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INNOVATOR AWARDS

# SMART CITY SCAN IN ROMANIA

6th edition, June 2022

MOVING TO BUILDING NEW URBAN  
*SPACES* IN ROMANIA:  
SMART CITY IN THE HIDDEN CITY



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# 1.

## 1. Fragile Romania



# 1.

# Foreword

We reached a different kind of Smart City Scan in Romania, with the sixth edition, after two years of pandemic and theoretically after a springboard to the digitalisation of Romania.

The Smart City Scan this year will have three parts. We now present the first part, dedicated to the stage of development of Smart Cities in Romania; the next two parts are dedicated to Smart Villages and Smart Counties, respectively.

In addition, we have allocated a chapter for evaluating the Smart City projects in Alba Iulia, which, as of this year, is no longer the leader of Smart City projects in Romania, following the evaluation of the projects that are still functional 5 years after the launching of the pilot project - which has 49 projects left, compared to the impressive number of 106 projects in the last edition.

The current state of the Smart City concept in Romania has gone beyond the pilot projects phase, going forwards and backwards at the same time, without advancing to consistent Smart City projects, due primarily to the lack of competent and courageous staff in the local and central public administration. The various financial funds available are useless without people in city halls especially assigned to Smart City projects, and with City Managers overwhelmed with administrative tasks. OPEX budgets and project management resources need to be allocated for the IT & C (IT and connectivity) areas as well.

In fact, Romania is 2-3 years behind the European average, and lost the start provided by the pilot projects, as many of them were not used and not continued by the local or the central administrations (see the abandoned pilot projects of Alba Iulia, and the projects implemented by Telekom Romania in 2016 – 2017 in District 4 and Constanța), and it takes time to prepare and allocate competent resources, exclusively dedicated to Smart City projects.

The Smart City projects observed in recent years in Romania are attempts and trials, in the approach towards understanding the concept and phenomenon of Smart City. As a picture of international efforts related to the technologization and modernization of cities, we notice that the six verticals defined as Smart City pillars are challenged by other projects meant to design “spaces” in our cities and communities, according to people, their professions and their passions. That is why, in this edition we will present the Hidden City, that cannot be seen through the eyes of the local and central authorities, which cumulates aspects of the lives of the inhabitants of our cities and which represent the support for building the future Smart City in Romania.

Both in Romania and internationally, the discussion is now about redefining the Smart City concept, which is not about technology or about a market for 5G or other technologies/products, but rather, a concept centred around people, around the inhabitants of cities and their needs. About urban and human solutions. (1)

What comes through is the need for new spaces in our communities: spaces for dialogue, data spaces, spaces for civic activities, for art, for spirituality, for various sports and recreation, among many other things.

Concepts such as Art City or Spiritual City are finding their way alongside Mega Cities, and in this edition we will follow the progress or regression of the digitalisation of our cities, beyond the figures presented below.

In this analysis, you will find an up-to-date snapshot of the Romanian Smart City market, with its improvements, shortcomings, and promises.

In chapter 2, we present the novelties on the Smart City market, both in Romania and internationally, focusing on trends and aspects of the Hidden City. In this chapter, we analyse Alba Iulia, shifting from a promising past to a more cynical present.

After specifying our working methodology in chapter 3, this report presents its results obtained from the collected data, in chapters 4, 5 and 7, with rankings and comments related to Smart Cities, Projects, and Solutions.

In chapter 6, we present some Smart City solutions provided by our partners, and in chapter 8, we take a ride visiting the multiple funding options available for Smart City projects, while in chapters 9 and 10 we present the Smart City market influencers and the Smart City solution providers in our country.

We conclude this year's Smart City Scan with the conclusions of this report in chapter 11.

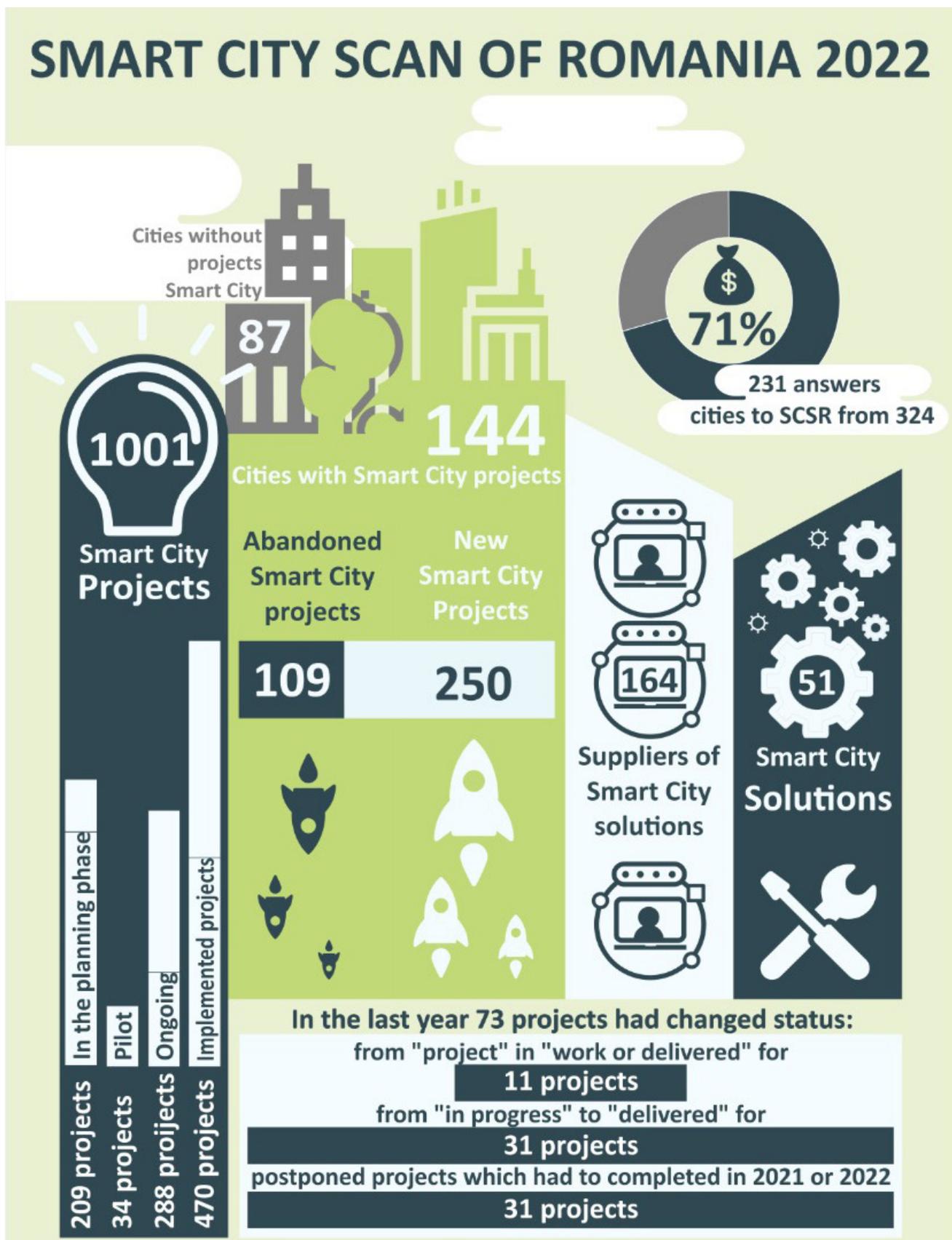


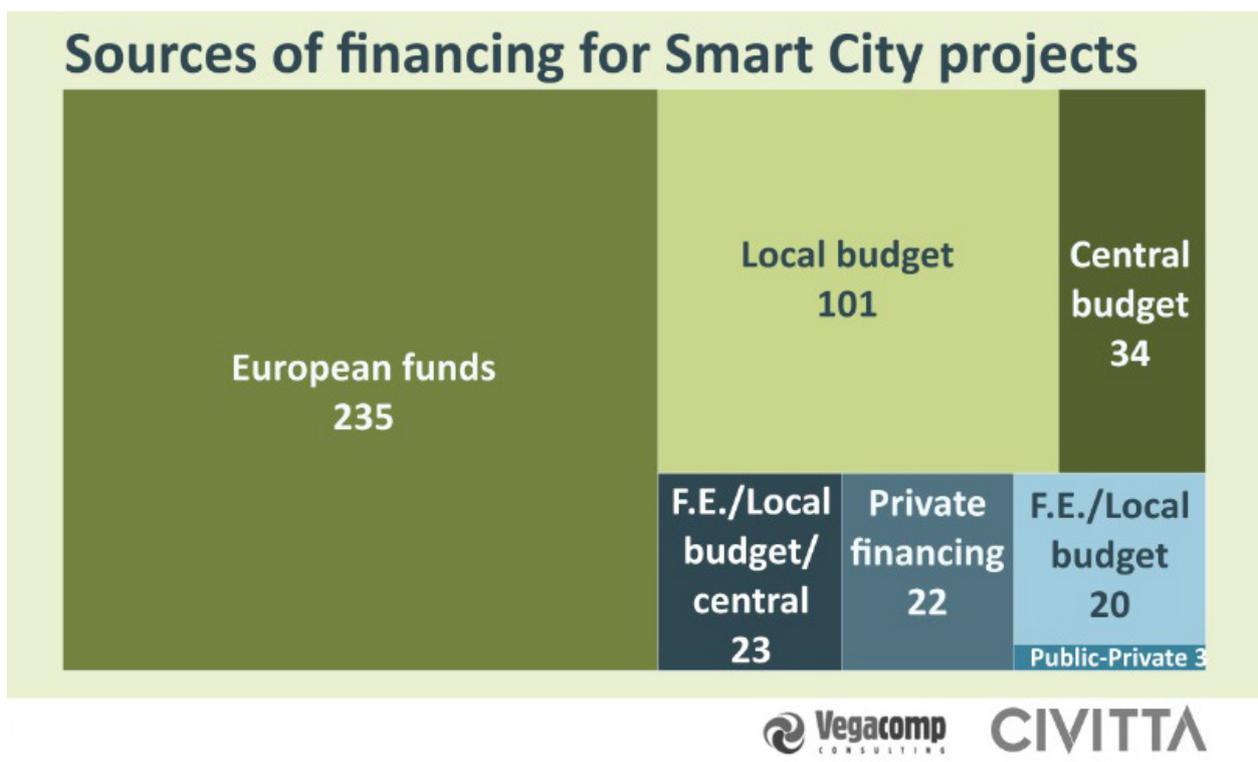
# 2.

## 2. European Romania



## 2. Novelties on the smart city market





There are plenty of city rankings in Romania, so you may wonder - what the point of a smart city ranking is?

A top list made by UrbanizeHub in January 2018 (2) following a 10-year analysis of the most efficient cities in Romania looked like this:

		Per capita expenditure	Per capita absorption of European funds
1	Oradea	€ 1,225.00	€ 716.00
2	Alba Iulia	€ 1,253.00	€ 815.00
3	Iasi	€ 974.00	€ 537.00
4	Craiova	€ 1,017.00	€ 519.00
5	Sectorul 3	€ 873.00	€ 11.00
6	Brasov	€ 952.00	€ 286.00
7	Sibiu	€ 1,033.00	€ 106.00
8	Cluj - Napoca	€ 781.00	€ 375.00
9	Miercurea Ciuc	€ 1,758.00	€ 540.00
10	Targoviste	€ 1,181.00	€ 748.00

Another ranking presented in the Urban Barometer 2020 study by quality of life (3) looked like this:

## Top 10 cities in Romania by the quality of life

1. Cluj-Napoca – 97%
2. Oradea – 96%
3. Alba Iulia – 95%
4. Braşov – 94%
5. Drobeta Turnu Severin – 94%
6. Timișoara – 92%
7. Sighișoara – 92%
8. Slatina 90%
9. Iași – 90%
10. Reșița – 89%

A top list of the most appealing cities in Romania, published by Biz Magazine (4) is:

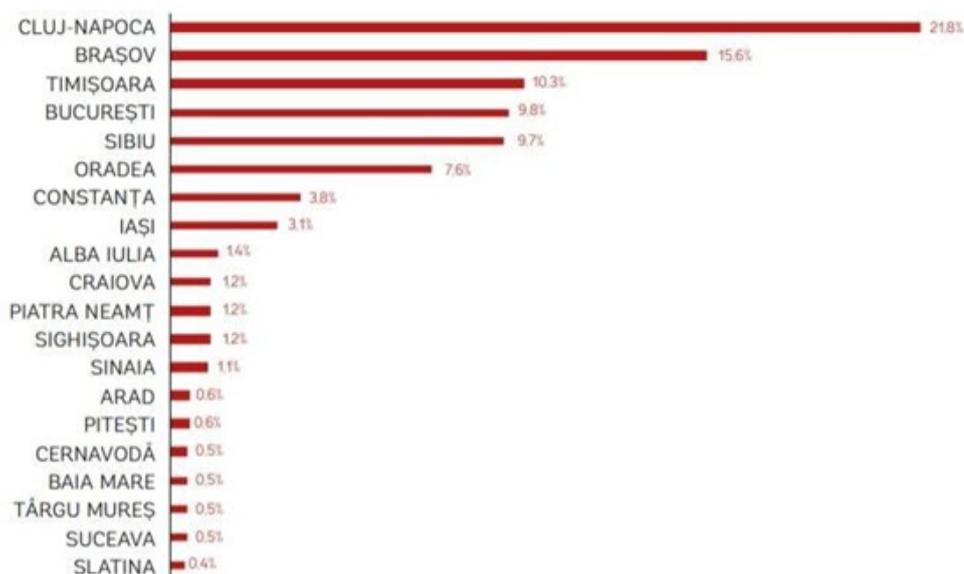
## Top 10 most appealing cities in Romania (out of 100% answers)

1. Cluj-Napoca – 21,8%
2. Braşov – 15,6%
3. Timișoara – 10,3%
4. Bucharest – 9,8%
5. Sibiu – 9,7%
6. Oradea – 7,6%
7. Constanța – 3,8%
8. Iași – 3,1%
9. Alba Iulia – 1,4%
10. Craiova – 1,2%

Official publication

### GRAFIC 61.

În final, care este, din punctul dvs. de vedere, cel mai atractiv oraș din România?



In 2022, we also have a top list of cities in Romania worth living in, according to a survey based on answers of their inhabitants (5), as follows:

1. Oradea
2. Sibiu
3. Targoviște
4. Alba Iulia
5. Cluj
6. Brașov
7. Baia Mare
8. Iași
9. Craiova
10. Timișoara

In terms of culture, the champion cities (4) are:

1. Cluj-Napoca – 88%
2. Oradea – 85%
3. Drobeta-Turnu Severin – 83%

The further ranking features Iași (82%) and Vatra Dornei (81%), while, at the opposite end, in six cities, less than 40% of the citizens say they are satisfied, with three of these cities registering with less than 30% of their citizens: Băile Herculane (26%), Băilești (24%) and Buhuși (19%). Alexandria is the county capital with the lowest level of satisfaction (32%), and Sinaia is the small town with the highest level of satisfaction (74%).

In terms of a ranking of cities in Romania where young people are happiest, Iași leads the way, according to the study “Young people after the pandemic: Happy Cities” (6).

