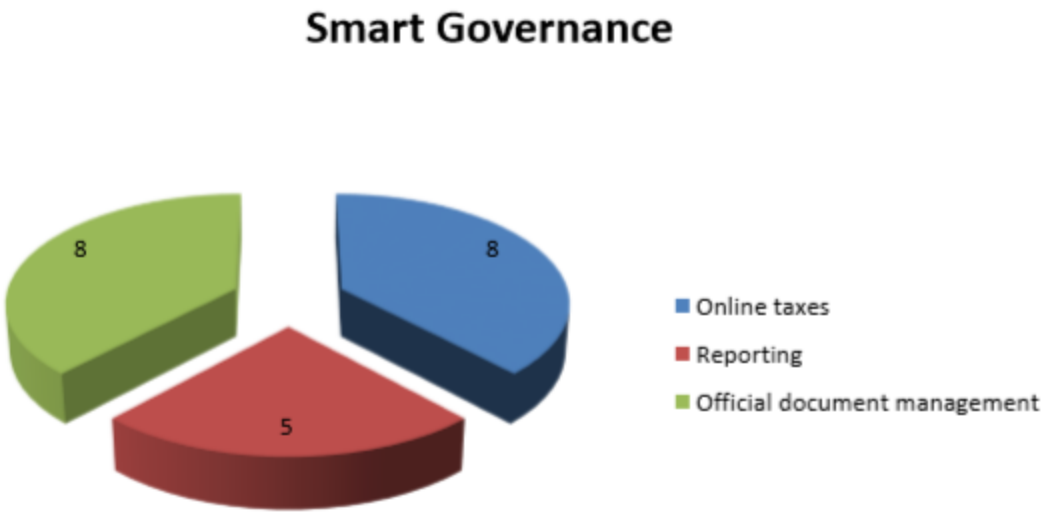
The top also includes a popular version of this solution - the installation of WiFi in the public transport, along with intelligent video surveillance, which is outranking the measurement and management of utility consumption in smart buildings.



🏛 SMART GOVERNANCE

Alba-Iulia maintains its leadership at national level and imposes the trends in adoption and moves towards smart governance with more automation, fewer errors and better results for both the public administration and the benefit of the population.

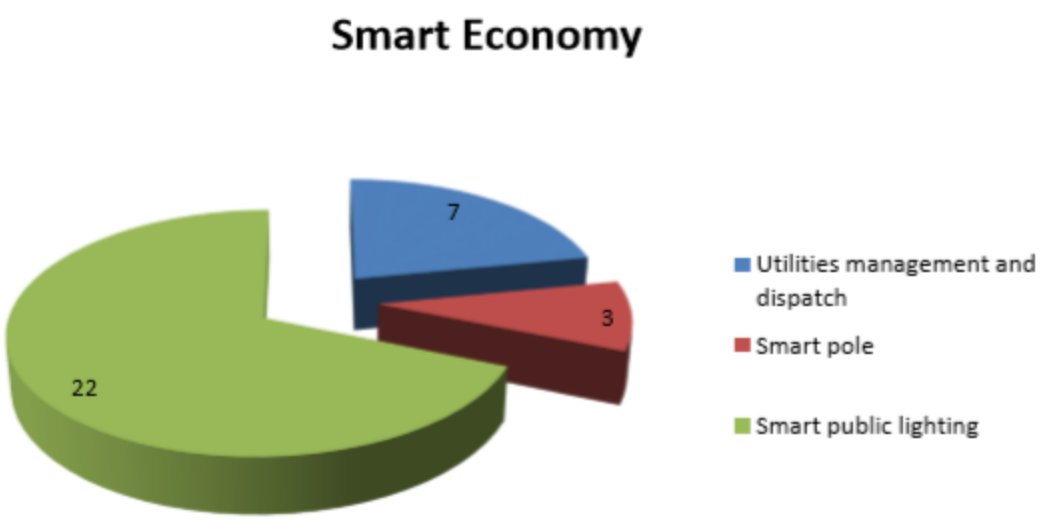
In Romania, the most common projects in this area include, in this third edition of the report: online payment of taxes, interaction with the City Hall and reporting of different situations, as well as the management of official documents such as permits, notifications, certifications.



SMART ECONOMY

With a constant presence in the top 3, in the previous releases, the March 2019 report sees, for the first time, the exit of Smart Economy vertical from the podium. The Smart City solutions designed to simplify residents' lives, but also to generate savings in the medium and long term, together 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, but at a decreasing pace, compared to the evolution of other monitored verticals.

