SPOTLIGHT ON URBAN TECH IN EUROPE

The ultimate smart investment opportunities guide

for navigating Europe's urban tech development

EXPERT INSIGHTS - OCTOBER 2020

URBAN TECH

LISBON, PORTUGAL

CLUJ-NAPOCA, ROMANIA

EXPERT INSIGHTS

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GENERAL INTRODUCTION

See Intelligence and Forglobal have joined forces to uncover Europe's Urban Tech with support from our independent advisors: AMENA Trade and Investment, Creatives Loop and Emerging Europe.

We explore opportunities for smart investment in 30 European cities, when navigating Urban Tech developments. It is not a ranking, but a selection of the most promising European cities and an understanding of the businesses involved.

The impact of covid19 is on everyone's mind, but we will discuss how to overcome the obstacles, adapt and successfully approach the opportunities in terms of Smart Cities and Urban Tech in order to create value and develop a sustainable disruptive business model.

In this twelve-month online programme, you will explore what developments and solutions are in both Western and Eastern Europe and how to navigate them with monthly webinar discussions and expert insights.

You will have the opportunity to engage with potential clients, partners, experts and cities to strengthen your international network. Get direct access to company representatives, industry experts, senior city officials, academics, respondents, interviewees and sponsors.

HOW WESTERN & EASTERN EUROPEAN CITIES CAN BECOME GLOBAL URBAN CHALLENGERS

To understand the smart city and urban tech ecosystem and the impact of the relationships to retain business, drive investment growth and innovation we based our discussions on the triple helix of city governments, businesses and academics. For this reason we operate a fixed format where we introduce the experience of city governments from Western and Eastern Europe, practical expertise from commercial businesses and the theoretical viewpoint of academics.

In October we discussed: Practical examples of how to create a coalition of stakeholders to help build a developed urban tech environment; How to incentivise urban tech development — introducing helpful regulations and eliminating red tape; How to attract creative talent to facilitate development; How to differentiate in order to stand out from the competition; Key technologies and resources required for successful urban tech development

The webinar is available to view on the website www.urbantech.world and this *Expert Insights* is designed to offer additional information and advice from our expert panel in order to expand on the original discussion.

You can learn from the experts' key takeaways and find more detailed answers to some of the questions discussed within the session.

KEY TAKEAWAYS

1 The main takeaway is that there is a need for trust between citizens and cities, regarding to their data, its use and acquisition. We also need to act faster, in the face of challenges presented, highlighted in this present time by the pandemic. (David Cunha, Lisbon)

2 Based on the different profiles we are here as panellists, the key to everything is just one word - collaboration: The cities' digital transformation could only be achieved if we all work together in the same direction and this direction has to be focused on the well-being of society as a whole. (Duarte Fondo Quiroga , NEC)

3 The goal of improving the lives of the citizens can be reached in different ways. There are commonalities, but one recipe cannot be moved wholesale in another city. On the other hand, best practices can undoubtedly provide inspiration for others, and as such, a central repository of some kind or another with such projects could be beneficial. (Nicolae Urs, Babes Bolyai University)

4 I was inspired by Lisbon's vision on doing some of the thing we are doing in Cluj-Napoca and would love to learn more about it. I feel that already tested solutions for universal problems should somehow get into a depository of cities – for the rest of them to get inspired – and this will allow less fortunate ones in term of access to resources to get to outcomes and solutions that were tested and evaluated through European Funded projects and therefore the deliverables are public – just that no one knows where to look for them. (Oana Buzatu, Cluj-Napoca)

5 What we need to do is understand that the 'heat' needs to be put on the long-term problems like the housing crisis, future of work, climate change in order for the digitalisation to be effective over time. We need to start to solve these problems now What the pandemic proved is that if we have an incentive, we can change things. (Nicolae Urs, Babes Bolyai University)

INTERVIEW with David Cunha
Senior Adviser for IT and Digital Transformation, City of Lisbon

Questions from the main discussion:

Q1 – Please discuss and provide your perspective on the impact of the 2nd wave of the Covid-19 pandemic on Urban Tech initiatives with particular reference to the cities of Lisbon and Cluj-Napoca.

