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Arad: Intelligent City Transformation Overview

ICC Final Deliverable

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September 2022

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Executive summary

The City of Arad has made important steps towards digital transformation in the past two years and the process has further accelerated recently due to the increase in demand for technology-based solutions. When Arad joined ICC, the main challenges, yet to be tackled, were related to the limited use of e-government services, despite their availability – Arad had implemented a platform for online interactions and had been developing at that time an integrated IT solution for complete e-services to simplify processes for citizens and the administrative staff alike. Other issues were the limited open data availability, the lack to almost no use of PPI in public procurement, the fluctuating level of digital skills in both citizens and employees that made it hard for some to use the new technologies. Although small, the IT community was actively involved in local initiatives together with stakeholders.

The City's vision is AR@Digital: Open.Connected.Educated – Arad reinvented through the use of data and technology. The main aim is the development and provision of digital services to both businesses and citizens in order to prepare the community for the digital future, to create a safe and smart urban environment, and to enhance citizen participation, connectivity and community.

Mayor Foreword

"Arad initially embarked on this journey during the Digital Cities Challenge, proving foremost that it is capable of bringing together actors from different areas of city life to create something long-lasting and impactful. As a result, the Digital Transformation Strategy became a cornerstone which established the importance of SMART CHANGE with the help of digital solutions.

The idea of DIGITAL ARAD carried on within ICC, renewing the necessity of transitioning to digital services and digital alternatives, as well as increased transparency and access to data. This challenge took on an important role during the COVID-19 outbreak, when people sought to fulfil the majority of their daily tasks from behind a screen – work, grocery shopping, payments, and so on. It also reminded citizens how valuable their time is, and how we, as local administrations, could aid them.

With technology as an essential part of our everyday life, it's vital that we remember these means are there to improve the quality of life and give opportunities to everyone, regardless of their social status. ICC has highlighted that synergy through PEER LEARNING and COLLABORATIONS, and how to tackle each challenge individually to reach a consensus. It's these examples and tangible results that give people FAITH in not only their city, but themselves to do better.

Although ICC is reaching completion, this is only the end of a chapter in an on-going quest that inspires us with each new development and story.

CĂLIN BIBARȚ

MAYOR OF ARAD CITY

The city of Arad pursued an EU-supported transformation over four main stages, and this document details that journey by these sections

Overview to the city's journey and structure of this document

Reported as one section

1 Preparation & assessment

5 months:
September 2020 – January 2021

2 Ambition & roadmap

3 months:
February 2021 – April 2021

3 Implementation

15 months
May 2021 – July 2022

4 Review & way forward

2 months
August 2022 – September 2022

Summary

Find out where a city is, where it should go and who in the ecosystem is going to mobilize make things happen

Develop a concrete plan to achieve measured improvements, collaborating with the community; push action with immediate benefits

Get "big moves" done and see results; take action in partnership with others

Measure success, and commit to keep connections and improvements going

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Section

1

Arad : Preparation and assessment

ICC transformation

September 2020 to January 2021

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Introduction

As a participant in the Digital Cities Challenge, the City of Arad has shaped its digital strategy that reflects the community`s development needs, vision and ambition.

Arad's Digital Transformation Strategy is oriented towards education in digital technologies, accessibility to digital services and skills for the population. The three dimensions of the strategy – open data, education and innovation – continue to be local priorities, but some of the planned activities have been delayed due to the social-economic impact of COVID-19 outbreak, as large budget funds and human efforts have been redistributed towards health and online school education. This resulted in shifts in local priorities and repurposing existing projects towards short- and medium-term needs, leaving behind ambitious long-term projects such as Open Data and innovation which require, besides funding, a high degree of specialisation and fine-tuned collaborative models. At the same time, the process of digitalisation met an unprecedented acceleration, the community as a whole acknowledging the vital importance of digital transformation.

The local administration is committed to modernise its services and improve urban environment through the use of technology, in collaboration with the community. Open data, digital education and innovation would represent a step-change in Arad's identity and performance.

Under ICC, Arad has selected the following city goals, related to its strategic orientation as defined in the Digital Transformation Strategy, coupled with other strategic documents developed by the City (Integrated Urban Development Strategy, Sustainable Urban Mobility Plan, Green Strategy, Sustainable Energy Action Plan and others):

- Enhancing citizen participation, connectivity and community
- Smart and green mobility and transport
- Supporting safety and security
- Climate resilience and disaster management

A shortlist including 10 solutions has resulted during the ICC Preparation and Assessment Phase, of which 6 were selected as top priorities for short and medium term implementation. They are linked to Arad`s vision for a re-invented city through innovative use of data and technologies.

City needs: State of the city overview

Significance of insight to what we want to do on the ICC

- Of critical importance to ICC journey and we should be working to change
- Of importance to ICC journey, and we should act to change this along the journey as opportunity presents
- Contextually relevant, but not major point of attention in ICC and unlikely to be impacted on the journey

The state of Arad today

The City of Arad has made important steps towards digital transformation in the past two years and the process has further accelerated recently due to the increased demand for technology-based solutions imposed by the pandemic.

A platform for online interactions was implemented by the City (One stop shop), allowing citizens and companies to submit documents and queries and to receive information, data and documents from the local authority online. Further steps have been made in the development of an integrated IT solution for complete e-services to simplify processes for citizens and administrative staff, e-signature and digital archive. The platform became fully operational at the beginning of 2022.

Smart solutions are provided for some public services (e.g. public lighting, e-ticketing) and planned for others (CCTV), but there is a high demand of technology in many sectors (parking, traffic, energy efficiency, waste management etc.). The use of digital solutions by local companies is increasing, but there is a shortage of employees with soft skills in the knowledge economy. Arad has two universities who offer IT and technology-based courses, however other cities in the region act as magnets for young people, offering higher value digital jobs.