In 1968, Lefebvre was militating for the right to the city, and his voice was sitting on the protesting background of the student movements in the Paris of the sixties. Contemplating this right now is an essential exercise of urban practice, understanding, and involvement: „...the right to the city is a cry or a demand ... it is the right to information, the right to use numerous services, the right of users to make their ideas about the time and space of their activities in the urban areas known, the right to use the centre.”

Thus, we find solitude as an increasing phenomenon among city and community dwellers of all ages, and many Honjoks. Honjok is the South-Korean term for those who choose to participate in activities alone, and who embrace solitude in their homes, in their families. A Honjok rejects pressure and expectations of the society, and celebrates being a unique individual. (see “Honjok. The Art of Living Alone” by Francie Healey, Litera Publishing House, 2021)

The health problems of the population and the deficient public system led to the emergence, in Romania as well, of the first Medical City, Enayati Medical City | The First Medical City in Romania (7), also including the first City for Seniors in Romania (8).

Elsewhere we hear about Mega Cities, meaning cities with more than 10 million population, given that by 2100 it is estimated that Lagos will be the most populated city, with 88 million inhabitants, according to the case study presented by tomorrow.city (9).

Beyond the 6 verticals, there is more and talk about interoperability, but also about “cross-disciplinability”, such as in cultural projects that are transversal, involving theatre, film, visual arts, dancing, etc. - a word proposed by Liviu Jicman: A new cultural concept in Europe and in the world. Liviu Jicman (ICR): The experience of the pandemic must be used (10).

Similarly, the pandemic allowed people’s occupations, passions and activities to emerge more. Further, we stop at 2 concepts that are less frequent in discussions, although increasingly present in the Hidden City in the past years: **Art City** and **Spiritual City**.

The example of Art Property City ([www.artproperty.ro](http://www.artproperty.ro)) is just one of the aspects of art being present in the city with the help of a Real Estate Developer.

The Urban Beauty survey applied by citadini.ro in 2022 is outstanding as well, Chestionar-pentru-orase-romanești-mai-frumoase (11).

Events related to Street Art are well known, but the trend is to mark the urban landscape and spaces with permanent art, such as painting the crossroads to improve road safety (see the image on the cover of ITS International magazine of May/June 2022, below).

Some urban spaces are in need of reconfiguration and art, creativity, architecture are the engines of this trend to re-shape the spaces of our communities. In many cities, murals are already visible on various buildings, walls or gangs. Below, images from Constanța:



There is a building in Bucharest that used to be a communist prison and now it was turned - or, to be more accurate, it is about to be turned into the Garrison of artists neglected by the society – Malmaison, on Calea Plevnei street. (12)



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# Paint the town

## The art of road safety

Also...

- ITS European Congress: connecting the dots in Toulouse
- Jenoptik has vision for smart mobility
- Is the ITS supply chain running out of time?

We intend to dwell on a new vertical, Spiritual City, which continues to grow, and we see in airports, for instance, both arts galleries, medical/dentistry services, and places for prayer or meditation.

A multi-confessional space is organised to be quiet in a crowded, noisy public place (airport, hospital, university, etc.), where people of various religious denominations or people of no religion have the possibility to spend time in contemplation, prayer or meditation. Most of these spaces are small, clean, and can be adapted to serve any spiritual or religious practice.



*Multi-confessional prayer room at the Hong Kong and London airport*

Recollection spaces also emerged in student campuses. In Helsinki, you are welcome to use a prayer or meditation room for your own mental or spiritual wellbeing. You can use this space for quiet contemplation, prayer or meditation. The room is open as long as the building is open, and is accessible to all students with no prior booking (13).

#### ***How can prayer/meditation spaces be harmonised in our cities?***

The number of architects looking into this topic is increasing, since there are few spaces that can confer quietness and intimacy as prayer rooms do. These are defined as physical spaces dedicated to prayer, spaces where you can escape the world and spend personal time connected in a conversation with God; they are designed both as projects/spaces in autonomous structures and as part of larger projects/spaces, built as an introspection architecture. (14)

This prayer space is also considered by companies that must provide several conditions for their employees; in the US, one of them is provided for in Title VII of the Civil Rights Act, which covers one of the social inclusion measures by organising a space for introspection to be used by employees, where they can pray, meditate, or reflect, irrespective of their faith or non-faith. (15)

3. Spiritual Romania



Activities focused on the **environment**, although ranking just above last in the Smart Environment category, with just 58 Smart City projects, are very frequent lately, both regarding waste and waste management issues (a solution that takes the Smart Environment vertical through the 34 projects) and selective waste collection that is still being delayed in Romania. Underground garbage bins, BigBelly stations in District 3, Iași, Brașov, and the 700+ special street ashtrays in Bucharest, Iași and Constanța are just some of the Smart Environment Solutions; however, the Hidden City has more of these solutions that we expect to emerge in the near future and break through the wall of the waste mafia that is present in almost all local administrations.

One conclusive example is the absence of public toilets. This big problem is very well known, and we wonder how much time will be needed to see a city authority do something to respond to this need of the inhabitants and of the tourists.

**The quality of air** and air quality monitoring only ranks 2, with 20 projects in this edition, but we share the opinion that there are much more of these Smart City projects that are not on the records of the municipalities, unfortunately, and which belong to the Hidden City. We noticed a massively increasing interest for indoor air monitoring, such as the extraordinary project called “Healthy Schools” (16) carried out by the Technical Constructions University of Bucharest in District 3, together with the acoustic comfort and energy efficiency (17); the CityAir project monitoring air quality in schools (18); the SCHOOLS for clean AIR project (19), or the project implemented by the Saint Gobain Rigips and Transilvania College partnership for Cleaner air in schools and acoustic comfort (20).

The quality of air inside buildings becomes even more important after the pandemic, and just as we have certificates for green buildings, now we start seeing certificates for “Healthy buildings”, with smart systems monitoring clean air inside; such certificates doubled in numbers in the period between 2019 – August 2021 (21).

We also mention the latest legislative work in our country through the Law on odours, no. 123/2020, and the Noise law no. 121/2019 on ambient noise assessment and management, expecting a greater number of monitoring and management measures in the future.

As a substantial basis in developing the Smart Economy and Smart People verticals, we notice an increase in financial and entrepreneurship education in the Hidden City. 11th of April 2022 is declared for the first time the national Financial Education Day in Romania, and there are several banks and organisations that continue to get involved in concrete financial education projects in schools. We can say the same about entrepreneurship education, with several actors involved, among which Steinbeis of Germany, with a competition for high school students to develop business plans, called Early Innovators, seeing its second edition this year (<https://early-innovators.eu/>), and a Civic Engagement competition in 2022 for high school students in District 1, on a topic dedicated for Smart City, Energy Efficiency and Cultural Entrepreneurship.

In addition, the labour market, the job and employment market, which is a hot element of what should be the Smart Economy, is under the sign of the US Great Resignation phenomenon that will soon reach our country. In 2021, after the pandemic, more than 20 million people resigned in the US out of a total of 160 million employed,

compared to 4 million in the previous year. Thus, the recruitment/employment system changes seriously, and is also affected by other phenomena, showing the limits and the inefficiency of digital recruitment tools, namely: Hidden workers (read “Hidden Workers. Untapped talent”, written by Joseph Fuller in 2021). The US talks about approximately 27 million “hidden workers” who applied in average to 25 jobs/year in the past 5 years and did not receive one answer.

Among the news in the Smart Mobility vertical, which lead the top of Smart City verticals in Romania in 2019, we can mention the 2 rapidly growing mobility solutions: bicycles and electric vehicles/busses. Bicycles are perceived differently in Europe for quite some time now, but it is nice to notice the growing presence of bicycle lanes in many cities in our country, although bicycle parking spaces and traffic monitoring sensors, as well as monitoring of the investments remain scarce. Increasing financing facilities available for the installation of EV charging stations through AFM and European funds available for the purchase of electric busses generated great enthusiasm among many local administrations, but it is our duty to point out that these projects needs many adjustments to be truly for the benefit of the citizens and the community.

A novelty we notice is the increased awareness of the need to make decisions for the benefit of communities based on real time intelligence, meaning based on sensors. Although IoT grows very slowly in our country, it is doing quite well in the world and, besides the benefit of rendering visible the invisible and doing much good, including enthusiasm for innovation, a growth tendency from 35.82 billion IoT sensors installed in 2021 globally to 75.44 billion in 2025 speaks quite a lot.

Another novelty in the Smart City world is the emergence of a critical, but constructive flow. Just like digitalisation has some negative effects too (see “Digital dementia. How new technologies disturb our minds”, written by Manfred Spitzer), the use of technologies should include some impact studies on the inhabitants and on the population in general. The issue of **Ethics in using public data** is discussed increasingly frequently. Data usage should be regulated (how to collect, what to collect and what not), and the right to be forgotten should be implemented.

The widespread solution of video surveillance seems to only have effects against the many and the weak, not against those in power who breach the law. Is it worth it, is it possible to fight against the big ones? In 2014, Spain won a trial at the ECHR against Google.

The latest aspect of novelty on the Smart City market is related to the war in Ukraine, which generated a re-discovery and amplification of the **fake news** phenomenon, which proves to have been amplified by Putin in the recent years, and which affects spaces and human relationships in our communities. The video post of 2 March 2022, showing Zelenski who asks Ukrainian soldiers to surrender, has become a reference. Luckily, that post was removed quickly, but how many such posts are still in the virtual spaces and on the social networks, posted with intentions other than what they seem to be at first sight? How many relationships are affected in our urban spaces nowadays by the management of such information or distribution channels?

In this edition, we have stopped monitoring the financial evaluation of Smart City projects in Romania, due to the fact that this is not tracked and monitored at all by local or central authorities, with some small exceptions of Smart City Strategies such as in Reșița, for instance. The projects are monitored overall or by categories dictated by the fiscal bureaucracy. We still hope that the projects and the works of local authorities will get to be monitored according to their “smart city” component in the near future, so that they can generate more revenues and benefits.

## 2.1 Updated Smart City ALBA IULIA

Alba Iulia, “the most historic” city of Romania, the place of birth of modern Romania on 1 December 1918, chose to celebrate the Great Unification in the Centennial Year in a different, smart way: in partnership with the Ministry of Communications and Information Society, it launched the pilot project, Alba Iulia Smart City 2018. This project is unique in Romania, as it was the first smart city project developed by the government in partnership with a local public authority and private companies. The uniqueness of the project is also that all smart solutions agreed in the collaboration protocols with 35 private companies were implemented and tested in Alba Iulia with the companies’ own budgets, and ensured interoperability with other smart solution providers for the city. The target of the project was to pilot 100 smart solutions for 100 years of Romania, thus providing a digital base for smart development, working expertise to generate best practices in a local administration, and a team of specialists that can provide advice and support for any other interested municipality. In September 2013, the project had 103 solutions agreed with the partners, disseminated into 5 sections on the dedicated web page:

[www.albaiuliasmartcity.ro](http://www.albaiuliasmartcity.ro)

The goal of the project was to turn Alba Iulia into a smart city, an exhibition of smart solutions that work in a real environment, on the infrastructure of the city, to be visited by tourists or Romanian public entities throughout 2018, when Alba Iulia was the main focus for all the events dedicated to celebrating 100 years from the Great Unification.

Launched on 2 December 2016, the pilot project proved effective and consistent, and enjoyed very good visibility in terms of local implementation of smart, innovative, compatible solutions created by the private sector, in a wide range of services, software, and smart equipment that aim to transform a city into a smart city.

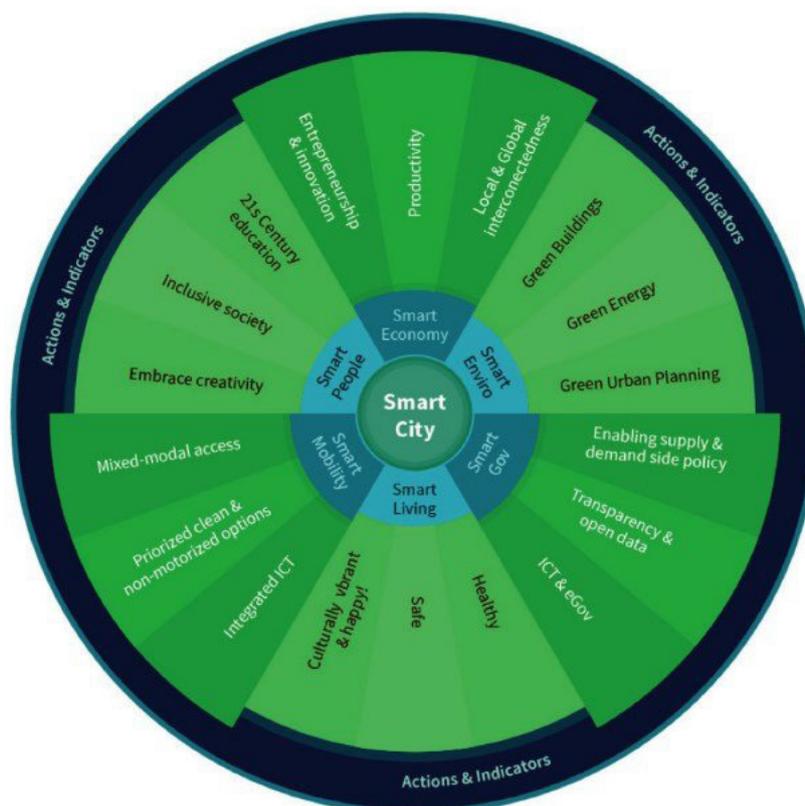
Starting from the 106 Smart City projects registered under Alba Iulia in the last edition of our Smart City Radiography, we had discussions with the official representatives of the municipality to check their progress. Thus, we have an actual report on 22 functional Smart City project at the time of this report, plus 27 other Smart City projects, most of which are financed from European funds, bringing Alba Iulia to rank 4th in 2022, after 4 years in the top position.

## 2.2 The global Smart City market

The global Smart City market maintains a fast pace, with an annual average growth estimated at 13.8% by 2026, when it is estimated to reach 873.7 billion dollars, compared to 457 billion at the end of 2021, according to the Markets and Markets report (22). In the forecast period, smart utility services and smart infrastructure monitoring and management services are estimated to have the largest growth.

It is normal to ask ourselves what the smartest cities in the world are right now. And there are multiple rankings for this. One of them is made by Nexus Integra in 2022 (23), according to which the top 10 smart cities in the world are:

1. London
2. New York
3. Paris
4. Tokyo
5. Reykjavík
6. Copenhagen
7. Berlin
8. Amsterdam
9. Singapore
10. Dubai



# 3.

4. Romania in chess



# 3.

## Working methodology

The methodology of this edition was optimised by collecting data from three information sources and checking them: city halls, providers, media. We sent notes to 324 city halls in Romania, with only 138 cities returning the filled in questionnaires, and we collected data from 6 other city halls from other sources, in 2 or even 3 rounds. For Bucharest, we added 7 city halls in this report, for better accuracy and a better breakdown. The report includes information gathered from city halls and the other sources between 1st of March - 15th of May 2022.

Information from city halls was doubled by a second layer of data collected from municipality websites, providers of Smart City solutions, and media coverage of communicated Smart City projects. As one last step, we have a set of information obtained from direct interviews conducted with representatives of Smart City solution providers in Romania, most of which has not been communicated through the media before the time of publication of this report.

