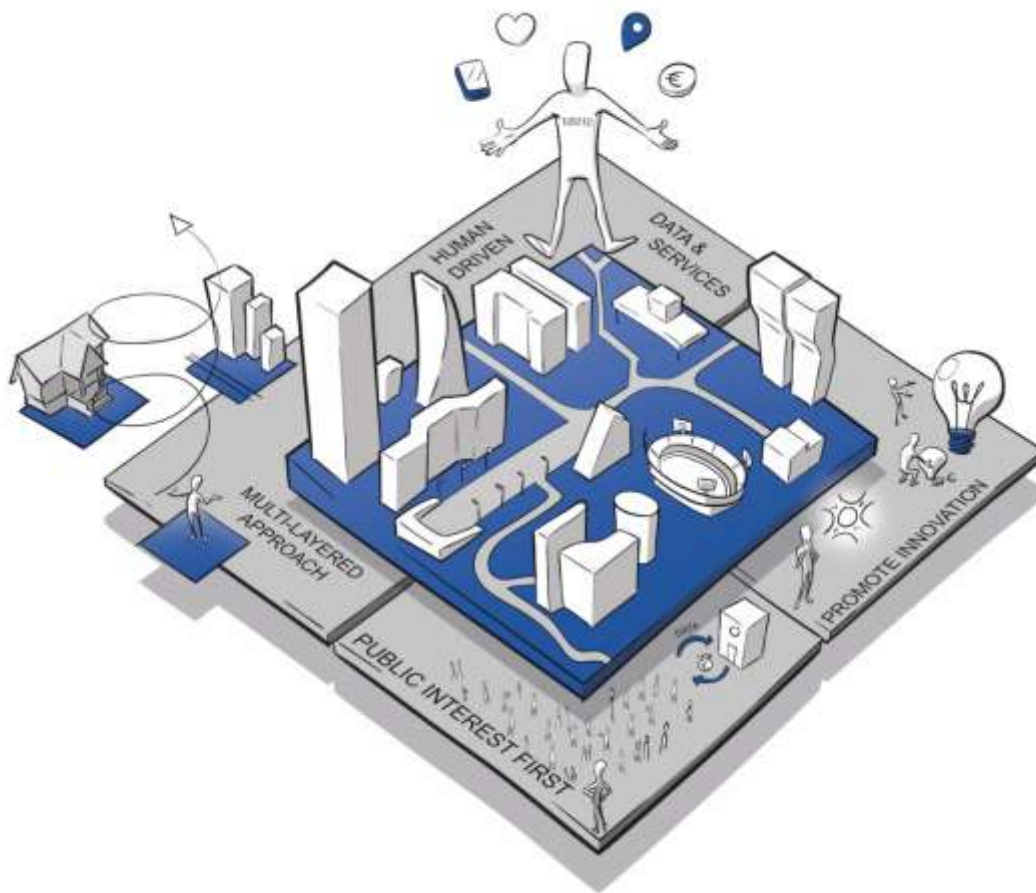


Digital transition action plan 28.06.2018 FINAL



Contents

0. Summary	3
1. Introduction	5
1.1. Digital Transition Action Plan Goals and actions to achieve the goals	8
1.2. Results	10
1.3. Related EU strategies to the digital transition	10
1.4. Governance of the Partnership	12
1.5. Information used and communication	13
2. Actions	15
2.1. Better Knowledge - Action 1: Mainstreaming EU Digital Competence Framework for citizens into daily use	15
2.2. Better Funding - Action 2: Digital Neighbourhood Instrument	17
2.3. Better Funding - Action 3: Capacity-Building and Spreading of Pilots in Regions and Cities	19
2.4. Better Knowledge - Action 4: Helping cities develop a user-centric eGovernment model	22
2.5. Better Knowledge - Action 5: Developing the Digital Economy and Society Index (DESI) at local level (“DESI local”)	26
2.6. Better Regulation - Action 6: Build a data taxonomy at a European level	28
2.7. Better Regulation - Action 7: Access and reuse of private sector data of general interest by the public authorities	31
2.8. Better Regulation - Action 8: Specify and monitoring of standardised Planned Land Use data for formal and informal urban planning participation processes	33
2.9. Better Knowledge - Action 9: MyData in digital transition – Elaboration of a European roadmap on “MyData”	37
2.10. Better Knowledge - Action 10: Building innovation and dissemination accelerator	40
2.11. Better Funding - Action 11: Support agile experimentation of emerging digital technologies	43
2.12. Better Knowledge - Action 12: Implementing the digital framework for emerging technologies within the digital infrastructure	44
2.13. Better Funding - Action 13: Co-creating a business model approach for cities	46
2.14. Better Regulation - Action 14: Development of 5G regulation to enable local micro-operators in cities	49
2.15. Better Funding - Action 15: Strengthen the ability for cities to act within the digital transition	51
3. Recommendations	53
3.1. Recommendation 1: Decree on the ownership of the definitions of the interfaces of municipality ICT systems	53
4. Links with other commitments	54
4.1. Link with the cross-cutting issues	54
Annex 1. Feedback from public consultation by actions	61
Annex 2. Citizen eXperience Model in e-Governance	66

0. Summary

The objective of the Digital Transition Action Plan is to provide improved public services to citizens, to support European cities in exploiting the possibilities of digitalisation and assist European businesses to develop new innovations and create new business opportunities for global markets. The action plan is part of the implementation of Urban Agenda for EU, adopted by the Pact of Amsterdam in May 2016. This plan is linked to several EU level strategies, such as the Digital Single Market Strategy for Europe, European Commission's Digital Agenda which forms one of the seven pillars of the Europe 2020 Strategy and The EU eGovernment Action Plan 2016-2020.

Digitalisation has great potential to improve services and processes, allowing them to become more user-friendly and cost-effective. It is essential that the digital transition in Europe is based on sound prerequisites that place the interest of the citizen first, taking into account the challenges – such as security and privacy concerns - which come with new technologies.

In general, the current state of digital transition of cities is very diverse. Large cities tend to be at the forefront of digitalisation due to higher demand for more complex services and interactions, and their greater capacity to develop and provide those services. The main factors constraining the digital transition of cities are lack of funds and lack of skills, although the scope and impact of these constraints differs. Another factor, especially inherent in smaller cities and towns, is a lack of strategic vision. To enhance the capacities of cities to deliver digital services and to tackle these challenges requires policy responses at all levels and by all actors. There is a need to target regions and cities that are lagging with their digital transformation to enable them to become more attractive and competitive.

The Digital Transition partnership emphasises creating and offering European solutions to the global digitalisation markets. In this context, cities have a central role to play, as they are providing the services for their citizens and creating conditions for businesses.

The partnership proposes initiatives on the topics where digitalisation can have the most profound effect in transforming urban governance, quality and fulfilment of life of its citizens, and the most advantageous business and growth opportunities for the businesses. The AP includes actions that aim at achieving more than one objective.

What we want to achieve is:

- **Generalise and diffuse digital skills to everybody:**
 - Action 1: Mainstreaming EU Digital Competence Framework for citizens into daily use;
 - Action 2: Digital neighbourhood instrument; and
 - Action 3: Capacity-building and spreading of pilots in regions and cities
- **Enable and implement citizen-centric e-government:**
 - Action 4: Helping cities develop a user-centric eGovernment model; and
 - Action 5: Developing the Digital Economy and Society Index (DESI) at local level (“DESI local”)
- **Provide value through free and fair access to open/public/personal data:**
 - Action 6: Build a data taxonomy at a European level;
 - Action 7: Access and reuse of private sector data of general interest by the public authorities;
 - Action 8: Specify and monitoring of standardized Planned Land Use (PLU) data for formal and informal urban planning participation processes; and

- Action 9: MyData in digital transition – Elaboration of a European roadmap on “MyData”
- **Accelerate and adopt digital emerging technologies in cities:**
 - Action 10: Building innovation and dissemination accelerator;
 - Action 11: Support agile experimentation of emerging digital technologies; and
 - Action 12: Implementing the digital framework for emerging technologies within the digital infrastructure
- **Adopt business model thinking to drive urban digital transition:**
 - Action 13: Co-creating a business model approach for cities; and
 - Action 14: Development of 5G regulation to enable local micro-operators in cities
- **Strengthen the ability for cities to act within the digital transition:**
 - Action 15: Implementing digital transition in European cities

Digital transition partnership is actively seeking partners and stakeholders to be involved in further development and implementation of the action plan.

1. Introduction

It is expected that by the year 2050 80% of the worldwide population will live in cities. This brings new challenges for cities and how to anticipate on that. This development is noted also in Europe while it has been launching the Urban Agenda for EU initiative to come closer to its citizens through cities. EU Urban Agenda helps cities to overcome their challenges and provide concrete recommendations for making legislation more 'urban-friendly', ensuring better access to and utilisation of funds as well as improving the urban knowledge base and stimulating the sharing of best practices and cooperation between cities (better legislation, better funding and better knowledge for cities). Through 'the Pact of Amsterdam', the Urban Agenda is formed into 12 themes on which over 300 cities in Europe are currently working towards the city of the future.

The digital transition is one of the identified themes where cities have a role to play as well as where new initiatives are needed. The role of digitalization is growing rapidly, with increased information and knowledge exchange, enhanced connectivity, and more openness and transparency. The use of new technologies to communicate and access information is changing the way society works. As part of the implementation of the Urban Agenda for EU, the Digital Transition action plan is linked to several EU level strategies, such as the Digital Single Market Strategy for Europe, the European Commission's Digital Agenda which forms one of the seven pillars of the Europe 2020 Strategy and The EU eGovernment Action Plan 2016-2020.

The pressure related to digitalisation and the growing demand for digital services meet in the urban environment Citizens live an increasingly digital life both in the public and private sphere. Local administrations are the public sector's primary interface with both citizens and businesses. They are at the forefront of delivering many of the key public services for the citizen.

The new, digital, infrastructure will largely define the future evolution of European cities. Facilities such as fast internet access and robust overall connectivity become a commodity just like electricity and water. "Traditional" public infrastructures, such as street lighting or traffic management, are being upgraded to become increasingly digitalized and multi-functional. The need of offering people a human-centric solution to access, manage and share personal data grows every day. Cities also rely increasingly on their digital infrastructures and other digital assets, which often becomes so interlinked with the physical world that separating one from another is no longer possible.

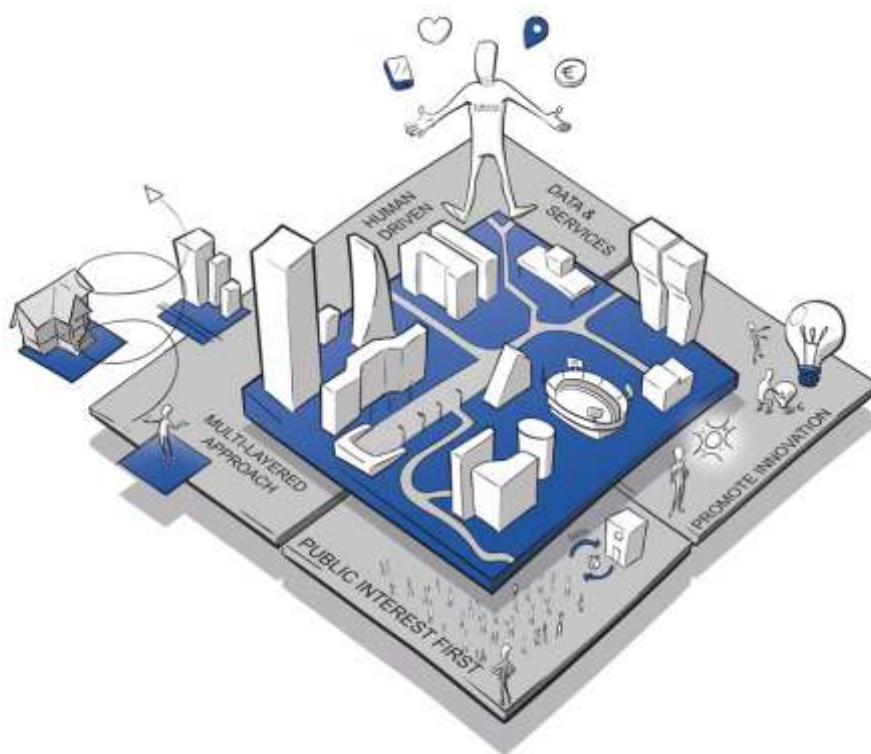
New emerging technologies have great potential to improve public services for citizens and create new business opportunities. Developments such as 5G, Virtual and augmented reality technologies, Blockchain and wireless communication through light (LiFi) will enable the full potential of the Artificial Intelligence and Internet of Things to unfold. Within a few years there will be a substantial leap in connected devices. There is enormous potential for the digital transition to improve the quality of life of citizens as well as to transform the economy.

While the digital era offers many opportunities for cities, there are also many dilemmas. In digitalised societies, citizens should have right to control their own data, including making profit from the value of their data. Cities should also support their citizens to minimise digital divide, and make people

aware of all aspects of digitalisation. As digitalisation advances people will want to have more control over the developments as well as tools to evaluate the progress.

Specific challenges that cities will need to pay closer attention to include possible excessive data collection, access and data protection, increased risks related to cyber security of their infrastructure. Digital platform economy brings changes which go beyond the creation and distribution of economic value. It has social and in some cases societal impact. Platforms such as Uber or Airbnb provide different and sometimes better and more affordable services, while giving the opportunity to monetize individual assets. At the same time, they may circumvent certain regulations – as sometimes is the case with Uber, or impact negatively the quality of life of local residents – as sometimes in the case with Airbnb, which can lead to gentrification of entire city areas, significantly changing the character of the neighbourhood, its property market and small businesses operating in the area. In order to respond to these challenges cities should strive to be as adaptable as possible and pay close attention to what the next “disruptive technology” might bring along.

The Digital Transition Action Plan envisages cities as the future’s networked activity hubs, which will play a key role in the societal and economic development within environmental limits. The future city is a place/hub/platform, to which people, companies etc. link their activities and find links to all they need, be it employers/employees, services, social interaction and products. With the help of digitalisation, it is possible to create tools for this development, making future cities more functional and people-centric environments.



Picture 1: Digital Transition Partnership City

Related to this future view the objective of the Digital Transition Action Plan is:

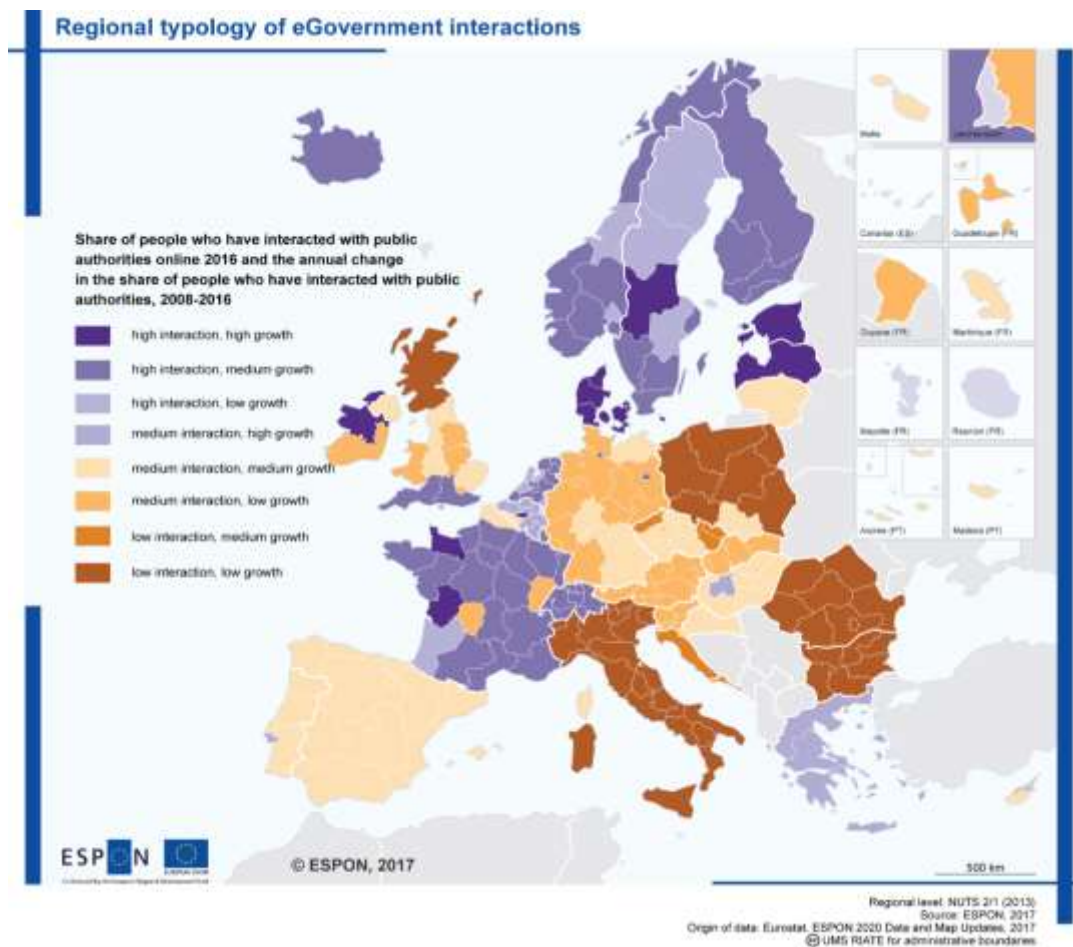
- To provide better public services to citizens, with help of digital tools,
- To support European cities in exploiting the possibilities of digitalisation, and
- To assist European businesses to develop new innovations and create new business opportunities for global markets.

Concerning the citizen approach digitalisation has great potential of improving services and processes, allowing them to become more user-friendly and cost-effective. It is essential that the digital transition in Europe is based on sound prerequisites that place the interest of the citizen first, taking into account the challenges – such as security and privacy concerns - which come with new technologies.

The current state of digital transition of cities is very diverse. Large cities tend to be at the forefront of digitalisation due to higher demand for more complex services and interactions, and their capacities to develop and provide those services. The main factors constraining the digital transition of cities are lack of funds and lack of skills, although the scope and impact of these constraints differs. Another factor, especially inherent in smaller cities and towns, is a lack of strategic vision.

Enhancing the capacities of cities to deliver digital services and tackling these challenges requires policy responses at all levels and by all actors, specifically targeting regions and cities that are lagging with their digital transformation to enable them to become more attractive and competitive.

There are large differences between EU regions regarding digitalising urban policies and local public services offered to citizens (Picture 2). Same applies to the European cities, and include challenges such as: unequal access to fast internet connection, limited ICT infrastructure upon which to develop local digital services, technical interoperability issues between national/local registers/ICT systems (data does not move) as well as de-facto locked-in situations with specific vendors, limiting the development of new digital components due to uncompetitive and high price levels.