The IT community is small but actively involved in local initiatives.

Key insights from city performance analysis

Higher performance observed

1. Most of the city is covered by 4G networks
   E-services are provided to a new IT platform
   Most internal processes of the City Hall are fully digital (starting with June 2022).
2. Free wireless internet is available in some open public spaces and the network is extending.
3. Citizens are actively involved in the city's decision-making processes (participatory budget, citizen participation at city council meetings, public consultations)
4. The number of online services provided by public institutions is increasing.
5. The public interest for digital is increasing.

Lower performance observed

1. E-government services are still used to a limited extent by citizens.
2. Limited Open Data availability.
3. No use of PPI in public procurement.
4. The level of digital skills needs improvement for both citizens and employees.
5. The city lacks a strong technological/digital community.

City Ecosystem

Key topics for discussion

- **Shared aspirations and vision** – All stakeholders have a realistic and shared understanding of the city`s current digital maturity, needs and potential for growth along with commitment to digital transformation.
- **What we bring and how we work together** – The stakeholder group is well balanced between reps of local administration, companies, education and IT groups. Most stakeholders belong to or have been in direct contact with at least one other group so they have an understanding and a vision that transcends their own interests. There is a good mix of capabilities and contributions complementing each other – from the teachers` complex vision to the practical approach of business people and the technical expertise brought by IT specialists. The local administration representatives play their role as facilitators. The productive collaboration is enabled by the DCC common experience.
- **Urban resources for transformation** – Local resources for a major digital transformation are limited and the City`s goals can be reached only by highly motivating and mobilising the existing ones. The IT community is small and few innovation initiatives are promoted. There is a shortage of employees with tech skills and a need to upskill current labour force to be fit for the digital economy. The need for a digital hub/workspace has been reiterated, but the stakeholders decided this project (prioritised in the Digital Transformation Strategy) may not have the desired impact under the current social distancing conditions and should be postponed.

ICC strategy: Vision and ambition statements

Overarching ICC city vision

AR@Digital: Open.Connected.Educated

Arad reinvented through the use of data and technology

Ambition statement 1

To develop and provide digital services to both business and citizens.

Ambition statement 2

To prepare the community for the digital future.

Ambition statement 3

To create a safe and smart urban environment

Ambition statement 4

To enhance citizen participation, connectivity and community

ICC strategy: Vision and ambition statements

Stakeholders expectations

- The local ecosystem expects to have more rapid access to quality information, to benefit from accessibility solutions and overcome obstacles
- Access to logistic resources and ongoing dialogue with the city are considered necessary;
- Implementing smart solutions should begin with their identification and prioritization with the purpose of capitalising on its local competencies;
- There is a need for an experienced collective that is efficient with management and implementation;
- A permanent approach for progress is necessary, noting that a lot have been done given that goals are maximal;
- Switch to digital solutions/services for both citizens and employees, extend this to other institutions as well,
- Improve communication between the administration and citizens, whether electronically or physically;
- Make the city more accessible, beginning with improving digital skills for both public servants and citizens and simplifying processes;
- Better dissemination of project results for beneficiaries to be more aware of the tangible progress in the city, thus also making city activities more transparent;
- Establish a permanent advisory committee (or similar) as a formal framework that should be consulted on matters falling within the competence of the members;
- Consultants should be involved more actively;
- Access to general data for clients that wish to open/extend a business that come from trustworthy sources (i.e., local authorities).

ICC strategy: Vision and ambition statements

What has the city done right and what it still needs to achieve?

- The local administration has made important steps towards digitalization but digital communication between public servants and citizens has to be further improved;
- There is city support for educational institutions, and involvement commitment from other parties.

Ways to contribute

- All stakeholders show great interest in the project;
- Involvement of the local ecosystem in the administration`s efforts towards digitalization has a positive impact on the community;
- Proposed contribution: own expertise and volunteering;
- Low number of volunteers and high costs could be considered obstacles in implementing projects.

City strategy: justification

How do the solutions interact?

- Solutions are closely related to each other. The first measures were taken within the City Hall by updating and extending the internal digital solutions, as well as the digital services for citizens, **enhancing the employees' digital skills** in tandem. These changes allowed the City to **provide more open data**, use **QR codes** for quick access to documents, as well as launch an **interactive map** with cadastral information, among others, and would ultimately lead to adding a **Chatbot** after upgrades are completed, and commencing the development of an **open data platform**, and the extension of **QR codes** to buildings as an accessibility tool, connecting to the new datasets. With these solutions in place, **citizens shall receive digital training too** to navigate them easier, with the help of Universities. These solutions are brought together with the **CCTV system** in the city that works not only for safety and security reasons but also helps collect data to be put to further use, and align with the open data platform.

If you could boil down your strategy to three thoughts that have best guided you on your way, what would they be?

- A permanent approach for progress is necessary, noting that a lot have been done given that goals are maximal.
- Communication and good collaboration in all domains is essential to creating a stable community, regardless of whether it pertains to current city solutions or not.
- Budget should not become a main issue in the development of a strategy.

What are the key factors that define success across all of your solutions?

- **Proactive approach:** Develop measures to boost stakeholders` initiatives and direct involvement in the proposed projects.
- **Participation:** Enlarge and diversify the working group with new stakeholders.
- **Sharing and visibility**: Create tools to share local best practice and make all digital and smart initiatives more visible to public.
- **Learn:** Collaborate with peer and mentor cities in the implementation phase to adopt good initiatives and find innovative solutions to local challenges.