This version, the sixth edition of the Smart City Scan in Romania report already cumulates information about 144 large, medium-sized and small cities in the country, having 1001 Smart City projects currently, out of which 209 at planning stage, 34 pilot, 288 in progress, or 470 completed projects. We allow 10% error margin in collecting our data - to be accurate, we estimate that, in actuality, the Smart City projects are approximately 10% more numerous than what we identified - because Smart City projects are currently carried out by city halls in a non-centralised way and, in time, we also notice a lack of communication between departments, thus we can state with certainty that Romania is past the mark of the first 1000 Smart City projects in all 4 stages of execution, approaching 500 completed Smart City projects.

The Smart City projects identified remain categorised in the same six Smart City verticals - Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living and Smart Governance, aligned to the European Union reporting.

What is a Smart City project?

*“A smart city is a place where traditional services and networks are rendered more efficient by using digital and telecommunication technologies for the benefit of its citizens and of the economy”, according to the European Commission’s page dedicated to Europe’s digital future, “Shaping Europe’s digital future” (24).*

We included in this Report the projects that share the following characteristics:

- » They are intended for the inhabitants of a city
- » They are made in partnership with the city hall
- » They achieve at least three functions simultaneously - e.g. replacing an old lighting fixture with a LED fixture is not a Smart City solution unless the project includes remote management of the LED fixtures
- » They bring a clear improvement to traditional solutions, for the comfort of the inhabitants
- » They are integrable - they can be added in applications of the city hall or third-party applications
- » They are scalable - they can be quickly and easily replicated in other city halls

What projects are not Smart City?

- » Replacing classic lighting fixtures with LED fixtures, as a singular action
- » Replacing traffic lights with LED traffic lights, just because they look better and they spend less electricity. For these to be a Smart City solution, they need to communicate their current status to a dispatching office and communicate with neighbouring traffic lights as well, for a traffic-adapted mechanism and appropriate fluidisation.
- » Installing a number of surveillance cameras in a city is not a Smart City solution if this is a closed system and the cameras communicate to a dispatching office in closed circuit. The solution is Smart City if the images include other automated use options, such as: fire/smoke alert, alert when crossing the red light, and other possible scenarios.



# 4.

5. Romania with a mask



# 4. Ranking of smart cities in Romania

The list of cities enrolled in the Smart City race is continuously growing. For the first time this year, we present a breakdown of the projects inventoried up to now, cumulated throughout all execution stages. Thus, the 1001 Smart City projects inventoried in the 144 cities break down into:

- 470 completed projects
- 288 “in progress” projects
- 209 projects at planning stage
- 34 pilot projects

We feel it is normal to first look at the top 10 cities with completed Smart City projects:

No.	City	“Delivered” projects
		470
1	Cluj Napoca	56
2	Iasi	39
3	Alba Iulia	31
4	Bucharest	23
5	Bucharest District 4	21
6	Craiova	15
7	Brasov	14
	Timisoara	14
8	Avrig	12
	Harsova	12
	Hunedoara	12
	Sibiu	12
9	Arad	11
	Deva	11
10	Oradea	10

Then we take a look at the Smart City building site, with projects in progress:

No.	City	Projects "in progress"
		275
1	Bucharest	14
	Alba Iulia	14
2	Bucharest District 4	12
3	Botosani	11
	Iasi	11
4	Sibiu	9
5	Oradea	8
	Ploiesti	8
	Slatina	8
6	Cluj Napoca	7
	Focsani	7
7	Baia Mare	6
	Calarasi	6
	Fagaras	6
	Pitesti	6
8	Aiud	5
	Arad	5
	Bacau	5
	Negresti	5
	Ramnicu Valcea	5
9	Bucharest District 6	4
	Buzau	4
	Drobeta Turnu Severin	4
	Hunedoara	4
	Navodari	4
	Piatra Neamt	4
	Slobozia	4
	Timisoara	4
10	Alexandria	3
	Bistrita	3
	Deva	3
	Satu Mare	3
	Sighisoara	3
	Targu Mures	3

And the ranking of cities with Smart City projects at planning stage:

No.	City	"Draft" projects
1	Slanic Moldova	25
2	Bucharest	17
3	Bistrita	15
4	Sibiu	14
5	Tulcea	13
6	Galati	11
	Arad	8
	Breaza	8
7	Oradea	8
	Botosani	6
8	Timisoara	6
9	Alesd	5
10	Bucharest District 1	4
	Harsova	4
	Horezu	4
	Iasi	4
	Sfantu Gheorghe	4

To see where the other cities are, out of the 144 cities with Smart City projects, these are given in the ranking below, with all projects cumulated per stages of execution, and with 7 distinct city halls mentioned for the capital city:

No.	City	Total projects	Smart Economy	Smart Mobility	Smart Environment	Smart People	Smart Living	Smart Governance
		<b>1001</b>	<b>130</b>	<b>322</b>	<b>59</b>	<b>35</b>	<b>217</b>	<b>238</b>
1	Cluj Napoca	63	5	23	8	2	13	12
2	Iasi	56	4	18	13	2	9	10
3	Bucharest	54	1	30	2	0	15	6
4	Alba Iulia	49	14	9	2	3	14	7
5	Bucharest District 4	35	2	10	1	1	10	11
	Sibiu	35	5	13	3	2	3	9
6	Oradea	26	1	9	1	0	10	5
	Timisoara	26	5	9	1	1	6	4
7	Arad	25	1	5	1	3	7	8
	Slanic Moldova	25	6	5	3	1	4	6
8	Bistrita	20	5	9	0	1	0	5

9	Harsova	19	1	3	1	1	9	4
10	Botosani	18	3	4	0	2	5	4
	Brasov	18	1	7	1	1	2	6
11	Craiova	16	1	7	0	0	4	4
	Hunedoara	16	1	2	0	0	7	6
12	Deva	15	0	4	1	0	9	1
	Piatra Neamt	15	1	5	2	0	5	2
	Tulcea	15	1	7	2	1	3	1
13	Avrig	14	6	1	1	0	3	3
14	Constanta	13	1	6	1	0	4	1
	Galati	13	3	6	1	0	3	0
15	Giurgiu	11	1	3	0	1	2	4
16	Alesd	10	1	2	0	0	6	1
	Baia Mare	10	3	3	0	0	2	2
	Bucharest District 6	10	1	2	1	1	1	4
	Ramnicu Valcea	10	0	7	0	0	1	2
	Sebes	10	1	2	1	3	1	2
	Slatina	10	0	8	0	0	1	1
17	Negresti	9	1	0	0	0	5	3
	Pitesti	9	2	5	0	0	1	1
	Roman	9	2	2	0	0	2	3
18	Breaza	8	4	3	0	0	0	1
	Calarasi	8	0	7	0	0	1	0
	Ploiesti	8	2	4	0	0	0	2
	Targu Mures	8	0	4	0	0	0	4
19	Bacau	7	2	2	0	0	1	2
	Fagaras	7	1	4	0	0	1	1
	Focsani	7	1	6	0	0	0	0
	Satu Mare	7	1	2	0	1	0	3
20	Aiud	6	1	1	0	0	2	2
	Moinesti	6	2	1	0	0	1	2
	Odorheiu Secuiesc	6	0	3	0	0	1	2
	Resita	6	2	2	0	0	0	2
	Sfantu Gheorghe	6	1	4	0	0	0	1
	Targu-Jiu	6	1	2	1	0	1	1
21	Alexandria	5	2	2	0	0	1	0
	Bucharest District 2	5	0	0	0	0	0	5
	Bucharest District 3	5	0	0	0	1	1	3
	Buzau	5	0	2	0	0	0	3
	Drobeta Turnu Severin	5	0	2	0	0	1	2
	Medias	5	0	1	0	0	0	4
	Petrosani	5	0	0	0	2	2	1
	Slobozia	5	0	3	0	0	1	1
	Turda	5	0	1	0	1	0	3

22	Abrud	4	0	1	0	0	1	2
	Bucharest District 1	4	1	2	1	0	0	0
	Cernavoda	4	1	0	2	0	1	0
	Dej	4	0	2	0	0	1	1
	Ghimbav	4	1	1	0	0	1	1
	Horezu	4	0	2	0	1	0	1
	Navodari	4	1	2	0	0	0	1
	Selimbar	4	1	1	0	0	0	2
	Sighisoara	4	1	0	0	0	1	2
	Suceava	4	0	3	0	0	1	0
	Zalau	4	0	2	0	0	0	2
23	Agnita	3	0	1	0	0	1	1
	Azuga	3	0	0	0	2	1	0
	Beius	3	0	0	0	0	1	2
	Bicaz	3	1	0	0	0	1	1
	Braila	3	0	2	0	0	1	0
	Caracal	3	0	2	1	0	0	0
	Gheorgheni	3	1	0	0	0	1	1
	Gura Humorului	3	0	1	0	0	2	0
	Isaccea	3	1	0	0	0	1	1
	Magurele	3	1	0	0	0	0	2
	Mizil	3	1	0	1	0	0	1
	Odobesti	3	1	0	0	1	1	0
	Simeria	3	1	0	0	0	2	0
	Sovata	3	0	2	0	0	1	0
	Topoloveni	3	0	2	0	0	1	0
Urziceni	3	1	0	0	0	0	2	
24	Babadag	2	0	1	0	0	1	0
	Bailesti	2	1	0	0	0	0	1
	Bals	2	1	0	0	0	0	1
	Beclean	2	0	0	0	0	1	1
	Boldesti-Scaeni	2	1	1	0	0	0	0
	Brad	2	0	0	0	0	1	1
	Bucharest District 5	2	0	0	0	0	0	2
	Campia Turzii	2	0	1	0	0	0	1
	Chitila	2	0	1	0	0	1	0
	Codlea	2	0	0	0	0	0	2
	Curtea de Arges	2	0	2	0	0	0	0
	Dorohoi	2	1	0	0	0	1	0
	Iernut	2	1	0	0	0	0	1
	Mangalia	2	1	0	1	0	0	0
	Ocna Sibiului	2	0	2	0	0	0	0
Pascani	2	0	0	0	0	0	2	
Radauti	2	0	0	1	0	0	1	

	Talmaciu	2	0	0	0	0	1	1
	Targu Neamt	2	0	0	0	0	1	1
	Tarnaveni	2	1	0	0	0	0	1
	Vaslui	2	0	1	0	0	0	1
	Zlatna	2	0	1	0	0	0	1
25	Barlad	1	0	0	0	0	0	1
	Berbesti	1	0	0	0	0	1	0
	Bumbesti-Jiu	1	0	0	1	0	0	0
	Busteni	1	0	0	0	0	0	1
	Calan	1	0	0	0	0	1	0
	Calimanesti	1	1	0	0	0	0	0
	Campina	1	0	0	1	0	0	0
	Comanesti	1	1	0	0	0	0	0
	Cugir	1	0	1	0	0	0	0
	Curtici	1	0	0	0	0	1	0
	Falticeni	1	0	0	1	0	0	0
	Gherla	1	0	0	0	0	0	1
	Huedin	1	0	0	0	0	1	0
	Intorsura Buzaului	1	0	1	0	0	0	0
	Livada	1	1	0	0	0	0	0
	Lugoj	1	0	0	0	0	0	1
	Lupeni	1	0	0	0	0	0	1
	Marasesti	1	0	0	0	0	1	0
	Marghita	1	1	0	0	0	0	0
	Miercurea Ciuc	1	0	0	0	0	0	1
	Miercurea Sibiului	1	0	0	0	0	0	1
	Miercurea Nirajului	1	0	0	0	0	1	0
	Mioveni	1	1	0	0	0	0	0
	Moreni	1	0	0	0	0	1	0
	Oltenita	1	0	0	0	0	0	1
	Orastie	1	0	0	0	0	1	0
	Pancota	1	1	0	0	0	0	0
	Pecica	1	1	0	0	0	0	0
	Predeal	1	0	0	0	0	0	1
	Recas	1	1	0	0	0	0	0
	Reghin	1	0	0	0	0	0	1
	Rovinari	1	1	0	0	0	0	0
	Saliste	1	0	0	0	0	0	1
Stei	1	0	1	0	0	0	0	
Stefanesti - AG	1	0	0	0	0	0	1	
Targoviste	1	0	1	0	0	0	0	
Targu Lapus	1	0	0	0	0	1	0	
Targu Secuiesc	1	0	0	0	0	0	1	
Targu Bujor	1	0	0	1	0	0	0	
Vatra Dornei	1	0	0	0	0	0	1	

There are small changes in the top list of 10 smart cities in the country in 2022 compared to 2021. Thus, Cluj Napoca is the city in Romania with the largest number of projects - 63, climbing on the first position, followed by Iasi with 56 projects, and Bucharest (the central city hall) with 54 projects. Alba Iulia, among the top cities in the recent years, this year is down 4th with 49 projects.

Cumulating all the projects inventoried in the 7 city halls of Bucharest, then Bucharest by far leads the ranking, with 115 Smart City projects this year:

City Hall	S1	S2	S3	S4	S5	S6	Bucharest City Hall	TOTAL
No. of Smart City projects	4	5	5	35	2	10	54	115

Deva, Hunedoara and Piatra Neamt leave the top 10 and are replaced by Slanic Moldova, Bistrita and Hârşova.

An analysis of the evolution of the cities over the past 5 years in terms of Smart City projects is given below, and the numbers are very informative:

	2018 March		2018 September		2019		2020		2021		2022	
	Position	No. of projects	Position	No. of projects	Position	No. of projects	Position	No. of projects	Position	No. of projects	Position	No. of projects
Cluj Napoca	3	18	4	18	5	16	2	54	2	58	1	63
Iasi	10	8			4	18	4	19	3	56	2	56
Bucharest	4	13	6	13	3	19	11	11	4	39	3	54
Alba Iulia	1	72	1	103	1	103	1	106	1	106	4	49
Bucuresti Sector 4							5	18	5	35	4	35
Sibiu	8	11	8	11	6	13	7	16	7	27	4	35
Oradea	2	20	3	19	7	13	6	17	8	26	5	26
Timisoara							3	26	8	26	5	26
Arad	7	11	8	11	4	18	4	19	6	29	6	25
Slanic Moldova											6	25
Bistrita									12	11	8	20
Harsova											9	19
Botosani							12	10	10	15	10	18
Brasov	6	11	8	11	2	20	5	18	9	18	10	18
Piatra Neamt	5	12	7	12	8	11	8	15	10	15	12	15
Constanta	9	10	8	11	8	11	11	11	11	13	14	13
Hunedoara			2	23	9	11			10	15	11	16
Avrig			5	15	7	13	12	10			13	14
Slatina					9	11			12	11	16	10
Deva							9	14	10	15	12	15
Galati							10	13	11	13	14	13
Total number of projects	186		247		277		377		528		564	
	221 84%		315 78%		331 84%		594 63%		860 61%		1001 56%	

The surprises in 2022 came from Slănic Moldova (ranking 6) and Hârșova (ranking 9), while Constanța and Galați get farther down below top 10 (ranking 14). Botoșani confirms its 10th-place ranking from last year, with an increase of 3 Smart City projects.

While, in 2018, the first cities in top 10 made 84% of the Smart City projects in the country, the percentage in 2022 is just 56% for top 20 cities.

Regarding **medium-sized cities**, the ranking already shows some of the names that were leaders of the Smart City industry and taking-up of smart solutions, which is a sign that innovation and leadership can emerge in organisations that are more agile, not necessarily larger, with more bureaucracy or greater numbers.