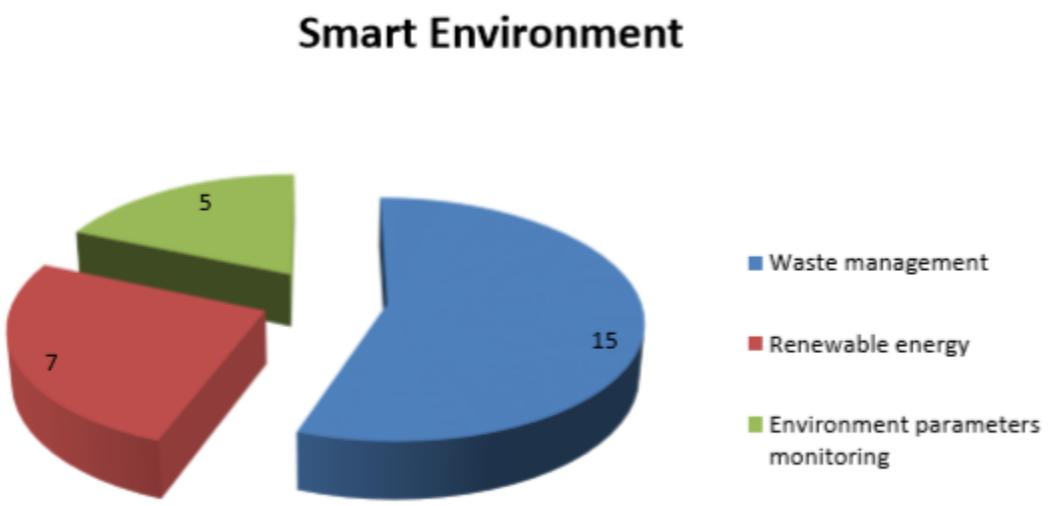
The top led, with a rising gap versus the pursuing solutions, by the intelligent public lighting, adopted on larger or smaller surfaces by most municipalities. Next on the list is dispatching or measuring and reporting systems for utility consumption, with a modest evolution over the past six months, and the podium is closed by the location of intelligent pillars that can either emit WiFi or carry photovoltaic cells, or communicate in real time the readings of the meters installed on them.



SMART ENVIRONMENT

Technology evolves in order to both value and protect the environment, and also to provide the population with more and more intelligent elements in open, public spaces.

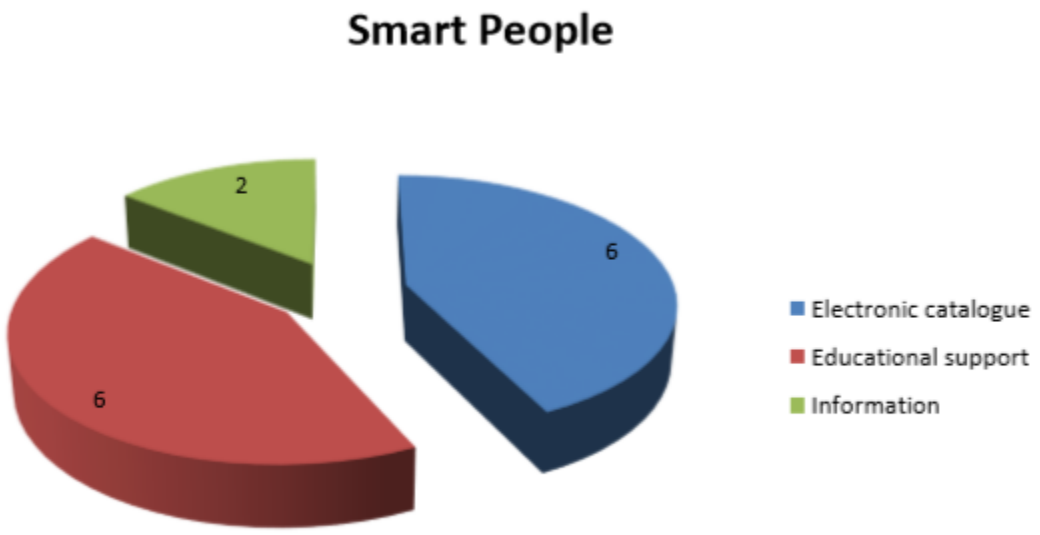
At national level, this type of solutions involves an above average complexity, and adoption is still geographically limited by addressability. We note that solutions for intelligent waste management speed up their growth - even more so than the previous edition of the report, followed by renewable energy and monitoring of various environmental parameters.



SMART PEOPLE

Education and public information is one of the global priorities in the Smart City area, but in Romania it is the third consecutive time that the data collected shows it as the last one by adoption, punctually implemented, often as a pilot project, in educational units that have the resources needed for to innovate in communities more open to new, effective and measurable activities.