Lisbon was preparing for the 'new normal', but at time of recording there are further restrictions coming in due to an increase in cases. We try to deal with it to try and adapt some of the systems and use the digital capabilities to help. Monitoring mobility and waste removal levels has been important and entering the second wave we are trying to use more data and other tools. Some restraint in how the economy opens. Using and encouraging the use of bikes and the shared bike system is digitalised and means there is no contact and it means that the plan to shift from private cars to public transport has still worked to some degree as bikes are used as an alternative. Monitoring the number of people in real time who are in the street to prevent large gatherings and nightlife. Yesterday is was confirmed that the use of an app to trace covid will be mandatory in Portugal.

Q2b - There are serious concerns about the privacy of the residents, as enormous amounts of data had to be collected in order to manage the neighbourhood properly. How can these concerns be addressed most effectively?

We had information in different silos, so it was contained and protected, but around the same time the tender was put out for the data provision that was won by NEC, GDPR began to be an important issue we created a team just focused on data to look at the 160 departments to understand the issues. We found out that we had a problem as each time the information goes from one department to another they make a copy and you could end up with 10 copies of the same file which then creates new data protection issues. We feel all cities have a similar issue. What we share and feed into the centralised platform is separate to the urban sharing platform. For example, the schedules are shared of the waste management team, but the names of the people are not shared. When we started working with NEC we had small sharing data sharing platforms, but this came to a whole different level working with NEC. The information gave us a bigger sense of the dangers and what we needed to do. New tender is being put out to make sure no video recording can be shared other than locally for a specific reason. Now it is mandatory for people to use the covid app there is a bigger discussion to have about sharing information. There was a huge outcry from the people when asked to share data with the city, despite many sharing 'without thinking' with private companies like apple etc. There needs to be a balance between privacy and public health and data sharing.

Q3 – Transforming a city into smart city is not only a technological change, but also a strategic change. It means changing the thinking of the city's leadership regarding the use of ICT technologies for efficient use of resources, energy and cost savings, and improving services. In addition, ICT technology enables reduced damage to the environment, while increasing innovation, economic activity and employment among local residents. Please provide your view on this.

For Lisbon it is very similar to Cluj, we focus on people and processes and try to change how things are done in order to create something better. One of the objectives was to change to data driven decision making. In order to do this we need to have more data and more importantly than that we need to create added value, insights and knowledge with that data. This is why we began creating more relationships with private companies and academics. Those data sets are very important and valuable to the city as they can help you with mobility, security, civil protection and indeed across all areas of the city operations. We have huge amounts of data and therefore require highly skilled people to process the data. We cannot offer the high salaries offered by private companies like google etc, but the key for us has been working with the universities to analyse the data and attempt to solve the problems. For example PhD students' eyes light up when they go through all of the data. A Dutch university wanted to work with us and also Rotterdam wanted to be involved in the programme. The issue we have working with some companies is that they want to sell at a high price and already processed. This is less interesting. The main thing we have to focus on is transparency in order to instil trust in the citizens and offer accountability for what the city is doing.

INTERVIEW with David Cunha
Senior Adviser for IT and Digital Transformation, City of Lisbon

Q4 – Responding to the crisis has entailed taking radical policy decisions at an unprecedent speed, in order to ensure the safety of populations worldwide. Nevertheless, the current health crisis is by no means the only crisis threatening our urban societies. Other "slower" emergencies equally put our cities at risk, such as the climate & pollution emergency and the global housing crisis. Consequently, learning how to address these will be determinant to ensure there is a safeguarded future for the generations to come. Please provide your view on this.

Housing and mobility were two priority issues for us before COVID. Through the use of data we saw we had a huge decrease in traffic, and an increase in air quality, but we are aware that this is temporary and we have used this time to prepare ourselves. We have added pop-up cycle paths to prevent increase in the use of private cars etc. We haven't just put everything on hold. In housing, we are still waiting to stabilise to see what is going to happen. A huge part for us is tourism and this went to zero. We then started to regain tourists, but it is still unclear. The economic impact is a major concern for all cities and it has been devastating, particularly on hotels and restaurants. We are majorly concerned in addressing these issues.

Questions from Q&A:

Due to all privacy concerns, have city authorities considered building a data infrastructure solution (partially) by themselves or with other cities?