No.	Medium-sized city	Total projects	Smart Economy	Smart Mobility	Smart Environment	Smart People	Smart Living	Smart Governance
		286	41	95	10	13	67	60
1	Alba Iulia	49	14	9	2	3	14	7
2	Sibiu	35	5	13	3	2	3	9
3	Oradea	26	1	9	1	0	10	5
4	Arad	25	1	5	1	3	7	8
5	Bistrita	20	5	9	0	1	0	5
6	Botosani	18	3	4	0	2	5	4
7	Hunedoara	16	1	2	0	0	7	6
8	Deva	15	0	4	1	0	9	1
	Piatra Neamt	15	1	5	2	0	5	2
9	Giurgiu	11	1	3	0	1	2	4
10	Baia Mare	10	3	3	0	0	2	2
	Slatina	10	0	8	0	0	1	1
11	Calarasi	8	0	7	0	0	1	0
	Ploiesti	8	2	4	0	0	0	2
12	Bacau	7	2	2	0	0	1	2
	Focsani	7	1	6	0	0	0	0
	Satu Mare	7	1	2	0	1	0	3

The Smart City phenomenon also penetrates the group of **small cities**, neighbouring the Smart Village group. Although the solutions in this group are not numerous, there is a greater concentration of cities ranking on equal positions in Top 7.

No.	Small city	Total projects	Smart Economy	Smart Mobility	Smart Environment	Smart People	Smart Living	Smart Governance
		107	16	26	4	2	29	30
1	Harsova	19	1	3	1	1	9	4
2	Avrig	14	6	1	1	0	3	3
3	Alesd	10	1	2	0	0	6	1
4	Fagaras	7	1	4	0	0	1	1
5	Aiud	6	1	1	0	0	2	2
	Moinesti	6	2	1	0	0	1	2
	Odorheiu Secuiesc	6	0	3	0	0	1	2
6	Medias	5	0	1	0	0	0	4
	Slobozia	5	0	3	0	0	1	1
	Turda	5	0	1	0	1	0	3
	Abrud	4	0	1	0	0	1	2
	Cernavoda	4	1	0	2	0	1	0
7	Dej	4	0	2	0	0	1	1
	Ghimbav	4	1	1	0	0	1	1
	Navodari	4	1	2	0	0	0	1
	Sighisoara	4	1	0	0	0	1	2

But what does the ranking of cities look like for each individual Smart City vertical? Further in this report we present the dominating municipalities, in every Top 3 listed below in this report.



No.	City	Smart Governance
1	Cluj Napoca	25
2	Bucharest District 4	11
3	Iasi	11



No.	City	Smart Living
1	Bucharest	15
2	Alba Iulia	14
3	Cluj Napoca	13



No.	City	Smart Economy
1	Alba Iulia	14
2	Slanic Moldova	6
	Avrig	6
3	Cluj Napoca	5
	Sibiu	5
	Timisoara	5
	Bistrita	5



No.	City	Smart People
1	Arad	3
	Alba Iulia	3
	Sebes	3
2	Cluj Napoca	2
	Iasi	2
	Sibiu	2
	Botosani	2
	Petrosani	2
	Azuga	2



No.	City	Smart Mobility
1	Bucharest	30
2	Cluj Napoca	23
3	Iasi	18



No.	City	Smart Environment
1	Iasi	13
2	Cluj Napoca	8
3	Sibiu	3

What do our cities and their Smart City projects look like? Where could one see at least some of the implemented Smart City projects?

Some cities dare to present their projects on video channels, and here are just a few examples:

- Roman:

- <https://www.youtube.com/watch?v=vM115ycraU0&t=4s>
- [https://www.youtube.com/watch?v=nqFwL\\_WaSGY](https://www.youtube.com/watch?v=nqFwL_WaSGY)

- Piatra Neamț:

- <https://www.antena3.ro/emisiuni/romania-inteligenta/80-statii-transport-modernizate-piatra-neamt-634390.html>

- Hunedoara:

- <https://storage.rcs-rds.ro/links/388b588c-f5b0-4e51-68b3-da647f18b164>
- <https://www.facebook.com/watch/?v=3188780218070098>

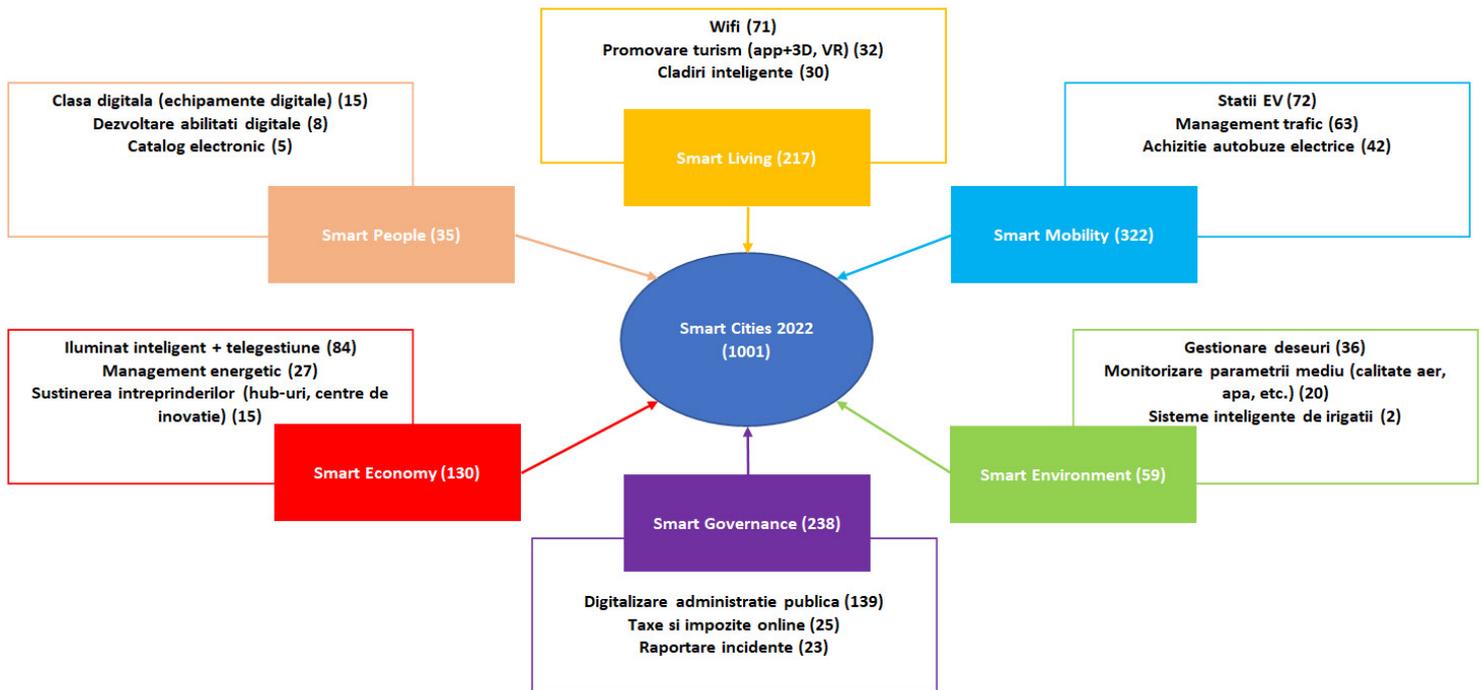


# 5.

*6. Romania at the hoe*



# 5. Project ranking per Smart City verticals



Vegacomp Consulting continues to rank of Smart City projects according to the verticals recognised at European level, and this year too, we compiled a datagraph of Smart City verticals, based on the number of projects implemented up to now (figure above).

The trend of the Smart City verticals in the 6 editions is quite stable, as the following table shows, with Smart Mobility being a leader since 2019; the Smart Governance vertical constantly ranked second, except for the first edition, when it was the leader of the ranking; the 3 last ranked verticals maintained their ranking in all the 6 editions of the Smart City verticals ranking: Smart Economy, Smart Environment, and Smart People.

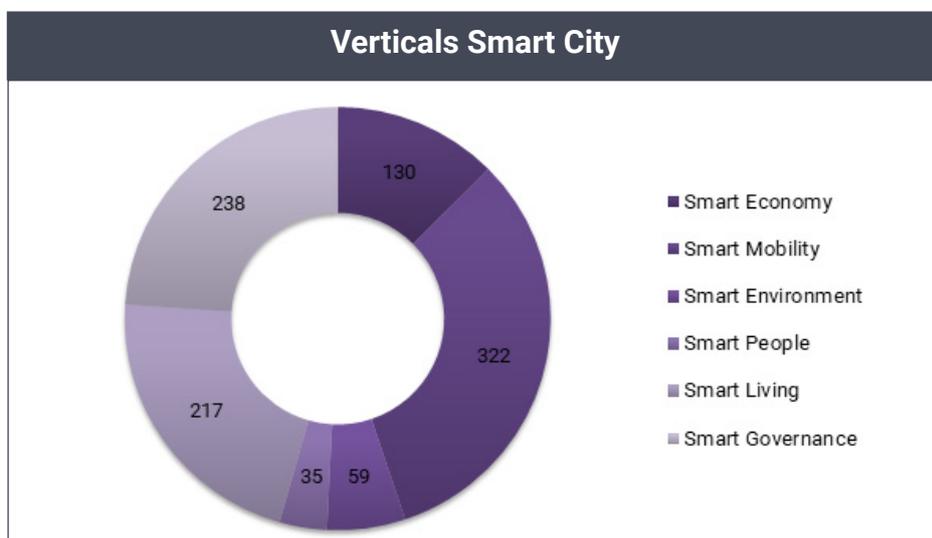
The Smart Living vertical held all the positions in the ranking, from being a leader in September 2018 to ranking 3rd in the last 3 editions of the Radiography.

	2018 March		2018 Sept		2019		2020		2021		2022	
	Pos	No. of proj.	Pos	No. of proj.	Pos	No. of proj.	Pos	No. of proj.	Pos	No. of proj.	Pos	No. of proj.
Smart Mobility	3	46	3	63	1	82	1	188	1	260	1	322
Smart Governance	1	49	2	71	3	68	2	130	2	226	2	238
Smart Living	2	48	1	74	2	80	3	121	3	174	3	217
Smart Economy	3	46	4	58	4	59	4	84	4	99	4	130
Smart Environment	4	19	5	33	5	26	5	42	5	64	5	59
Smart People	5	13	6	16	6	16	6	29	6	37	6	35
<b>TOTAL</b>		<b>221</b>		<b>315</b>		<b>331</b>		<b>594</b>		<b>860</b>		<b>1001</b>

Just like in the previous edition, the Smart Mobility vertical maintains its leading position and, more than that, it grows significantly compared to the previous years: it included 188 projects in 2020, no less than 260 projects in 2021, reaching 322 projects in 2022, mainly focused on modernising transport and traffic management.

Next in the ranking is Smart Governance, with 238 projects, increasing from the 226 projects last year, and maintaining its second position in the list. Smart Living ranks third, with 217 projects, 43 projects more compared to 2021. Smart Economy maintains its fourth position, with 130 projects and a slight progress with 31 new initiatives. The last two positions continue to belong to Smart Environment, with 59 projects, decreasing from the 64 projects in 2021, and respectively Smart People, with just 35 initiatives, two less compared to last year.

For the third year in a row, we notice that Smart Mobility maintains its leading position, which strengthens our belief that the lack of infrastructure, the still deficient traffic management and outdated car fleets are acute issues that the Romanian authorities are seeking to solve. What is particularly noticeable is the visibly decreasing interest for Smart Environment.



## 6.

# Selected proposed Smart City solutions



**sixense**

## The most relevant current solutions for a digital transformation of infrastructure

Infrastructure will remain one of the most important topics on the public agenda in Romania. How do we plan it, how do we maintain it, how do we make sure that we have performing projects, that we invest meaningfully and according to a long-term vision? It's the only way in which a smart city will get to integrate a smart infrastructure and prove not only honourable words, but also a reality aligned to those words.

We present below the **3 most representative digital solutions by Sixense**, which we successfully implement in local infrastructure projects, and which respond to the quality level and the current safety requirements.

### **Beyond Asset**

**The digital solution that optimises all operations at the infrastructure project operation stage**

According to official data in many international reports, best industry practice shows that efficient asset management will reduce costs with maintenance in a construction project by 20 to 30% throughout the life of the project.

Therefore, to maintain the health of an infrastructure project in the long run, the operation stage and how maintenance for the project is provided are two key aspects. These challenges can be solved with Beyond Asset by Sixense, a Sixense digital solution that contributes to optimising all operations at the operating stage.

With Beyond Asset, you:

- plan and optimise the maintenance costs of your project;
- you have access to data based on which you make informed decisions;
- you know the status of your infrastructure project at any time;
- you secure all key data about the project;
- you make sure that all operations related to the maintenance of your project are high-performance and efficient.

According to statistics at group level, integration of the Beyond Asset solution resulted in almost 2000 hours of conducting, writing and checking of inspections being saved in one year, compared to non-digitalised activities in the previous years. Furthermore, the same case study on the transport infrastructure in France showed us that, in the Beyond Asset platform:

- 250 members were included from several teams, who were given easy, transparent access to data
- no less than 34,000 different assets were integrated (buildings and railways alike)
- 2,900 inspections were conducted in a year
- 60,000 photos were taken
- more than 5,200 maintenance works were identified, estimated, budgeted and planned for the next 6 years
- 150 critical problems were easily identified and responded to immediately.



## Beyond Monitoring

### Real-time structural and geotechnical monitoring solution for any construction project

We are beyond the time when, in order to see what happens in the field, it was absolutely necessary to go in the field every time, waste time, measure and enter data manually, produce structural and geotechnical reports several days or weeks after the moment when they were needed.

Such challenges can now be managed by digital solutions such as Beyond Monitoring by Sixense, the digital real-time structural and geotechnical monitoring platform that enables you to:

- have real-time access to information about the evolution of your project;
- integrate complex data without any compatibility issues, irrespective of their source or format;
- get alerts in real time;
- have access to a friendly interface that lets you analyse data using 3D animations and level curve representations.

The Beyond Monitoring solution was successfully applied in one of the key sports infrastructure projects in our country, the Arcul de Triumf Stadium, a project awarded with the Smart Infrastructure Award at the Smart City Awards 2020.

The Arcul de Triumf Stadium ranks in Importance Category B - construction of particular importance, and by the nature of its activity, it is subject to situations such as urban overcrowding, shocks, or vibrations. Furthermore, the construction in general and the roof of the arena in particular can be affected in time by large temperature differences, high levels of wind or snow.

With Beyond Monitoring, we send data from the field, in real time and in an automated manner. The sensors installed on the structure tell us whether there is a risk that can affect the safety of the construction, as the purpose is to ensure all conditions to prevent incidents, accidents and failures, but also to monitor the continuous strength, stability and durability of the Stadium.



## Resallience

### The digital solution for the transport infrastructure resilience

A topic that has recently made it on our public agenda is the resilience of infrastructure to climate change.