Among the evolving areas, although not with a significant enough evolution in the measured period as compared to other verticals, we include information systems for citizens, e-catalogues for pupils and educational support for various topics of knowledge development.



III.6 SMART CITY INTERVIEWS

We launch a new chapter of the Smart City Scan, Interviews with key people from local municipalities, who play an essential role in adopting the Smart City solutions. The aim is also to provide an insight into the institutions that are already managing key projects in the Smart City area.

Nicolaie Moldovan, City Manager Alba Iulia

How do you describe the Smart City solutions implemented in Alba Iulia so far?

I would describe them in a single phrase, which applies to the whole Smart City concept: useful. And we can, of course, detail and argue. The Smart City places first the quality of life of its inhabitants. It's a classic and all-encompassing definition. But this is not enough. In order to realize that there is an increase in the quality of life, you need to have some very good evaluations, and evaluations are don't get done by themselves. A city does not turn into a Smart City just on the basis of public gestures, but on the basis of a sustained effort that local governments must do without interruption, if they engage in such an approach. That's why we have begun to answer this question with a simple attribute, but which embraces all that is needed to describe an intelligent solution: its utility in terms of infrastructure, administration, and people.

Within our pilot project, Alba Iulia Smart City, the utility has two evaluation directions: one for us, for the project team and implicitly for the local administration, and one for the community. It may seem a little off from a certain point of view: why should we talk about it in relation to the project team? Because we test, and tests are not done by themselves, but by humans. No Smart City solution is implemented on its own. Maybe we still need 100 years to get to this level. The move to Smart City is made by people, because people decide the usefulness of the solution. For these reasons, we have created and formed a dedicated Smart City team within the Alba Iulia City Hall. It is a realistic reason why we chose testing before making European money purchases, which is all still public money, although some do not know or forgot about it. All we have delivered so far in the pilot phase was education, perspective, vision of the potential of developing a Smart City. We have educated and made a very good technical training for the door that the new European financial exercise for Smart Cities will be open. We know where we stand from the point of view of the quality, scalability and performance of Smart City Solutions. We know how it applies to the thin infrastructure of Romanian cities, we know the potential of each solution and what they need, in order to be better and more suitable for the administration or the community.

What is your strategy, as City Manager, to develop Smart City in Alba Iulia over the next three years?

First, we want to continue what we started. To work by the book, we also plan to develop a Smart City strategy, which is part of a POCA project submitted last month. Important, at the level of a local administrative entity: we think healthily, we think strategically. The basis of the strategy contained in the POCA project mentioned above has been internalized and evaluated within the City Hall of Alba Iulia in our pilot project Alba Iulia Smart City, a base materialized in our initiatives, projects and partnerships, especially with the 45 companies part of the pilot project.

We know where we are going, and this is the most important thing for any administration or business. Our future plans involve the creation of a department within the Alba Iulia City Hall, a team dedicated to Smart City, where we will include, of course, the current dispatch of the municipality along with the legacy of the pilot project, the experience people have built within the City Hall, the relevance of the administration and the city and, most importantly, the data gathered in the pilot phase. Everything we started piloting is to be continued with acquisitions and implementations that bring added benefits to the quality of life for the city's inhabitants.

We have submitted three projects for intelligent public lighting based on the pilot expertise, three urban mobility projects, smart buildings projects and more. Other projects dedicated to intelligent administration are already functional or in preparation or implementation; we communicate effectively with the citizens through a dedicated application and 400 sensors dispersed throughout the city, we continue to digitize the cultural and historical heritage of the city, to expand the development of the tourism and we want to go to the next level of tourism offers, in line with the models already established in the world.

I will not detail each initiative here, but I summarize them in one sentence: our future strategy is to become a Smart City following the model of other cities, in order to contribute with our maximum effort, responsibility and dedication to improving the lives of the Alba Iulia community. We took it too hard for too long. Now we have the technologies that we could not have accessed 20 years ago. The world is evolving, we have to evolve at the same pace. Any city losing the ship will find it very difficult get back onboard.

We will reiterate what we have said in other cases and contexts focused on Smart City: Romania needs public policies that allow cities to be smartly led. This needs funding allocated to county-based municipalities, because there are cities that make substantial contributions to the GDP. Municipalities need funds to set up smart city management centers, bringing together people from the administration, people from private companies, specialists, academics, people who are passionate about ICT, volunteers, creative people with time dedicated to the city. We need to set up these centers so that all the data collected from all the sensors can be interpreted by people coming from different environments and fields, including private operators. We also want and wish to set up polytechnic centers with the Smart City specialty, we are counting on higher education in this respect, on the opening of masters lines in the administration of intelligent cities, as well as on other forms of post-graduate studies in order to prepare people for this aspect. Tomorrow's administrations will need them, in order to enable them to step up digitization and development in the natural direction of Smart City.