In Lisbon's case, we have tendered a municipal dedicated platform, which is already very advanced in its implementation and we are not considering sharing the platform/infrastructure with other cities, at this stage. A very different case is sharing data, where we are very open to share data with other cities, provided all privacy and security safeguards are in place.

A successful partnership between NEC Smart Cities and Lisbon is important to achieve the aimed results for the long-term (over 10 years). How is the partnership organized?

Lisbon launched a tendering process to acquire a data platform that could enable a wide range of projects that we had planned. This tendering process was highly challenging, with a large number of tests that were needed to be executed by the participants companies and their platforms. NES's platform was the winner of the tendering process and was therefore awarded the contract to implement the Data Platform. Although this was an open tender and NEC was the winner of this tender, the extent of the work, commitment and dedication that has been placed by NEC and Lisbon's municipality could almost be described as a partnership, which has rendered both entities great development and innovation.

How has the relationship and communication between each of the stakeholders (city/businesses/academics) changed in recent months? What have been the positives and negatives of that? Who is really leading the advancement of technological implementation in cities? What is your definition of urban tech/ smart city and does being a smart city really help increase interest in foreign direct investment?

The stakeholders remain the same and I believe that, in a true smart city, all have a relevant place that is critical, whether corporations, municipalities, academia or the national government.

INTERVIEW with Oana Buzatu
Spokesperson for the City of Cluj Napoca

Questions from the main discussion:

Q1 – Please discuss and provide your perspective on the impact of the 2nd wave of the Covid-19 pandemic on Urban Tech initiatives with particular reference to the cities of Lisbon and Cluj-Napoca.

Cluj is most of all a University city. A quarter is made up of students and the first shock was to lose the population with the students going home in the first lockdown. This helped to keep numbers lower and made it easier for the city to adapt to the sanitary measures. The city is a very vibrant city with over 2000 events. It has had a huge social and economic impact on the city not being able to hold these events. At the time of recording, Cluj has numbers under control compared to other cities and is currently hoping not to go into a second lockdown. In terms of data the city has been trying to digitise all services offered to citizens to ease the need for people to come to physically come to public offices. The city thinks that these measures will help in the longer term to keep numbers down into the future.

Q2b - There are serious concerns about the privacy of the residents, as enormous amounts of data had to be collected in order to manage the neighbourhood properly. How can these concerns be addressed most effectively?

We try to learn and to listen to people who have a broader view like Nicolae from the University who have an independent view. This helps keep things in the right direction when we address any type of change within the public administration in Cluj. We are trying to implement a local law to establish different layers of protection to take into account before putting the data out in the public domain and assess the risks for access depending on the type of stakeholder who wants to access them to make sure we do not make a mistake and have to rectify it later.

Q3 – Transforming a city into smart city is not only a technological change, but also a strategic change. It means changing the thinking of the city's leadership regarding the use of ICT technologies for efficient use of resources, energy and cost savings, and improving services. In addition, ICT technology enables reduced damage to the environment, while increasing innovation, economic activity and employment among local residents. Please provide your view on this.

It is the most asked question we have received in the last few months. We are approaching the management of the city as an eco-system, not as an ego-system. Once you step out of the public sector view and engage with external influences from businesses and academics the possibilities to solve the problems are greater and less costly. Trust and openness is key.

Q4 – Responding to the crisis has entailed taking radical policy decisions at an unprecedent speed, in order to ensure the safety of populations worldwide. Nevertheless, the current health crisis is by no means the only crisis threatening our urban societies. Other "slower" emergencies equally put our cities at risk, such as the climate & pollution emergency and the global housing crisis. Consequently, learning how to address these will be determinant to ensure there is a safeguarded future for the generations to come. Please provide your view on this.

Besides the ones mentioned Cluj is tackling the issue of the future of jobs. The city is a powerful IT centre and relies on a knowledge based economy. We are looking at the type of jobs the city relies on and assess the risk of automisation to make sure the citizens are ready and resilient to adjustments.

INTERVIEW with Oana Buzatu
Spokesperson for the City of Cluj Napoca

Questions for Q&A from the audience:

Due to all privacy concerns, have city authorities considered building a data infrastructure solution (partially) by themselves or with other cities?