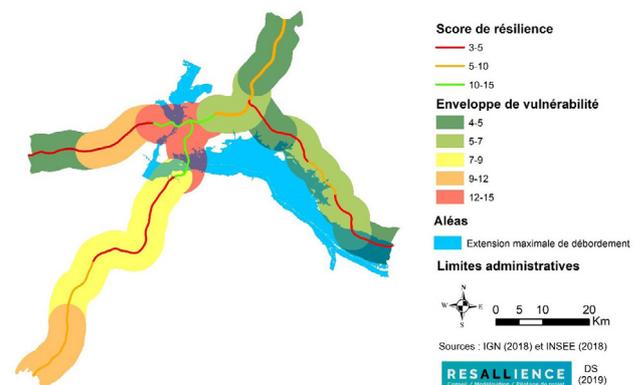
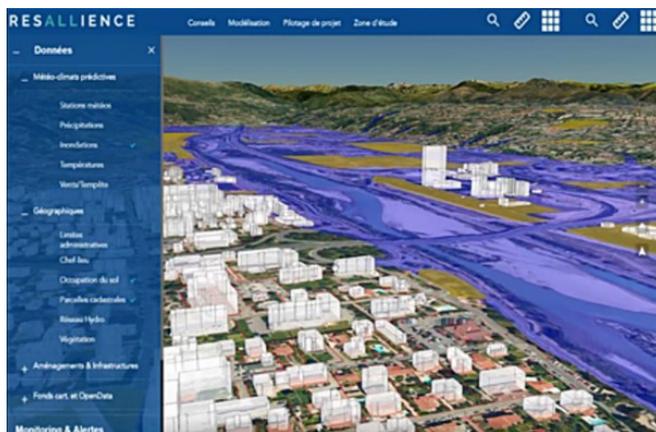
At Sixense Romania, we are ready to deliver this know-how using a digital instrument called Resallience by Sixense, by which we offer critical information about the vulnerabilities of infrastructure projects, and which allows us to anticipate any external events or climate shocks that may affect the assets. The expertise proven already in several international projects helps us provide a preventive action plan to reduce material and human damages, as well as the infrastructure recovery time in case of an incident.

With Resallience by Sixense you can:

- align to European standards, directives and practices related to infrastructure resilience;
- develop resilience studies based on clear, transparent, accurate information;
- develop high-quality resilience studies that do not stop at data, but continue with a real strategy to adapt the infrastructure (transport and not only) to climate shocks;
- take into account all deliverables that such a study entails: from comparisons

with other relevant case studies and the lessons that we can extract from here, together with recommendations to improve resilience in terms of design principles and standards, to a risk and vulnerability diagnosis, in relation to infrastructure development plans, but also recommendations for the digital management of these processes; financial indicators to establish the investments required for adapting the transport infrastructure; risk and vulnerability monitoring plan and, last but not least, know-how transfer to authorities and key stakeholders involved in long-term infrastructure management.

All these steps are important together, and if any of them is missing, the goal is not achieved and the project not completed.



We are at a point where the reality of a truly digitalised infrastructure is no longer a dream, but a tangible reality. By choosing the right partners, through collaboration and openness, we can make sure that we have a safe, structurally healthy infrastructure that is protected against any risks.

### About Sixense Romania

Sixense Romania is a company offering technologies, digital solutions, and expertise for monitoring the risks associated with construction and infrastructure projects over time.

The company is part of Sixense Group, a world leader in the field, with a local presence of 11 years. Sixense Romania was recognised in the industry for its significant contribution in the field of geotechnical and structural monitoring, and for the performance of the implemented digital solutions; throughout time, it received multiple awards, such as: recognition as Top Promoter and Active Player by the Builders' Federation (2019), the Smart Infrastructure Award (2019, Smart City Industry Awards) or the Social Innovator Award (Smart City Industry Awards, 2020).

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*PRORA Comunicare is the communication partner of Vegacomp Consulting, who supported us for all the editions of this Smart City Radiography.*

## COMMUNICATIONS AGENCY FOR SMART PROJECTS

Emerged out of a vast experience in journalism and communication, with tangible results for top 10 companies in Romania, as well as for Romanian businesses that went past the mark of the first billion Lei in revenues, the Prora project is intended to bring extended experience in image and communication and make it work for companies, projects and business people in Romania.

We know what to communicate, how to communicate, and we have the means to add efficiency in communicating any business. Every day we strengthen and build the image of businesspeople, projects, products and companies.

In our first three years of growth on the Romanian communication and PR market, large companies and business projects trusted us and chose our services:

- Citylink
- easySales
- E-INFRA
- Electrogrup
- Global Vision
- Myki
- Netcity Telecom
- Nova Power & Gas
- Provident Financial România
- Red Bull România
- Sloop
- Storis
- Sweet & Safe
- Țiriac Auto
- Vegacomp Consulting

Since its very first edition, we are an integral part of the Smart City Radiography in Romania and we combine content creation experience with the correct understanding and analysis of the evolution of the local smart solutions market. Our stake, a catalyst for involvement, is to explain as clearly as possible what the benefits of adopting Smart City solutions are, and manage, directly or indirectly, to contribute directly in communicating the relevant projects, for the benefit of every citizen.

We are available at any time for discussions with and about communicating smart projects, at [www.prora.ro](http://www.prora.ro) and [silviu.nicolescu@prora.ro](mailto:silviu.nicolescu@prora.ro)

[www.prora.ro](http://www.prora.ro)

# 7.

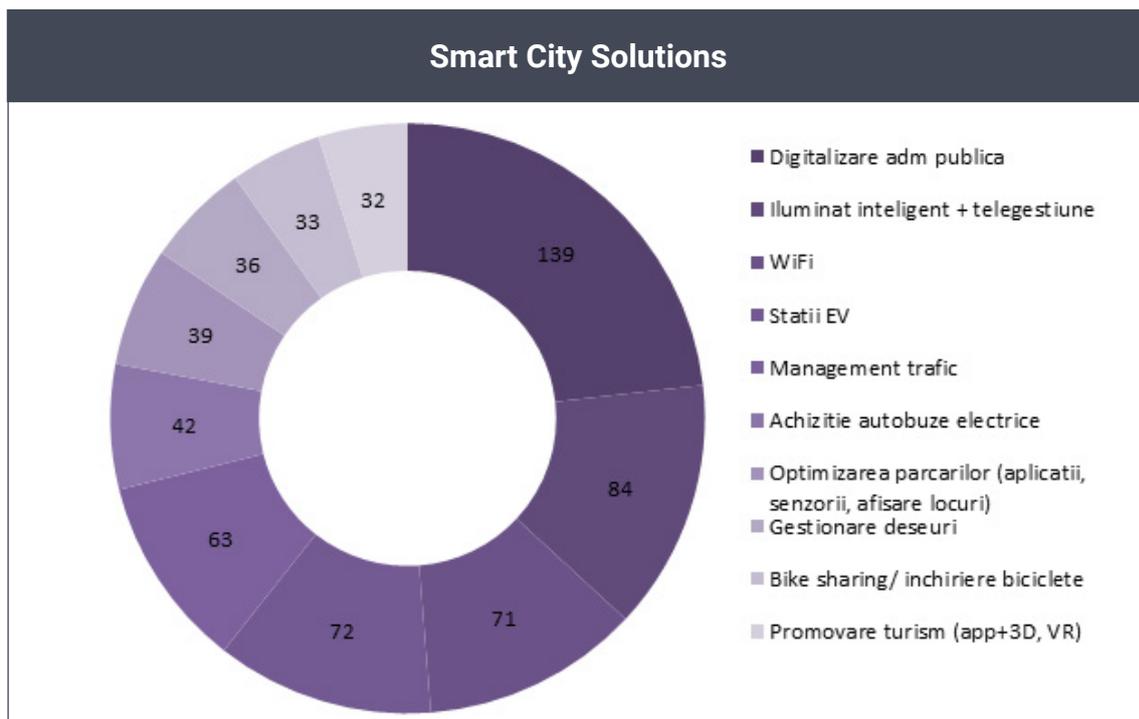
## 7. Poor Romania



# 7. Smart City solutions adopted in Romania, by verticals

The most popular Smart City solutions identified in Romania this year are presented below, in the ranking of Smart City verticals in the previous chapter (first 3 ones on each vertical), and now in the top 10 of all 51 Smart City solutions identified in this edition of the Smart City Scan:

		No. of projects
1	Digitalisation of the public administration	139
2	Smart lighting + remote management	82
3	Public WiFi	71
4	EV charging stations	71
5	Traffic management	63
6	Purchase of electric busses	41
7	Optimisation of parking lots (applications, sensors, parking spot display)	39
8	Waste management	34
9	Bike sharing / renting	30
10	Tourism promotion (app+3D, VR)	29

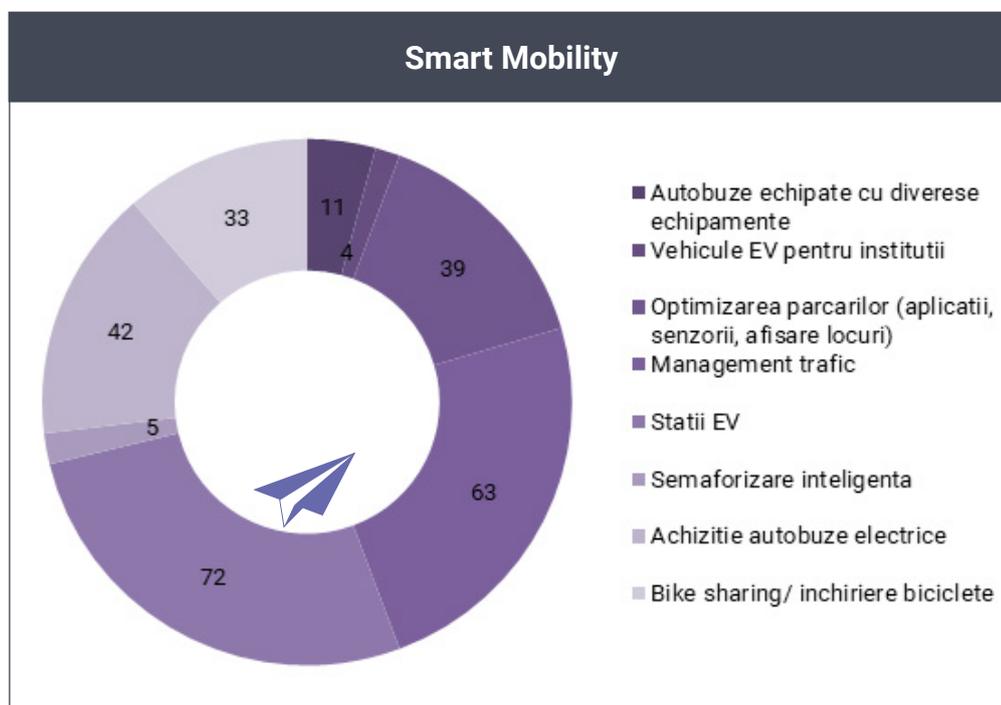


Next we will see what the Smart City solutions are in each vertical, and what their ranking is, as a reflection of the evolution of the Romanian society.

## SMART MOBILITY

Smart Mobility keeps its position in 2022 as a leader of the ranking in terms of project adoption, which actually reflects Romania's priority in the past five years - to improve the quality of life.

In general, projects seek to provide more efficient, faster transport, but the focus is mostly on electric vehicles, through EV charging stations, closely competing with smart optimisation of parking lots and smart traffic management systems. Other projects concern public transport using electric vehicles, bike-sharing developments, and expansions of bike lanes.



Beyond being just an alternative to regular transportation means, Smart Mobility is a concept built on principles like flexibility, efficiency, safety, technology with low impact on the environment, and integration, irrespective of the variety of transportation means. Besides their local impact, Smart Mobility projects are important especially in terms of their contribution to the global sustainability of the energy and transport system.

An increasing number of cities see benefits in these pillars on which Smart Mobility is based, and start integrating this vertical at the municipal planning stage, by optimising and improving Urban mobility plans.

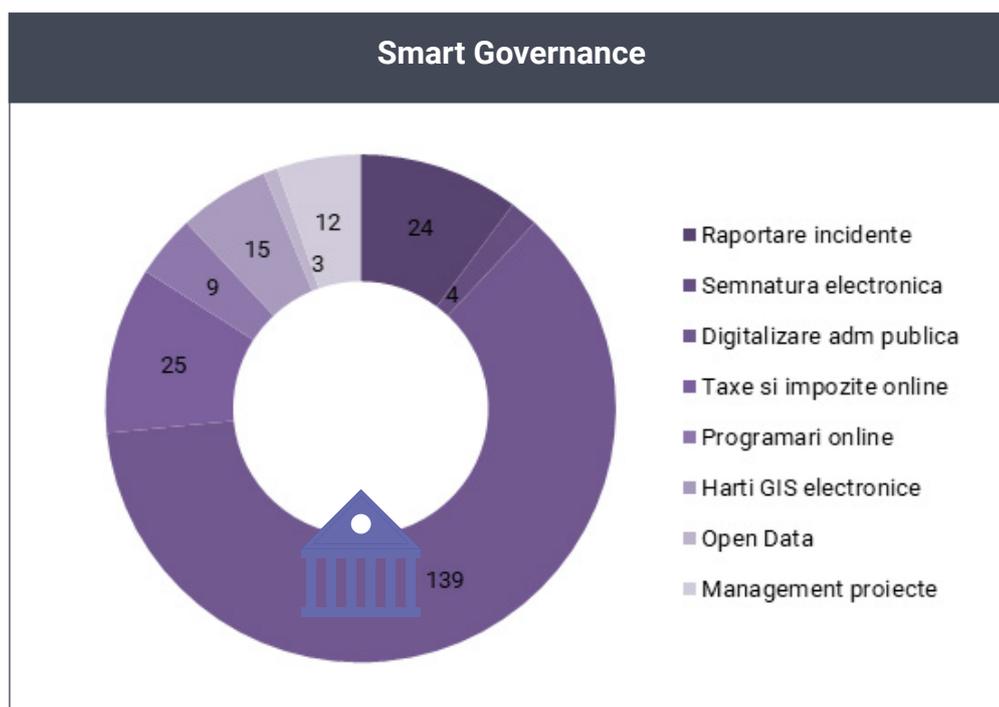
With Romania's EU membership, looking at a possible Schengen integration, but also within the current context of the war in Ukraine, which generated increased traffic connected to the Black Sea, there are elements that emphasise the need to modernise the transport sector and highlight the importance of Smart Mobility projects in Romania.

## SMART GOVERNANCE

The pandemic in 2021, together with the low mobility of the population, and the limited or more responsible physical interactions were drivers for the authorities to speed up de-bureaucratisation, democratisation of access, and digitalisation; the trend continues in 2022, and is supported by the funds allocated by the European Union to this purpose.