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Section

2

Arad: Ambition and roadmap

ICC Transformation

February 2021 to May 2021

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High level implementation roadmap for solutions with their initiatives

Solution	Initiative (detailed roadmap implementation activities and milestones were prepared in Excel)	What has been done
1. Chatbot – conversational Artificial Intelligence tool, to improve interactions between citizens and the local administration	1. Developing the concept for the Chatbot conversational tool 2. Implementing and monitoring the Chatbot tool	To ensure the smooth implementation of this solution, the Chatbot has been integrated with a European funded project aimed at developing digital skills and extending the current digital platform in use at City level. Once the project's main objectives have been completed, the Chatbot can be developed with all the necessary data already established because of the platform. Although this pushes the solution at a further date, the outcome should be better than the initial proposal.
2. Develop employees' and citizens' digital skills	1. Increasing the degree of digital services usage 2. Developing the digital skills of the City Hall employees 3. Developing digital skills at a wide scale	A European funded project is currently underway for this solution, with future projects to tackle the digital skills of citizens, as well, in plan.
3. Make public buildings more accessible (QR codes)	1. Creating proof of concept 2. Publishing the application	Currently on halt. QR codes have been applied instead to documents entering the digital file sharing system of the City hall in order for citizens and employees to follow the status of documents with a scan away.
4. Develop an interactive map app	1. Receive / Purchase the application from the supplier 2. Development and updating services for the map app	An interactive GIS map is available on the City Hall website, and is currently undergoing updates, with more options to be available in the future.
5. Open Data	1. Develop an Open Data Strategy 2. Implement a public platform and a managing interface	City documents were made available on the City Hall website, in different formats (.pdf, .docx, .xlsx). New solutions are being sought on how to better implement an open data platform and integrate it with the current digital platform, and under current data protection laws.
6. Integrated CCTV system	1. Procurement procedure 2. Implementation stage	Funding for the solution has been requested from PNRR (Romania's National Recovery and Resilience Plan).

Rationale to road map

Arad ICC working group has prioritised **6 solutions**, linked to **4 ambition statements**, to be implemented on short, medium and long term, starting with 2021. For each solution, **2 or 3 initiatives** have been detailed.

Solution 6 (CCTV system) is the most mature, as the documentation (feasibility study) has already been developed and approved by the Local Council, but, on the other hand, it involves the highest costs and the most complex procurement procedure, which makes it a long term solution.

Other solutions (S2 Digital skills, S3 QR codes and S4 Mapapp), although not mature at the beginning of ICC journey, so their roadmap started with a preparation and approval phase, require lower budget and less complex procurement procedures, which makes them short term solutions.

S1 Chatbot is a medium-term solution because it has to be defined and developed in correlation with the integrated IT platform for online services developed with EU funds and launched by the City in December 2021, which is currently extended under a second EU funded project started in February 2022. Another medium term solution is S5 Open Data, which requires the highest degree of collaboration between different stakeholders and a relatively long preparation phase.

The success of each solution`s sustainable implementation lies in strengthening **community involvement**, therefore the solutions have been identified, prioritised and detailed in close collaboration with the local stakeholders and will be implemented together with the ICC working group, but ownership is attached to the most powerful source of **local leadership**, enabled with decision making resources, high responsibilities and an important facilitative role to play in local engagement, i.e. the City Hall, represented by the Mayor and the Local Council. This is why each roadmap created for each solution follows the main legal and organisational steps required for the local administration to develop, implement and monitor any investment project.

Depending on the maturity of the solution and the estimated budget, roadmaps may start with identifying the needs, making a decision, defining the activities, organising a procurement procedure or finding the funding source. In all cases, the procurement procedure is a key milestone, which also includes key elements of the future solution like technical details and costs necessary to address the defined need.

Initiative charter - Solution 1 - Chatbot – conversational Artificial Intelligence tool, to improve interactions between citizens and the local administration

Strategy

Description

What: Chatbot – conversational Artificial Intelligence tool. A functional digital tool able to respond to the needs of citizens and businesses.

Why: Develop and provide digital services 24/7h to both business and citizens, as well as support for City Hall internal processes.

How: Procurement planning and defining needs in correlation to extending the existing integrated IT platform; Defining fluxes and functionalities for the Chatbot.

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology.

Link to ambition statement

1. To develop and provide digital services to both business and citizens.

Expected impact and timing

Implementation postponed - 6 months for implementation, impact expected within 1 year after implementation

Preparatory activities are currently underway. The existing integrated digital platform shall first be extended to all City Hall services through an ongoing project funded under a European programme, followed by the development of the Chatbot at the end of the project.

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Stakeholders involved

Solution lead: City Hall.

Solution working team: ICC Local Group.

Contributors: Private sector, IT experts.

Risks and mitigation

- Budget or limited interest from decision makers, mitigated by accessing EU financing/ allocating local budget funds.
- Poor services contracted / Lack of monitoring capacity, mitigated with expert technical advice.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget

15,000 – 25,000 EUR + VAT for development.

42,000 – 44,000 EUR + VAT - annual cost for implementation and maintenance.

Solution maturity outputs

- Currently postponed, to be implemented as a continuation of EU funded project started in February 2022 that extends existing integrated IT platform (also developed with EU funds in 2021).

City performance outcomes and impacts

- A better bi-directional communication between citizen and the local administration.
- More efficient internal flows.

Initiative charter - Solution 2 – Develop employees' and citizens' digital skills

Strategy

Description

What: Improve employment conditions and quality of life through digital skills.