What projects did you think or plan, that seem impossible for now? Why?

I'll give you some examples: IoT - The Internet of Things. It's a concept without which a city can not become a Smart City. We want to create a network of Smart City Solutions in the city, but for now, the infrastructure, connectivity and high equipment costs are a real impediment. The multitude of data that is collected by dedicated equipment remains inert in many cases. They are extremely important, but very difficult to manage. We need dedicated service companies to develop machinelearning solutions with this data at hand. We will do this with one of the partners with the most Smart City Solutions in our pilot project, namely Orange. Through a Horizon 2020 project, where we signed a partnership with them, we will test the 5G network in Alba Iulia to see how the city-wide concept of IoT works to its true capacity. For us, this is an excellent conversion argument, compared to what we thought about two years ago, when we started the pilot project with Orange.

We also need to promote a friendly fiscal and administrative environment for the technical start-ups. The people who set them up are focused on the development of solutions and are easily lost in the Romanian administrative spider web. Involving local governments in creating a friendly environment for small and medium businesses is crucial in reducing talent emigration towards the major IT fields in Romania.

As for the projects that can not be achieved for now, and I stress that this is only for now, I would point out the difficulties in terms of the interoperability of solution providers and equipment, the lack of specialized people in municipalities, linking the technical potential of solutions and utility for the community, the cost of existing services, the lack of applications that extract data and use them for the purpose of the city, in developing other solutions, to which others can be added.

We are optimistic, we know what we have to do, we continue to do what we have started and we are sure that in a few years, with the potential now available in Romania and with more and more Smart City opportunities, we will be able to align to the normal direction imposed by the trend of development and evolution of the cities of the world.

III.7 SMART CITY COMPANIES

Romania currently lists as active the first two worldwide turnkey Smart City solutions providers: Siemens and CISCO.

Along them, the list of companies involved in Smart City projects includes, but is not limited to: Aquatim, Avitech, BCR, Cluj IT - Arxia, Cluj IT - Cloud Soft, Cluj IT - Hyper Media, Cluj IT - Life is Hard, Cluj IT - Optima & Artsoft Consult, Cluj IT - Parking Plus, Cluj IT - Solar Eco Systems, Cluj IT - Trencadis, Dahua, Direct One, Eco Mobilitate, Enel, ETA2U, Euro Jobs, Fast Order, Flash Lighting Services, Industrial Software, IT Center for Community, KMW Services, Luxten, Microsoft, Mobilis, Nova Apaserv, Orange România, Parkomatic, Romstal, Telekom România, Siemens, TPark, UTI, Vegacomp Consulting, White City Code, ZTE.

The last name on the list, ZTE, also marks the first major company involved in the Romanian Smart City market that has, meanwhile, decided to exit the segment.

However, the number of the companies interested by Smart City market in Romania is growing up more and more.

III.8 SMART CITY EVENTS MARKET

The list of entities identified as involved in the Smart City events management includes, but is not limited to:

- ARSCM, The Romanian Association for Smart City and Mobility, leader in Smart City events, with two editions of Smart City Urban Projects (regional Smart City fare), quarterly Smart City Magazine (8th issue), Smart City Caravan (Launched on September 22, 2017, that has reached Bucharest, Brașov, Iași, Piatra Neamț, Alba Iulia, Deva, Craiova, Cluj-Napoca and Satu-Mare), Smart City courses ("Introduction in Smart City", Bucharest, February 21-23, 2018), international events: London (Transport Ticketing Global; Transport&Ticketing Awards; Smart Cities Global Contest), Singapore and Vietnam (Strategie Smart Nation), Belgrade (Smart City Festival 2018), Tunisia (Megara Challenges 2018), the Smart City Industry Awards Gala, 3rd edition.
- SNSPA (six yearly editions of Smart Cities Conferences),
- Smart Cities of Romania (four yearly editions of "Smart Cities of Romania" expo conferences generally held within the Polytechnics University)
- Different Angle Cluster, with the Netherlands Embassy in Romania (two Different City – Smart City editions in Bucharest and one in Constanța)
- The Diplomat (three Smart Transformation Forum editions)
- Siemens (Siemens Smart City 2018)
- AHK România (six Cities of Tomorrow events by the Romanian-German chamber of commerce)
- Business Review (Rising Future: Smart Cities)
- Romanian Association for Promoting Energy Efficiency & GOVNET Conferences (five Romanian Energy Efficiency Forum editions)
- GOVNET Conferences (Future of Urban Mobility in Romania, SMART Utilities România 2017 - Building Future Cities Infrastructure)
- Jump to Smart- ERomania & IDEATIVA – Smart transportation, Smart traffic
- Sustainable Cities – organised by the Embassy of France, 2 editions

There is big number of Smart City events in Romania in the last year and the Smart City market reach a saturation point which it announce a tough competition for the increase of quality and hign content of the Smart City next events.