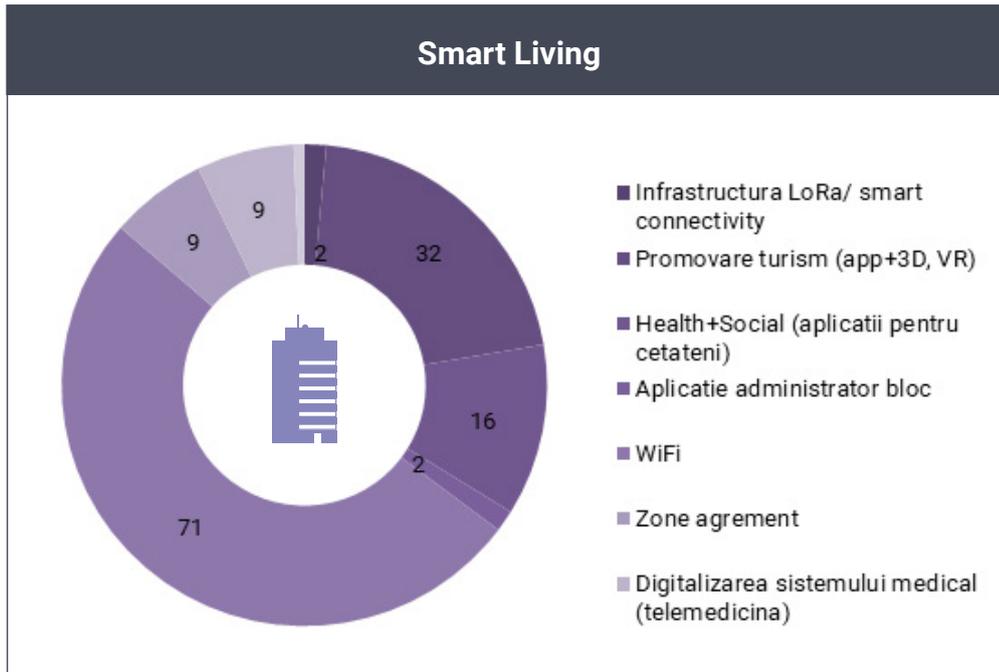
Concerning the preferred solutions, projects related to the digitalisation of public administration take the lead, followed by projects enabling online payments of taxes and charges, and incident reporting projects.

At national level, smart governance starts meaning greater automation, the flows of municipalities shifting towards online, and more doors open at any time for the citizens, from a laptop or a smartphone.



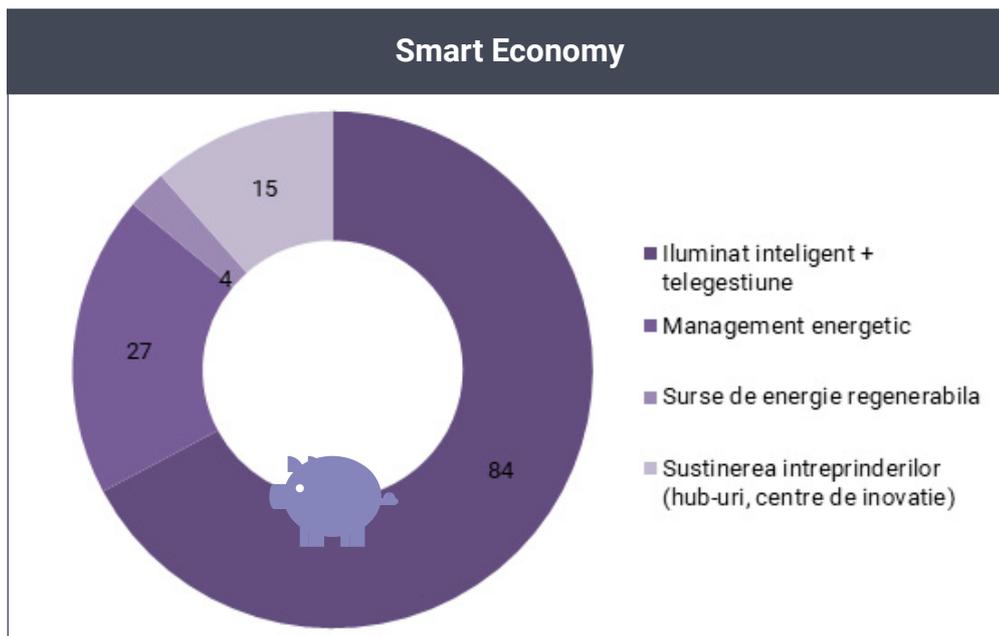
## SMART LIVING

The Smart Living component sees some small changes in 2022, splitting again into two big categories: free WiFi and other projects. The Smart Living vertical is categorically dominated by the setting up of a WiFi router and allowing free access in a park, public building or tourist area. Furthermore, promotion and tourism solutions rank second in the Smart Living ranking. The projects that seek to improve the quality of life and medical services by implementing programmes and applications for citizens start to emerge in our 2022 ranking. Waste management programmes are in this category too.



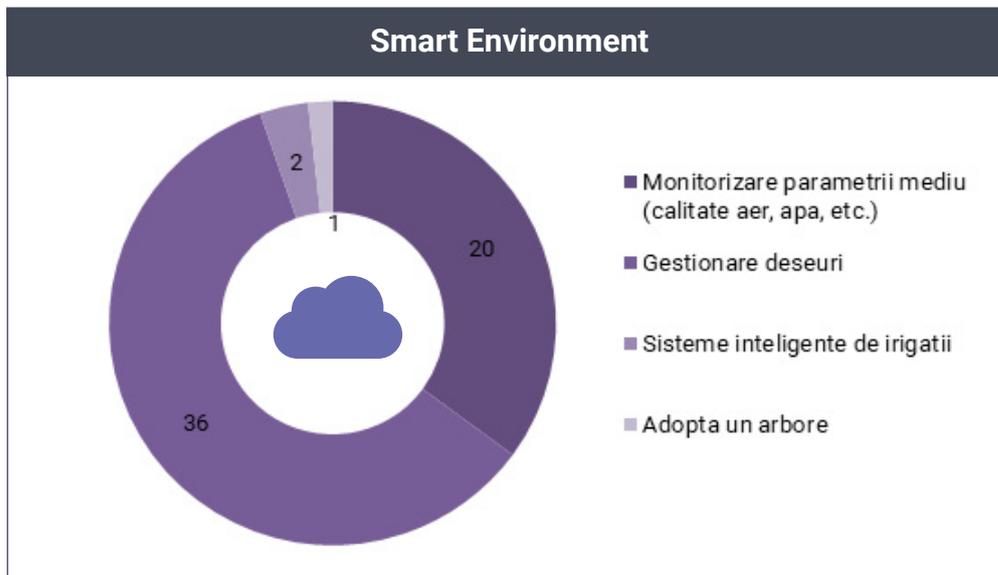
## SMART ECONOMY

Just like in the previous editions, smart public lighting takes the lead in the Smart Economy ranking, even farther ahead compared to all the other solutions. The following most popular options are far behind: smart company promotion and utility management.



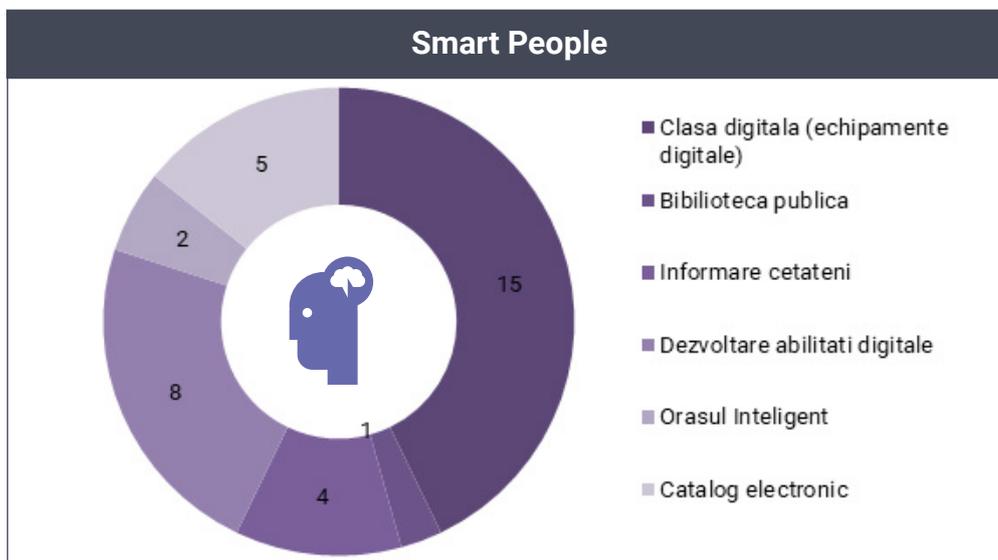
## SMART ENVIRONMENT

The Smart Environment concept emerged at the beginning of the 1990-es, and it means using technology to improve the quality of life. In Romania, this type of solutions remain limited in terms of geography or addressability. Just like in the previous edition, in 2022, Smart Environment is one of the stagnating verticals, and the basic solutions continue to focus on smart waste management, monitoring of various environment parameters, and renewable energy.



## SMART PEOPLE

The data registered in 2021 related to Smart People are similar in 2022. Although education and information remain one of the global priorities in the Smart City area, in Romania, the collected data show that it ranks last in terms of its adoption, and is only implemented punctually in some schools (e.g. Electronic class books, laboratory equipment, etc.) that have the necessary resources to innovate, and in communities with a greater openness to novelty, efficiency and measurability. Some domains that are starting to take shape, although with no significant developments overt the period measured compared to other verticals, include information systems for citizens, together with information about the overall health of the city.



# 8.

## 8. Rich Romania and its future



# 8. Funding sources for Smart City projects

The main funding instruments for the Smart City component in cities in Romania on the short-, medium- and long-term are European funds, through the Regional Operational Programme and the National Recovery and Resilience Plan. We will look in this chapter at the structure and the composition of the two programmes, and provide general information to present the applicability of these funds for designing and implementing Smart City solutions in the near future.

To give an image of the impact of the European funds in funding the Smart City projects of today, we presented the numbers in the infograph at the beginning of this report:

- 212 projects realised with European funds
- 98 projects funded by local budgets
- 34 projects funded by the central budget

## 8.1. The Regional Operational Programme

Although this funding programme is going to be decentralised in the 2021-2027 programming period by creating Management Authorities in each development region, each of the 8 regional operational programmes (ROP North-West, ROP Bucharest-Ilfov, ROP South Muntenia, ROP West, ROP North-East, ROP South-East, ROP South-West Oltenia, ROP Centre) will cover a priority meant to transpose the policy objective 1 of the European Union (**A Smarter Europe**).

Within this context, regional operational programmes will seek to support the digital transformation of the regional economy and the domains of public interest, and realise its benefits for the citizens and the businesses.

Looking at the distribution per the 8 areas where the 1001 Smart City projects are spread this year, we have the following table, where the numbers speak by themselves:

No.	Area	Total projects	Smart Economy	Smart Mobility	Smart Environment	Smart People	Smart Living	Smart Governance
1	Centre	210	28	53	7	9	29	57
2	N-V	162	18	55	9	5	36	39
3	N-E	154	23	37	18	5	33	38
4	Bucharest-Ilfov	120	6	45	5	3	28	33
5	S-E	110	13	40	11	3	30	13
6	West	106	13	22	3	6	37	25
7	South	77	15	33	2	3	9	15
8	S-V	62	6	30	3	1	9	13

Thus, the main objectives pertaining to this priority will focus on:

### **8.1.1.**

#### **a) Improving the quality of the services provided by the local public administrations, through innovative digital solutions and smart city applications**

- To this purpose, eligible interventions will look at the following areas:
- Smart mobility: applications for the local public transport, identification of parking lots, directions to these parking lots and displaying availability, parking payment, smart pedestrian crossings, etc.
- Smart housing: tourist city pass solution, smart management of green spaces, WiFi in public spaces, development of geospatial databases and data centres, public space monitoring and safety systems, digitalisation and digital reconstruction of heritage assets, applications to inform citizens on medical and health solutions, centres for real-time monitoring of the city, etc.
- Smart economy: one stop shop applications for businesses, platforms to attract investments, local innovation centres, marketplace for local produce, FABlab, development of living labs for smart city solutions etc.
- Smart citizens: platforms and applications to communicate with citizens, facilitate civic involvement and volunteering, problem reporting, innovation and civic imagination centres etc.
- Smart governance: project management / ERP systems, digital public service platforms, document registration and issuing systems, urban data centres and real-time monitoring of the status of territorial-administrative units, city apps, online payment of taxes and charges, online booking platforms, open data, virtual civil servant applications, contact points of the city halls in the territory, tax payment points.
- Smart environment: applications for real-time collection and display of environment data, data collection infrastructure (sensors, cameras, induction loops, etc.), applications to encourage recycling and selective waste collection, reduction of food waste, smart public lighting, measuring and reducing energy consumption, applications for monitoring the condition of the technical and city infrastructure and consumption monitoring applications, mobile applications for energy consumption mapping, automation of green area irrigation systems based on sensors etc.
- Integrated interventions at regional / county level: regional platforms for innovation, smart specialisation, industrial transition and entrepreneurship; platforms for improving efficiency in using resources; applications for inter-city public transport, applications for attracting and informing investors, promoting tourist attractions; platforms for promoting and selling local products, platforms for long-life learning and development of digital skills, regional geospatial databases etc.

Within this context, priority will be given to interventions including actions concerning:

- solutions for digitalising public services provided to citizens by public administrations;
- digital archiving;
- digital public service platforms;
- cyber security;
- interoperability of public service digitalisation projects;
- supporting data-based decision making at all stages of the public policy cycle;
- promoting transparency through open-data initiatives.

**b) Support for the digitalisation of local public administrations in rural areas**

(we will present these in the Smart Village Radiography 2022)

Furthermore, besides this priority mentioned above, which is dedicated to turning the regions of Romania into SMART territories, other priorities within the same regional operational programmes can be added, aiming at verticals such as: Smart Mobility, Smart Environment or Smart Governance.

Some of the eligible activities pertaining to priorities related to energy efficiency or sustainable urban mobility include:

### 8.1.2

**a) Improving energy efficiency as part of the investments in the housing sector, by:**

- Thermal upgrade of building insulation elements, including strengthening of construction elements;
- Thermal upgrade of the heating / hot water supply system;
- Installing of alternative renewable energy sources (e.g. heat pumps, solar panels, photovoltaic panels);
- Integrated energy management systems for buildings;

**b) Supporting energy efficiency in public buildings, including heritage buildings, by:**

- Thermal upgrade of building insulation elements, including strengthening of construction elements, and thermal upgrading of the heating and hot water supply system;
- Alternative systems for producing electricity and/or heating for own consumption;
- Air conditioning and/or mechanic ventilation systems to ensure the quality of indoor air;
- Upgrade / modernisation of lighting installations in buildings;
- Integrated energy management systems for buildings;

**c) Reducing energy consumption at the level of SMEs, by generating savings in energy consumption and avoiding greenhouse gas emissions from companies, by:**

- Investments in industrial buildings to reduce energy consumption, including by purchasing equipment for energy production from renewable sources
- Energy consumption monitoring and control systems and other adjacent measures that result in improving the energy efficiency of buildings.

**d) Increased use of public transport and other forms of environment-friendly urban mobility, as a result of interventions including:**

- Developing the infrastructure for non-motor travelling: developing, expanding the biking infrastructure; developing pedestrian, semi-pedestrian areas;
- Introducing bike sharing systems, monitoring systems etc.;
- Development and optimisation of public transport systems, including by investing in rolling stock, transport means, and the necessary infrastructure for these, including yards, bus stations, inter-modal stations for public transport, park & ride solutions;
- Developing sustainable urban mobility corridors by developing routes dedicated for public passenger transport, including priority lanes for public transport, tram lines - where applicable, reconfiguring traffic flows by establishing one-way roads, reconfiguring spaces by including infrastructure for non-motor travels - bike lanes, pedestrian areas to ensure a link between public transport stops or the access of pedestrians to the mobility corridor, all in compliance with the solutions identified and validated in the Sustainable urban mobility plans approved at the level of every local public authority / metropolitan area / functional urban area. The sustainable urban mobility corridor is a significant traffic lane, new or reconfigured in the street network, including at least the following elements: priority lane for public transport, bike or pedestrian lanes - including green spaces and urban furniture / terraces along the lane. Thus, mobility corridors may include interventions for the modernisation, upgrading, expansion of the road infrastructure used by clean urban public transport for passengers; creation, modernisation, upgrade, expansion of separate lanes used solely for public transport vehicles; configuration, reconfiguration of the road infrastructure on the urban streets covered by public passenger transport, bike transport and pedestrian routes; making transport infrastructure accessible for all categories of people;
- Developing infrastructures for alternative fuels;
- Development of urban mobility management systems, such as traffic management systems, “mobility as a service” applications, etc.