Why: poor citizens' digital skills

How: Training activities for various categories of citizens based on the identified needs for employment and daily life.

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology

Link to ambition statement

2. To prepare the community for the digital future.

Expected impact and timing

Immediate impact / permanent by providing free training courses for employees, free tutorials, practical demonstration and tailored training for citizens.

Stakeholders involved

Solution lead: City Hall

Solution working team: ICC Local Group

Contributors: Universities, Chamber of Commerce, IT companies, training providers

Risks and mitigation

- Lack of public interest, institutional interest, of collaboration, mitigated through improved communication.
- Poor promotion, mitigated through expert promotion services.
- Time for training, mitigated through flexible training schedules, online sessions.
- Low no. of IT employees in administration, mitigated through extending the IT department

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget, EU funds

0 - 5,000 EUR
Support received under a larger contract with EU financing,

Solution maturity outputs

Currently on track (implementation stage). Partially in implementation through European projects (enhancing the digital skills of City Hall employees), 1 completed with 450 employees, another underway with an additional 100 employees.

Make public services more accessible through a set of support activities.

Improve efficiency in the local administration's activity.

City performance outcomes and impacts

Improve digital services provided by local administration, employment conditions and quality of life through digital skills.

Initiative charter - Solution 3 – Make public buildings more accessible (QR codes)

Strategy

Description

What: Make public buildings more accessible

Why: Public buildings should be more accessible

How: Create a proof-of-concept mobile app able to read NFC labels and QR inside a public building;

Collect the relevant data for the first building to be accessible through the mobile app.

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology

Link to ambition statement

3. To enhance citizen participation, connectivity and community.

Expected impact and timing

3 months for procurement.

3 months/building

Stakeholders involved

Solution lead: City Hall

Solution working team: ICC Local Group

Contributors: Universities, IT companies

Risks and mitigation

Availability of local budget funds. Mitigated by accessing EU funds/ allocating funds in the local budget for 2022.

Insufficient data collected / poor application developed. Mitigated through acquiring expert advice.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget, EU funds

0 – 4,000 EUR

Solution maturity outputs

Currently not in development. QR codes were attached instead to all documents registered at the City from an external source (from citizens, companies, emails addressed to the City etc.) for quick access / tracking the document status, as well as added to permits issued by the City.

Helps develop public open data regarding the public buildings.

City performance outcomes and impacts

More accessible public buildings.

Initiative charter - Solution 4 – Develop an interactive map app

Strategy

Description

What: Develop an interactive map app

Why: Interactive maps provide new opportunities for distributing information within the organization and r to the public via the Internet.

How: Purchase the application from the supplier and develop it with internal resources.

Manage content (inputting and updating data) and app maintenance.

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology

Link to ambition statement

1. To enhance citizen participation, connectivity and community.

Expected impact and timing

3 months

Stakeholders involved

Solution lead: City Hall

Solution working team: ICC Local Group

Contributors: Universities, IT companies

Risks and mitigation

- App not fully functional. Mitigated through technical support and expert advice,

- Lack of budget, mitigated through allocating budget lines for this solution.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget

4,000 EUR for development
2,000 EUR / year to update.

Solution maturity outputs

Uses various technological solutions based on Open Data.

An interactive GIS map is currently available for free on the new City Hall website and is constantly developed.

City performance outcomes and impacts

Provide a functional digital tool able to respond to the needs of citizens and businesses.

Increase the citizens satisfaction in relation to public services by providing a functional digital tool and make adjustments and updates, if needed, based on a coherent monitorisation process.

Initiative charter – Solution 5 – Open data

Strategy

Description

What: Open Data

Why: It can be exploited to direct improved city planning and job creation, the modernization of education and healthcare systems

How: Institutional decision to develop and implement an Open Data platform; Manage, update and complete the open datasets.

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology

Link to ambition statement

1. To develop and provide digital services to both business and citizens; and

2. To enhance citizen participation, connectivity and community.

Expected impact and timing

Medium and long term

Stakeholders involved

Solution lead: City Hall

Solution working team: ICC Local Group

Contributors: General public, local companies and the IT community, NGOs, Universities

Risks and mitigation

Availability of local budget funds mitigated by allocating funds in the local budget for 2022.

Legislative barriers and/or reluctancy of data holders mitigated with support from data holders (players from the civil society, volunteers, NGOs, universities, civil organizations, other institutions or groups of stakeholders that are willing to bring in their share at developing and updating some open datasets) and expert advice.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget

0 – 4,000 EUR

Solution maturity outputs

Currently in design stage.

First steps were taken with the new City Hall website that hosts a GIS map, and official City documents available to everyone in word, pdf and excel formats.

Software developers to access the Open Data catalog – and often the data itself – through software using APIs

City performance outcomes and impacts

Open data can be exploited to direct improved city planning and job creation, the modernization of education and healthcare systems, and could help to pinpoint inefficiencies and inequalities in the delivery of basic services and facilities.

Initiative charter – Solution 6 – Integrated CCTV system

Strategy

Description

What: Integrated CCTV system

Why: A safe and secure city is a nicer and attractive place where people – residents and visitors – feel safe to live, work, travel and thrive.

How: Identify and approve funding sources, conduct preliminary studies/develop application

Link to vision

AR@Digital: Open.Connected.Educated Arad reinvented through the use of data and technology

Link to ambition statement

4. To create a safe and smart urban environment

Expected impact and timing

Long term.

Estimated operating period: 15 years, none to low necessary costs the first 10 years for maintenance and utility services.

Stakeholders involved

Solution lead: City Hall

Solution working team: ICC Local Group

Contributors: Local Police

Risks and mitigation

Lack of budget. Mitigated by accessing new grant funds and gradually splitting the costs through a longer period of time.