Picture 2: ESPON Regional typology of eGovernment interactions¹

The Digital Transition partnership emphasises creating and offering European solutions to the global digitalisation markets. In this context, cities have a central role to play, as they are providing the services for their citizens and creating conditions for businesses. The partnership proposes initiatives on the topics where digitalisation can have the most profound effect in transforming urban governance, quality and fulfilment of life of its citizens, and the most advantageous business and growth opportunities for the businesses.

1.1. Digital Transition Action Plan Goals and actions to achieve the goals

Generalise and diffuse digital skills to everybody:

Digital skills of citizens are a prerequisite to be involved in today's society. Skills and access to digital services must be secured to all to minimize the digital divide. For Europe's organisations to be competitive, the Workforce must also have the digital skills necessary to exploit the use of latest and emerging technology. Also, the civil servants at city level need to have up-to-date skills to exploit

¹ <https://www.espon.eu/egovernment-interactions>. "The interpretation of ESPON material does not necessarily reflect the opinion of the ESPON 2020 Monitoring Committee"

digitalisation opportunities to develop services. An example being able to draw up tender to procure digital expertise.

- [Draft Action 1](#): Mainstreaming EU Digital Competence Framework for citizens into daily use;
- [Draft Action 2](#): Digital Neighbourhood Instrument; and
- [Draft Action 3](#): Capacity-Building and Spreading of Pilots in Regions and Cities.

Enable and implement citizen-centric eGovernment:

The goal is to support cities in developing eGovernment tools and knowledge base related to the impact of digitalisation. The aim is to guarantee that the work which is done is citizen-centric and as effective as possible.

- [Draft Action 4](#): Helping cities develop a user-centric eGovernment model; and
- [Draft Action 5](#): Developing the Digital Economy and Society Index (DESI) at local level (“DESI local”).

Provide value through free and fair access to open/public/personal data:

Data is the raw material of digitalisation. Effective use of data must be promoted, while ensuring security and privacy.

- [Draft Action 6](#): Build a data taxonomy at a European level;
- [Draft Action 7](#): Access and reuse of private sector data of general interest by the public authorities;
- [Draft Action 8](#): Specify and monitoring of standardized Planned Land Use data for formal and informal urban planning participation processes; and
- [Draft Action 9](#): MyData in digital transition – Elaboration of a European roadmap on “MyData”.

Accelerate and adopt digital emerging technologies in cities:

Digitalisation is related to the use of emerging new technologies. Cities must get support in this adoption process, while cities can also develop their operating environments as innovation platforms, to support development of new innovations and solutions.

- [Draft Action 10](#): Building an innovation and dissemination accelerator;
- [Draft Action 11](#): Support agile experimentation of emerging digital technologies; and
- [Draft Action 12](#): Implementing the digital framework for emerging technologies within the digital infrastructure.

Adopt business model thinking to drive urban digital transition:

Urban digital transition involves continuous provisioning and utilisation of digital services for citizens and other stakeholders with appropriate business models to secure scalable, adaptable and sustainable solutions. The Partnership’s goal is to provide business model thinking to digitalization work.

- [Draft Action 13](#): Co-creating a business model approach for cities; and
- [Draft Action 14](#): Development of 5G regulation to enable local micro-operators in cities.

Strengthen the ability for cities to act within the digital transition:

Digital transition is a long-term process. The goal is to provide financial support for cities to guarantee efficient execution of the digital transition strategies.

- [Draft Action 15](#): Implementing Digital transition in European Cities.

1.2. Results

The expected results of the Digital Transition Partnership within the Urban Agenda for the EU include practical frameworks and actions regarding legislation, ethics and technologies for cities to promote digital transformation. This involves a set of tools on how to accelerate the development and how to turn cities into innovation ecosystems for digitalisation. The contribution from the partnership can be used as an input for the EU on how to adjust legislation and funding methods to support the digital transition cities go through, as well as input for the preparation of EU budget and development of programmes 2020+, building on real experiences from cities and other digitalisation stakeholders.

The results for citizens

- Better, more accessible and personally customized public services to citizens, incl. accessibility of digital public services to disabled and elderly citizens (in accordance with international WCAG 2.0 standards);
- Higher awareness and opportunities to increase citizens' digital skills;
- New business opportunities created by fostering the use of new technologies, better use of open data, data management;
- Better understanding of data protection and ethical aspects of digital transformation.

The results for cities

- Increased capacity to develop efficient and user-centric public services;
- Better competences to develop public services based on new technologies;
- Knowledge how to apply business model approach to city management;
- More efficient and inclusive urban planning processes.

The results for businesses

- Supporting companies in exploiting the digital single market opportunities and business models related to digital markets while securing the public interests;
- Possibilities to develop and test new products for global digital markets.

1.3. Related EU strategies to the digital transition

Underneath the main EU strategies, regulations and developments which are relevant for the partnership digital transition. In the development of the actions in the action plan these strategies will be taken in account to assure we connect with the developments

- The Digital Agenda; the European Commission's Digital Agenda forms one of the seven pillars of the Europe 2020 Strategy which sets objectives for the growth of the European Union (EU)

by 2020. The Digital Agenda's main objective is to develop a digital single market to generate smart, sustainable and inclusive growth in Europe, and it is made up of seven pillars.

- The Digital Single Market Strategy for Europe, adopted by the European Commission in May 2015, aims at maximizing the growth potential of the digital economy. The strategy underlines the need to digitalize industries and production in the EU and to ensure that EU citizens and businesses benefit from digitalization by getting access to digital services such as modernized e-government, e-health, e-energy and e-transport across EU.
- The EU eGovernment Action Plan 2016-2020; Adopted by the European Commission in April 2016, sets out a long-term vision for open, efficient and inclusive public administrations, providing borderless, personalized, user-friendly, end-to-end digital public services to all citizens and businesses in the EU. The action plan includes a series of principles – digital by default, once-only, cross-border and interoperability by default, openness and transparency, trustworthiness and security as well as inclusiveness and accessibility principles - and priorities that should guide EU, national and Urban interventions in eGovernment development and identifies a list of impactful actions in the field that can be further complemented with additional actions over its lifetime. As its first update in 2017, the eGovernment Action Plan has been extended by, inter alia, a specific action related to 'Urban Digital Transition' actions, highlighting the key importance of local authorities, both in modernizing administrations and in implementing digital infrastructure and services in important areas for society. The Committee of Regions, in its opinion on 'Local and regional perspective on promoting public sector innovation via digital solutions'² affirms the 'key role that local and regional authorities must play in modernizing the public sector', while in its opinion on the eGovernment Action Plan³, highlights the responsibility borne by local and regional authorities for the implementation of eGovernment, 'as the public sector's primary interface with citizens and businesses'.
- The Tallinn Ministerial Declaration on eGovernment⁴ indicates a clear political commitment from Member States to continue with the digital transformation of government at all levels and to put end-users truly at the centre of services, through the inclusion of the 'User-centricity principles for design and delivery of digital public services' in its annex. To achieve real impact, local and regional administrations should also apply these principles for their interactions with citizens and businesses
- Urban Agenda for the EU, adopted by the Pact of Amsterdam in May 2016, sets digital transition as one of the key priorities to be implemented in EU urban authorities, requiring integrated action at the EU level by multi-level cooperation. Specific links with other priority themes within Urban Agenda framework are identified, for example with Circular economy, Jobs and skill in the local economy, etc.
- European agenda for the collaborative economy, adopted by European Commission in June 2016, on how to encourage the development of new and innovative services.
- Strategy for Digitising European Industry, which calls an investment in an open infrastructure including synergies between H2020 innovation support and the regional funds to mobilise primarily SMEs and entrepreneurs as an important part of urban ecosystems.
- European Smart Cities Initiatives; the future of European cities can only be smart. The European Commission supports the development and has initiated the European Innovation Partnership on Smart Cities and Communities and funds several Smart City Lighthouse projects. The partnership will coordinate the implementation of its actions with other actions, such as the

² <http://cor.europa.eu/en/activities/opinions/Pages/opinion-factsheet.aspx?OpinionNumber=CDR%203529/2017>

³ <http://cor.europa.eu/en/activities/opinions/pages/opinion-factsheet.aspx?OpinionNumber=CDR%202882/2016>

⁴ <https://ec.europa.eu/digital-single-market/en/news/ministerial-declaration-egovernment-tallinn-declaration>

European Innovation Partnership (EIP) for Smart Cities and Communities (SCC), Open and Agile Smart CITIES, Synchronicity, Digital Innovation Hubs and the positive experience under the Strategy for Digitising European Industry as well as the HORIZON 2020 to create the required synergies between the different initiatives. As part of the AP implementation phase, action leaders will involve representatives of above initiatives to make full use of the work done by these initiatives and to draw on the good practices that they have piloted. The partnership will ensure that the different processes (DTP, EIP SCC, and others) are supporting each other. Cooperation, integration and convergence will be sought to maximise the impact and efficiency of the work done.

- Several EU and national regulatory instruments are already in place regarding privacy protection for data collected on individuals and the conditions, under which these are shared, including between public bodies within each MS, at EU level and beyond, such as:
 - Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 - processing and free movement of personal data (General Data Protection Regulation - **GDPR**)
 - eIDAS: Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market
 - Of relevance are also the results of the midterm review digital single market 5:
 - EU free flow of data cooperation framework
 - PSI Directive revision (initiative on accessibility and re-use of public and publicly funded data and further explore the issue of privately held data which are of public interest)
 - INSPIRE Directive
 - Communication addressing the need and scope for further measures in the field of digital health and care

Apart from the strategies, regulations and other legislative acts there are mechanisms at EU level available to fund initial investments by cities and partnerships they sponsor in the digitization of urban infrastructures: Horizon 2020 for innovation, the Connecting Europe Facility (CEF) Telecom programme, Urban Innovation Actions, the funding mechanisms available through regional policy programs, and loans and other financial instruments available through the EIB.

1.4. Governance of the Partnership

Coordinators

- City of Oulu (FI)
- City of Sofia (BG)
- Estonia

⁵ <https://ec.europa.eu/digital-single-market/en/content/mid-term-review-digital-single-market-dsm-good-moment-take-stock>

Members

Cities

- Eindhoven (NL)
- Hamburg (DE)
- Helsingborg (SE)
- Lyon Métropolis (FR)
- Rome (IT)
- Association of Municipalities and Towns of Slovenia

Member States

- Croatia
- Germany
- Hungary
- Romania

Other participants

- European Commission (DG REGIO, DG CNECT)
- Committee of the Regions
- Council of European Municipalities and Regions (CEMR)
- EUROCITIES
- Flemish Government
- URBACT (observer)

1.5. Information used and communication

<https://ec.europa.eu/digital-single-market/en/news/vision-public-services>

<https://ec.europa.eu/digital-single-market/en/news/communication-eu-egovernment-action-plan-2016-2020-accelerating-digital-transformation>

<https://ec.europa.eu/digital-single-market/en/news/ministerial-declaration-egovernment-tallinn-declaration>

<http://eu-smartcities.eu/>

<http://www.digitallytransformyourregion.eu/>

Working method of the Partnership

The Kick-off meeting of the partnership, where the orientation paper was discussed, was held in Oulu, Finland on 16.-17.2.2017. The Partnership has held further meetings and workshops in Sofia, Bulgaria on 7.-8.6.2017; Helsingborg, Sweden on 6-7.9.2017; Brussels, Belgium on 10.10.2017; Rotterdam, Netherlands on 29.11.2017; Hamburg, Germany on 15.-16.1.2018; Tallinn, Estonia on 28.3.2018; Eindhoven, Netherlands on 14.5.2018.

Consultations carried out

Consultation is taking place on three levels: with the European Commission, the Member States of the EU and as public feedback. Apart from the formal procedure there were events where the action

plan was presented which helped the partnership s in organizing the public feedback and brought attention to the work of the Partnership.

Presentation by the partnership to outside bodies:

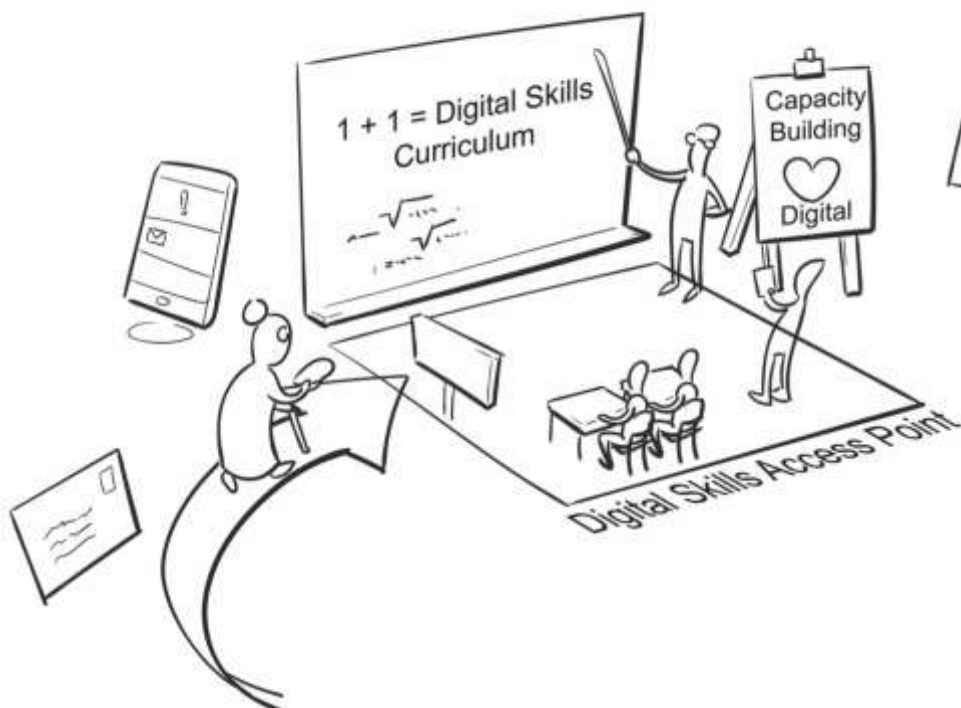
- Eurocities, KSF – 18.10.2017
- Discussions at Member State level
- Discussions with business organizations, such as Business Angels Europe (BAE)
- Sharing the action plan draft to Eurocities members

Public consultation took place 5.2.-16.3.2018 and was promoted through the Futurium website

Communication of action plan

- Cities Forum, Rotterdam, 27.11.2017
- OASC conference: Connected Smart Cities Conference, Brussels, 11.1.2018
- KSF - GDC conference: Imagine the Urban Future, Brussels, 23 January 2018
- Public consultation info day in Brussels 20. February 2018
- UDG Meeting in Sofia, 1. March 2018
- DGUM Meeting in Sofia, 20. April 2018

2. Actions



2.1. Better Knowledge - Action 1: Mainstreaming EU Digital Competence Framework for citizens into daily use

Bottleneck

Information and communication technologies have changed the everyday life of people, administrations, businesses and society as a whole during the last two decades. Development of these technologies has increasingly digitalised various domains of life and work, making innovation, growth and even participation in different sectors of today's increasingly digitalised society and economy possible only when possessing sufficient digital skills. Digital competence is the so-called 21st century skill – a universal and basic need for all citizens for working, living and learning in the knowledge society. Digital competence - the ability to use digital technologies - should be acquired by all citizens to enable their active participation in society and the economy.

To improve EU citizens' digital competence, European Digital Competence Framework for Citizens (also known as DigComp) was first developed by the Commission in 2013; the latest update to the framework was available from May 2017. DigComp user guide will be available in April 2018. It includes actual cases of DigComp use. DigComp offers a tool to improve citizen's digital competence for work and employability, learning, leisure, consumption and participation in society. The DigComp framework describes what digital competence is and groups the competences in five areas according to proficiency levels: Information and data literacy, Communication and collaboration, Digital content creation, Safety and Problem solving. Today, being digitally competent means that people need to have competences in each of these five areas.

The problem is that European Digital Competence Framework for Citizens is not yet in universal use by citizens, employers and employees alike – there is insufficient awareness and use of the tool, even though it has been included since summer 2015 onwards in, for example, the [Europass CV](#) online tool for jobseekers to self-evaluate their digital competence and describe and include it in their Curriculum Vitae. It remains similarly underused by employers in elaborating and offering training programmes to employees to increase their competences based on the framework (reference). European Digital Competence Framework for Citizens is being implemented in several Member States, but in a limited scope. For example, it is applied in special sectors (e.g. teaching profession), by single ministries or within limited projects. DigComp is not yet the universal tool used by neither by all nor majority of employers or citizens in EU.

Objective

To promote DigComp it is necessary to examine how existing and developing National Digitalization and Digital competence strategies address the identified components of the framework- privacy, security, etc.

Regular and consistent campaigns need to be done for awareness raising to illustrate the need of each person to increase her/his digital capacities to stay competitive in today's increasingly digital economy and society.

Access to all EU Citizens and stakeholders for Elaboration of the free online Self Diagnosis Tool for assessing one's level of digital competence based on the DigComp framework – a tool to evaluate in a simple manner and in citizens' national languages one's skills to facilitate the job search and identify training needs.

Level of governance: all levels (EU, Member states, local level).

Output

Mapping of level of digital skills based on the instruments and components within Digital competence framework. Mapping on the existing training and educational programs and their alignment with the framework. Awareness raising campaigns.

Implementation

This action requires the involvement of different levels of government and broad network of stakeholders. In collaboration with employers' and employees' unions, trade unions and other socio-economic partners in various Member States information will be collected and assessed regarding not only the needs but also opportunities for additional training. Based on this map further campaigns will be designed, and additional training opportunities will be supported where needed. To cope with the challenging, work the partnership will use the existing networks and partners to assist with the implementation. Digital transition action plan will also take into account collaboration possibilities with the Jobs and Skills partnership.

Timeline

- *Preparation:* Q2-Q3- 2018.
- *Implementation:* Q1-Q2 2019.
- *Assessment:* Q3-2019.

Action leader

Estonia, Sofia.

Partner

Oulu.

2.2. Better Funding - Action 2: Digital Neighbourhood Instrument

Bottleneck

According to latest data 169 million EU citizens lack even basic digital skills. This accounts for 44% of Europeans between the ages of 16-74. Lack of access to digital services as well as lack of awareness of digital possibilities can have major impact to the digital divide, resulting also in social divide.