**e) Development of green cities and improvement of the green infrastructure in urban areas, by:**

- modernisation/ expansion / building and equipping of green areas
- sanitisation of the land, without removing the existing vegetation;
- land shaping; planting of perennial autochthonous plants,
- keeping the trees that are important for the environment, but also planting of autochthonous trees and shrubs), urban parks / forests / park forests (creating green spaces with alleys, gazebos, pergolas, lattices, toilets, spaces for maintenance / locker rooms, stages, bike lanes, sidewalks, urban furniture made of environment-friendly materials (benches, garbage bins, eco toilets, bike stands, fences), creating recreation facilities in the arranged areas (WiFi hotspots, special areas for sports, playgrounds for children);
- installing smart video surveillance systems in the spaces arranged under the project; replacing and / or connecting the investment to public utilities; creating irrigation systems / smart lighting systems for the arranged spaces;
- creating urban eco corridors, including by demolishing the buildings that are in an advanced state of deterioration and are not included in the cultural heritage;
- green areas, green rooftops, green walls, balconies with gardens and green areas etc.

## The National Recovery and Resilience Plan (Component 10 - Local Fund)

This component of the National Recovery and Resilience Plan targets the challenges related to territorial and social disparities in urban and rural areas, and urban mobility.

The goal of this component is to support urban and rural development by using green, digital solutions. Some of the reforms supporting the investments involve regulatory changes to support the approach of functional urban and rural areas, by implementing metropolitan areas and administrative consortia to support access to local public social services, education, healthcare, housing, and better territorial planning. The component also includes reforms for sustainable urban mobility, and should be considered in connection with the "Sustainable transport" component. Investments supported by these reforms envisage building of housing for vulnerable youngsters and for specialists in healthcare and education; renewing the public transportation fleets; infrastructure for green, safer transport; modernising local public buildings, and developing / updating land planning and urban planning documentation to digital formats.

## **COMPONENT 10 - Local fund includes seven investments, summarised as follows:**

### **I.1 – Sustainable urban mobility, containing four investments:**

#### **I.1.1 - Renewal of the public transport fleet (by purchasing non-polluting vehicles)**

The investment allows for the purchase of new, non-polluting vehicles with zero exhaust gas emissions: electric/hydrogen busses, trams, trolley busses, electric/hydrogen micro busses.

#### **I.1.2 - Ensuring the infrastructure for green transport - ITS/other ITC infrastructures (smart urban/local management systems);**

##### **A. Smart transport systems (ITS):**

The following types of smart transport system interventions are eligible (not limited to the following):

- Equipping and operating a traffic control centre;
- Ticketing solutions, including “e-tickets” or “e-ticketing”;
- Smart parking solutions;
- Speed limitation warning systems;
- Safety systems for areas where works are in progress;
- Interconnected traffic light systems;
- Monitoring of the trip time and speed;
- Weighting on the move;
- Priority signal for emergency vehicles;
- Dynamic message signalling;
- Public transportation trip planning;
- Integrated passenger information systems;
- Traffic participant information systems.

##### **B. Smart urban/local management systems:**

The following types of ITC infrastructures are eligible (not limited to the following):

- Purchasing of drones to inspect areas at risk or risk situations;
- Equipping and operating a real-time city monitoring system - provides real-time access to all cameras, sensors and other data collection devices;
- Purchasing and implementing smart green space management systems, automated irrigation systems for green spaces;
- Extending WiFi systems in public spaces;
- Smart urban furniture;
- Public space monitoring and safety systems;
- Capitalisation of heritage assets through digitisation or digital reconstruction (VR / AR);
- One stop shop for businesses;
- Platform for communicating with citizens and creating community-based initiatives;

- Local community innovation centres - apply smart social inclusion solutions and provide education programmes for the community;
- GIS databases at metropolitan or local level / Open data - open data platform where the data available at city / settlement level (sectoral data) is available to the public;
- Virtual civil servant;
- Cloud services - online cloud platform to be used by the public administration;
- Digital public service platform;
- Document registration and issuing system - allows documents to be registered and issued online, electronic signature, etc.;
- Applications to inform citizens and facilitate identification of local problems;
- Online payment of taxes and charges;
- Online booking system - web site allowing citizens to book their sessions at the various offices of the local public administration;
- Online platform and/or mobile app to map energy consumption in neighbourhoods or at city level;
- "Smart" sanitisation infrastructure - smart garbage bins with sensors and GPS technology providing data about the filling level of the bins;
- Real-time monitoring of the technical city infrastructure and or energy spending;
- Accessibility solutions for disabled persons in public spaces:
  - \* Directions and orientation systems using proximity sensor technology for visually impaired persons.
  - \* Light warning systems for people with hearing impairments.
  - \* Sound enhancement devices for persons using hearing aids.
  - \* Electronic visual boards to inform disabled persons about public transport means (adapted information - enlarged writing for persons with various types of disabilities).
- Construction works for mounting and starting up equipment.
- Design and technical assistance activities - expenses for support documentations and approvals, endorsements, permits.

### **I.1.3 - Ensuring the infrastructure for green transport - EV charging points;**

The investment enables purchases of charging stations for electric vehicles; all categories of territorial-administrative units are eligible. Charging stations will be laid out as required in the standard design developed by the MDPWA, which specifies the modalities of laying out a charging station and the technical provisions concerning the implementation of the investment. These charging stations will be located in places accessible to the public, in the areas indicated in the General urban plan of the settlement as areas for housing / mixed areas / service areas / commercial areas / transport areas (as close to the citizens as possible - to limit travelling needs). It is also recommended to implement these charging points in multimodal points, to encourage commuters to leave their personal vehicles here and use public transport to continue their trip.

#### **I.1.4 - Ensuring infrastructure for green transport - bicycle infrastructure at local/metropolitan level;**

The investment funds the building of bicycle lanes within and outside the built-up areas of settlements.

#### **I.2 – Building of housing for young people / company provided housing for specialists in healthcare and education**

The investments must comply with the nZEB plus requirements (the buildings will comply with the objective of achieving a reduction of the primary energy demand / PED / by at least 20% compared to the building requirement for nZEB buildings<sup>1</sup>, in line with the national guidelines. Investments can be built based on the standard design developed by the MDPWA.

Funding will be provided for housing for youth and for healthcare and education specialists.

#### **I.3 – Moderate refurbishment of public buildings to improve public services delivered at the level of territorial-administrative units**

The goal is the moderate energy refurbishment of public buildings, thus contributing to improving the provision of local public services. The investment funds the moderate refurbishment of eligible public buildings. The refurbishment will achieve 30% reduction of the primary energy demand, proven by the energy audit survey developed at the design stage, and by the energy performance certificate issued upon completion of the investment.

#### **I.4 – Drafting/updating of land and urban planning documents to GIS format**

The investm the following planning documents: General urban plan (PUG), County-level land planning plan (PATJ), Metropolitan land planning plan (PATZM), Zonal urban plan (PUZ), Sustainable urban mobility plan (PMUD).

Beneficiaries of the projects submitted under the National Recovery and Resilience Plan, Component 10 - Local Fund are:

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1. A nearly zero-energy building is a building with very high energy efficiency, where the conventional source energy demand is almost zero or very low and mostly covered by renewable energy sources, including renewable energy produced on site or nearby

a. **Territorial-administrative units**, defined as per Government Emergency Ordinance no. 57/2019 on the Administrative code, as further amended and supplemented, and established as per Law no. 2/1968 on the administrative organisation of the territory of Romania, reissued, namely:

- county capital cities, Bucharest,
- other cities,
- towns,
- communes,
- counties, represented by county councils.

b. **Territorial-administrative sub-divisions of cities**, defined as per Government Emergency Ordinance no. 57/2019 on the Administrative code, as further amended and supplemented, and the sectors of Bucharest;

c. **Partnerships between territorial-administrative units**, defined as per Government Emergency Ordinance no. 57/2019 on the Administrative code, as further amended and supplemented, provided that they are members of an inter-community development association (ADI);

d. **Partnerships between territorial-administrative units**, to participate in one or several investments under this component. These partnerships may include county councils;

e. **Partnerships between territorial-administrative units** and the Ministry of Development, Public Works, and Administration, as the partnership leader for the investments for which centralised procurement will be conducted.

Regarding the amounts allocated for each territorial-administrative unit, per categories, for the first project call (completed on 30.06.2022), the following amounts were pre-allocated:

Territorial-administrative unit / Territorial-administrative unit sub-division category	Pre-allocated amount / Territorial-administrative unit (or TAU sub-division)
County capital cities (except for Piatra Neamț city <sup>2</sup> )	Euro 12,493,000
Bucharest Municipality	Euro 12,350,000
Bucharest sectors	Euro 12,155,000
Other cities	Euro 4,193,550
Towns	Euro 3,189,815
Communes	Euro 324,770
Neamț County Council	Euro 8,803,600
Piatra Neamț city	Euro 3,689,400

2. Given the specific situation in Piatra Neamț city, where the local public transport management contract is ensured by the Neamț County Council

## 9. Important smart city promoters

The events market has started to recover after 2 years of pandemic when events happened mostly online and very rarely in person.

Some conferences disappeared. Besides Smart City solution providers, we also have media providers or information providers that are absolute necessary to provide information on the Smart City market in the past year, as well as leaders, influencers, promoters of the national Smart City phenomenon.

We present below a list of entities we identified, who are involved in organising Smart City events for everyone who wants to learn more about Smart City specifically and potentially choose the right event to launch or present Smart City solutions in the near future:

### 1. AHK România

[econet romania](#), the GreenTech initiative of [AHK România](#), is the main information, networking and marketing platform for German and Romanian companies operating in the field of renewable energies, energy efficiency, environment, sustainable buildings and mobility. The main goal of econet romania is to bring together, interconnect and inform companies operating in these areas, and actively promote German know-how on the Romanian market. An important topic that we paid specific attention to in the past years is the sustainable development of Romania's cities and regions.

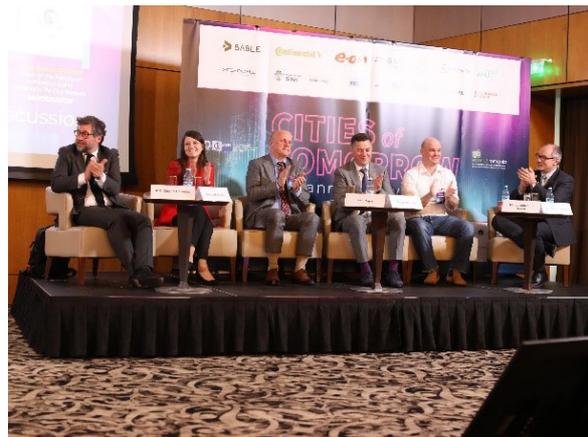
We present below some of the events organised by AHK Romania:

- [Cities of Tomorrow](#) , 10th edition

The conference consolidated its position as a top event for the business, architecture, urban planning and administration environment. Our experience and know-how, accumulated in years of working with the Romanian and the German market, makes the basis of the structure of these events, the selection of topics, and the projects promoted. Our shared goal is to contribute to Romania's competitiveness and lay the foundation for sustainable development and smart solutions for our cities.

Cities of Tomorrow provides a platform for exchanging ideas, concepts, and know-how between the three entities. How we all understand to act as a community, a company or a public authority, speak with one voice and stay constantly involved is what defines the future of our cities.

At the event, we tackle on significant Smart City verticals, from Mobility to Circular Economy, from Energy Efficiency to e-governance.



- **Delegations of Romanian decision makers at the Smart City World Congress, Barcelona, 2018,2019, 2020**

During the four days, Romanian companies and authorities visit experienced international companies operating in the field of smart mobility and public transport solutions, German and European manufacturers of innovative urban technologies, and representatives of various municipal administrations of the most important cities in the world, such as Berlin, Munich or Singapore, which have already implemented smart technologies.

They present their projects, which are of reference globally and have become

models of best practices. In addition, relevant projects are visited in Barcelona, and contacts can be established between international and Romanian participants.



- **Delegations and specific events with Romanian decision makers and companies to Germany or vice versa on topics such as infrastructure, energy efficiency, metropolitan solutions, urban mobility, environment**





- Organising joint stands at relevant fairs in Germany, organising visits for interested visitors from Romania



## 2. ARSC (Asociația Română pentru Smart City, Romanian Smart City Association)



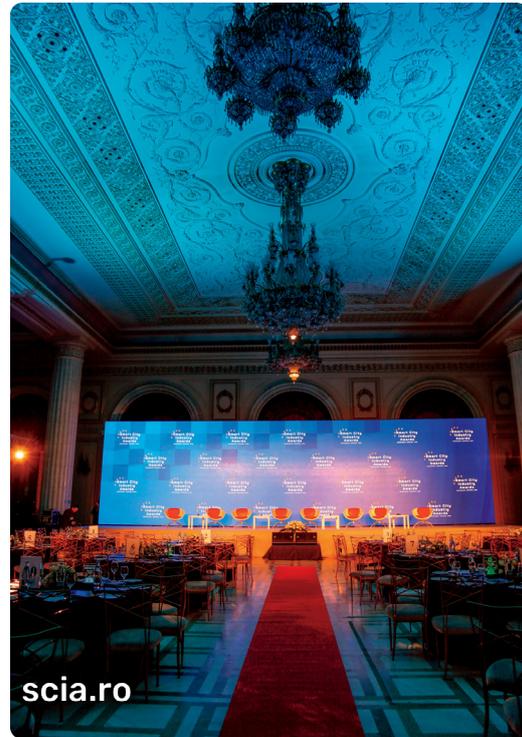
**Together, we build communities!**

est. 2016

### The main projects and initiatives of the association

#### Smart City Industry Awards

The outstanding annual event dedicated to the development of communities in Romania, the Smart City Industry Awards Gala, has celebrated its sixth edition on March 31, 2022, at the Palace of the Parliament and was organized by the The Romanian Smart City Association, under the High Patronage of the Ministry of National Defense and under the Academic Patronage of the Politehnica University of Bucharest. More than 400 of the most active leaders of the smart city industry, participated in the Cities Diplomacy Conference, from soft power to Smart City, followed by the awards gala and the exhibition dedicated to digital transformation. (scia.ro)



#### Smart City Caravan

An initiative that started in 2017, the Smart City Caravan took place, both in physical and hybrid format and it was held in Sibiu, Piatra Neamt, Buzau and Bucharest-Ilfov area.

The main event in this field from Romania, the Smart City Caravan, remains the benchmark for collaboration between the best products and services dedicated to the Smart City Industry and the landscape of the local community projects.

In over 5 years of existence, the Smart City Caravan has gathered technology partners, academia and civil society in the same place, fighting for a common ground.



arsc.ro



#### Smart City Webinar

Every Thursday, from 11 AM, The Romanian Smart City Association hosts an online webinar, a 90-minute approach in which topics directly related to the areas of concern of the smart city are addressed. In 2022, the Smart City Webinar reached its 100th edition, after a consistent and uninterrupted presence for two years. The webinar had numerous and prestigious guests from the public, private and academic sector.