Cluj-Napoca – is working mostly on establishing a mutual system of sharing and interconnecting data among State Stakeholders. We are working at an integrated Strategy for Digital Transformation which aims to be a silver lining for all the city actors when it comes to what is wanted in terms of use of technology and data in the management of the city or the civic public services. It will have a theoretical part and also some practical parts regarding the mapping of existing initiatives and already made steps, as well as some plans that will be updated regularly in a participative approach.

Cluj-Napoca is known for its citizen centred approach. Which urban technology provided the best results in the past years?

Cluj-Napoca – the first steps in our participatory quest were made though the Public budgeting online platform (www.bugetareparticipativa.ro) – that was a space to collect ideas and manage the process of getting support and voting for the most appreciated projects. In the next steps – we took this tool and used it to adapt an online internal platform to boost and tackle the innovative potential of the public employees that are at the crossroad of being experts and also citizens – and this puts them in a very special sport of highly interest in terms of applied ideas to innovate.

In terms of use of technology we are creating the first virtual public employee (ANTONIA) which will duplicate all the existing services in a digital option that will allow citizens to choose whether they want to physically interact with the public servants or rather to get public services without this interaction. It is an ongoing process – some procedures have already been open and we are evaluating and adapting the project in the way.

How has the relationship and communication between each of the stakeholders (city/businesses/academics) changed in recent months? What have been the positives and negatives of that? Who is really leading the advancement of technological implementation in cities? What is your definition of urban tech/ smart city and does being a smart city really help increase interest in foreign direct investment?

Cluj-Napoca – we already have a functional local innovation ecosystem which is both – working on drafting the strategies and testing potential solutions.

At this point there is a local habit in using this type of addressing a challenge – we do it in 2 different ways:

• organising an innovation camps once a year to address specific and owned challenges – for which we try to come up with short term , medium and long term solutions (these are international events and we are all the time trying to invite external stakeholders to make use of the outsider expert opinion)

• organising regular meetings in Civic Imagination and Innovation Centre - with subjects that are coming from all the stakeholders and can be addressed by anyone who wants to join.

INTERVIEW with Duarte Fondo Quiroga
Head Of Business Development EMEA at NEC

Questions from the main discussion:

Q2a - By implementing more sensors and connecting to many internal and external systems, cities collect more data that needs to be organised and understood. NEC has been selected by the Municipality of Lisbon, to implement a smart city infrastructure project aimed at improving the daily operation and coordination of multiple city services, bolstering security and ultimately improving the Quality of Life for residents. Duarte can you share your perspective on what cities can gain for results today and in the future by using centralized systems. Can you also elaborate on technologies used by your system?

From a business perspective we see that city managers are changing the way they are working. They are now more in control of the other services companies are providing to the citizens. There is a great need to be transparent as to where money is being spent. In real time with centralised systems and data it is possible to compare the services and understand what is doing well in order to apply penalties, or create payments based on business rules etc. Lisbon understood well and is doing well as they are breaking the silos and they are reducing cost by using this data across different departments. It is important to use the same platform and tools in order to reduce costs within the same infrastructure and relative with the technology NEC believes it is important to use open source systems in order to avoid vendor lock-in systems. If you have a closed system, every 4 years you renew the contract, but right now this is changing as the control passes over to the council instead. For example, NEC can implement the platform, but if they do not operate well (hope not!), the council can change and use another provider if the system is open source. The council right now can have the knowledge in order to implement and develop the new functionalities and reduce the maintenance.

NEC is vice-president of the Fiware Community, so, we usually download modules from the community and we enhance those modules and after that, we upload them again. Some time and, based on our experience we do not use Fiware modules. Of course, all the tools are opensource. For example: Iot Agent: It was developed by NEC and is uploaded in Fiware Community; ESB: Nifi; Reporting: pentaho + NEC developments; BigDAta: CrateDB and Hadoop; Dashboards: NEC developments; Video streaming: NEC Developments.

Q2b - There are serious concerns about the privacy of the residents, as enormous amounts of data had to be collected in order to manage the neighbourhood properly. How can these concerns be addressed most effectively? As a private company when GDPR started we hired a person working closely with each country and a team focused only on data. When we started the projects we created a plan together in order to elaborate on the issues up front to avoid any issues with the rules within the European Union.