Digital transformation should promote the participation of all people in all aspects of the society. The implementation of digital technologies must not lead to the exclusion of individuals or segments of the population. It needs to consider people's different ranges of possibilities to interact with digital tools. It also should ensure accessibility for persons with disabilities. A mobilising, integrative and inclusive approach to participation is important to allow for balanced opinion-making. With the recently signed Tallinn Ministerial Declaration on eGovernment; Member States commit to work to increase the readiness of European citizens and businesses to interact digitally with the public administrations. Through the 'User-centricity principles for design and delivery of digital public services' in the Annex of the Tallinn Declaration, they also commit that the services 'can be used by all in a non-discriminatory manner, with appropriate assistance available upon need'.

Access to ICT and Broadband connection alone will not be able to sufficiently bridge the existing gap. Additional support for existing and new training and retraining programs for development of digital skills is crucial. Local governments have opportunities to work within the community and reach the citizens who are not involved in any form of formal education and have no access to job related training opportunities.

How do existing EU policies/legislations/instruments contribute?

The opinion of the European Economic and Social Committee (EESC) on the eGovernment Action Plan included the following:

'...Since many citizens need to familiarise themselves with the new eGovernment tool, the EESC believes that Member States and their regional and local authorities should provide citizens with digital skills training and be asked to provide a digital help service or a local support service to be co-financed by EU funds. This also applies to public sector employees as part of their ongoing professional training...'

'...It is clear that state-of-the-art networks and digital services must be available to citizens of all ages and to businesses, who must have universal access at an affordable price, irrespective of their geographical or financial situation and that, where appropriate, be provided with assistance and training in order to acquire the skills needed to take advantage of digital applications effectively and responsibly...'

Objective

Public policy must develop strategies to strengthen digital participation and encourage digital skills. Creating assisted inclusive and accessible spaces, in each district, where digital facilitators, operators and trained volunteers, are available for citizens who need information and advice about using a computer, surfing the net, accessing online public services etc. To reach the target groups, it is important that the assistance and training be provided in already established centres of community life such as libraries, community centres, schools, etc. This is also a way to engage more actively citizens in the community's social life and strengthen the relationship between citizens and local public administration and to engage more citizens in the process of co-creation of new services. Examples from existing activities in this field will be studied, such as experiences from Portugal, Germany's experience in testing capacity building programmes in neighbourhood labs. Accordingly, public spaces should provide access to devices and software and target-group specific services such as helper or mentor structures and networks. Low-threshold and outreach programmes such as gaming projects for young people or senior-friendly tablets for the elderly are already successful and should be further developed.

The Digital Neighbourhood Instrument will be developed in collaboration with actions under the Skills Agenda for Europe: *The Upskilling Pathways* which aims to help low-qualified people acquire a minimum level of literacy, numeracy and digital skills and *the Digital Skills and Jobs Coalition* which brings together a wide range of stakeholders – including Member States, companies, education providers – to pledge to take action to tackle the lack of digital skills.

Output

The main output will be pilot projects for access points for people to get support and training for using digital services as well as achieving stronger civic engagement and involving more citizens in the process of co-creation of new services. Access points are established in places where people usually meet.

Implementation

- Giving local authorities access to funding for setting up digital neighbourhood access points and skills development programs. This should be taken into account in the preparation of the next Structural Fund programming period. Piloting of the action should be funded from the existing structural fund resources. Funding will be distributed in each Member State, depending on their governance structure. Funding will be addressed to public and private bodies working with their local neighbourhoods. Links should be made to national/regional/local life-long-learning programs.
- Facilitating the collaboration of cities to learn how to set up the access points in the most appropriate way for the community (link to the action 5).

Timeline

- *Preparation*: Q1-Q2- 2018.
- *Implementation (piloting)*: Q3/2018 – Q4/2019.
- *Assessment and finalizing of the concept to be used in larger scale*: Q2-Q4 2019.

Action leader

Sofia and Oulu

Partner

Helsingborg

2.3. Better Funding - Action 3: Capacity-Building and Spreading of Pilots in Regions and Cities

Bottleneck

In its Digital Government Toolkit, the OECD highlights the need for ICT skills of civil servants, including the advanced use of new technologies in carrying out internal tasks, delivering services and engaging with outside actors, skills for the use of data for policy modelling, evaluation, data analytics and data mining to support policy, service delivery and impact evaluation, project and business case management skills as well as skills in the public sector for supporting engagement and participatory processes. In a recent publication the World Bank indicates (Digital Dividends, 2016) that while nobody can predict the full impact of technological change in coming decades, which may be faster and broader than previous ones, 'what is clear, however, is that policy makers face a race between technology and education, and the winners will be those who encourage skill upgrading so that all can benefit from digital opportunities'. The European Commission has recently adopted a new and comprehensive Skills Agenda for Europe, launching 10 concrete actions to ensure that the right training, the right skills and the right support is available to people in the European Union. As part of the initiative, the Commission launched the Digital Skills and Jobs Coalition in which Member States were invited to develop comprehensive national digital skills strategies. As stated in the Communication, 'Access to services, including e-services, is changing and requires that both users and public administrations have sufficient digital skills'.

The Commission also supports the development of competence frameworks for citizens and various sectors. Some examples are the competence framework specifically designed for customs officers, the eCompetence Framework for ICT professionals, and a competency framework for the digital skills of consumers. Furthermore, the ERASMUS+ programme provides funding for so-called Sector Skills Alliances. European Structural and Investment Funds support through Thematic Objective 11 – "Enhancing institutional capacity of public authorities and stakeholders and efficient public administration".

The OECD's Observatory of Public Sector Innovation (OPSI), in partnership with the European Commission, has fleshed out a framework which identifies six core skills areas (iteration, data literacy, user centricity, curiosity, storytelling, insurgency) that have been observed in civil servants and that can be activated for increased levels of innovation in the public sector. Are these skills sufficiently tackling the challenges of a public sector that is moving towards the principles highlighted in the eGovernment Action Plan and Tallinn Declaration (e.g. digital by default, once-only principles, etc.)? What are the opportunities to ensure that civil servants are ready for the challenges posed by the digital transformation of government?

Cities and regions need to be a part of the digital transition. As this is a new duty, which has to be done among other municipal duties, qualified staff is needed. Also, pilots for different organisational capacities (e.g. of smaller cities) are necessary. While in Horizon 2020, primarily early (and often strong) adopters are funded, the digital transition has to reach much further. Therefore, funding for capacity building and pilots also for regions, smaller and medium cities are needed. This would also

be necessary to help to implement Europe's cohesion policy and scale the digital transition all over Europe.

Cities and Regions – all over Europe and of all sizes - must be part of the digital transition. They have to make decisions about technical and other infrastructure, services and data policy. They must invest in software, technical infrastructure and maintenance, and as a result, cities and regions require qualified staff.

The digitalisation is – apart from its innovative aspect – said to be a big changer of all kinds of structures, although the details stay unknown. As the digital transformation of municipalities is not an end, it must serve the sustainability goals at all levels, whether it is social, ecological or economic. Municipalities should use digital technologies as means to make their development socially compatible, equitable as well as energy- and resource-efficient. Such consciously managed digital transformation can support local added value, the circular economy and sustainable lifestyles. To reach this goal, cities and regions need to gain new knowledge resources.

For example, interconnectedness and digital technologies lead to growing data collections with focus in the public sector, but also collecting data within companies, who are then challenged to deal with the protection, security, analysis and interpretation of that data. Any processing of personal data shall fully comply with the applicable legislation. Among others, data protection by design and by default shall be ensured. Appropriate technical and organisational measures shall be implemented.

Another task is to ensure the long-term functionality of public services: the technical basis of the smart city is comprised of new highly interconnected IT systems. That is why digital infrastructures – from the traffic control centre or the digital town hall to the waterworks – are exposed to new threats. Therefore, the reliability of local services and the provision of emergency services need to be considered already in the early design phase according to the “Security by Design” principle. Again, additional knowledge capacities in cities and at public service providers are needed, taking into account the existing ones, such as the working group on Citizen Centric Approach to Data in the Citizen Focus Action Cluster under the European Innovation Partnership for Smart Cities and Communities which aims to disseminate data protection guidelines.

How do existing EU policies/legislations/instruments contribute?

Institutional capacity building is covered by Thematic Objective 11: "enhancing institutional capacity of public authorities and stakeholders and efficient public administration" The ESF (European Social Fund) Regulation foresees two investment priorities under this thematic objective:

- Investment in institutional capacity and in the efficiency of public administration and public services at the national, regional and local levels with a view to reforms, better regulation and good governance;
- Capacity building for all stakeholders delivering education, lifelong learning, training and employment and social policies, including through sectoral and territorial pacts to mobilise for reform at the national, regional and local levels;

With the recently signed Tallinn Ministerial Declaration on eGovernment EU Member States commit to 'take steps to increase the digital leadership skills among top civil and public servants and digital skills more widely within the public administration at all levels, as a necessary precondition to any successful digital transformation of public administrations'.

Objective

Knowledge is the groundwork for responsible decision and fundamental for the long-term ability of cities to act (objective 6). Knowledge needs for the digital transformation are multifaceted: cities have to build and manage knowledge- and innovation networks, they have to decide about new technologies and data usage, or how to design contracts with data operators, network- and other ICT-providers, to ensure long term capacity to act and informational sovereignty. They will also include accessible and inclusive ICTs. Therefore, the development of a curriculum for the digital transformation at the local level is necessary. Capacity building and pilots for Cities and Regions should be a possible target in the EU structural funds all over Europe.

Output

capacity building programme on digitalisation for civil servants at local and level.

Implementation

As a first step for a digital curriculum Germany/BMUB/BBSR will test how to use big data in municipal administrations and how the necessary knowledge can be developed in cities to assess risks and potentials of big data usage responsible. Additional partners are invited to contribute with knowledge and expertise. Later the concrete demands for new municipal digital competencies need to be assessed, an appropriate curriculum developed, and competencies build. Examples will be studied to determine their results and possible scalability.

Timeline

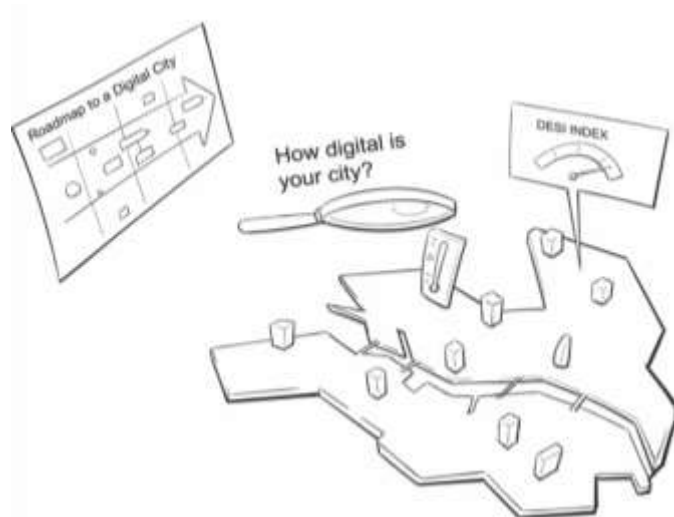
- 2018: Find additional partners.
- 2019: Evaluate existing programs and develop curriculum and outreach strategy.
- 2020: Develop attractive programme and smart city academy/institution.
- 2021: Have a fully functioning capacity building programme for the civil servant on the local level ... and fit for the 21st century.

Action leader

Germany

Partner

URBACT



2.4. Better Knowledge - Action 4: Helping cities develop a user-centric eGovernment model

Bottleneck

Digital progress is transforming our economies and societies. Cities in Europe are searching for new ways of providing services for their citizens. Citizens expect services to be user-centric and delivered in a simple and transparent way.

In line with increasing digitalisation within society, public services of today should be digital and interoperable by default to enable citizens and companies to take the lead and gain an overview of their own data (open data, our data and my data). This will solve two problems: it will give citizens within their cities the possibility to improve the quality of life for themselves and their communities and will help to resolve wicked problems or big challenges we face as cities within the near future. It will also address vulnerable citizens like those with disabilities. In addition, this will generate new business opportunities and will improve the cost-effectiveness of government services. Within Europe there are several examples of fully interoperable e-government solutions (where we are world leader) which already work, however, this is not yet a reality in every city and country in Europe. It is essential to ensure easy access, inclusivity and user-friendly e-services. Availability of electronic interface between urban administration and citizens with integrated e-solutions for public services makes the citizen not only a consumer, but also a partner in the civic process and enhances openness and trust in urban administration. We need a different approach to re-think the services to our citizens and companies, if we really want to improve the quality of the relationship with the Public Administration through digitization.

By signing the Tallinn Ministerial Declaration on eGovernment, Member States have, amongst others, agreed to ensure that European citizens and businesses should have the option to interact digitally with public administration ('digital by default principle'), to ensure the consistent quality of user experience in digital public services (see the "User-centricity principles for design and delivery of digital public services" in the Tallinn Declaration), to implement the 'once-only' principle for key public services, to increase the uptake of national eID schemes as well as to make it possible for citizens

and businesses to better manage their data held by public administrations ('openness and transparency'). To ensure that these principles are applied in all interactions with the government, local administrations, where many of the public services are delivered, need to have the enabling infrastructure, appropriate strategy and vision, capabilities and leadership to make this happen.

Although many EU Member States have an eGovernment Action Plan in place and have been increasingly developing digital strategies, it is becoming clear that local administrators should also develop an all-encompassing digital strategy with the involvement and inputs of all the departments of the city, local or regional council. Interaction within the ecosystem and with a broad range of key actors can be facilitated by digital platforms. As also recommended by the recent ESPON study, cities should adopt and implement a digital strategy and appoint a digital leader. The Committee of Regions, in its opinion on 'Local and regional perspective on promoting public sector innovation via digital solutions' calls for a 'comprehensive approach to the development of digital infrastructures, where different administrations find interoperable solutions and share a common technical base as much as possible while devising applications specific to their needs'.

Several guidance documents exist in the EU (e.g. EU eGovernment Action Plan 2016-2020, eIDAS Regulation, the Tallinn Ministerial Declaration on eGovernment, a brochure on 'eGovernment in local and regional administrations: guidance, tools and funding for implementation', and the Quality of Public Administration - A Toolbox for Practitioners (2017) and the OECD Digital Government Toolbox).

However, the biggest challenge is implementation. How do we implement e-government within cities and countries, in accordance with local legislation and autonomy? Also, the interoperability between stakeholders (cities and countries) throughout Europe should be achieved in the future. Public services should be designed to work seamlessly across the Single Market and across organisational silos, relying on the free movement of data and digital services in the European Union. The action will focus on how we should do this and how to create a model at local level that puts the citizen first in the implementation of the service access interface.

Objective

Develop a multi-level implementation strategy for cities to implement an inclusive and accessible e-government platform (based on legislation & ethics, services, technical & data layer and implementation & change strategy) re-using the knowledge, technology & legislation which is available within several countries and cities. To reap the full benefits of this opportunity, local and regional administrations should also build mini-services - reusable, modular, digital public services - available and grouped together in platforms, from where they can be assembled using their application programming interfaces (APIs). It is important that these APIs are based on open standards and technical specifications, so local and regional administrations need to promote standards-based ICT procurement and agree on a (limited) list of standards and technical specifications to which digital public services should comply. Note that the Digital Service Infrastructure Building Blocks (i.e. eID, eSignature, eDelivery, eTranslation and eInvoicing) are free of charge and based on open source, giving any regional and, for some building blocks, local administration the opportunity to use, share and develop the solutions needed. Taking into account European legislation and guidelines, the digitalization strategy should also include discussion of the types of governance cities can use to implement, manage and operate their platform and services and to ensure smooth working across municipal boundaries.

Building this strategy will be tested in 3 living labs (combination of countries and cities) where we test the strategy. This will be done in countries/cities who are leading, following and lagging in the digital transition to make sure the strategy is applicable for all countries within the EU. During the testing we will make the services (e.g. the human centred service layers) which we use in the implementation applicable for others to use and add them to a toolkit.

The implementation of e-government within cities & countries needs investment in knowledge, technology and service development. We propose that the EU continues to fund e-Government, allocate specific percentage of Structural Funds for digitalization. The investment needs should be a part of the budget discussion during 2018 for the EU budget 2021-2027. Cities should be in the position to have direct access to the funds focusing on their digital transition (platform and services). Within this action we will validate the exact investment needs to implement e-government in the cities of EU. This will test the scalability of the strategy. But more important; it gives an insight of the investment which is necessary to implement e-government within a country.

There are different approaches how user- and/or citizen-centric e-governance is defined. For example, citizen experience can be defined as the sum of the effects caused by a person using a Government digital solution. The above definition encompasses the effects on the solution and the effects on the provider of the experience. Thus, this definition can capture all the outcomes of a person using an e-service and is not limited to the outcomes affecting the citizens. A good citizen experience measured purely through user satisfaction fails to take into account Government policies and outcomes. Even if citizens are satisfied, a solution might fail if it does not accomplish government policies and legal requirements. The Citizen eXperience Model is an attempt to capture all the different perspectives and show how they relate to each other. More detailed description of the Citizen eXperience Model (CXM) is included in Annex 2.

Output

The action will deliver the following results:

- A multi-level implementation strategy for inclusive and accessible eGovernment including an 'open source' toolbox with all the instruments available, such as the Digital Service Infrastructure Building Blocks (i.e. eID, eSignature, eDelivery, eTranslation and eInvoicing) that are free of charge and based on open specifications, giving any regional and, for some building blocks, local administration the opportunity to use, share and develop the solutions needed.
- Three living labs to test the implementation strategy in 2018 & 2019 which will deliver concrete instruments for the toolkit.
- Report on the investments which are necessary to implement the e-government strategy & framework within Europe, European countries and European cities.
- Report on the definition and level of implementation of "good" Citizen eXperience

Implementation

To implement the action, the focus is on knowledge sharing and communication; the tools and instruments are there they need to be extracted. We need to have support in the following parts by the program secretary, commission and other platforms:

- support on the coordination and steering
- desk research on what exists already
- awareness raising and communication
- development of the toolkit and strategy?

- support on the living labs (funding and expertise)
- research on the investment report
- support in the form of funding, experts & resources.
- use real and virtual public consultations to get ideas/comments from citizens about the
- e-services and interfaces. The Municipality of Rome will put in place “Easy Rome Points” that are physical spaces, spread in each district, where digital facilitators, operators and trained volunteers, are available for citizens who need information and advice about using computer, surfing the net, accessing online public services etc. and can get opinions about the proposed e-services. This is also a way to engage more actively citizens in the community’s social life and strengthen the relationship between citizens and local public administration. The new release of Roma Capitale’s portal makes available a participation area where people can apply to surveys, joint for and share opinions about e-services.

The risk is that the action is too big to be successful; but we believe it’s possible. To mitigate the risk; we propose to start small with the focus on awareness raising and successful services. It will require good communication and strong leadership.