Power supply fluctuations affecting the system and the data communication network damaged. Mitigated through collaborations with companies that have installed cables on the pillars and maintenance of the base network with high quality services, so as to ensure that repairs shall be done as quickly as possible.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Source: Local Budget, EU funds

15 mil EUR

Solution maturity outputs

Currently awaiting partial financing through PNRR (Romania's National Recovery and Resilience Plan).

Shall be partially developed through a first phase (CCTV in all city parking spots).

The system allows the use of videos cameras to monitor the city, transmitting the signal to a set of monitors.

City performance outcomes and impacts

Increased quality of life and safety, possibility of acquiring data to further enhance citizen life.

Key Performance indicators - overview

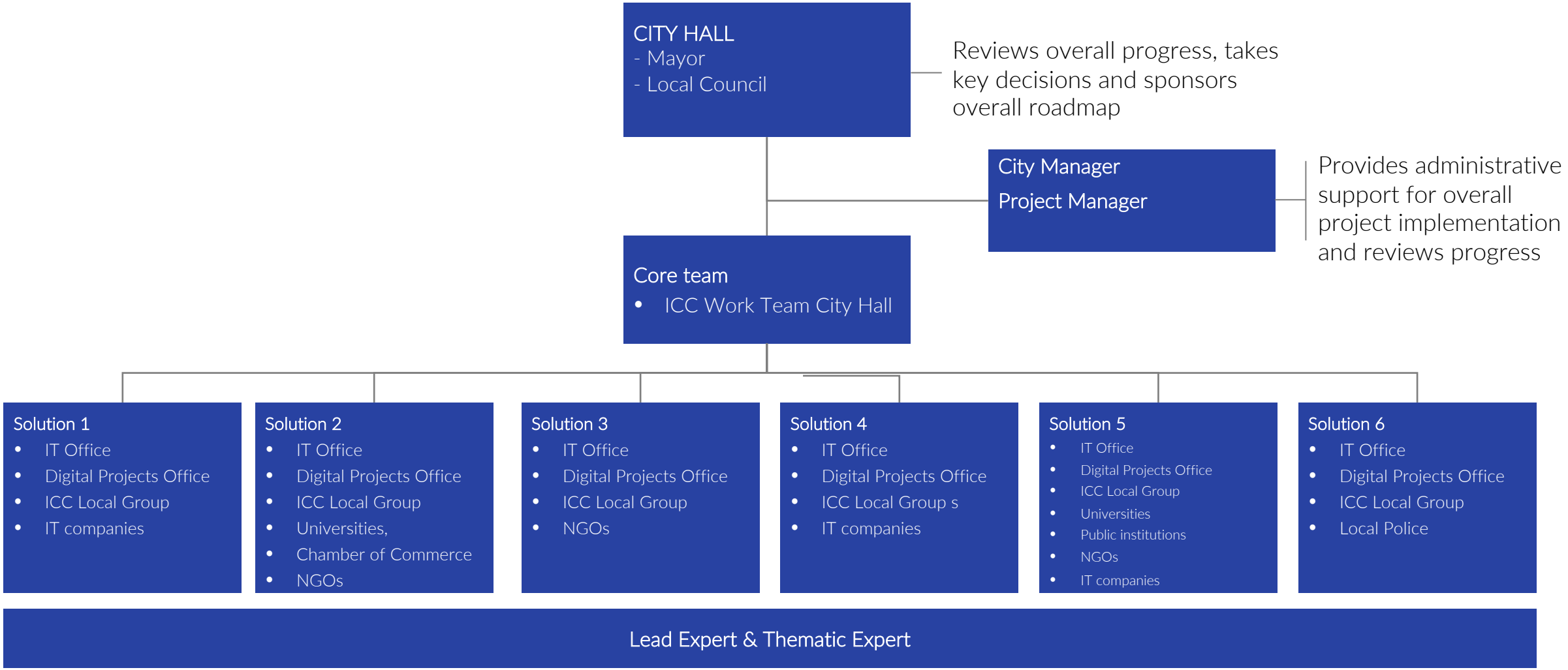
Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
All solutions	**Ecosystem funding per solution - mandatory:** 1. Funding committed by city authority 2. Funding committed by other city ecosystem players 3. Funding committed on initiative in partnership with another ICC city **Roadmap progression** 1. % of activities completed 2. % of activities delayed 3. % of activities not started 4. % of activities cancelled from various causes (budget, people constraints etc.) 5. Number of months ahead or behind specific deadlines per solution		
Chatbot – conversational Artificial Intelligence tool, to improve interactions between citizens and the local administration		1. No. of flows/ processes/ documents enrolled in chatbot	1. No. of times accessed 2. Citizen satisfaction/ NPS overall (questionnaire: How satisfied were you with the Chatbot?/ How likely is it to recommend the Chatbot to a friend? - scale 1-10)
Develop employees' and citizens' digital skills			1. Total number of people participating trainings/ handed flyers 2. Representation across demographic (e.g., age, ethnic groups, socioeconomic classes)
Make public buildings more accessible (QR codes)		1. % of public buildings available in app	1. No. of app downloads 2. Citizen satisfaction/ NPS overall
Develop an interactive map app		1. No of modules / thematic layers	1. No. of app downloads 2. Citizen satisfaction/ NPS overall
Open Data		1. Extent of data publicly available – no. of data sets	1. No. of downloads (overall with split pe data sets categories) 2. Citizen satisfaction/ NPS overall
Integrated CCTV system		1. Cam grid infrastructure (no. cams) 2. Density of cams (no. cams/ roads km)	

Rationale to KPI approach

Taking into account the city overview and discussions with stakeholders, the logical approach was the following: **enhance** the city's digital environment through the local administration (Chatbot, QR codes, interactive map, open data) and **security features** (integrated CCTV system), and, at the same time, **develop digital skills** for both employees and citizens to easily access and use these new features, while also considering demographics (age, ethnic groups, socioeconomic classes) to see where to further apply digital learning.