Q3 – Transforming a city into smart city is not only a technological change, but also a strategic change. It means changing the thinking of the city's leadership regarding the use of ICT technologies for efficient use of resources, energy and cost savings, and improving services. In addition, ICT technology enables reduced damage to the environment, while increasing innovation, economic activity and employment among local residents. Please provide your view on this. Sometimes we only think about money, but we need to think about the people. For example my mother didn't have the chance to study ICT technologies. I can use technology well, but my younger sister has technology as part of her daily life. Some people work in the same way for a number of years and the challenge is how to facilitate the way different people work with new technologies. We can share the data and it can create growth, but companies need to understand who they are working with to ensure it can be implemented effectively.

INTERVIEW with Duarte Fondo Quiroga
Head Of Business Development EMEA at NEC

Q4 – Responding to the crisis has entailed taking radical policy decisions at an unprecedent speed, in order to ensure the safety of populations worldwide. Nevertheless, the current health crisis is by no means the only crisis threatening our urban societies. Other "slower" emergencies equally put our cities at risk, such as the climate & pollution emergency and the global housing crisis. Consequently, learning how to address these will be determinant to ensure there is a safeguarded future for the generations to come. Please provide your view on this.

In the past 5 years I have different feelings. The needs of the cities has not changed greatly, but technologies are transforming and growing very fast. We are at a beautiful point where society is in the present and technology is further in the future which will help us create a long term future business model. We have to share benefits and risks in order to take new commitments.

Questions for Q&A from the audience:

A successful partnership between NEC Smart Cities and Lisbon is important to achieve the aimed results for the long-term (over 10 years). How is the partnership organized?

[NEC] The beginning of our relationship was, just, answer a tender and be awarded. After being working with Lisbon for 3 years, the main contract is about to finish, so we need to renew contract but, of course, knowing and understanding that, now, Lisbon technicians know about the platform so we need to 'share' with them this maintenance.

However, as you may imagine, in such complex an innovative solution as Lisbon Smart City Platform, its implementation and evolution cannot be restricted to strict compliance of the technical requirements, and during these last 3 years the contractual relation evolved to a partnership with daily collaboration from both teams to reach the best solution to be implemented, some of them not initially defined in the tender specifications.

Additionally, NEC is working together with Lisbon Municipality and the Academics (namely Universidade de Lisboa) in other projects like "Living Lab" for Lisbon Data Analytics using NEC CCOC Platform

INTERVIEW with Nicolae Urs, Vice-Dean of the College of Political, Administrative & Communication Sciences, Babes Bolyai University

Questions from the main discussion:

Q2b - There are serious concerns about the privacy of the residents, as enormous amounts of data had to be collected in order to manage the neighbourhood properly. How can these concerns be addressed most effectively?

David hit the nail on the head. There is always tension between how much data we can gather and put into algorithms to monitor a situation and the privacy of the data, because, if the data is siloed, as it is all around the World you can only do so much with the data. In order to offer more complex services you need to connect the data sets. You have to have very precise rules as to how the data can be gathered, used and implemented. People see the data as their data, not the data belonging to the municipality and citizens want to know what happens and who has access to it and who checks on it. If I take a bus it is a data point, but it is not the municipality's data, it is mine as I created it, so I have to see what happens to it. On the other hand you need reams of data in order to analyse it to make best use of it. You need to have everything from the standardisation of data, breaking up silos, connecting them and all the support for this with proper enforceable rules with what you can do with the data. If you have those rules agreed then you can invite third party organisation to get involved and offer more complex services. They are not only provided by public institutions, but then can be provided by anyone who 'does a better job of it'.

There is an increasing awareness about the benefits of collecting data and increasing awareness of citizens that data can be used for them or against them. It is impossible for data to be used effectively without the compliance of the citizens, so now we see certain companies offering something to people in return for their data. It doesn't have to be big, but it shows that their data and information is valued for the greater good of the community.

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The city hall has understood that they are a facilitator. They are not leading the community. They are trying to get resources from the community and put them to better use. They want to create connections and then move away as they do not have the resources to manage it all themselves. If you understand this, you can put your community to work to improve their own community. In 2013 we worked with as many people as possible for the project 2014-2020. What surprised us is that even with a lot of unpaid effort, nobody said no to helping even for longer term projects. Even now working on the digital transformation strategy for Cluj-Napoca we have the same experience. Bringing people together offering a framework means they come back to you with better ideas.