Timeline

1. *Defining the implementation strategy and living labs (including partners and budget) - Q1 2018.*
2. *Defining the assignment for the funding report and assigning to a research partner - Q1 2018.*
3. *Developing the online toolkit - Q2 & Q3 2018.*
4. *Developing the funding report to implement the e-government model - Q2 & Q3 2018.*
5. *Start with the 3 living labs Q2 2018 - end 2019.*
 - *bring together the multi-level networks and defining the local implementation strategy within the living labs Q2 & Q3 2018.*
 - *implementation of the e-government platform and develop tools for the toolkit - Q4 2018 & 2019.*

Action leader

Estonia, Rome, Oulu, Eindhoven and Hamburg

Partner

The following partners from governmental levels (EU, National, regional and cities level) will be involved which are necessary to be successful:

Europe; DG CNECT, Knowledge society forum, Community under the Citizen Action Focus Cluster of the European Innovation Partnership for Smart Cities and Communities (EIP-SCC) and World economic forum (digital identity on blockchain)⁶

- Countries/cities; Sweden/Helsingborg, Belgium/Antwerp & Gent, Croatia/Kutina and Split, Switzerland/Zug, Estonia (including partners), Seoul
- Living labs countries & cities; Netherlands/Eindhoven, to be decided.

⁶ From the European partners specific we need the connection with other platforms & programs, political perspective and framing (references to the strategic approach in European policies) and access to funding mechanisms

- We are looking for small, medium and big cities from countries all over the EU, which also differ in maturity in eGov, who are looking to experiment with us. URBACT will assist in the task of identifying potential cities.

2.5. Better Knowledge - Action 5: Developing the Digital Economy and Society Index (DESI) at local level (“DESI local”)

Bottleneck

Currently, the level and progress of Europe’s digital performance is measured regularly only at the Member State level. EU member states’ digital competitiveness is measured by the Digital Economy and Society Index (DESI), a composite index summarising progress on connectivity, digital skills, use of internet by citizens, integration of digital technology by businesses and digital public services. The annual eGovernment Benchmark Report looks at the availability and usability of digital public services in EU Member States and indicates a need for improvement in transparency of public services delivery and use of supporting technology like eIDs or eDocuments. No such joint index, which is measured regularly, exists currently at the local government level.

Public opinion on how government is spending its tax money is becoming more and more relevant. However, an evaluation instrument to test how digital you are as a city on a local level is not yet available. It becomes a bottleneck if the measurement method is not elaborated as soon as possible, especially since local government as the closest level to citizens is the main deliverer of e-governance to people. As the services and solutions made available digitally to citizens are expected to increase dramatically along with the development of digital technologies, there has to be an evaluation method in place.

Some other indices exist which touch upon the digital economy and society, some of these at sub-national level, such as the Global Entrepreneurship Index (GEDI); the Regional Entrepreneurship and Development Index (REDI); the Digital Entrepreneurship Monitor (DEM); the Atlas of ICT Poles of Excellence (EIPE); the IESE Cities in Motion Index; the Global Innovation Index (GII); the Compass / Startup Genome Global Startup Ecosystem Ranking; the Kauffman Index; the World Economic Forum Networked Readiness Index (NRI); the European Regional Economic Growth Index (E-REGI) and others.

City level digitalisation in entrepreneurship is monitored on a project-based approach since 2015 by the European Digital City Index 2016. It combines forty different variables to produce a composite measure of how well 60 different European cities support start-ups and scale-ups. An index to annually measure different aspects of digitalisation of society and economy in European cities is missing so far. Therefore, it is difficult to assess and benchmark with comparable data the digital competitiveness of European cities and urban areas. Inability to measure progress at the level closest to citizens undermines Europe’s goals to increase its competitiveness globally.

Objective

Objective of the action – Regularly updated knowledge on EU cities’ digitalisation level and performance

Level of governance: EU, Member State, Local (all)

This action aims at creating an index on the state of digitalisation which would be measured at a local, including urban level. DESI local is needed as a first step to understand digital coverage and performance at urban level and a great opportunity to address local policies to increase the use of digital services for citizens. The aim of the partnership is to measure with DESI local the same categories of digitalization as with the national DESI index, namely, progress on connectivity, digital skills, use of internet by citizens, integration of digital technology by businesses and digital public services. The rationale behind this is to give cities/local governments the opportunity to benchmark themselves also to national average digitalization levels. The exact content of the index will be however elaborated during the implementation phase. It would help overcome the gap of comparable hard data on the level of digitalisation of EU local government, including urban areas, and facilitate the development of better services to citizens. It is important to evaluate the level of diffusion of the main indicators that generate national level DESI at local and urban level to enable comparisons to be made against national average development levels and other cities. To ensure that such comparison is possible it is important to use the same list of indicators and the same evaluation methodology. It follows that agreement would be needed on setting up and measuring DESI local index between the EU Member States.

Output

- Analysis of data sources for DESI local to assess which data sources for the proposed index already exist and which are missing
- The development of DESI local index (composite)
- Assessment of estimated costs related to data collection for DESI local from 3-5 Member States as a first step

Implementation

First, the proposal for a composite DESI index at the local level will be elaborated by the partnership including relevant indicators covering various aspects of digitalisation. The starting point is to use the same variables as DESI at the Member State level, allowing also comparison of local/city level to national figures. The measurement rules in the local DESI should also be clear and transparent and easily disseminated so that actions for improvements can be clearly identified. On a voluntary basis cities and national authorities can participate in the development and implementation of the DESI local index. As the first step, the partnership calculates the related costs of collecting data for DESI local for 3-5 Member States to assess the feasibility to spread this across EU. National statistical systems should contribute to the National Statistical Programme by introducing the DESI implementation at local, including urban level. Partners will also investigate the possibility to use other sources of data besides statistics, such as household surveys, customer journeys, etc.

Once it has been identified how the data collection process can be performed, it is necessary to establish who the actors are and their relationship (is it the same local administration or a data supplier?). Partners will investigate whether the collection of some data could eventually be automated. Analysis to identify the data source at local level for each indicator must be carried out and a cost-benefit analysis to optimise the statistical process performed. The Statistical Offices at local level are the main actors to be involved.

Timeline

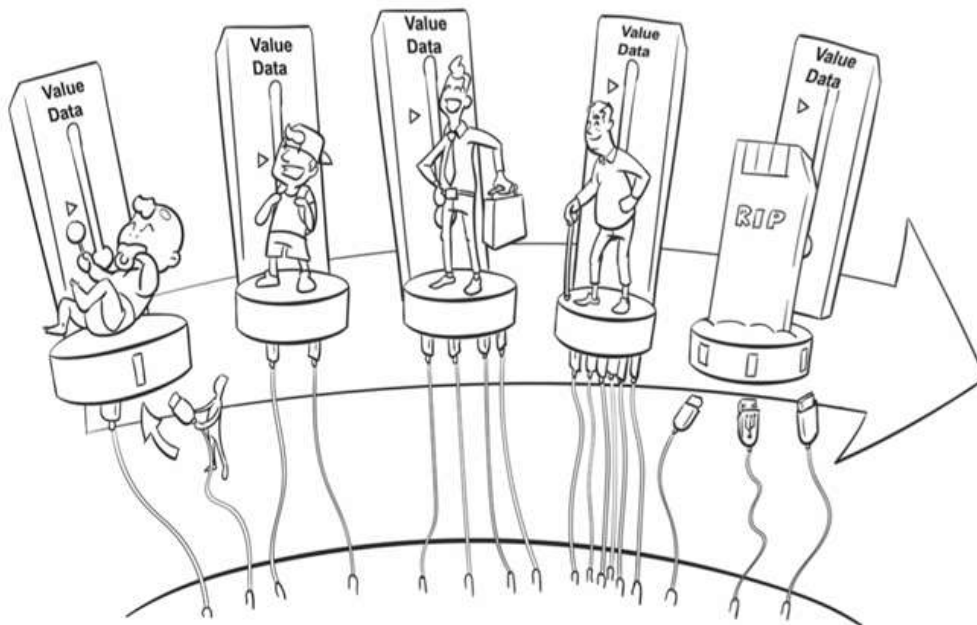
- *Preparation:* 2018 Q2 –Q3 Preparation of the DESI local composite.
- *Implementation:* 2018 Q3 – 2019 Q3 Assessment of available data sources; estimate of costs.
- *Assessment:* 2019 Q4 – Development of the Index Proposal.

Action leader

Rome and Estonia

Partner

ESPN



2.6. Better Regulation - Action 6: Build a data taxonomy at a European level

Bottleneck

There is an on-going discussion as to how to make the taxonomy of data (as a normalised classification) available to and endorsed by all cities in Europe. On the EU level, the Commission is revising the Public-Sector Information (PSI) Directive. There is also a call for proposals (H2020) to develop tools to make use of large datasets that will be made available through the European Cloud Infrastructure. In addition, DG CNECT is looking at championing local administrations to provide them with the necessary tools to be able to analyse big data. This work will be used as a basis for data taxonomy action.

The aim of this action is not to define the data models and data standards of all data in cities but to define data concepts that are too fuzzy to be used efficiently: “public data”, “private data”, “data of general interest”, “my data”, “data about people like me”. These concepts are overlapping and a proper data taxonomy is useful to drive a data strategy. This taxonomy will not be compulsory for member states or cities in Europe and should be seen as a guide to help cities. The capability of the EU to include these definitions in European laws could bring then this taxonomy to a “regulation action”.

This action is a precondition to lead further data actions in the urban agenda action plan.

Definitions of data

All the work related to data taxonomy will be conducted in compliance with GDPR and other applicable legislation on the protection of personal data.

Central definitions for “Data of general interest”, defined as data which can serve the general interest, is derived from various sources:

- Data produced by public administrations in the context of their public policies: this is “public data”. This covers field data about the city (sensors, etc.) in the areas of transport (consideration for data management is given in the mobility package, which is under preparation under the Energy Union), energy (Expert Group 1 of the Smart Grids Task Force is working for two years now on data management) and access, as well as on data formats, air quality, personal data managed in the context of electronic administration and all the management data handled by administrations. Data on the accessibility of the addressed policies will also be gathered. Where “public data” includes “personal data” in the sense of Article 4 GDPR, the processing of these data must be in full compliance with the GDPR.
- Data produced by businesses but which has valuable potential for producing services in the general interest: this is “private data of general interest”. This data can be produced by private businesses under a public authority mandate in the context of a public service delegation (transport or energy operator etc.) or in the context of their commercial activities (for example, travel information which telephony operators have). Where “private data of general interest” include “personal data” in the sense of Article 4 GDPR, the processing of these data must be in full compliance with the GDPR.

Practical use cases show how data can help to renew public policies and definitions, as well as open up opportunities for economic development:

- To improve public policies through a better systemic knowledge of the territory and local practices and thus to break away from the silo logic (“systemic data driven decisions”)
- To optimise and automate the operation of the city thanks to real-time data about the functioning of the city.
- To place the user at the heart of public action and to deliver more targeted and personalised public policies relying on an all-round knowledge of users
- To demonstrate transparency with regard to users about the actions carried out by public authorities and to establish greater citizen involvement in public action
- To promote economic development by supporting businesses in the development of services based on data of general interest
- To partner with the private sector in order to access their data of public interest...While respecting the general interest and respecting legislation on the protection of personal data.

Hence data of general interest carries the promise of a fundamental transformation of public action as well as opportunities for economic development. Thus, data lies at the very heart of the digital transition of territories. However, administrations are slow to unlock this potential for the following reasons:

1. Large quantities of public data are present in all public policies without the administration necessarily being aware of this. How can public administrations get to grips with the issue of data across all their fields of operation?
2. A large part of data of general interest is not held by public authorities. How can public administrations acquire this data to benefit fully from their potential to improve public action?
3. Businesses and start-ups are proactive in creating services using data of general interest, however the available data is highly variable from one territory to another. Indeed, they are not open in a homogeneous way and where they exist, they differ in terms of their format and in terms of the ways and conditions under which they are made available. How can the homogeneity of this data - a key factor in the business model of the service - be encouraged?
4. The intervention of the private sector in the implementation of services of general interest is one opportunity which presents itself to administrations (financial, agility etc.). However, this also raises the major risk that these services will place the particular interest of each client ahead of the general interest. Is it possible to imagine a new public / private relationship which allows innovation and scaling by combining economic development and the acceleration of the public transformation while respecting the general interest?
5. Data about oneself ("self-data" i.e. data a person is making public to receive personalised services), is widely available but not easy to use, making it difficult to create personalised services by third parties. The processing of those data must also be in full compliance with the GDPR. In particular, the GDPR obliges the data controllers to provide access to the personal data, and also includes the right to retrieve a copy of those data and the right to data portability.
6. The transformation of public action is based on a systemic vision and the elimination of "silos" represented by each public policy. At the same time, the regulations require the robust compartmentalisation of this data to protect personal data. The present action plan aims to respond to these stumbling blocks to release the potential of data of general interest, in full compliance with GDPR.

An item of data, in its rawest form, can be of particular importance: whether it is connected to a person, relates to a confidential manufacturing process or concerns a body of vital interest, its sensitivity can always be reduced by processing it, for example, by making it anonymous or aggregating it. During processing, the characteristics of data may change. The GDPR applies also to pseudonymised data but not to anonymous data.

Objective

A data taxonomy needs to be compiled, which is a hierarchical classification of the data based on shared characteristics. The main goal is to have shared definitions for all types of data.

Output

A data taxonomy which will ease the standardisation process and use of data.

Implementation

- A state of the art study, based on the existing studies, to recognise the commonalities between the already existing developments.
- Development of a framework for European data taxonomy.

Timeline

- *Preparation*: Second half of 2018.
- *Implementation*: 2019.
- *Assessment*: End of 2019.

Action leader

Lyon

Partner

Helsingborg

2.7. Better Regulation - Action 7: Access and reuse of private sector data of general interest by the public authorities

Bottleneck

Non-personal data is increasingly generated through Internet of Things (IoT) and machine to machine (M2M) solutions. In many cases, this data is strategic, and crucial for the daily management of the city and for the development of new and innovative services and solutions.

Businesses produce private data of general interest. This data presents an opportunity for public administrations in terms of improvement of their public policies and service delivery. City authorities often externalise the management of public spaces and services to private companies. These services rely on the collection and use of data. Data collected in public spaces can be crucial for preventive measures supporting public health and safety, improving urban planning, traffic management and managing energy supply. It supports local authorities' decision-making processes and the provision of essential services to citizens. Public authorities have begun experimenting with the use of aggregated and anonymised data analytics to discover insights that can guide better and more targeted policy decisions or improve public service delivery. To serve these purposes, public sector cannot just rely on their own public data. Other kinds of data held by private companies, such as telecommunications operators, online platforms or social media, or data generated by sensor-equipped, connected IoT devices could enhance the analytical insights and greatly benefit the public sector with economic savings and more efficiency. Where private data of general interest includes personal data, the processing must be in full compliance with the GDPR.

The possibility to allow that public authorities access private sector data of public interest was first mentioned in the January 2017 Communication "Building a European Data Economy" and, subsequently in the May 2017 Digital Single Market Midterm Review, as an area for which the Commission committed to further exploration. This policy issue was therefore included in the recent online consultation on the review of the Public-Sector Information (PSI) Directive (Sept. – Dec. 2017), and is one of the actions to be addressed in the upcoming 2018 Data Package. Businesses also believe they should receive a fair compensation given the costs of setting the data infrastructure.

Various actions to solve these issues could be envisaged ranging from regulation (e.g. cross-sectorial or only applied to specific sectors such as statistics) to public private partnerships.

At present, access to data generated by machines or through products and services is often limited, or unavailable, when the data is managed by private companies. Vendor lock-in practices hamper the development of innovative ecosystems and create interoperability issues that prevent the efficient (re)-use of data in and across cities in Europe. Current legislation does not guarantee free access by public authorities to data generated in the cities if not agreed in advance in specific contractual rules. Public authorities, citizens and local businesses must have access to data collected in public spaces where this would be in the general interest and would improve the functioning of cities.

Objective

In January 2017 the Commission adopted the 'Building a European Data Economy' Communication where it addressed, among other issues, the opportunities and challenges related to access and re-use of data. It announced a structured dialogue with stakeholders, which included a public consultation and a series of workshops.

The Midterm Review of the Digital Single Market Strategy mandated to follow up on the January Communication and explore further the issue of public bodies' access to privately held data of public interest. In a number of scenarios, public sector bodies could significantly improve their decision making if they were able to use commercially-held information, notably for the purpose of public health policy, spatial and urban planning, natural and technological risk management, managing energy supply grids or protecting the environment.

This action aims at guaranteeing the development of a harmonised EU regulatory framework based on fair, reasonable and non-discriminatory terms to provide public authorities, public agencies and bodies, citizens and local businesses to access to and re-use of data collected in public spaces for the development of new services and solutions for and in cities.

Output

Proposal for an EU regulation on access to and re-use of data by public authorities to data generated and collected in public spaces.

Implementation

Preparation of a proposal for an EU regulation. The action is addressed to the EU institutions (European Commission, European Parliament and Council). The preparation of the proposal would include necessary background work, such as studies and piloting cases to find out impact of the proposal.

Timeline

To be discussed

Action leader

EUROCITIES

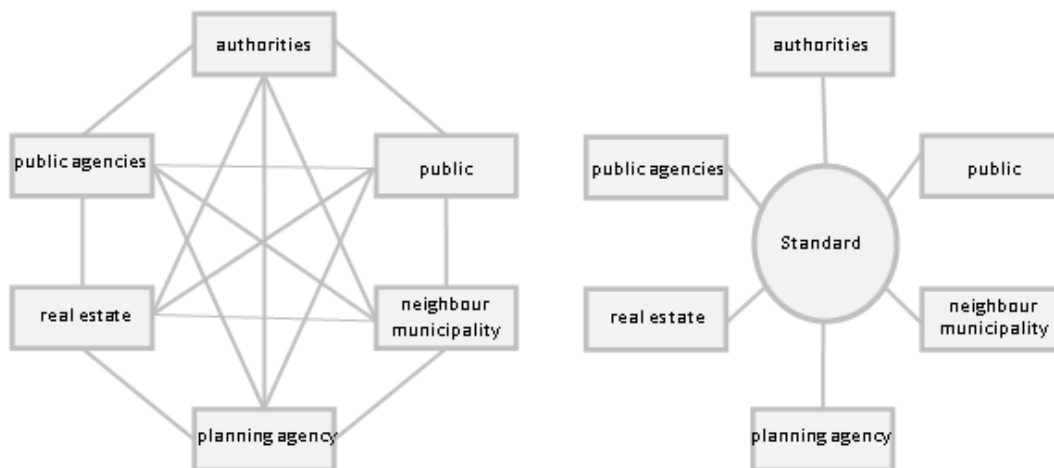
2.8. Better Regulation - Action 8: Specify and monitoring of standardised Planned Land Use data for formal and informal urban planning participation processes

Bottleneck

Evidence-based decision-making consists of city officials' expertise, citizen opinions, research-based knowledge and data which together may transform urban planning processes in order to co-create the future of European cities in the smartest possible way. A lot of participatory projects already include digital and analogue methodologies, however the resulting challenge is to integrate online and on-site methodologies – e.g. implementing analogue feedback into digital systems in a coherent, standardised way. Besides INSPIRE Planned Land Use data (PLU data) model specification, no guidelines for standardisation of participatory data are defined until now, making it difficult for entrepreneurs to create solutions implementable in multiple member states. Digital tools and new technologies are key factors for increasing citizen inclusion (e.g. Virtual Reality for visualisation, Augmented Reality for holistic experience, open data for transparency, platforms for data collection and sharing opinions and utilization of me-data and my data) when it comes to urban planning, many cities still lack the finance or knowledge to implement platforms for (digital) participatory urban planning. At the same time, (private) actors who acquire data in cities are restricted by legal and economic issues (e.g. right of ownership, business models) regarding sharing the data with public authorities for purposes of general interest. Therefore this action is linked to Action 7, where access and reuse not only refers to data but to platforms for data collection and storage, as well as software based on artificial intelligence. On the other hand, access and reuse of public data by the private sector needs to be addressed if cities are to act both as enablers of economic growth and as considerers of the consequences related to e.g. security issues.