Since these are new measures, **the chosen KPIs reflect quantities**, i.e. the no. of modules/thematic layers for the map, the no. of flows/processes/documents enrolled in Chatbot, the no. of available data sets, % of public buildings made available through QR codes, as well as the no. of cameras and density of cameras (no. cameras/roads km) for the camera grid infrastructure would show the solution maturity. They are also mostly **dedicated to citizens**, therefore, **overall satisfaction** should be measured through a questionnaire, and **how**, and **IF**, **these services are used** (no. of app downloads, how many times has these services been accessed, etc.).

Governance structure for roadmap implementation



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Section

3+4

Arad: Impact

ICC Transformation

May 2021 – September 2022

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Impact executive summary

The City of Arad has made important steps towards digital transformation in the past two years and the process has further accelerated recently due to the increase in demand for technology-based solutions. When Arad joined ICC, the main challenges, yet to be tackled, were related to the limited use of e-government services, despite their availability – Arad had implemented a platform for online interactions and had been developing at that time an integrated IT solution for complete e-services to simplify processes for citizens and the administrative staff alike. Other issues were the limited open data availability, the lack to almost no use of PPI in public procurement, the fluctuating level of digital skills in both citizens and employees that made it hard for some to use the new technologies. Although small, the IT community was actively involved in local initiatives together with stakeholders.

The City's vision is AR@Digital: Open.Connected.Educated – Arad reinvented through the use of data and technology. The main aim is on the development of and providing digital services to both business and citizens in order to prepare the community for the digital future, to create a safe and smart urban environment, and to enhance citizen participation, connectivity and community.

There are four types of measurable concepts that come together to drive success in the ICC

…makes it easier to undertake certain…

…which work to drive up…

…leading to improved…

Change measured over time during ICC

Idea	Local enablers –city characteristics	Activities – actions and inputs	Technology maturity – outputs	City performance – outcomes and impacts
Description	Each city has unique strengths and weaknesses that help action happen. These can be stakeholder networks, local capabilities, cultural factors or many more that drive success in ICC projects.	A city's main intervention on the ICC is to take actions. These can be direct (e.g., procuring technology), or indirect, (e.g., forming a working group on a topic). The right actions can lead to the right inputs going in to the ICC (e.g., funding, time)	Cities can drive technological solutions to try and improve city performance. How well these solutions are currently used can be described as their 'maturity', - considering whether they are available for stakeholder use, what stakeholders think of them, and so on	Success of an intelligent city is ultimately measured by its ability to address city needs. These can be considered an improved quality of citizen life and a better environment for stakeholders
Example	A history of strong collaboration between city and a local university…	…allows the creation of a new e-health pilot project using social housing in the city…	…leads to the launch a new tele-health solution utilising 4G data connections…	…resulting in pre-emptive diagnosis and lower wait times at medical facilities

Assessment of city performance

Solution	Initiative (detailed roadmap implementation activities and milestones were prepared in Excel)	What has been done
1. Chatbot – conversational Artificial Intelligence tool, to improve interactions between citizens and the local administration	1. Developing the concept for the Chatbot conversational tool	To ensure the smooth implementation of this solution, the Chatbot has been integrated with a European funded project aimed at developing digital skills and extending the current digital platform in use at City level. Once the project's main objectives have been completed, the Chatbot can be developed with all the necessary data already established because of the platform. Although this pushes the solution at a further date, the outcome should be better than the initial proposal.
	2. Implementing and monitoring the Chatbot tool	
2. Develop employees' and citizens' digital skills	1. Increasing the degree of digital services usage	A European funded project is currently underway for this solution, with future projects to tackle the digital skills of citizens, as well, in plan.
	2. Developing the digital skills of the City Hall employees	
	3. Developing digital skills at a wide scale	
3. Make public buildings more accessible (QR codes)	1. Creating proof of concept	Currently on halt. QR codes have been applied instead to documents entering the digital file sharing system of the City hall in order for citizens and employees to follow the status of documents with a scan away.
	2. Publishing the application	
4. Develop an interactive map app	1. Receive / Purchase the application from the supplier	An interactive GIS map is available on the City Hall website, and is currently undergoing updates, with more options to be available in the future.
	2. Development and updating services for the map app	
5. Open Data	1. Develop an Open Data Strategy	City documents were made available on the City Hall website, in different formats (.pdf, .docx, .xlsx). New solutions are being sought on how to better implement an open data platform and integrate it with the current digital platform, and under current data protection laws.
	2. Implement a public platform and a managing interface	
6. Integrated CCTV system	1. Procurement procedure	Funding for the solution has been requested from PNRR (Romania's National Recovery and Resilience Plan).
	2. Implementation stage	

Activities (inputs and actions)

