Cities are shifting to a new governance paradigm.

They must address emerging challenges and align citizens’ concerns with public services through transparency and government responsiveness.
Imagine living in a city where ...

The experience of enjoying and improving public places is fully covered with services for citizens as well as agents and providers, and it brings ROIs such as:

- **CITIZEN SATISFACTION**: 5% increase over public services in the first year.
- **REPORTING SPEED**: 30 seconds when citizens notify about city maintenance issues.
- **COST MANAGEMENT**: 65/70% saving in issues processing by adding mobile channel.
More than 5 MM assets.
2 million GPS positions every day.
Two way communication Citizen – City Council
One shared management system between Service Providers and City council.
Madrid Intelligent – the MiNT Platform Enables a 21st Century City

**Challenge**

**Managing a Complex City of 3.1 mn people**
- 1.7 mn vehicles, 287,000 fees invoiced, 250,000 streetlights, 835 public buildings
- Need to serve citizens with collaboration, transparency, and service improvement
- Goal to work with businesses and 3rd party service providers to leverage use of mobile, voice, data & IoT
- Enable the payment for service by 3rd party businesses (e.g., street cleaning) to move from pay-per-activity to payment based on SLAs.

**Solution**
- MiNT Platform to support new application development, legacy app migration, app maintenance
- SLAs and KPIs to improve services efficiency and quality and reduce costs
- Enables City operations and City Council strategy to align around IT strategy and implementation that supports citizens and businesses
- Supports services for mobility, construction, roadwork, waste control, environmental protection, historical and park preservation
- Foundation based on IBM IOC, Maximo Assets, Bluemix and Analytics

**Benefits**
- Cross Traceability for all activities made in the city
- Unique inventory of information available for all stakeholders
- Exhaustive knowledge of what is happening into the City
- All services measured to optimize costs and enable payment of 3rd parties through SLAs
What are our **Strategic objectives** we want to achieve?

- More citizen collaboration in the city
- Executing with our main driver: Quality
- Improve services provided to the citizens
- Integration for professionals and processes who work into the city

¿Which are our expected **benefits**?

- Cross Traceability for all activities made in the city
- Unique inventory and information available for everybody
- Exhaustive knowledge of what is happening into the City
- Measure all services made to optimize costs through SLAs
‘Platform Thinking’ changes the game

- Focus on user experience
- Become an ecosystem orchestrator
- Facilitate new business models
- Deploy iteratively

...It’s not just technology - it’s a NEW approach / mindset / business way of thinking!
‘Platform Thinking’ starts with the citizen…

Collaboration, Transparency, and service improvement

Telecom businesses
Increase usage of mobile, voice and data

Citizens

Business Services

Madrid City Council

MiNT
Madrid Inteligente

Information, Equal competitiveness

Business technology services

Competitive positioning, new markets, references

... with use cases driven by citizen experience and value
Leadership – Stakeholders Management

- New services, transparency, open governance, APIs and open data. Status of city situation. Able to interact with their systems.

- Integral vision of city status. Dashboard and city governance, following integration of services and information between departments to adapt resources and strategy.

- Access to all city information to optimize interventions, operative KPIs, inspections, billing, solving citizens requests.
Sustainable Growth
Fuelled by Digital Cities

Digital Cities Challenge Conference, 4 June, Brussels

Marja-Riitta Pihlman, Director General
Ministry of Economic Affairs and Employment Finland
Digital transformation is an overarching phenomenon.
Digital transformation in cities

• Digitalization is one of the most influential cross-cutting drivers in societies

• Urban density drives digitalization

• Digitalization is about inventing things that improve everyday life and build sustainable growth

• Digital city is for people, by people

• Digitalizing cities are one of the central enablers of technological and industrial transformation

• Cities are increasingly platforms of innovation and new digi-based solutions, adopting this approach as strategy
Leadership and Governance

- Cities increasingly taking the lead when making digital solutions happen
- Interplay between cities, Member States and European level needed
- ‘Digital’ interconnects thematic areas (sectors) of cities and society
- Leadership and networks that engage players on both of these dimensions are critical factors
The role of data

• Utilizing data as raw material for new services and solutions
•Renewing processes in the cities
•Creating new business
•Urban mobility innovations as example
•Data as fuel of digital solutions
Some examples
Digital solutions on the energy sector in the City of Vaasa

- Future Operations/Maintenance (FOM) Project develops future technology applications for the regional energy cluster.
- FOM Project is part of the Growth Agreement for cities, co-funded by the national government.
- In a virtual power plant, maintenance practises can be trained by using Virtual Reality lenses even before the physical unit exists.
Air quality measurement in Greater Helsinki Region

- Smart & Clean Foundation runs collaboration in which open data created by sensor system is base for new applications and solutions
- Collaboration forms an ecosystem in which companies and start-ups, communities of co-creation and Finnish Forecast Institute are involved
- Clean air service concepts are developed to be used in cities globally
LAHTI IS THE FIRST CITY TO PILOT PERSONAL CARBON TRADING ON MOBILITY EMISSIONS

APPLICATION LAUNCH IN SEPTEMBER 2019
Tentative aims of the Finnish Presidency on urban development

1) Support the successful implementation of the **Urban Agenda for the EU** (in co-operation with the Trio)

2) Highlight a specific theme: **Digital innovation in urban environments** - solutions for sustainable and fluently working cities
Key question:

Which new solutions based on digitalization can increase quality of life in cities and green development while accelerating economic growth?
Preliminary questions