A basic prerequisite for the effective usage of internet technology in communal area is the support of standards. The Communication on ICT Standardisation Priorities for the Digital Single Market (COM(2016)176) aims to ensure that all these devices in the future will be able to connect and share data with each other – independently of manufacturer, operating system, or other technical details. This is to guarantee a fresh approach to standards in 5G, IoT, Cybersecurity, Cloud and Big Data, as well as to ensure that all forces in Europe pull in the same direction, using standardisation as a strategic instrument to EU industrial policy. These technologies need to be made accessible in order for persons with disabilities and older persons to participate in these processes.

In addition to the INSPIRE PLU data model specification, standardised data models, exchange formats and standardised services have to be established for urban planning data and for the internet based access to the data. The design of urban land-use (zoning) plans requires the cooperation of different stakeholders. For the success of planning projects, transparency, data exchange and accountability are of fundamental importance. Hence it is necessary to inform stakeholders as far and extensive as possible and to give them an overview about spatial planning goals and status quo of proceedings. Particularly in urban planning often there are different competing interests and land-uses. These diverse interests and ideas of land-use must be recognised, analysed and balanced to minimise conflicts and to reduce consequential costs, still not compromising up-tempo plan-making processes.



The advantages of standardised PLU data are:

- Lossless and speedy data exchange between the actors involved in planning processes.
- Standardised data exchange format for horizontal (intermunicipal) and vertical (planner – municipality – county – federal state) process of coordination of planning.
- Standardised data format for e-participation platforms, supporting and enhancing data-based information and informal and formal planning participation.
- Semantic description of planning data as a basis for the establishment of services (query, monitoring, reporting) and visualisation in different software applications.
- Central storage of urban land-use plans / other plans of special urban planning legislation (e.g. formally designated redevelopment area) in a uniform semantic structure as a database for different software applications and information systems (e.g. for spatial urban monitoring and e-participation processes).
- Support electronically assisted proceeding on the granting of building permission.

An important prerequisite for the efficient and cost-effective implementation and operation of e-participation platforms is the usage of standards. This concerns the planning data itself as well as the methods to access these data. Participation platforms normally integrate data produced by different providers, e.g. citizens, different communal agencies or private planning companies. Without a standardised format to collect and integrate the data, large effort in data conversion and quality control has to be spent. The objectives of participation of public authorities, public agencies and the general public in urban planning and design processes are:

- Broadening consideration documents (information function),
- Increasing participation of general public in the long, mid-, and short term (strengthening democracy),
- Speeding up the participatory processes (enabling competitiveness),
- Improving influence in planning processes (legal protection),
- Raising the acceptance of planning projects.

Objective

For the exchange of digital planning data between actors involved in planning processes, as well as for the internet-based visualisation of planning data to potential users, a digital harmonised data exchange format is needed.

Within the implementation of EU INSPIRE directive, an infrastructure for spatial information in the European community for the purposes of community environmental policies and policies or activities, which may have an impact on the environment has to be built until end 2020. This European directive, lists 34 relevant thematic fields, segmented into three packages (Annex I – Annex III). Existing digital data belonging to one or more of these themes has to be transformed in an INSPIRE standardised data model and provided as internet based standardised viewing and download services. One of these themes addresses existing and planned land use: Existing Land Use (ELU), which objectively depicts the use and functions of a territory as it has been and effectively still is in real life, and Planned Land Use (PLU), which corresponds to spatial plans, defined by spatial planning authorities, depicting the possible utilization of the land in the future.

In addition, the objective of this action is:

1. to define guidelines for providing standardised spatial planning data, which can be implemented in informal and formal participation processes and
2. develop a transferable model for setting up a participatory urban planning platform. The model will look at financial possibilities (link to Action 13), content (link to Action 2) and capacity building among city officials (Action 3).

The action will increase knowledge in new types of data and how to use it for urban analytics (with the help of research partners contributing to the methods and long term strategic inquiries and impact analyses). Therefore it is necessary to analyse whether the use of the INSPIRE PLU data model is able to comply the described necessity for digital harmonised data models and data exchange format for spatial land use (zoning) plans in cities. It should also be explored as to whether the PLU data model supports the installation of e-government services (e.g. participation und monitoring services) in spatial planning and building action fields. The results could support an addition of the existing INSPIRE PLU data model – but are not intended to create a new model.

Output

One important output will therefore be the identification of specific obstacles and particular requirements (e.g. knowledge, comprehensive understanding and technological obstacles) using the PLU data model with focus on the municipal level. Results will be reported to the INSPIRE Committee. Questions that will be addressed are: Should member states which have not implemented mandatory national digital data standards for spatial land use plans, adopt PLU data model also in a national context? Should the PLU data model be extended or must a specific PLU data model profile be defined for implementing guidelines for e-government, participation and monitoring services for spatial planning and building? Is it necessary to supplement or extend existing EU INSPIRE regulation? Until now legal binding spatial land use or zoning plans represented in digital data formats has not had any legal effect. Is it necessary to define regulation on EU level to ensure digital planning data is legally binding? Should national code lists e.g. for specific national zoning regulations according to national building code, be published in registries in multiple official languages? In this case, it would be possible to compare land use regulations in a detailed level between European cities (e.g. a comparison study of different regulations in cities and countries). The European single market is also strengthened because the different city land use strategies will be transparent.

At the end of the action it will be evident, if INSPIRE PLU data model is useful as a standardised data model and data exchange standard for plan preparation, public participation procedures and legal binding land use plans in European cities or what actions has to be done to achieve this goal. The

outcome may be that PLU data is not suitable, in this case guidelines for the development of national data standards for spatial land use plans should be defined in order to guarantee whether this type of plan with its regulations can be interoperable and secure provided as web services.

An additional output of the action is a model for successfully implementing participatory long, mid- and short term urban planning with regard to standardisation of data, capacity building and financing. The side effects are transforming urban planning processes and a changing role of urban authorities by enabling innovation and multilevel collaboration. Results of urban planning based on this model are more democratic since they also build upon both citizen opinions and data on the silent majority.

Implementation

Aspect 1 - Standardisation of data:

- Analyse the use of PLU data model in European cities.
- Define monitoring techniques for PLU data for analysing comparable land use indicators (e.g. density).
- Analyse existing national and EU regulations, and data models for providing digital legal spatial land use plans on city level
- Analyse what level of information (meta data / data model) in digital spatial land use plans is needed to establish e-government services (e.g. electronic building application / participatory processes in urban planning / land use monitoring ..)
- Analyse national regulations to ensure digital planning data are legally binding
- Analyse weak points in PLU data model
- Analyse actual level of accessibility of PLU and participative data and develop strategies for improvements (e.g. guidelines).
- Define monitoring techniques for PLU, for analysing comparable land use indicators (e.g. density) for cities.

Aspect 2 - Participatory urban planning:

- Identification of used standards for participatory (user-generated) and 3D data in European cities.
- Analyse what level of information (metadata / data model) in participatory (user-generated) and 3D data is needed to improve citizen inclusion (e.g. participatory processes in urban planning / AR and VR participation)
- Define of standards for participatory (user-generated) and 3D data regarding the use in participatory projects.
- Involve stakeholders/partners: cities (preconditions, needs), businesses (needs, solutions) and academia (research, impact)
- A possible testbed: the ongoing eGovernment-project DIPAS (Digital Participation System) in the city of Hamburg as a prototype for a participatory urban planning platform
- Collaborate closely with following actions:
 - Action 2: Digital Neighbourhood Instrument
 - Action 3: Capacity-Building and Spreading of Pilots in Regions and Cities
 - Action 4: Helping cities develop a user-centric eGovernment model
 - Action 9: MyData in digital transition. Elaboration of a European roadmap on “MyData”
 - Action 11: Support agile experimentation of emerging digital technologies
 - Action 13: Co-creating a business model approach for cities

Timeline

- *Preparation*: 2018 Q2 Involving stakeholders/partners.
- *Implementation*: 2018 Q3 – 2019 Q3.
- *Assessment*: 2019 Q4.

Action leader

Hamburg and Helsingborg.

Partner

- Eurocities / ISOCARP (international society of city and regional planners).
- Cities & countries: cities involved in the Digital transition partnership / Eurocities.
- Contact with relevant networks such as the working group on CitizenCity in the Citizen. Focus Action Cluster under the European Innovation Partnership for Smart Cities and Communities developed a societal engagement toolkit and a digital platform for place based citizen engagement.

2.9. Better Knowledge - Action 9: MyData in digital transition – Elaboration of a European roadmap on “MyData”

Bottleneck

The state and municipal governments collect data to fulfil their various duties. Public services are collecting more and more personal data from their citizens due to digital service platforms. The data collection is also based on novel digital technologies, sensors and personal devices, which people are carrying with them every day. The data generated by people can also be a powerful tool for the urban planning, but the knowledge of exploiting the citizen generated data is very poor in public sector. In addition, people do not understand the power of their personal data in service development and the possibility to co-design new services with the public authorities.

There is a need to increase the awareness of new models and impact to exploit the personal data as a new source of information in urban planning. The human-centric data management is one of the models and it is called MyData model

The MyData principles⁷ start from the idea that people should have control over the data about themselves. They suggest that people should have practical tools for authorising the reuse of their data in other services and to make choices about its processing in line with the GDPR, in particular Art. 20. Making data available through human centric data management model could reduce the costs of developing new services and experimentation in both the private and public sector. At the same time, they would make public services more understandable and strengthen the rights individuals to their own data. Today, public and private sector have the power to collect, trade and make decisions on personal data.

Objective

As the importance of personal data in society continues to expand, it becomes increasingly urgent to ensure that individuals are in a position to know and control their personal data. In EU, the General

⁷ <https://github.com/okffi/mydata>

Data Protection Regulation (GDPR) will come into application in May 2018, which strengthens the rights of individuals. The MyData model is aligned with the GDPR and will, in fact, support the implementation of GDPR.

The shifts and principles that MyData principles aim at ensures effective protection of personal data. We believe they are the conditions for a just, sustainable and prosperous digital society whose foundations are:

- Trust and confidence, that rest on balanced and fair relationships between people, as well as between people and organisations.
- Self-determination, i.e. a person's right to determine how her/his data is used and which personalised services she/he wants to receive based on this data.
- Maximising the collective benefits of personal data, by fairly sharing them between organisations, individuals and society in compliance with GDPR and within the legal protection framework.

The MyData principles can be implemented in several different ways. There is a need to develop new platforms in a way that allows data controllers/and data processors to choose appropriate means to make personal data accessible/available for data sharing based on their individual situation and in compliance with GDPR, enabling service providers to offer machine-readable personal data via APIs. Public bodies should also work to create trust, for instance, through templates for terms and conditions in sharing data commonly understandable ways of expressing how personal data is used.

The impact of implementing MyData on the government and other stakeholders should be demonstrated through case studies. The improved availability of information enables personalised services and new kinds of applications, for instance, moving health care to a preventative direction (Smart, healthy city)⁸.

Level of governance: (EU – Member state – Local)

France has been experimenting with MyData for 4 years involving Lyon Metropolis, member of the EU DT partnership. The main goal now is to go from a local experiment to a scaled-up project. The goal of this action is to build a roadmap from local to global including governance and research (think global), and practical use cases in link with the MyData organisation (start small) and the will to scale-up fast with the emergence of European digital champions. Cities shall be involved in the “MyData” subject because:

- Cities have a lot of personal data and should be exemplary in this “vendor relationship management” approach (VRM).
- Cities have a role to play to restore an improved information balance between citizens and public and private operators: This is a democratic issue.
- “MyData” is an opportunity to create new services combining personal data with the privacy of the citizen, in compliance with GDPR. Thus, there is also an economic development issue.
- “MyData” strategy should be at a European level to facilitate the emergence of European digital champions in a global digital world. No European country is large enough to contain this subject alone in a global digital world (cf. President Macron speech in China: “to

⁸ Models and impact of MyData: Human-centric management and processing of public sector personal data, Kuitunen et al. 2017)

advance sufficiently and be competitive with the American and Chinese players we need a true, integrated market”). European citizens are aware of the use of their own data as a result of European history much more than elsewhere in the world: there is a unique opportunity for Europe to take the lead on this subject

- “MyData” is a mind-set shift which needs to be accompanied: citizen, operators processing personal data, start-ups creating new services. Public authorities as the organising authority for data governance should help this transformation

Output

- Awareness raising in personal data management models.
- A roadmap at a European level on “MyData” based on personal clouds, including innovation and research (with technical and social concerns)
- Concrete practices in processing personal data usage, including templates and data protection/ privacy policies.
- Practical user cases (health, energy transition)

Implementation

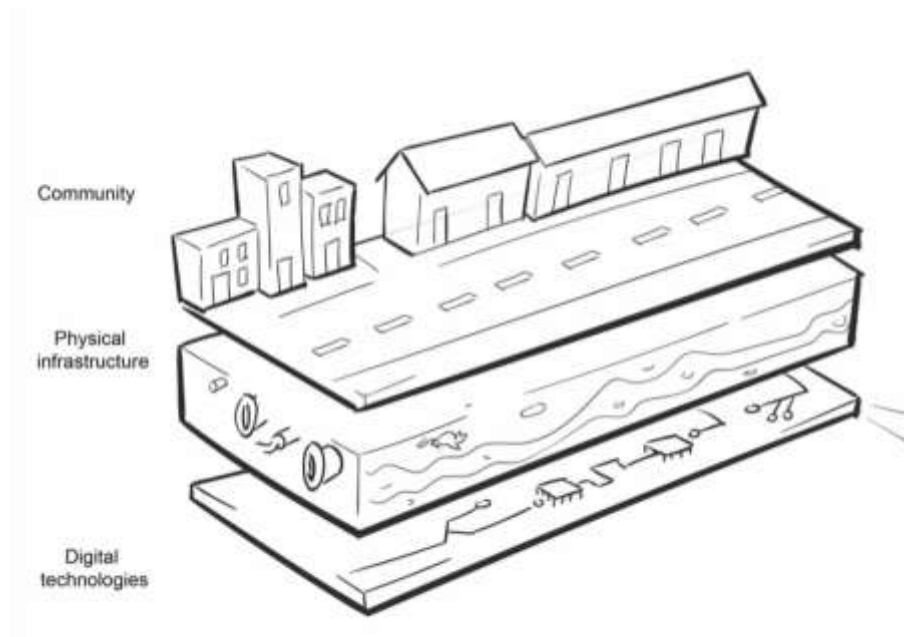
- The general understanding and a global roadmap from local to global should be achieved with close collaboration with mydata.org network. The timeline would be Q3/18.
- MyData portability is studied with most promising approaches, including MyData operator model, personal cloud, personal data account, data standardisation, etc. These are studied in city driven developmental projects which are using innovation partnership (PCP, PPI) funding instruments. The role of cities in open innovation partnership calls, and in co-creating the future solutions with companies and civil society organisations.
- The action is implemented by identifying the focus and use cases with cities, which are interested in the action, and sharing the good practices between the cities.
- The concrete practices will be generated within chosen use cases, which are determined by cities.
- The generated MyData practices will be used in potential actions to be proposed for funding under the H2020. A coordination action is therefore needed to bring together the knowledge and drive the policy accordingly

Timeline

To be discussed

Action leader

Oulu and Lyon



2.10. Better Knowledge - Action 10: Building innovation and dissemination accelerator

Bottleneck

The impact of digitalisation on our society is tremendous. However, cities are challenged by how best to organise themselves, the internal city processes and practices, as well as in relation to collaborating with different stakeholders within and between the cities, such as business, research, education and the government. The levels of openness, and degrees of interaction with different stakeholders varies per city (e.g. the Light House Projects give good examples). The challenge in digital transition is that at city level, in many cases cities are conducting the same activities without necessarily knowing about each other. A European-wide innovation disseminator for digital transition is missing. Lack of knowledge distribution and information sharing at city level is resulting in insufficient use of resources, the wasting of resources, lack of innovation potential and missed opportunities, which prevent or hinder the scalability, adaptability and sustainability of digital solutions within European cities. Cities are able to capture true potential of digital transition only if they learn how to organise and steer themselves in this new era.

Objective

As cities and countries, we need to learn how we can be innovative and innovate. This action implies a different way of working; the multilayer approach on a local level. Therefore, we defined a few steps within this action. The objective of this action is to set up an innovation acceleration platform that works as an instrument for cities in disseminating practices and sharing experiences on different activities and processes regarding the development and application of a variety of digital solutions. While cities can utilise the accelerator for sharing knowledge about different practical solutions through a lessons-learned approach, this action focuses on providing tools which cities can use to organise themselves and build their own innovation ecosystems.

The purpose of the innovation acceleration platform is to bring worlds together from a social, physical and digital domains and technology perspective to improve the quality of life in the cities of the future; i.e. enabling promoting the use of technology from a human centred perspective. It's the instrument and vehicle which guides living labs on certain themes (e.g. future health, e-government, urban planning, smart mobility, future of learning, accessibility for disabled and older persons, etc) to start and grow towards solid and scalable, adaptable and sustainable implementation (including value/business models). This is divided in two parts:

1. The infrastructure which is necessary to facilitate in funding and validation of ideas/solutions
2. The innovation process; from ideation, prototyping towards business and accelerations and implementation at large scales ('beyond the pilot'). The accelerator distinguishes itself by explicitly generating and focusing on business and economic scalability, adaptability and sustainability with human centric solutions for urban challenges in digital transition.