Solution	Initiative	Activities – Inputs and actions
2. Develop employees' and citizens' digital skills	1. Increasing the degree of digital services usage	Activity #1: Support provided for citizens to use the digital services already implemented or those about to be implemented ☑ Action #1: Identifying needs – analysing the degree of usage among the provided digital services Action #2: Directly approach citizens that are physically present at the City Hall for issues that may be solved using the digital services already implemented – explications and demonstrations at the scene ☑ Action #3: Printing materials that algorithmically and intuitively explain the way available digital services can be used, and personally hand them over Action #4: Developing materials that algorithmically and intuitively explain the way each available digital service can be used, personally hand them over, as printed material, and publish them online Action #5: Developing tutorials that explain the way digital services can be used Action #6: Develop a digital helpline (hotline) for the elderly or other categories of people that have trouble using digital solutions Action #7: Promotion ☑ Action #8: Establish partnerships with educational institutions, NGOs to develop materials (brochures, flyers, tutorials) and for volunteering activities in training citizens on how to use digital solutions, as well as promotional activities Action #9 Procurement of promotion services – development of materials (brochures, flyers, tutorials)
		Activity #2: Support for developing digital skills for the elderly or other categories of people that have trouble using digital solutions Action #1: Identifying needs (young disadvantaged families) Action: preparing themes / practical study cases (including personalising them depending on the skills of the targeted group) and officers that shall deliver training Action # 2: Organising some training sessions for the elderly and other socially disadvantages categories, at day centres for the elderly and at the headquarters of some NGOs, educational institutions, Chamber of Commerce, Social Assistance Department Action # 3: Organising some information/training courses for young people in disadvantaged families (e.g. opening to and specialising in IT), in collaboration with the educational institutions Action #3: Promotion ☑

Activities (inputs and actions)

Solution	Initiative	Activities – Inputs and actions
2. Develop employees' and citizens' digital skills	2. Developing the digital skills of the City Hall employees	Activity #1: Organising regular trainings ☑ Action #1: Identifying needs at office, department etc. level ☑ Activity #2: Proposing a set of base skills or, as necessary, of superior level or specific to the position in the institution, necessary to be mastered by the employees ☑ Action #2: Planning training sessions ☑ Action #4: Procuring some training and evaluation services Action #5: Introducing some contractual provisions regarding the training of employees in the contracts signed by the City for digital/IT services or equipment ☑ Action #6: Learn continuously ☑
	3. Developing digital skills at a wide scale	Activity #1 Organising some training courses for employees from different economic sectors Identifying necessities and needs Action #:1: Evaluating the population's current level of digital skills compared with the needs expressed by the local economic actors from the IT sector and others Action #2: Organising some informative/training courses in collaboration with the educational institutions Activity #2 Action #1: Identifying companies that can organize training sessions for students

Activities (inputs and actions)

Solution	Initiative	Activities – Inputs and actions
3. Make public buildings more accessible (QR codes)	1. Creating proof of concept	Activity #1: Creating concept proof Action #1: Creating concept proof for the mobile application capable of reading QR and NFC labels inside public buildings (e.g. Administrative Palace) Activity #2 Collecting data Action #1: Collecting relevant data for the first building that shall be made accessible through the mobile application (e.g. entrances, schedule etc.)
	2. Publishing the application	Activity #1 Testing Action #1: The first functional application (Beta version) and testing it with the blind users and volunteers/City Hall employees Activity #2 Implementing Action #1: Publishing the app for Android and iOS Physical implementation. Labels, posters etc. Action #2: Promotion Additional buildings
4. Develop an interactive map app	1. Receive / Purchase the application from the supplier	
	2. Development and updating services for the map app	

Activities (inputs and actions)

Solution	Initiative	Activities – Inputs and actions
5. Open Data	1. Develop an Open Data Strategy	Preparing plan/roadmap for open data (including defining who is responsible for what/officers) Preparing case studies to use open data, e.g. Health, Education, review governmental guides/good practices etc. Identifying and starting collaborations 1. Identifying the data that shall be exposed (option 1 – all available data; option 2 – a selection of data based on importance/needs; identifying readily-available data -> intern data in the City Hall; dataset profile) 2. Transforming data in CSV format with detailed descriptions of fields 3. Creating infrastructure to stock data (the easiest, FTP, SFTP but there are other solutions etc.) – on the website 4. Creating a request form for publishing new data (the only form)
	2. Implement a public platform and a managing interface	
6. Integrated CCTV system	1. Procurement procedure	
	2. Implementation stage	

Assessment of city performance - progress against KPIs

Solution #2. Develop employees' and citizens' digital skills

	Where we started	Midway through the challenge	Final results
1 KPI 1 Total number of people participating/ no of trainings/ no of handed flyers	0	450 trained public servants	550 trained public servants (additionally, 100* employees trained) *estimation; project currently in implementation but given the obligation of fulfilling project indicators, this number cannot be decreased
2 KPI 2 Representation across demographic (e.g., age, ethnic groups, socioeconomic classes)	*N/A - Not Applicable since initiative was not yet started/ implemented*		

Assessment of city performance - discussion

Arad shaped its digital strategy to reflect the community`s development needs, vision and ambition through DCC, which resulted in Arad's Digital Transformation Strategy (2019).

Under ICC, Arad has selected 4 main city goals in relation to the strategic orientation as defined in the Digital Transformation Strategy, coupled with other strategic documents developed by the City (Integrated Urban Development Strategy, Sustainable Urban Mobility Plan, Green Strategy, Sustainable Energy Action Plan a.o.): 1. Enhancing citizen participation, connectivity and community; 2. Smart and green mobility and transport; 3. Supporting safety and security; 4. Climate resilience and disaster management. A list of 10 solutions has resulted during the ICC Preparation and Assessment Phase, of which 6 were selected as top priorities for short and medium term implementation.

Due to the COVID-19 some activities have been placed on hold and local priorities have shifted, but at the same time, the process of digitalization met an unprecedented acceleration, the community as a whole acknowledging the vital importance of digital transformation. As a result, some solutions have been postponed, others accelerated.