Q4 – Responding to the crisis has entailed taking radical policy decisions at an unprecedent speed, in order to ensure the safety of populations worldwide. Nevertheless, the current health crisis is by no means the only crisis threatening our urban societies. Other "slower" emergencies equally put our cities at risk, such as the climate & pollution emergency and the global housing crisis. Consequently, learning how to address these will be determinant to ensure there is a safeguarded future for the generations to come. Please provide your view on this.

I am an optimist, but what I have seen in the last 6 months is that a lot of things have been put on hold. What we need to do is understand that the 'heat' needs to be put on the long-term problems like the housing crisis, future of work, climate change in order for the digitalisation to be effective over time. We need to start to solve these problems now What the pandemic proved is that if we have an incentive, we can change things.

INTERVIEW with Nicolae Urs, Vice-Dean of the College of Political, Administrative & Communication Sciences, Babes Bolyai University

Questions for Q&A from the audience:

Due to all privacy concerns, have city authorities considered building a data infrastructure solution (partially) by themselves or with other cities?

Good question, I can only say what is happening in Romania and especially Cluj-Napoca. Due to the paucity of solutions at the national levels, municipalities in Romania (especially big cities) started to build their own data infrastructure. Usually this infrastructure caters to the needs of one particular institution (in most cases the City Hall), without much interconnectivity with other organizations. This is not typically because of privacy concerns (the subject is only now appearing in the public agenda in Romania), but due to the lack of relevant national systems. In Cluj-Napoca the digital transformation strategy in the works envisions such an infrastructure that gathers and offers data to all relevant stakeholders in the community, in a distributed manner.

Cluj-Napoca is known for its citizen centred approach. Which urban technology provided the best results in the past years?

I do not think that any technology is the most important in our ecosystem. The best outcomes are actually the result of the collaboration between the public sector, universities, NGOs, private companies and citizens. Technology is more and more understood as an enabler and not as a goal in itself. In the end, because Cluj-Napoca is not such a big city and people from all sectors know each other and are used to participate together in all kind of projects.

How has the relationship and communication between each of the stakeholders (city/businesses/academics) changed in recent months? What have been the positives and negatives of that? Who is really leading the advancement of technological implementation in cities? What is your definition of urban tech/ smart city and does being a smart city really help increase interest in foreign direct investment?

Smart cities are those in which technology is used to increase the quality of life of their inhabitants. If the potential of any municipality or country is to be fulfilled, all stakeholders must work together. I do not think that any one is more important than the others are (although, being a university professor, I am surely partial to academia).

UPCOMING WEBINARS

[Register now](#) and don't miss out on our next webinar in the series. Each expert panel will include a representative from an Eastern and Western European City as well as a business and academic in order to better understand the full picture of opportunities for urban tech solutions. The next cities in the series will be Munich and Kyiv.

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ABOUT US

See Intelligence and Forglobal have joined forces to uncover Europe's Urban Tech with support from our independent advisors. To view more information visit our website www.urbantech.world

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PANELLIST INFORMATION

David Cunha, Senior Adviser for IT & Digital Transformation, City of Lisbon has a degree in Civil Engineering, a Master's in Transport and Infrastructures, over a decade of experience in public administration, combined with a keen innate interest in everything technological, all blended together to make an unconditional ICT and Smart(er) Cities enthusiast and Urban Intelligence supporter.

In his current role for the City of Lisbon, David is responsible for Information and Communication Technology and Digital Transformation Portfolios: Policy and Strategy research, design and development; Building and management of strategic partnerships; National, City & private stakeholder management; Advisory to Vice Mayor on portfolio issues. Supervision of ICT department and Lisbon's Urban Management and Intelligence Centre: Coordination with General Managers, Directors and Section heads; Budget allocation and execution supervision; Programme / project design, implementation and management; Procurement and tendering supervision; Contract supervision. Public Procurement (Sourcing and Tendering).