To accelerate Urban development innovations within cities in Europe, we believe in collaboration that builds on regional strengths. Every region has its own focus specialisation themes and strengths for digital transition, so we need to embrace the regional differences and utilise them as the basis for collaboration and learning. We acknowledge that different cities within Europe are at different phases in digital transition, needing support in their capacity building actions. There is a need for solutions for other regions and cities, which can easily be copied and implemented. The goal of the action of is to create synergy in the strengths of different regions. By collaborating testing and adapting solutions in cities across Europe we accelerate digital transition and create solutions that are applicable in different contexts and in different phases of digital transition, resulting in and have sufficient economies of scale, and true adaptability and sustainability.

Test of 5 specific topics (e.g. work, e-government, 5G, e-health see action 7) to see if the platform works.

The overall goal of this action is to gather cities together under one source and provide a place of information sharing and peer-learning where cities can freely exchange and share good and best practices, ask for advice and find examples and success stories from cities that have taken leaps in digital transition. It will also create awareness of the potential and importance innovation, the strategy to orchestrate and infrastructure that you need to anticipate further developments.

Output

The action will deliver the following outputs:

- An innovation acceleration platform including an 'open source' toolbox with all the instruments available which helps cities to innovate in digital transition.
- Five living labs to test and pilot the innovation acceleration platform in 2018 & 2019 which will deliver concrete instruments for the toolkit.
- Implementation strategy guidelines to make sure that all cities of different levels in the digital transition continuum can easily apply the toolkit based on their contextual factors
- A number of businesses which have tested value models to help the EU on defining future funding mechanisms.
- Evaluation of how public procurement helps value funding mechanisms in innovation and replication.⁹ .

⁹ Connection with the partnership innovation and responsible public procurement

Implementation

In order to implement the action, the main focus is on knowledge sharing, dissemination and communication of how cities have experimented with and advanced digital transition. We will utilise existing European networks and structures as much as possible, but the focus will be on coordination and steering issues related to digital transition in cities. As cities have different levels and capabilities of digitalisation, and the development contexts, methods, tools and business models for the development of digitalised or new digital services vary, we initiate this action by proposing an analysis of the state-of-the-art regarding digital transition in Europe to create a demand-driven way of working and organising the accelerator. This way of working acknowledges and allows flexibility to suit the needs of individual cities on advancing digital transition.

The organization that implement the actions need support in 5 parts by the Technical Secretariat, European Commission and other platforms:

- support on the coordination and steering
- marketing and communication for accelerator
- development of the toolkit
- support on the living labs
- support in form of funding, experts & resources.

Timeline

- *Defining the innovation acceleration platform and living labs (including partners and budget) – Q2 2018.*
- *Developing the platform and toolkit – Q3 & Q4 2018.*
- *Start with the 3 living labs Q3 2018 - end 2019.*
- *bring together the multi-level networks and defining the local implementation strategy within the living labs - Q3 2018.*
- *implementation of the innovation acceleration platform and develop tools for the toolkit based on specific living labs, first results to be defined end Q3 2018 - total period Q4 2018 & 2019.*

Action leader

Eindhoven, Oulu, Hamburg and Helsingborg.

Partner

The following partners will be involved which are necessary to be successful:

- Europe; DG CNECT, Knowledge society forum and ENoLL10
- Countries/cities; Belgium/Antwerp & Gent ...
- Living labs countries & cities; Eindhoven, Oulu
- URBACT

¹⁰ From the European partners there is a need to connect with other platforms & programs for benchmarking and scaling up, to get political perspective and framing (references to the strategic approach in European policies) and to access to funding mechanisms

2.11. Better Funding - Action 11: Support agile experimentation of emerging digital technologies

Bottleneck

There are great opportunities for cities to apply emerging technologies (e.g. 5G/IoT, Artificial Intelligence, Virtual and Augmented reality) within their cities. This will help cities to overcome the challenges that we face. As described in action 6, we will develop an instrument which helps cities to learn how to innovate. However, 'the proof of the pudding is in the eating', you need to test the instrument through living labs on emerging digital technologies. Agile experimentation through living labs, however, brings new challenges to make sure the experiments are effective and to safeguard the public interest. There are several issues to be taken into account - the technical specifications, ownership of the technology, investment and funding mechanisms, ethical dilemmas and the adaption & implementation. All to assure that the solutions will become scalable, adaptable and sustainable.

In order to exploit the opportunities and value of digital transition, cities need a business model approach that could help them to expand from traditional closed service business models towards the development of digital services through co-created open or mixed business models that are based on different levels of collaboration. In addition, to also ensure which one returns the generated value to the end-users. As new services are often co-created, questions such as how to carry out experimentation and validation of new services and respective business models will arise and will need to be taken in account. The experiments will help to experience how cities as innovation ecosystems works in real life.

Objective

In order to participate as a local government in the digital transition we need to be proactive and work within the local innovation ecosystem to experiment with these emerging technologies and safeguard the public interest. We look at different options to experiment through closed, mixed and open approach; the goal of the experiments is to compare the results and learn lessons from them. Currently there are many living labs operating in cities. We will use this energy and try to create connections to cities and living labs as much as possible, so that knowledge is shared. We will focus on the following emerging technologies:

- 5G & IoT and new local operator models for their deployment
- Artificial intelligence
- Blockchain
- Virtual reality
- Augmented reality

We experiment on the emerging technologies to test the innovation accelerator (Action 10). During the experiment we test the following themes:

- the funding mechanisms (especially for scale ups)
- the public interest boundaries you need to safeguard (procurement, technical, ethical, legislation and vendor lock-ins as described in action 13)
- the business model approach
- implementation and adoption of services and solutions.

Output

- several living labs on emerging digital technologies which are linked and connected at EU level.
- Funding mechanism on scale ups
- better services for cities and their stakeholders, based on new technologies
- transferability of the knowledge (lessons learned)

Implementation

To implement the action, the main focus is on knowledge sharing and communication; the tools and instruments are there they need to be extracted. We need to have support in 5 parts:

- Funding to experiment
- support on the coordination and steering
- marketing and communication
- development of the toolkit for knowledge sharing
- support on the living labs

Timeline

The following steps in time will be followed:

1. Defining the living labs, emerging technologies and partners + analysing the calls (Q1)
2. Start with the 3 living labs Q2 2018 - end 2019
 - bring together the multi-level networks and defining the local implementation
 - strategy within the living labs Q2 2018
 - implementation of the innovation acceleration platform and develop tools of the results based on specific living labs, first results to be defined in Q3 2018 - total period Q4 2018 & 2019

Action leader

Eindhoven together with Oulu, Hamburg, Helsingborg and Hamburg.

Partner

The following partners will be involved which are necessary to be successful:

- Europe; DG CNECT, Knowledge society forum and ENoLL
- Countries/cities; Belgium/Antwerp & Gent ...
- Living labs countries & cities; Eindhoven, Oulu, Hamburg, Helsingborg

2.12. Better Knowledge - Action 12: Implementing the digital framework for emerging technologies within the digital infrastructure

Bottleneck

Cities need to define how to exploit the potential of digitalisation and new technologies in their processes and how they serve their citizens. There are several emerging technologies in the upcoming years (e.g. virtual reality, augmented reality, 5G, machine learning) which cities will benefit from in facing their future challenges. Cities need to study existing laws and regulations, think about the ethics (what city you want to be?) as well as their own activities and roles in a whole new way. Next to that the data transformation will provide opportunities to explore new business models where citizens start to profit from the full value of their personal data.

The new technologies will force cities to think about how to implement these technologies to reach the full potential and safeguard the public interest. There are two main challenges to solve; what do cities need to do (and invest) to create an adaptive digital infrastructure? And how can cities exploit new technologies as part their digital infrastructure (including safeguarding the public interest)?

Objective

To help cities implement the new digital infrastructure we work on the following deliverables within this action:

- We build a (dynamic) digital framework which helps cities & countries to implement the new technologies (from ethical, inclusive and accessible, technical, procurement & legislation perspective) within European boundaries and to deliver continuous input for European legislation. This instrument provides the tools, guidance and instructions in a practical and easy way to implement, develop and integrate new technologies; for cities that are frontrunners as well as followers.
- A white label (an instrument that provides tools, guidance and instructions) for cities on how to implement (and invest) in digital infrastructure for your city. Within cities there are a lot of examples of the implementation of smart neighbourhoods and what is necessary for cities to become digital and safeguard the public interest

Output

The action will deliver the following outputs:

- A practical digital framework for cities & countries to implement new technologies which will feed into discussion about the potential EU legislation during 2020-2024.
- An implementation strategy for digital infrastructure based on a white label which helps cities to implement a digital infrastructure which is adaptive for new digital technologies.
- A funding report of the investment which is necessary to implement a digital infrastructure based on the white label.
- Input for the discussion about the potential European legislation and funding regarding new technologies.

Implementation

To implement the action, the main focus is on knowledge sharing and communication; the tools and instruments are there. They need to be extracted. Participating organisations need to have support in 5 parts by the Technical Secretariat, European Commission and other platforms:

- support on the coordination and steering
- marketing and communication
- development budget of the digital framework and white label
- Action leader, partners
- support in form of funding, experts & resources.

Timeline

The following steps in time will be followed:

1. Defining the digital framework and white label, including the overview of all developments which is already done - Q1 & Q2 2018.
2. Defining the assignment for the funding report and assigning to a research partner for the white label - Q1 2018

3. Developing the digital framework and white label for implementing digital infrastructure - Q3 & Q4 2018 and Q1 2019
4. Developing the funding report of the investment which is necessary to implement the digital infrastructure within the EU- Q4 2018
5. Start with the 5 living labs on 5 Q2 2018 - end 2019
 - bring together the multi-level networks and defining the local implementation
 - strategy within the living labs Q2 & Q3 2018
 - testing and implementation of 5G solutions within the living labs - Q4 2018 & 2019

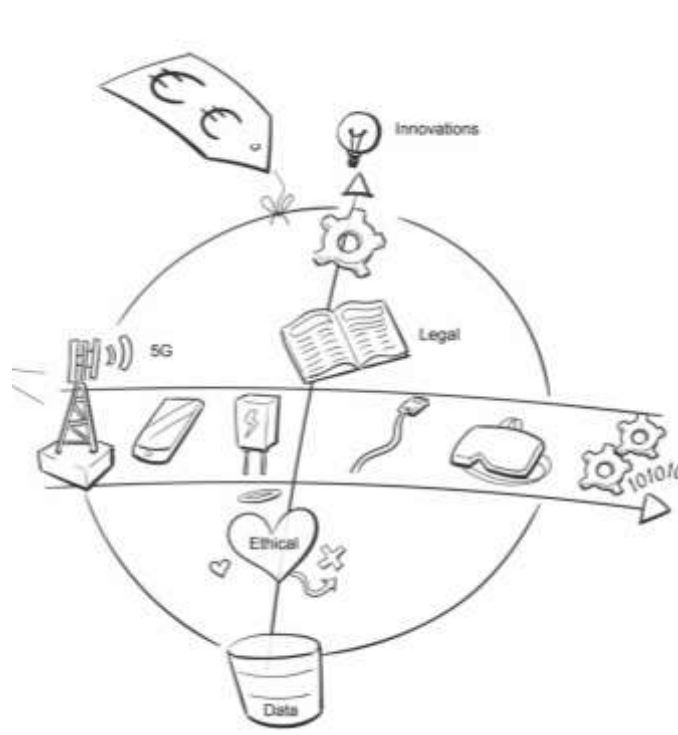
Action leader

Eindhoven and Oulu

Partner

The following partners will be involved:

- Europe; DG CNECT, Knowledge society forum, Epson and ENoLL11
- Countries/cities; to see which cities want to join (URBACT will help to identify cities)



2.13. Better Funding - Action 13: Co-creating a business model approach for cities

Bottleneck

Urban digital transition involves addressing the creation, selection and transformation as well as continuous provisioning and utilisation of digital services for citizens and other stakeholders with

¹¹ From the European partners specific we need the connection with other platforms & programs, political perspective and framing (references to the strategic approach in European policies) and access to funding mechanisms

appropriate – scalable, adaptable and sustainable – business models. Originally, the business model was developed as a tool to design, visualise and communicate novel digital business and service concepts in an efficient manner and direct strategy implementation. However, business model thinking is not widely adopted by the cities as a strategic tool for development nor governance. Business models are not only meant for private commercial organizations, but they are equally important for cities to exploit the opportunities of digital transition. Cities need the business model approach in the governance and decision-making of their future digital services especially regarding three key questions (Figure 6):

- How to identify opportunities for digitalization?
- How to create and capture value from digital solutions?
- How to build competitive advantages for sustainable innovation and business policies?

Business models help to answer the questions **what** cities are offering to their customers in terms of products/services and value proposition, **how** and **where** they are planning to do that in practice, and **why** do they think they can do it in a sustainable way (Figure 6).

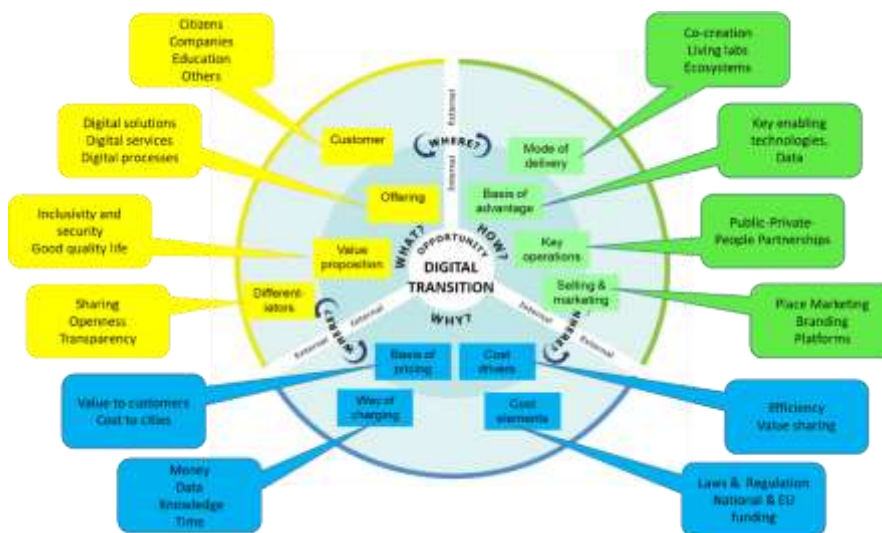


Figure 6. City business model.

For cities the business model could be a way to perceive, design and execute actions regarding their digital services. New services are often selected from a variety of earlier developed alternatives or co-created with companies, researchers and citizens. In doing this, questions such as how to carry out the selection/creation, experimentation and validation of the new services and respective business models may arise. In addition, the development contexts for new services and their respective business models may vary from Living labs to Incubators, Think tanks, NGOs, Universities, Companies and Cities themselves. In these kind of contexts, existing off-the shelf products and services fuse with city-generated or user-generated content. These highlight the differences in city and company business models, functioning and cultures. These differences result in challenges around ownership, control and accessibility issues, balancing the competitive and collaborative tensions between stakeholders, prioritisation of users and usage of various data, or dependency on a single supplier.

Although smart city initiatives often seek to address urban context such as open innovation platforms, knowledge in practice is still largely in silos, and vertical structures dominate in the public sector. Digital transition challenges existing city services, processes, structures, policies and regulations. Therefore, we see that cities themselves need to understand why and how to utilise business model approach and what kind of business models could help them guide digital transition. Hence, business models can be considered as an umbrella approach to digital transition for fostering better use and spread of knowledge that emerges in the city context, across different vertical and horizontal domains, and for accelerating urban growth by breaking the silos.

Objective

In digital transition, the cities themselves need to build and take on board an appropriate business model approach where learning from experience and co-creation plays crucial role. This learning and co-creation would best take place between peers; cities with similar enough challenges and objectives for digital transition so that to facilitate collaborative learning. However, the peers should also represent enough variation in their profiles, regulative domains, and levels of digitalization to ensure efficient and fruitful adoption of appropriate business model approach. Specifically, we propose co-creating the approach that helps to produce tailored city-specific business models for facilitating the cities' selecting/creating, experimenting, validating and provisioning of digital city services. Therefore, this action complements the EU level initiatives that aim to disseminate business model thinking such as EIP-SCC Business Model Action Cluster, Public Procurement Partnership in the Urban Agenda, and numerous Lighthouse projects (e.g., REPLICATE or REMOURBAN) aiming at developing replicating smart city business models of individual digitalized services.

Objective of the action: Developing the business approach and city tools for digital transition that acknowledges the scalability, sustainability, replicability and adaptability of citizen-centric and inclusive digital services.

Level of governance: Local

Output

- A business model tool and approach that cities can apply in digital transition.
- Exploration and co-creation of new ideas and concepts, demand-driven solutions, and new digital services to be made available for the citizens and other stakeholders through digitalisation.
- Exploitation and commercialisation of prototypes or pilots of currently used digital city processes and services.
- A framework and criteria for cities to assess, develop and select existing or currently available digital solutions.

Implementation

- To co-create a business model approach for cities, the relevant stakeholders are selected utilising the quadruple helix thinking (comprising government/public, industry, academia and citizens), keeping the inter-city collaborations as the core of action.
- Development of the business model approach will be developed as expert work, and piloted and implemented in collaboration with relevant the city networks.
- Dissemination of the outcomes could take place through existing networks, platforms and public initiatives.

Timeline

- *Preparation:* 2018 involving and identifying stakeholders/partners.
- *Implementation:* 2018 – 2019 initiating city activities.
- *Assessment:* 2019 assessment of impact and outcomes.

Action leader: Eindhoven and Oulu

Partner

Helsingborg, Eindhoven, Lyon, Sofia, EUROCITIES and URBACT

We are looking for smaller cities who are looking to co-create with us. To support our action, we need:

- Funding for preparations, facilitation and support of the process, and actual co-creation participating cities.
- Involvement and commitment of the key decision-makers in the cities to root the developed business model approach to the cities.
- Network for disseminating the business model approach the city-specific examples.

2.14. Better Regulation - Action 14: Development of 5G regulation to enable local micro-operators in cities

Bottleneck

The full benefits of 5G as a key enabler for digital transition in cities can only be realised when the mobile communication market is made open for new entrants to offer innovative services by establishing local 5G networks. The RSPG has recently noted in its strategic spectrum roadmap towards 5G the need to respond to the emergence of a diverse set of new market players in addition to the existing network operators that requires different spectrum authorisation approaches to deliver innovation and meet the socioeconomic policy objectives of each European country. These approaches are seen to include sub-national, regional and site-specific spectrum licensing, (including at the local level directly to businesses), which brings a completely new planning level to mobile communication – “the cities” that can host a large number of specialized local micro operators.