Now Arad has extended digital options for services accessible to citizens and businesses for free, as well as digital solutions within the City Hall to facilitate administrative processes.

The success of sustainable implementation lies within the community involvement, as well as ownership, enabled with decision making resources, high responsibilities and an important facilitative role to play in local engagement, i.e. the City Hall, represented by the Mayor and the Local Council.

Assessment of solution maturity - discussion

Solution 1. Chatbot – postponed in order to be integrated with the other software solutions and digital services provided and planned by the City Hall;

Solution 2. Develop employees' and citizens' digital skills - on track / implemented

- Training courses for 450 employees (December 2021 – January 2022) under EU funded project "Efficient strategic planning and implementation of e-solutions in order to decrease bureaucracy within the City Hall of Arad" (ended in February 2022). The training included practical sessions that allowed the participants to rapidly adapt to and utilize the new digital solutions. After implementing the E-services portal, out of the initially trained employees, 350 received further training on digital solutions in May – June 2022.
- Additional training courses for 100 employees are planned under another EU funded project, currently in implementation.
- Citizens that still choose face-to-face interactions are given guidance and demonstrations on the new digital alternatives and their advantages. 1500 flyers were also distributed to citizens.

Solution 3. Make public buildings more accessible (QR codes) – postponed due to pandemic, should be back on track soon. QR codes were used instead for all documents registered at the City Hall from an external source (from citizens, companies, emails address to the City etc.) for quick access / tracking the document status.

Solution 4. Develop an interactive map app – on track / implemented with a map available online through the City Hall website (GIS map).

Solution 5. Open Data – in design stage – linked with the GIS map providing cadastral data and the new City Hall website providing official documents in word, pdf and excel formats.

Solution 6. Integrated CCTV system - in design stage – was included in a larger a smart parking project submitted for financing under the National Recovery and Resilience Plan.

Assessment of city ecosystem and activities - discussion

At local level, 7 workshops were organised between November 2020 and September 2022, including the Geographical Chapter Meeting – Romania that took place on 19th May 2022.

The number of participants was between 12 and 20.

There has been a high level of cooperation between all stakeholders involved in the DCC / ICC working group and an open, positive attitude which bodes well for future stages. The IT community is small but actively involved in local initiatives.

What went well:

- Involvement of important local actors;
- Workshops had clear objectives;
- The participants were active and interested;
- Workshops have reached their goals;
- Joint activities were conducted.

What should be improved to ensure project sustainability:

- Implementation tasks should be allocated on distinct objectives;
- A well-defined action plan is necessary;
- A well-defined collaboration framework is necessary.

5 key lessons

Lesson	Reflections
1	If one solution does not work, it's not the end of the line. Constantly adjusting to current situations and finding new ways to tackle issues, despite how solid the solution seemed in the past, will always lead to positive results. The world is constantly changing, and we have to keep up, too.
2	Collaboration with local actors from different domains is essential. Even if you might not see a correlation in the beginning, links appear more evident as you continue cooperating and finding solutions together. On this subject, collaborating with external factors might bring fresh approaches, i.e., both with cities that had similar experiences or that are on the opposite end.
3	There are no bad ideas, it's the execution that matters. Initial suggestions illustrate a need/want/opinion, and they should be taken into consideration, no matter how wild they appear. That does not mean you **must** make them a reality either but turning down ideas just because they are not sound from the very beginning might make you miss some opportunities.
4	Public opinion wavers often. It's also important to note if you're bringing solutions that will help all your citizens or just a few more vocal parties, same with opposition when a new solution is implemented. Unfortunately, you cannot please every single citizen, but you can ensure they would benefit from your approaches in the long-run without bringing harm.
5	There are plenty of tools available to local administrations, it's the willingness to search and use them that makes the difference. No matter how well-trained or well-equipment the City is, there is always room for more. At the same time, no matter how technologically-advanced, not knowing how to properly use these tools contributes to slowing down innovation.

Reflections on city collaborations

During ICC, Arad strengthened their connection with the City of Ulm, through Zoom meetings and exchanging information, which resulted in joining an informal smart city group, at Ulm's proposal, alongside Bistrița (Romania), Gliwice (Poland), Cascais (Portugal), Celje (Slovenia), and Las Rozas (Spain). The group had the first meeting on June 9th, and are currently in the midst of figuring out domains of interest and challenges to tackle together.

Commitments

Commitments to on-going resources	Commitments to on-going collaboration	Commitments to on-going KPIs
European funds and the local budget are the two main resources that drive all important projects in the city. More opportunities are currently available under the new Regional Operational Programme for 2021 – 2027 and the PNRR (Romania's National Recovery and Resilience Plan). In the future, partnerships with private entities are also considered, and the City shall commit to push for more PPPs.	The City shall continue collaborating with all stakeholders involved in the ICC Local Groups, including the two Universities and private entities. Another collaboration is foreseen with cities from ICC, to continue learning and sharing knowledge.	The solutions described in this document shall be implemented, respecting KPIs proposed.

3 Year plan - ambitions

Building on the ICC, what would/ will the city aim to achieve in 3 years time?	In 3 years' time, Arad's administration would have complete digital solutions for citizens and employees, lessening the workload and increasing the speed of implementing solutions at city and internal level. The local stakeholder ecosystem is strong and connected, working together to make the city a better place to live for everyone.
What steps will you take over the next 3 years to achieve these goals?	Steps have already been undertaken through European funded projects, it's only a matter of seeing them implemented to the end and expanding, as necessary. Another step would be to maintain the current ecosystem and enlarge it with more stakeholders, as well as to seek public-private partnerships.

European Commission

ICC
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Thank you!

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