III.9 FINANCING SOURCES FOR SMART CITY PROJECTS

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

1. Local budget – for instance, the strategies in Cluj-Napoca, Oradea, Târgu Mures, Sibiu or the Smart City audit in Târnăveni,
2. European funding – LED street lighting projects, the Siemens project for Alba Iulia, acquisition of electrical buses and electric bus charging stations,
3. Private sources (companies – Smart City solutions suppliers) – in Alba Iulia, for example, all the solutions are funded by the participating private companies,
4. Other states – USA, financing the Smart Campus project at the Bucharest Polytechnics University,
5. Banks – for instance, First Bank finances Smart City implementations nd EBRD finances urban mobility project, with Arad for example.

III.10 CONCLUSIONS

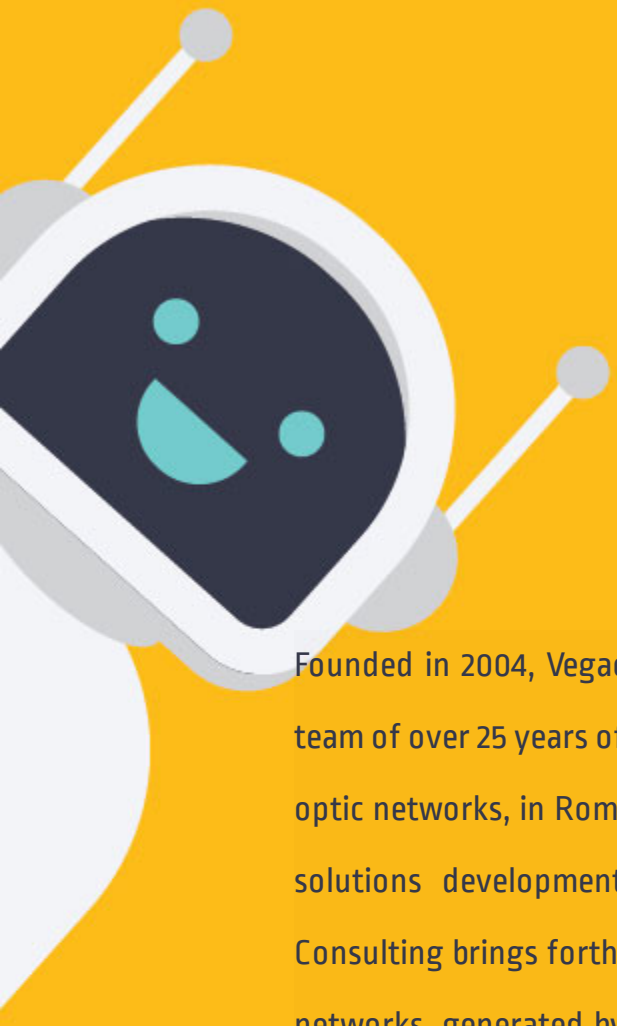
In the second year of Smart City market analysis in Romania, we observe a mix of starting enthusiasm, a relative slowdown of the execution speed and emergence of new projects - signalling that municipalities are waiting for the results of the pilot programs or even having budget constraints in adapting the current streams to the innovation they are only trying at this time - but also a sometimes mistaken attempt to classify any initiative - from a server's certificates to a simple set of cameras - as a Smart City project.

A solid fact is the high level of awareness for the Smart City phenomenon at the level of the municipalities, attained either already through dozens of implemented projects, or through simple declarations of intent or plans for the future.

The market is also beginning to shape the need to theorize the concepts of Smart City and to build a core of specialists within a municipality, with a strong responsibility and decision-making capacity in this segment.

We count 330 Smart City projects implemented at national level – many, compared to previous years, yet very few if we make a global reference - that deliver more benefits to the local communities, solve a set of problems and open the door to future smart developments.

The informal competition for the top Smart City in Romania continues, by number of implementations at the level of the large municipalities, and the need for coherent strategy and structuring, on the medium and long term, is increasingly visible, beyond the punctual, disparate implementations that have dominated the previous years.



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