## Monitoring the air quality in schools



The Romanian Smart City Association launched the first air quality monitoring program which takes place in schools in Romania. City Air is a project selected by the National Commission of Romania for UNESCO within the Transforming Projects Fair (Târgul proiectelor care transformă). City Air is supported by ANPC - the Consumer's National Protection Authority. CityAir aims to become the largest movement to maintain cleaner air in schools from Romania. The pilot project, that is the foundation for the modeling of the national City Air network, started in Bucharest on June 8, 2021, with the installation of air quality monitoring stations in schools: inside and outside the buildings. The sensors measure PM 1, PM 2.5, PM 10, humidity, pressure and temperature, all of this in real time. In 2022, the program was extended to Ilfov county, but also to Constanta. (cityair.ro)

## The National Conference dedicated to the rural communities - Smart Villages

The Romanian Smart City Association organized the first edition of the National Conference dedicated to the rural communities - Smart Villages. It took place in March 2022 at Snagov Palace. Therefore, beginning with 2022, the smart village concept has a dedicated annual event. The event welcomed almost two hundred actors interested in the development of the Smart Village concept, industry experts, solution providers, operators, transporters, technology companies, application developers, all those involved in the development of the rural environment. The purpose of the first edition of this event was to present the latest ideas and trends in sustainable rural development.



The first courses specially designed for the concept of smart city were held since 2016 together with the educational partners of the association. The novelty of the year is the accreditation of these courses. The students will receive a diploma with the title of **Innovation Manager**, all according to the legislation in force. The accreditation is recognized in all EU countries, and is issued by the Ministry of Labour and the Ministry of Education. The curriculum is permanently adapted to the priorities of our communities and the never ending evolution of the concept of smart city.



ACADEMIA  
SMART CITY

academiasmartcity.ro

arsc.ro

**3. This category includes Regional Development Agencies (RDAs)** which have a very important role in the government programmes, and pursue the following objectives:

- to diminish the existing regional imbalances, focusing on stimulating balanced development and revitalising disadvantaged areas (areas with delayed development); to prevent new imbalances;
- to meet the criteria for integration with the European Union structures and access to the financial instruments assisting the Member States (structural and cohesion funds);
- to correlate with governmental sectoral development policies; stimulate inter-regional, domestic and international cooperation, which contributes to economic development and is compliant with the legal provisions and the international agreements signed by Romania. (6)

There are more than 5000 projects completed or nearly completed in the 8 development regions, including Smart City projects, which are not categorised in any way for the moment.

## **4. UrbanizeHub**

### **Shaping the future of cities in Romania**

<https://urbanizehub.ro/>

“UrbanizeHub is for dreamers who want to contribute with ideas and implement them, to live in a better world. It is for smart people, who think unconventionally and believe in the future of sustainable urban development and technology. What brings us together is shared knowledge, the passion for sustainability, and the desire to build a better future.”

UHub and Grațian Mihăilescu are very active, with a lot of projects, events and actions, nationally and internationally.

## **5. SMARTiCITY**

*SMARTiCITY Association is an NGO whose founders (Camelia Spătaru and Marian Teleleu) started a series of events in 2016, bringing together central and local authorities, the private environment and the civil society, to identify solutions together, to help Romanian cities become smarter and more sustainable. The fundamental idea of the founders is that the basis of building smart, sustainable cities is much closer collaboration between local authorities, private businesses and the local community. SMARTiCITY and its platform of events, [jumptosmart.ro](http://jumptosmart.ro), offer the perfect place for this exchange of information to take place.*

In June 2021, SMARTiCITY launched a new concept on the market: the first and, at that time, the only TV show in Romania dedicated to smart, sustainable cities and communities. The show, called just like the association, SMARTiCITY, is designed and produced by the SMARTiCITY team and broadcast on DIGI 24 TV. The show has its own

column on the web site of the TV station, where it had more than 200 thousand views after the first season. SMARTiCITY seeks to familiarise the audience with the solutions considered as “smart”, thus contributing to creating a smart community, which is a key component in the success of the city of the future.

24 June 2021, Braşov - SMARTiCITY Association and the jumptosmart.ro platform organised a conference on 24 June 2021 in the series of events on “Cities and communities. Vision 2030.”

For the first time in Romania, at this conference, Matthew Baldwin, Deputy Head of the Mobility and Transport Directorate of the European Commission, announced publicly the new “mission of the European Commission” 100 smart, climate-neutral cities by 2030”, inviting Romanian cities to enrol for this unique, courageous European project.

At this conference, the mayor of Finnish city Lahti (the European Green Capital of last year), Pekka Timonen, explained the actions that Lahti prepared to become carbon-neutral by 2025, without purchasing carbon credits.

Over 40 top speakers from Romania and abroad discussed about urban mobility, solutions supporting the transition to zero-emission cities, digitalisation of public services for the benefit of citizens, smart solutions to manage waste, renewable energy, the role of hydrogen in the economy of the future, as well as funding sources for these major projects that both Romania and Europe propose for the years to come.

August 2021, Bucharest – Another initiative of the SMARTiCITY Association and the jumptosmart.ro platform is the “March of eco cars”, an initiative promoting clean, non-polluting transport and alternative transport. The event focuses on the personal example of each of us, and its message is “I can contribute to reducing pollution!”.

Last year, the march reached its 5th edition. Traditionally (except for the first edition), the march starts in the parking lot of the National Library of Romania.

Last year, eco transport was promoted by the swimmers of Romania’s Olympic team, David Popovici and Robert Glinţă; world champion in frozen water swimming, Paul Georgescu; Ciprian Tudosă, silver medal last year in the Olympics, member of the Olympic rowing team; members of the national children’s cycling team, and many others. The ambassadors of Denmark and Estonia joined the effort by driving one of the electric cars brought on the site by the partner companies.

Just like every year, the institutional partners of the event were the Ministry of Environment, Water and Forests; the Ministry of Culture; the Environment Fund Administration, and the Romanian National Library.

The prototype of the first electric bus made by a Romanian company was also promoted at the event, first time in Bucharest.

2-3 June 2022 Oradea – Just like in 2021, the series of conferences started in Oradea: Smarticity started the largest communication campaign intended for smart, sustainable cities, which will take place in 4 more cities this year: Sibiu, Constanţa, Iaşi and Timișoara, in partnership with Energynomics.

The institutional partner of the event organised by SMARTiCITY was the Bihor County last year, and the Oradea City Hall this year. The purpose of the conference was to continue debates in the smart & sustainable city field. This year, just like last year, we insisted on green projects that can help reduce pollution and even adopt a circular economy. The grand hall of the Oradea City Hall hosted representatives of the local authorities, experts, and representatives of companies ready to contribute to the development of the cities of the future.

8-9 June 2022, Sibiu. The SMARTiCITY Association, together with Energynomics and in partnership with the Sibiu County Council, SMARTiCITY and jumptosmart.ro organised the conference “Cities and Communities – Fit For Green, Fit For Smart”.

Some of the most important topics on the agenda were: public-private collaborations for the development of cities and counties; energy efficiency; digitalisation for public administrations and companies; connected cities and regions; solutions for sustainable urban and inter-city mobility; parking as a public service.

The Sibiu County Council was the first local public authority in Romania that forbid single-use plastic in its institution and its subordinated institutions.

<https://www.jumptosmart.ro/smarticity>

## 6. **ARCEN**

with several projects, starting with Open Streets and their latest project, “The Possible City - Urban Dialogues to Reinvent Bucharest”

<https://www.arcen.info/orasul-posibil/>

## 7. **SNSPA**

- Smart Cities Conferences, 9 editions, the last one on 9-10 December 2021.
- Securing Smart Cities International Conference, 3 editions, the last one on 2 June 2022

<https://smart-edu-hub.eu/>

## 8. **Concord Communication**

- Smart City debate – 14 editions, with the last one being “Smart Communities” on 9-10 June 2022.
- Marathon of solutions for smart cities and communities - 25 November 2021
- ENERGY SUMMIT – 11 November 2021
- TOGETHER IN THE EU: Fit for 55: Transition to green transport and sustainable energy - 4 November 2021

<https://concordcom.ro/evenimente-trecute-2/>

## 9. French Embassy

CCIFER – Sustainable City Conference – 6th edition scheduled for 4-5 July

<https://www.ccifer.ro/ro/evenimente/agenda/e/event/conferinta-orasul-durabil.html>

## 10. CCIB – Bucharest Chamber of Commerce and Industry

FOCUS Bucharest Conference - urban development, digitalisation, circular economy – 4 editions, the most recent one on 8 June 2022

<https://ccib.ro/focus-bucuresti-ed4-2022/>

## 11. The Diplomat

- Smart Transformation Forum, 5 editions, the most recent on 9 September 2021, Bucharest
- Digital Transformation Conference
  - \* Energy & Utilities – 23 March 2022
  - \* Telecommunications – 24 November 2021
- Circular economy conference – 31 March 2022
- Energy CEO Forum & Awards – 12 May 2022
- Automotive R&D Power Breakfast 2022 – 16 June 2022

<https://www.thediplomat.ro/dmevents/>

## 12. Energynomics

- Digitalisation and Energy Efficiency, at its 6th year (Braşov and Constanţa) – 15 March and 24 June 2022
- DigitALL 2022 – 10 March 2022
- Smart Cities - What We Can Do Today – 13 April
- Sustainable Communities Oradea and Sibiu – 2 and 8 June 2022

<https://www.energynomics.ro/>

## 13. PRIA Conferences:

PRIA Environment 2022, 6 April 2022

<https://priaevents.ro/pria-environment-2022-6-aprilie-2022/>

## 14. H.appyCities

Launches DES Hub - collaborative platform for monitoring digitalisation in Romania  
17 May 2022

<https://happycities.org/>

## 15. Business Review

Rising cities. Smart future five editions, the most recent one on 9 June

<https://business-review.eu/br-events/rising-cities-smart-future-2022>



# 10.

## Providers with implemented Smart City solutions

In Alba Iulia there were 45 companies that tested the 106 Smart City solutions, and in this edition we have identified 164 supplier companies for the 51 Smart City solutions in the answers received from the municipalities, of which the first three companies are Telekom Romania with 28 projects, Industrial Software from Sibiu very active with 14 digitization projects and 3 companies (Orange, Integrisoft Solutions and Sobis Solutions) with 10 projects implemented by each. Obviously STB is an exception in this table showing how municipalities understand how to provide some public data and we cannot say who provided urban mobility solutions for STB at the time of writing this report.

The ranking of the top 10 providers is shown below:

Nr.	Provider	Projects number
1	Telekom România	28
2	Industrial Software	14
3	Orange	10
4	Integrisoft Solutions	10
5	SC Sobis Solutions SRL	10
6	Life is Hard	8
7	SC UTI SA	8
8	ZTE	7
9	STB	7
10	Huawei Technologies	6

Currently, we have noticed that some Smart City solution providers that are very active do not appear in the questionnaires we receive from municipalities. We also note the dynamic market of suppliers in which some have withdrawn, others remain in the market and many new suppliers of all categories (Romanian and international companies) appear.

Apart from companies, NGOs and clusters are also involved in the Smart City market.

The Smart City market in Romania is slightly growing, with just 16% progress since last year - 1001 Smart City projects compared to 860 in 2021; 144 cities with Smart City projects compared to 122 last year, and just 51 Smart City solutions provided by 164 companies, despite the need for digitalisation, the opportunities and the needs of the cities and their citizens. This is the first time when we present the number of Smart City projects per stages of implementation, and we saw that the number of Smart City projects completed today is 470 (less than half). We mention the good response rate from city halls, 71% this year.

The leading cities this year are the three cities frequently seen in other types of rankings: **Cluj Napoca** (with 63 Smart City projects), closely followed by **Iași** (with 56 projects), and **Bucharest** (with 54 projects at the Bucharest City Hall, PMB), while Alba Iulia leaves the top positions, with 49 projects compared to the 106 in last year's radiography (22 of the pilot project, and 27 between 2019 – 2022).

If we consider the capital city with all 7 sector halls and the main city hall, we should say that Bucharest leads by far, with 115 Smart City projects; however, we cannot consider it to be a leader without a centralised Smart City development strategy and a "shameful" Smart City tender in December 2017, won by Deloitte and forgotten, without knowing whether it was ever realised.

Behind the Cluj – Iași – Bucharest trio, we frequently see a group of 7 cities in other various top lists in our country: Alba Iulia, Brașov, Craiova, Sibiu, Oradea, Timișoara and Arad, which confirms that the preoccupation of a modern city for Smart City projects is something that citizens and tourists like, and something that is also good for the economy.

We are of the opinion that the Smart City market in Romania lags behind, despite the efforts put into the pilot projects, but there is great potential for growth. The Hidden city presented in this edition, with the passions and activities of the citizens, presents a massive potential, still insufficiently used, data waiting to be used better, similar to public-private partnerships, but also with extremely limited and even obstructing systemic and administrative resources.

In this edition, we saw a different face of the Potential Smart City (the Hidden City), with the needs and the activities of the citizens, which will dictate the future developments of urban spaces: education, health, the need for cleanliness and clean air, mobility, connectivity and inter-connectivity, solitude, seniors, creativity (art), spirituality, etc.

The trend of the Smart City verticals in the 6 editions is quite stable, with Smart Mobility being a leader since 2019; the Smart Governance vertical constantly ranked second, except for the first edition, when it was the leader of the ranking; the 3 last ranked verticals maintained their ranking in all the 6 editions of the Smart City verticals ranking: Smart Economy, Smart Environment, and Smart People. The Smart Living vertical held all the positions in the ranking, from being a leader in September 2018 to ranking 3rd in the last 3 editions of the Radiography.

The ranking of the 51 Smart City solutions is led by a trio - Digitalisation of administrations (139 projects), Smart lighting with remote lighting management (84 projects), and public WiFi (72 projects), while the first 3 providers of Smart City solutions are Telekom Romania (28), Industrial Software (14), and Orange Romania (with 10 projects).

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The artwork in this Radiography, by Cosmin Paulescu, was presented at the exhibition “Fragil. Teritorii portabile” at the Constanța Museum between 25 May – 7 July 2022. Cosmin Paulescu, aka Cozo, is an important artist, involved in the Arts University and the Union of Fine Artists in Romania ([www.cosminpaulescu.org](http://www.cosminpaulescu.org)).

A company founded in 2004, **Vegacomp Consulting**, a turnkey integrator, relies on more than 28 years of the team's experience in telecommunications, particularly optic fibrenetworks in Romania and internationally, and focuses its projects on developing combined telecommunications and energy solutions. Vegacomp Consulting brings innovative solutions in the country and abroad to develop the networks of the future, generated by its own Research & Development department. In the past 2 years, the company's activity focused on LoRa technology; the company operates in the Smart City area since 2014. More information is available at [www.vegacomp.ro](http://www.vegacomp.ro).

For Smart City projects, Vegacomp Consulting partners with FIWARE (Open Data and Smart City platforms) and Snap4City - Smart analytic App builder for sentient Cities and IOT ([www.snap4city.org](http://www.snap4city.org)) – we help cities gain visibility on the international market and publish data from their Smart City projects.

The Smart City Radiography was awarded the Social Innovator of the Year award at Smart City Industry Awards 2020.2020 cu premiul Social Innovator.



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