Lisbon, the capital city of Portugal, has a smart city strategy that places its citizens and their needs at its core. Technology is just a means to an end. The city aims to become smart, sustainable, competitive, participatory, creative, innovative and citizen-centric. Lisbon has drafted an urban development strategy for the coming decades, and has committed to invest EUR 307 million in related projects (Programa Operacional Regional de Lisboa 2020). The strategy's main objectives are to attract more inhabitants by improving the quality of housing, and offering smart living services and smart ageing opportunities; to boost the economy and increase employment by investing in research and development, attracting more entrepreneurs and broadening access to higher education; and improving the quality of life in the city through measures for energy efficiency, mobility and social cohesion. Local regeneration and citizen participation are also priorities.

The demonstration area chosen for the SHARING CITIES project spreads over 10 km2 and has 100 000 inhabitants. This strategic location stretches from the riverfront to the centre of the city, and includes the main historic and tourist districts. The area poses several challenges, ranging from its particular orography to the historic nature of its buildings, and its ageing population.

Oana Buzatu has worked for the City of Cluj Napoca since 2011. She is communication manager of Cluj Future of Work project financed by Urban Innovative Actions programme.is involved in urban tech and smart city strategy and is Spokesperson of the Municipality of Cluj-Napoca and the Chief Service of the Citizen Information Centre of the institution, in charge of the local administration's interaction with the citizens. From this position she has been involved in most of the municipality's processes of becoming more friendly and involved with the citizens, enhancing transparency and also better understanding and updating the needs of public services. She has a bachelor degree in Journalism, a Master in Communication in the Public Sector.

Located in north-western Romania, **Cluj-Napoca** is considered the unofficial capital of the Transylvania region. The country's fourth-most populous city is the economic hub of the region, home to a half-million inhabitants in the metropolitan area, as well as 12 universities and 80,000 students. In an effort to solve public problems and promote sustainable development, Cluj-Napoca is boosting "economic engines" in the creative industries and university sector. As a technology hub, the ultimate goal for Cluj-Napoca is to improve the quality of life for citizens by focusing on five main areas: transport and mobility; citizen engagement; energy; infrastructure; and Internet access. The city is now looking to give the IT industry a boost of creativity to help strengthen innovation and the development of new products, creating the Transylvania Industries Cluster—the first in Romania—that works alongside local universities. Through these types of collaborations, the city hopes to create a cluster effect that allows competitiveness growth through information exchange, business partnerships, and economies by using shared resources.

PANELLIST INFORMATION

Duarte Fondo Quiroga is Business Development Director for Industry 4.0 and Smart Cities at NEC Europe. Industrial engineer expert in digitization and optimization of industrial processes. For the past ten years he has been collaborating with companies in the IT sector, combining new technologies and traditional engineering, both in the public and private sectors.

He works directly with the CTO and Deputy Head of the Cloud Convergence Business Unit of NEC Europe, responsible for the Cloud, Big Data and IoT product areas, and for Smart Cities initiatives.

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Nicolae Urs is Vice-Dean of the College of Political, Administrative and Communication Sciences at Babes Bolyai University in Cluj-Napoca, Romania. He is interested in everything related to technology. More specifically, he has been studying and researching the way in which public institutions employ new technologies, the changes that the new social networks brought about in communication, the opportunities provided by "big data" and the way in which visualising statistical data can help understand social trends. He has a PhD in online communication, to which he added an internship in the United States focused on e-government. He teaches courses related to e-Government, to the use of new technologies, and to online communication. He is actively involved in public institutions' digitisation projects, both at the level of the city of Cluj-Napoca, as well as at a national level; he also coordinated or took part in a number of strategic development plans for municipalities around Romania. He is a member of Code4Romania and co-chair of the Central and Eastern European e|Dem and e|Gov Days, as well as a member in the editorial board of two scientific publications.

Babes-Bolyai University (UBB) is a public university in Cluj-Napoca, Romania. UBB has the longest academic tradition among the Romanian universities (starting as Academia/Universitas Claudiopolitana in 1581), is the largest Romanian university (with about 45,000 students in 2020).

The University offers study programmes in Romanian, Hungarian, German, English, and French.

UBB is affiliated, inter alia, to the International Association of Universities, the Santander Group, the Agence universitaire de la Francophonie and the European University Association. Likewise, UBB signed the Magna Charta Universitatum and concluded partnerships with 210 universities in 50 countries, and it is widely considered as one of the most prestigious in Eastern Europe. The Babeș-Bolyai University is classified as an advanced research and education university by the Ministry of Education.