Objective

The promotion of locally deployed 5G networks is a key for Europe to speed up innovation and delivery of new high demand local services. This calls for 5G innovation platforms that promotes competition in the mobile connectivity market by allowing new local entrants to serve vertical sectors’ specific needs. While national regulations are in the key role of adoption of 5G networks, European level best practises will help in preventing market fragmentation.

Development of circumstances and related regulations that enable businesses and cities to take local operator roles in cities is a key priority and should take into account the specifics of the cities in the national level while still providing European wide harmonisation of best practises. Initially, a dialogue needs to be started with the national regulator in each participating member country for information exchange on needs. Then, the boundary conditions from the upcoming European Electronic Communications Code (EECA) that presents the new EU regulatory framework for electronic communications including the regulation of broadband access infrastructures need to be carefully reviewed from the micro operator perspective including guidelines for national regulators to implement it in practice. Finally, the national level

discussions need to be fed back to European level for information exchange on best practises to allow cities the welcome a wide variety of local micro operators.

Level of governance: EU, national.

Output

- A practical framework for cities & countries to implement 5G networks as innovation platforms to support development, testing and introduction of services, benefitting of fast and reliable wireless networks
- Input for national legislation and European funding regarding 5G regulation
- Living labs with 5 to 7 cities with Europe which implemented 5G and work on Urban platforms in order to boost local innovations and Smart City development

Implementation

- Contribution to the 5G regulation development in national levels and collaboration in European level
- Regarding the testing of 5G; start with several cities and operators to test 5G in local context and the possibility through Urban platforms.
- Development of local operator model calls for defining new best practices to allow market entry to the mobile connectivity market through particularly competition regulation and spectrum authorisation that should evolve towards promotion of local operations. The micro operator view will be involved in relation to the preparation of the regulation process.
- The action will use the synergies with the 5G Action Plan, i.e. the 5G Cities initiative and the COCOM 5G activity.

Timeline

- *Preparation:* Q1 2018
 - Q2 2018 - Stakeholders / partners to be involved
 - The remaining task depends on the framework
- *Implementation:* Q3/2018 – Q4/2020
- *Assessment:* Q4/2020

Action leader: Oulu, Eindhoven, Eurocities

Partner

- Cities & countries: cities that are already developing the framework (e.g. Stockholm, Barcelona) and national regulators

What is needed?

- Knowledge and network from organisations and cities which are involved in setting up new 5G networks and 5G regulation work



2.15. Better Funding - Action 15: Strengthen the ability for cities to act within the digital transition

Bottleneck

Digital transition revolutionises the European urban landscape. The challenge is how to find financing tools which enable true transition, accelerating the adoption of new processes and solutions in cities. The funding tools should support multi-disciplinary approach. Multi-disciplinary execution challenges funding programmes as funding is needed to link different types of actions and investment types; it is not enough to invest in IT infrastructure.

Digital transition is also a long-term process, and it takes time to deliver the promise. The promise of a digital transformation is a combination of better and more accessible service with lower operating costs. At the same time, the set time-frame to reach expected results is not realistic. This means that it is challenging to create a budget for digital transition processes' initiatives for a multi-year complex, cross-functional digitalisation process.

Objective

Development of a Digital Transition Funding Programme that enables diversified projects, combining many sectors and a wide range of measures. To take into account different maturity levels in cities, there will be benchmark/proof of concept tool/database and mentoring to help applicants to apply for funds. Another aspect in resourcing of digitalisation is to supporting replication of implementations which have proven results.

Output

Framework to be proposed to the European Commission for a funding programme to support cities in digital transition. Framework will include proposals for financing from Multi-annual financial framework, including Cohesion policy and Digital Europe initiative. Within Cohesion policy, financing from both Policy objective 1 and urban development funds, including support to Urban Agenda for the EU, will be foreseen. Digitalisation should be a priority also for Horizon funds 2020+ if Europe wants to become the forerunner of exploitation of digitalisation in the world.

Implementation

Preparation of the proposal on how to fund digitalisation from Multi-annual financial framework 2021-2027, based on cities' needs and how cities could maximise the benefits from digital transformation.

Timeline

- Q3/2018 – Preparing the funding framework
- Q3/2018 – Proposal to European Commission
- Q1-Q4/2019 – Piloting the funding structure

Action leader

Oulu

Partner

Estonia

3. Recommendations

The digital transition partnership has identified a large range of topics that are worthy of note but not proposed for action. Further below is presented a topic that would be potential for additional attention by other stakeholders. The topic is formulated as recommendation along the deliverables of the Urban Agenda of better regulation, and better knowledge.

3.1. Recommendation 1: Decree on the ownership of the definitions of the interfaces of municipality ICT systems

In the future, municipalities and cities should own the definitions of the interfaces of their systems. The system is still owned by the system vendor, as well as by the technical implementation of the interfaces, but the municipalities should own the specifications and take care of them together with other municipalities. Obviously, municipalities need third parties to maintain definitions and ensure that interfaces match definitions. In this way, the municipalities would gain more control over the interfaces and make it easier to coordinate integrations of the systems. This is especially a problem with municipalities' "old" systems which are still widely in use.

Currently, when municipalities are purchasing "new" systems, system vendors make open interfaces for their own systems and interfaces. The interfaces are technologically conforming to a standard, but the interface content, technology, and documentation are often freely decoded by the supplier.

4. Links with other commitments

4.1. Link with the cross-cutting issues

The Pact of Amsterdam states that the complexity of today's urban challenges requires integrating different policy aspects to avoid contradictory consequences and to make interventions in Urban Areas more effective. In line with the competences and responsibilities of the different participants and taking into account that the EU does not have competences on some of these issues, the Partnerships should consider the relevance of cross-cutting issues for selected priority themes. The Pact of Amsterdam includes 11 specific cross-cutting issues which have to be considered by all partnerships.

Digital Transition Partnership has analysed all 11 cross-cutting issues. Below it is described how these themes have been taken into account in the development of the Partnership's Action Plan. Furthermore, the integrated and innovative approach in our work as well as the fundamental principle that digitalisation is a tool for broader citizens' participation and knowledge-based better governance, would be additionally underlined in the Implementation plans for each of the actions.

4.1.1 Effective urban governance, including citizens' participation and new models of governance

Effective urban governance and new models of governance are at the core of the Digital Transition partnership, especially the partnership's e-governance actions.

Action 4 - Helping cities develop a user-centric eGovernment model - directly helps cities to elaborate and institutionalize new and more effective digital governance systems. Clear emphasis is also on the citizens - the ease and convenience of citizens to participate in the digital governance system and in the society as a whole is taken by the Partnership as one of the underlying aims for starting digitalisation processes in the cities.

Action 5 - Developing the Digital Economy and Society Index (DESI) at local level ("DESI local") - will help cities to measure the efficiency gains for citizens, businesses and public sector created by digitalization of urban governance systems, including digitalising public services. Action 5 also provides cities the current participation statistics as a basis on which cities can plan how to involve more people and more effectively in the future.

Action 7 - Access and reuse of private sector data of general interest by the public authorities - aims directly at more effective urban governance, including making better decisions and developing more effective processes as data collected in public spaces would be accessed and reused for the development of new services and solutions for and in cities. Where personal data collected for specific purposes, the reuse for other purposes must be compliant with the purpose limitation principle in the GDPR and based on specific national law.

Action 9 - MyData in digital transition. Elaboration of a European roadmap on “MyData” - targets citizen participation. People are already participating in generating personal data which is accessed and reused. As a result of this action people will have more control over the data they generate. Where this concerns personal data, the GDPR applies, which includes inter alia provisions on the access to personal data, including the right to obtain a copy of the data undergoing processing as well as the right to rectification, the right to erasure, the right to restriction of processing, the right to data portability and the right to object (please see also the comments above).

Action 13 - Co-creating a business model approach for cities - focuses on effective urban governance and new models of governance by introducing and testing a novel business model approach to city budgeting and revenue creation.

Action 15 - Strengthen the ability for cities to act within the digital transition - focuses on finding the financing tools for building new and effective digital government models throughout Europe, which would enable true digital transition and accelerate the adoption of new processes and solutions in cities.

4.1.2 Governance across administrative boundaries and inter-municipal cooperation: urban-rural, urban-urban and cross-border cooperation; link with territorial development and the Territorial Agenda 2020

Action 3 - Capacity-Building and Spreading of Pilots in Regions and Cities - promotes cooperation and exchange of experience between municipalities (both urban-urban and urban-rural) across the borders to become ready to face the challenges and opportunities posed by the digital transformation of government, which will contribute to increased territorial cohesion in Europe.

Action 6 - Build a data taxonomy at a European level - specifically requires and thus focuses on strong inter-municipal cooperation and also cooperation across different administrative layers to make joint data taxonomy available to and endorsed by all cities in Europe.

Action 8 - Specify and monitoring of standardised Planned Land-Use data for formal and informal urban planning participation processes - is implemented by direct collaboration between stakeholders/partners from different levels and sectors, including inter-municipal collaboration. Achieving participatory digital urban planning processes contributes to better territorial cohesion and development in Europe.

Action 10 - Building innovation and dissemination accelerator - places strong emphasis on inter-municipal cooperation (urban-urban and urban-rural) as the goal of the action is to create synergy in the strengths of different regions. Action is implemented by collaborating, testing and adapting solutions in cities across Europe to accelerate digital transition and create solutions that are applicable in different contexts and in different phases of digital transition.

Recommendation 1 - Degree on the ownership of the definitions of the interfaces of municipality ICT systems - will help cities avoid vendor lock-in in their digitalisation developments. Avoiding vendor lock-in in turn makes it easier for cities to work in collaboration with other municipalities for mutual benefit.

4.1.3 Sound and strategic urban planning (link with regional planning, including 'research and innovation smart specialisation strategies' (RIS3), and balanced territorial development), with a place-based and people-based approach

Action 4 - Helping cities develop a user-centric eGovernment model - contributes to sound and strategic urban planning by elaborating and providing the implementation strategy for cities to implement an e-government system, which is people-centred and has been tested in different types of cities in Europe, at the same time allowing to be tailored to a specific place.

Action 7 - Access and reuse of private sector data of general interest by the public authorities - contributes to public authorities' capability to make more sound and better informed strategic decisions in different spheres of urban life, including urban planning once access to and re-use of data collected in public spaces for the development of new services and solutions for and in cities is ensured.

Action 8 - Specify and monitoring of standardised Planned Land - Use data for formal and informal urban planning participation processes - directly contributes to sound and strategic urban planning with a place-based and people-based approach by easing the barrier of citizens to participate in land-use planning processes.

4.1.4 Integrated and participatory approach

Action 2 - Digital Neighbourhood Instrument - directly targets increasing citizens' participation in digital society by increasing people's digital skills to enable their participation in practice.

Action 4 - Helping cities develop a user-centric eGovernment model - also focuses on people's participation by developing an e-government system, which is tailored to be citizen-centred and easy to use for people when receiving public services from their city.

Action 5 - Developing the Digital Economy and Society Index (DESI) at local level ("DESI local") - will measure different spheres of digital society in an integrated way, such as physical connectivity, but also people's digital skills and their use of services offered digitally, as well as integration of digital technologies by cities and businesses when providing services and in their everyday work.

Action 8 - Specify and monitoring of standardised Planned Land - Use data for formal and informal urban planning participation processes - directly targets participatory approach by easing the barrier of citizens to participate in land-use planning processes.

Action 13 - Co-creating a business model approach for cities - targets both integrated and participatory approach by integrating business model thinking into public sector processes and using a co-creation approach where various stakeholders come together to learn, share and co-create (quadruple helix model will be utilised).

4.1.5 Innovative approaches, including Smart Cities

Digitalisation within governance, business and society in general offers an innovative approach to tackle today's challenges. The following actions are proposed to enhance innovative approach:

Action 3 - Capacity-Building and Spreading of Pilots in Regions and Cities - more capacity is needed within the administrations in order to be open to new processes, implementing new services and adopting technologies.

Action 10 - Building innovation and dissemination accelerator - the action's main purpose is to promote innovations and make them more accessible and easier to adopt under different conditions.

Action 11 - Support agile experimentation of emerging digital technologies - Public authorities are often lagging behind the private sector when emerging technologies are concerned. This action aims at supporting cooperation in order to harness the full potential of new technologies for the benefit of citizens.

Action 12 - Implementing the digital framework for emerging technologies within the digital infrastructure - aims at creating a tool/ framework which will allow public authorities to be better equipped to foster, adopt and promote innovative solutions to everyday challenges.

Action 13 - Co-creating a business model approach for cities - will help cities to expand from traditional closed service business models to innovative models, meaning that the digital services are provided by the cities themselves or outsourced from a single service provider, to be selected or co-created in collaboration-based open or mixed business models.

Action 14 - Development of 5G regulation to enable local micro-operators in cities - enables new entrants to the mobile connectivity market that may offer innovative and specialised local services. Actions also includes setting up living labs that build upon 5G and urban platforms to promote local innovations and smart city developments.

4.1.6 Impact on societal change, including behavioural change, promoting, among other things, equal access to information, gender equality and women empowerment

Action 1 - Mainstreaming EU Digital Competence Framework for citizens into daily use – this will contribute profoundly to bringing out societal and behavioural changes by promoting self-assessment of digital skills in order to regularly increase them and to start providing opportunities for people to upgrade their digital skills by employers. As an expanding part of services and information is digitally available it can be argued that this action will have an impact on societal change by enabling more equal access to information, and to behavioural change by increasing citizens' interaction with local authorities as well as national or European authorities. When such practice is mainstreamed in Europe, this might even transform the digital society itself to the next level. The action will also have an effect on women empowerment.

Action 5 - Developing the Digital Economy and Society Index (DESI) at local level ("DESI local") - has a positive effect on equal access to information as it would make comparative municipal level statistics on digital aspects of society and economy available in Europe for the first time. Also, the possibilities to collect statistical data split by gender will be addressed.

4.1.7 Challenges and opportunities of small- and medium-sized Urban Areas and polycentric development

Action 1 - Mainstreaming EU Digital Competence Framework for citizens into daily use - supports small- and medium-sized cities to prepare for implementing digitalisation processes by pointing out the need to upgrade also the digital skills of civil servants in city governments. Lack of digital skills of employees has been listed by smaller cities as one of the causes for not digitalising its service provision and working processes.

Action 2 - Digital Neighbourhood Instrument - creates assisted spaces in city districts where digital facilitators, operators and trained volunteers help people acquire digital skills, helping small- and medium-sized to encourage digital skills among people and strengthen digital participation in city governance.

Action 3 - Capacity-Building and Spreading of Pilots in Regions and Cities - specifically addresses the different states of digitalisation in European cities. As large cities tend to be at the forefront of digitalisation this action is proposing solutions which enable smaller- and medium-sized cities to pinpoint obstacles, address their digitalisation challenges and implement success factors from forerunners.

Action 4 - Helping cities develop a user-centric eGovernment model - directly helps small- and medium-sized cities to face their challenges and utilise opportunities in the field of governance by enabling any local and regional administration to use, share and develop solutions based on free-of-charge and open source components of digital government elaborated within this action.

Action 5 - Developing the Digital Economy and Society Index (DESI) at local level ("DESI local") - offers small- and medium-sized cities a comparative information base and possible solutions to help address disparities between cities/local authorities in terms of digitalization with the help of benchmarking. This information base is important to enable cities adapting local policies to their actual situation and set digitalisation aims.

Action 10 - Building innovation and dissemination accelerator - provides small- and medium-sized cities with an exchange platform to sharing knowledge about different practical solutions in digitalising their services and working procedures.

All Partnership's activities are equally focused on different types and sizes of cities - both big and small cities and urban areas, thus promoting polycentric development.

4.1.8 Urban regeneration, including social, economic, environmental, spatial and cultural aspects, also linked to the brownfield redevelopment with the objective of limiting greenfield consumption

Action 8 - Specify and monitoring of standardised Planned Land - Use data for formal and informal urban planning participation processes - aims at creating and promoting the necessary standards to facilitate data-driven spatial planning and urban development as well as providing a tool necessary for better, evidence based horizontal policy planning.

Action 10 - Building innovation and dissemination accelerator - aims at promoting innovative and adaptable solutions to common challenges such as urban regeneration, limiting the environmental impact, etc.

Action 15 - Strengthen the ability for cities to act within the digital transition - Digitalization is not done for the sake of digitalization itself, but as part of strategic vision on creating new tools and allowing new policies aiming at sustainable development of urban and rural areas.

4.1.9 Adaptation to demographic change and in- and out migration

Action 2 - Digital Neighbourhood Instrument - The changes in Europe's demographics require more effort in order to prevent possible social exclusion of large groups of citizens. In today's society basic digital skills are essential for the active participation, accessing services and equal opportunities. Digital Neighbourhood Instrument aims at reaching out to these groups and providing skills, assistance or simply access to e-services.

This action also addresses one of the main reasons for migration- quality of life. As different digital services are often used as means to increase the quality of life and access to them is bound to impact migration process.

Action 4 - Helping cities develop a user-centric eGovernment model - Better public services have direct impact on the quality of life and have a positive effect on slowing out-migration. Service provision must adapt to demographic changes, and digital tools could help here.

Action 5 - Developing the Digital Economy and Society Index (DESI) at local level ("DESI local") - DESI at local level can be a useful tool especially for areas with high out-migration to get insight at new possibilities for economic development and development of new services as well as areas for improvement.

4.10 Provision of adequate public services of general interest (within the meaning of Article 14 TFEU in conjunction with Protocol Number 26)

Action 2 - Digital Neighbourhood Instrument - aims at guaranteeing access to adequate public services as well as ensuring broader participation in the process of creating new public services.

Action 4 - Helping cities develop a user-centric eGovernment model -Develop a multi-level implementation strategy for cities to implement an e-government platform (based on legislation & ethics, services, technical & data layer and implementation & change strategy) re-using the knowledge, technology & legislation which is available within several countries and cities. To reap the full benefits of this opportunity, local and regional administrations should also build mini- services – reusable, modular, digital public services - available and grouped together in platforms, from where they can be assembled using their application programming interfaces (APIs).

Action 7 - Access and reuse of private sector data of general interest by the public authorities - This action aims at guaranteeing the development of a harmonised EU regulatory framework based on fair, reasonable and non-discriminatory terms to provide public authorities, public agencies and bodies, citizens and local businesses to access to and re-use of data collected in public spaces for

the development of new services and solutions for and in cities. Where personal data collected for specific purposes, the reuse for other purposes must be compliant with the purpose limitation principle in the GDPR and based on specific national law.

Action 12 - Implementing the digital framework for emerging technologies within the digital infrastructure. There are several technologies that will emerge in the near future (e.g. virtual reality, augmented reality, 5G, machine learning) which cities will benefit from in facing the challenges; the potential of the new technologies is promising in helping us in our Urban goals.

4.11 International dimension: link with the New Urban Agenda (Habitat III) of the UN (to be agreed upon), the Sustainable Development Goals (SDGs, 2030 Agenda on Sustainable Development) of the UN and the Paris Agreement on climate change of December 2015

Concerning the international dimension of cross-cutting issues, digitalisation and digital transition process can be regarded as a tool to achieve all the goals mentioned here. Digital Transition Action plan's three main goals and related actions are well aligned with NUA goals, especially with the goals related to Planning and managing urban spatial development as well as providing equal opportunities and services for citizens. Concerning UN Sustainable Development Goals, the linkages are very clear especially related to goals on Quality education, Industry, innovation and infrastructure, Reduced inequalities and Sustainable cities and communities. Concerning the Paris Agreement on climate change, digital transition contributes in many ways; for example, standardisation and effective use of data enables new environmentally friendly solutions and better monitoring.

Annex 1. Feedback from public consultation by actions

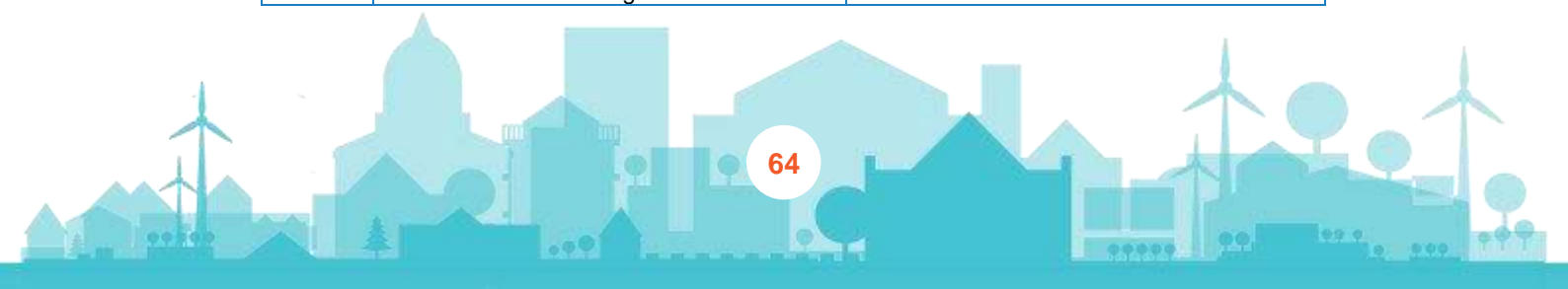
Draft Action	Importance of the action	Potential
1		It stays rather unclear how the involvement of the different government bodies should work, how this is interlinked and how this is supported by the action plan. The specific instruments to tackle the bottleneck are not mentioned.
1	The digitalization of the construction sector needs workforce with new skills and competence. As such, it is important to raise awareness on those competences.	More flexibility should be given to Member States to raise awareness on the need for digital competences.
1		The basics of interoperability should be known by citizens in order for them to understand what may happen with their data, and especially where the GDPR directive will be implemented.
2		What has been missing is the role of stakeholders as well as the role of NGO's within the given process.
2	It is a way to tackle the problem of digital skills, but it should not be a priority.	More flexibility should be given to Member States to raise awareness on the need for digital competences.
3	In Flanders, a lot of cities are already transforming into smart cities. Most of them have specific smart city coordinators. So, for these cities, capacity-building is needed for the common administration, across departments. The proposed action seems not be clear on how it will achieve this and who the target group is. Is it aimed at a specific group or the entire regional and/or local administration?	It is very well possible that the capacity-building will be effective in increasing overall knowledge. It is uncertain if cities will know what their specific needs are so that the proposed action is most effective
3		It is of high importance to ensure that municipal administrations are able to participate in digital transition. This would ensure a more effective and up to speed administration which as a result would allow to work more efficiently in favour of citizens and stakeholders. This would allow to enhance the relationship between cities and regions and citizens and stakeholders.

Draft Action	Importance of the action	Potential
3	The protection of personal data is important and should be addressed efficiently. Development of digital skills in administration would allow for a speedier and more accurate running of the administration.	Having a test period will allow for a better understanding of any issues that may arise.
4		The given approach could be strengthened by making clear in which business cases it could be implemented. For example, it would be helpful to use the tools described to expedite the process of planning permissions to increase the number of affordable housing. Here, Building Information Modelling represents an opportunity for both – municipal planning administrations as well as the real estate industry.
4	This is an important action. Communication between users, including companies, and government has to be improved, to ensure faster processes.	The potential is enormous. Many administrations still work analogously. For companies, it could increase the efficiency in case of downstream processes.
5		The development of an index on the local level on the one hand seems a helpful tool to learn which municipalities are successful in creating an environment to stimulate a digital transition. On the other hand, this index represents a mixture of social indicators which are connected to the living environment and the neighbourhood while others are connected to the workplace. It could therefore have its constraints and not be able to tackle all questions asked in the outlined document.
5	Not a priority.	The implementation plan seems complete and coherent.
6		With reference to the taxonomy, reference to linked open data is missing as well as to semantic web as a way to make the taxonomy usable
6	Standardisation is important but should be driven by consumer-needs to avoid unnecessary burdens.	The taxonomy should be based on existing studies to avoid additional costs in its implementation.
7	Important for efficiency and reduce of costs and burdens	Question is how to make it possible, e.g. through vendor lock in, negotiation position, ownership data
7		The idea of access and reuse of private data should allow public administrations to function more efficiently. However, one should keep in mind that this in reverse should lead to a quicker decision-making process by the administration which allows the private sector to shorten time to produce and implement products in the market. For example, the housing sector would profit from the use of building information modelling.



Draft Action	Importance of the action	Potential
7	The question of the access of privately held data of public interest is important but should not incur in excessive costs in its implementation. This could become a burden for the private sector.	A proposal for a Regulation would address the bottleneck but it should also include a public consultation so that stakeholders could present their views.
8	Many EU countries, such as Germany, are facing a shortage of constructible land. An effective PLU would ensure the success of planning projects.	This would allow for a better and more efficient planning process and identify further land available for construction, responding to the problem of the shortage of housing.
9	Point of attention as to MyData - there seems to be a lack of links to a possible legal basis at EU level, beyond the General Data Protection Regulation (GDPR). Possible inconsistencies with the Free Data economy can also lead to haziness	
9	Not a priority.	
10	The innovation and dissemination accelerator would be key to helping communicate new innovative technologies of the construction sector and the main benefits and drawbacks to certain technologies.	UEPC believes that more flexibility should be given to various entities, including at the municipal level, to raise awareness on innovations in the digital sector and how they impact the construction industry.
11	Not a priority.	
12	It is a way to tackle the issue of emerging technologies within the digital infrastructure, but it should not be a priority.	UEPC believes that more flexibility should be given to Member States to identify the best way to tackle the problem based on the national environment.
13	It is a way to tackle the issue of digitalisation, but it should not be a priority.	UEPC believes that more flexibility should be given to Member States to identify the best way to tackle the problem based on the national environment.
14	Not a priority.	

Draft Action	Importance of the action	Potential
15	<p>Some general remarks on the partnership's action plan from the city of Ghent:</p> <ul style="list-style-type: none"> - One speaks of public services but never makes explicit how far one wishes to go. Is participation included and is it also bilateral? - We are happy to find open source because the City of Ghent is preparing a memorandum for this, but its use remains focused on government and business. It might be good to also introduce the principle of commons here - What strikes us is that on e-inclusion the focus is mainly on competences outside the non-formal training. In our opinion, the formal environment also works best on a better integration of digital skills (not as a separate lesson but also incorporated into other themes). The user-friendliness of the systems is just as much a part of the solution. If these are really intuitive, the need for extra training to use them is more limited. We have checked the DigiComp2.0 tool internally. I do not know in which size Ghent uses this tool for assessments, but in all assessments the question of what to do with this is very important. Is this just to know, to be able to draw up efficient policy or as a basis to know who needs extra help. This is an important choice. - The chosen standards and technical specifications and the governance around the APIs seem to us to be very interesting as well as the standards-based ICT procurement. - From the city of Ghent there is interest in: Digital Service Infrastructure Building Blocks, Citizen eXperience model, agile experimentation of emerging digital technologies 	
15	Funding innovative projects and the pilots to do so would help create diversified projects across different sectors.	UEPC believes that more flexibility should be given to Member States to identify the best way to tackle the problem based on the national environment.
15	It is very important for cities to have sufficient resources for their digital transition. Yet the problem that some cities have, is that policy makers tend to overlook the value of digital transition. Most investments in digital transition have	It is difficult to say that the proposed actions will tackle the bottlenecks. A well-defined and structured framework will be able to tackle the bottlenecks. At the



Draft Action	Importance of the action	Potential
	<p>long-term benefits, while policy makers rather have a short-term return on investment (so to say). This being said, it is important to encourage these cities to further invest in their digital transition. Also, the proposed funding framework will have to level the playing field. It cannot be another tool for the frontrunners to further extend their lead. This framework should help those who are lagging behind. Also, these cities tend to have policy makers that are sceptical about investing in digital transition, due to their long-term benefits. It will be vital to further convince these cities of the benefits.</p>	<p>moment it is difficult to say if the action will be successful.</p>



Annex 2. Citizen eXperience Model in e-Governance

Current definitions of User eXperience (UX) suffer either from being opinionated and rooted in a specific perspective, or from being too abstract, which prevents public administrations from deriving a measure of quality from the definitions. We define a Citizen eXperience as "the sum of the effects caused by a person using a Government digital solution". Contrary to many definitions of UX, which limit the effects to users, this definition encompasses the effects on the solution and the effects on the provider of the experience. Thus, this definition is able to capture all the outcomes of a person using an e-service and is not limited to the outcomes affecting the citizens.

To implement a real Citizen eXperience (CX), we need a model (Citizen eXperience Model - CXM) that provides us with a common vocabulary and understanding of organisational responsibilities for CX. Without it, stakeholders are left to discuss CX in a vacuum. A good Citizen eXperience measured purely through user satisfaction fails to take into account Government policies and outcomes. Even if citizens are satisfied, a solution might fail if it does not accomplish government policies and legal requirements. The Citizen eXperience Model is an attempt to capture all the different perspectives and how they relate to each other, instead of creating increasingly abstract levels. In doing that, we can show how different CX perspectives affect each other and why organisations have such problems delivering CX by adopting and focusing on only one definition of CX. By adopting this model/framework, cross-functional, cross-departmental, different levels of a local institution can have meaningful discussions on CX.

A visual representation of the eight perspectives, shown in Figure 4, is explained in detail below. The map of the framework in Figure 4 needs to be read from the inside out, starting with the observable experience. The observable experience is the point where the solution meets the behaviour of the user (the so-called user interface - UI).

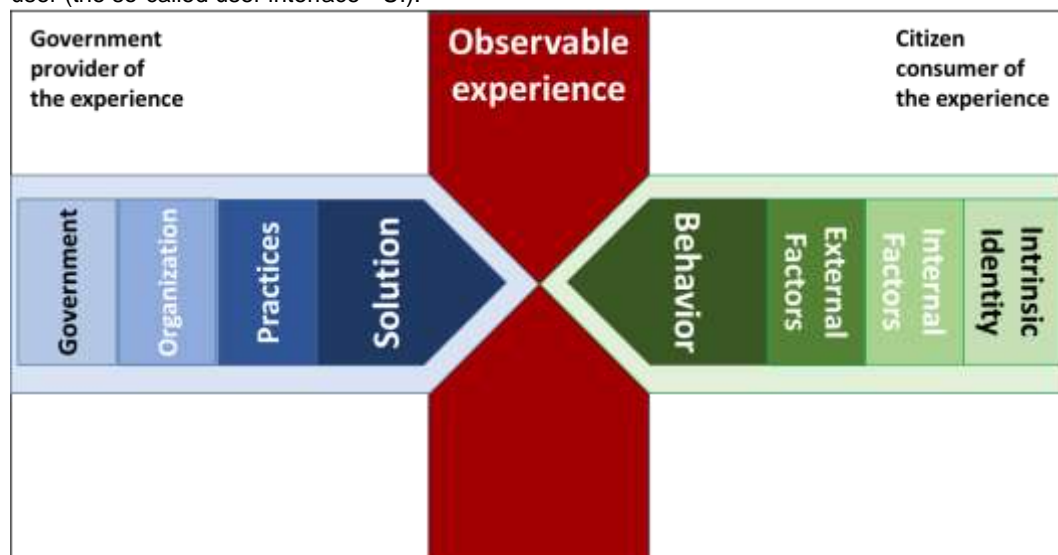


Figure 4. Citizen eXperience Model

In any CX, there is a local public government, provider of the experience and a citizen, consumer of the experience. The provider owns the solution, and the consumer, through the act of using the solution, supplies a certain behaviour. The behaviour constitutes the observable portion of the CX — the observable experience.

Provider the experience

Solution Perspective

Besides the parts of the solution that face the user, the solution also contains non-observable components. The code and the technology stacks are invisible to the user but still affect the performance and behaviour of the solution, and, in turn, the resulting behaviour of the user.

Practices Perspective

Before the solution, we have the practices that go into creating the solution. These practices do not show as part of the finished solution yet have a tremendous impact on the quality of the solution. Practitioners who conduct user research, prioritise user needs, use personas, do prototyping and test the prototypes on a group of real citizens, will deliver solutions with higher CX quality than those who do not.

Organisation Perspective

Practices are conducted in the context of a public organisation. Without the organisational perspective, the practitioners team become isolated, and the results of good CX practices fail to affect the decisions made on an organizational level. Organisations that have a good ratio of designers to developers have to work with HR Department, hire the appropriate skills, and institute creative design processes to value quality of CX over quantity of features.

Government Perspective

A public organisation implements the government policies, that greatly affect the organisation's ability to make the right decisions. "Citizen centric policies", make the public organisation more design-led and grow the culture and practices in delivering e-services, by paying attention to CX.

Each perspective on the provider side of the model constrains the other. If CX is not valued at the government level, the corresponding organisation, practices and solutions will all be constrained. Even if the local government values CX, if the organisation responsible is not built to deliver it, it will still constrain the ability to deliver. This dynamic in the model goes a long way toward explaining this common phenomenon:

- grassroots efforts to deliver better CX are seldom successful. In fact, the model shows it is next to impossible to change an organisation from delivering poor CX to good CX just by making small changes. Widespread changes on multiple levels are necessary.
- public organisations can achieve excellent CX from working with an external partner, but cannot deliver it internally, even if the intention is there. With an external partner, an optimised organization, practices and solutions can be bought.

Consumer the experience

Behaviour Perspective

The observable part on the consumer side is the citizen's behaviour when using a system. There is no value in the CX unless the solution is functional. If it is not, the citizen behaviour is not captured,

and no value is generated. Capturing the behaviour tells us what is happening but tells us nothing about the underlying decisions that lead the citizen to exhibit that behaviour.

External Factors Perspective

Preceding the behaviour are external factors. The citizen's situation, location and device all determine if the solution is accessible. These factors frame the behaviour of the citizen. The same person can exhibit vastly different behaviours when different external factors are present. Thus, the value of the solution to the citizen can be different as well, depending on these factors. For example, citizens walking with a mobile phone will behave differently than if they are using a tablet while relaxing on the couch.

Internal Factors Perspective

Internal factors, such as the emotional state of the citizen, the urgency of the task at hand, and the preconceptions and expectations, also frame user behaviour and thus the external factors that will be involved. If there is no expectation of mobile access, the citizen will not necessarily attempt mobile access. The same user can exhibit different behaviours. As one of many possible examples, price sensitivity can be different when accessing the solution in a public, legal context (i.e. to pay taxes, university tuition fees, school meals, etc.) compared to a private context (i.e. make a reservation for a Airbnb service, for a taxi, etc.). The internal factors determine the usefulness of the solution to the citizen.

Intrinsic Qualities Perspective

Every citizen has some intrinsic qualities, such as values and culture. Many of these are qualities that don't change or change so slowly as to be effectively unnegotiable by the government, provider of the experience. If a solution is not aligning with the intrinsic qualities, that citizens will never use the solution. Each group of citizens determines how valuable the experience is to them, based on intrinsic qualities (i.e. it is more difficult that people 80-year-olds pay tax through an app than people 40-year-olds). Each perspective on the consumer side constrains the others as well. How valuable the e-service is to citizens, with the relevant intrinsic qualities, determines the maximum potential of the solution.

One of the most common questions covering User eXperience (UX) is "What is good UX?". That question is notoriously difficult to answer. Looking only at a particular website or app, what we see is just the observable experience. You may say, "The solution is good; it's responsive, conforms to best practices and looks pleasing." But that doesn't consider whether it's a good approach to the problem in the first place, or if it actually creates value for citizens or for the government that has made the solution. If the latter fails, it doesn't matter if the solution "looks good."

For each perspective in the model, we can have a different definition of good. To give the right definitions we need to answer to questions in the table below. This is a qualitative exercise and needs proper user research and business analysis to validate assumptions.

Perspective	Quality Attribute	Question for a proper definition of “Good”
Government	Alignment	How well does the CX enhance the government's strategic objectives? How well does the solution perform its role in the overall policies of the government?
Organization	Performance	How well does the CX measurably impact government policies and outcomes? How well does the CX deliver the success criteria?
Practices	Approach	How well are the problems being solved? Is it the most effective approach? Does it create the right product, rather than getting the product right that is the domain of the solution?
Solution	Craftsmanship	What is the quality of the solution, that is, the aggregate of the attributes making up a good solution?
Behaviour	Reliability	How well does the solution capture and respond to the citizen's intent? An unreliable solution will not capture the interactions or the intent of the citizen
External Factors	Accessibility	How well can the solution be accessed regardless of external factors like situations, browsers, devices, location, networks, physical handicaps, weather conditions or time of day?
Internal Factors	Relevance	How relevant is the solution for citizens in their current context? A solution that is not relevant for users in their current state will not be used regardless of the outcome being valuable or not
Intrinsic Qualities	Value	How much value is the solution generating for the citizen? In the end, the value of the solution to the citizen will need to be there for the citizen to use a solution.

Table - Definition of “Good”

Any solution that has to be deemed ‘good’ according to all eight criteria will have to contain a lot of compromises. The alternative to not doing this exercise is that the final solution would most likely be defined as bad in some of these perspectives — even though it's good in others. The resulting problem is a common one: the local government might provide an e-service through an app or a website that looks good and works well but doesn't deliver the expected outcomes. Or it might have a solution that delivers institutional outcomes, but in a way that runs completely contrary what citizens expect. By defining a good CX upfront using this model, we are able to find balances and good compromises over the course of the project and ensure that the resulting CX will be a success, in the eyes of the citizens, institutions and in the eyes of every stakeholder.