• How do various new forms of digital participation change the game?
• How do cities transform into platforms of innovation, by utilizing digital solutions?
• What is the role of openness and collaborative creation?
• How cities connect separate and incremental ‘smart’ solutions to coherent strategies?
• Focus on innovation creation
Events under the Presidency
Events and meetings scheduled: Official Presidency events

- Network of Territorial Cohesion Contact Points, 11 September 2019 and Urban Development Group, 12 September 2019

- Directors General Meeting on
  1) Cohesion Policy and Territorial Cohesion, 16 October 2019
  2) Urban Matters, 17 October 2019

- ESPON Seminar, 27-28 November 2019

- Events located in Helsinki, complemented by related urban site-visits and social dinners
Events scheduled: Side Events in partnership with cities

**Helsinki Impact Conference**
- European conference addressed to decision makers and city officials from leading cities
- “The EU is as strong as its cities and neighbourhoods”
- Organized by the City of Helsinki and European networks of cities
- 9-10 October 2019, Helsinki

**Upscaling Digital Solutions in Cities**
- European conference highlighting the potential of digital solutions in cities
- Addressed to cities as well as EU and national stakeholders across Europe
- Organized by the City of Oulu and partners 10-11 December 2019 in the City of Oulu
Summing-up the ambition

- Highlight what are frontrunners or promising cities that make the best out of digitalization

- Interconnect the EU Urban Agenda Themes in a cross-thematic manner under the umbrella of digitalization

- At the EU community level, to recognize the potential of digital innovations for comprehensive urban development and to support related initiatives
Thank you for your attention
Cities of tomorrow
Bringing together smart growth and quality of life

Dr. Martin Klein | June 5th, 2019
The challenge cities face around the globe
Cities should do 3 things to achieve better quality of life and economic growth for their communities

Orchestrate innovation with the city’s ecosystem across the city domains:
- governance
- mobility
- people
- environment & resources
- economy

Invest in intelligent digital solutions to foster equality, and create safe, inclusive and resilient communities

Engage in data-driven business model innovation to re-imagine public services, urban sustainability and empower economic growth
Examples for the future of...

- responsive, efficient and accountable | transparent and cost-effective resource allocation
- connected, autonomous, shared, intermodal, seamless, safe, easy, clean, sustainable
- civic participation | public innovation | social inclusion
- resilient, clean, and enjoyable | citizens will be prosumers | circular economy
- innovative, circular and participatory | easy to comply with regulations and pay taxes
Things to remember

Digital Solutions

Citizen at the center

Ecosystem

Data & KPIs

X + O
Cities Prosperity Recipe ➔ 3 T’s:
Technology + TALENT + Tolerance

Robotics / Artificial Intelligence (AI) = Massive DATA + CLOUD Power + TALENT
Cities Technology Adoption. SmartCities
City Profitability (Yield)

PERFORMANCE (Services obtained from City) / COST of Living

Citizenship Contract

City to provide:
✓ Governance
✓ Education
✓ Employability
✓ Health/Social SVS
✓ Sustainability
✓ Connectivity
✓ Urban Planning
✓ Culture
✓ Urban Mobility
✓ Safety

You: Cost of Living

CITY SERVICES - SCALE OF VALUES

<table>
<thead>
<tr>
<th>Service</th>
<th>RK</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN MOBILITY / TRANSPORTATION</td>
<td>1</td>
</tr>
<tr>
<td>SOCIAL SERVICES / HEALTH</td>
<td>2</td>
</tr>
<tr>
<td>SUSTAINABILITY / ENVIRONMENT</td>
<td>3</td>
</tr>
<tr>
<td>SAFETY (PHYSICAL/VIRTUAL)</td>
<td>4</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>5</td>
</tr>
<tr>
<td>EMPLOYABILITY</td>
<td>6</td>
</tr>
<tr>
<td>URBAN PLANNING</td>
<td>7</td>
</tr>
<tr>
<td>GOVERNANCE</td>
<td>8</td>
</tr>
<tr>
<td>CONNECTED CITY</td>
<td>9</td>
</tr>
<tr>
<td>CULTURAL SERVICES / TOURISM</td>
<td>10</td>
</tr>
</tbody>
</table>

Survey conducted at 21.300 Nov 2018 SmartCity Expo (Barcelona) attendees. (Confidence: 95%, Error Margin 2.4%)
SmartCities = Data Services

- Real World: Buildings / Works, Utilities / Grids, Vehicles
- Citizens: SmartPhones / Devices, Community management
- Control: SCADA Data Acquisition
- Social Networks: OpenData, Big Data, DataLake, Predictive, Social Analytics, Sentiment, AI

IoT
Thank you!
The Digital Cities Challenge: A Strategy for EU Cities in the 21st Century

Cities as Market Creators

JASPERS Smart Development
Eugenia Kazamaki Ottersten
June 5, Brussels
Cohesion Policy

DIGITAL FOR PURPOSE

Smart, Green/Low Carbon, Connected, Social, Close to citizens

Providing a place-based strategic framework for development
- PO1: Innovative & smart transformation
- PO5: integrated sustainable territorial development
  - ≥6% ERDF resources to Sustainable Urban Development
- Climate action ("climate proofing")
- Smart specialisation
Cities as Market Creators – *place based*

- **Link to smart specialization** – Direct support of local innovation economy, innovation clusters & the support of 21st century skills, in particular ICT professional skills

- **Supporting smart cities** - Cross sectoral, integrated planning at city level and at functional regional level to support the development of smart urban solutions

- Consideration of **digital infrastructure** as key sector development and enabler (RDI facilities, broadband) and digital technologies (i.e. ICT & mobility, energy infrastructure, water & waste, health …)
JASPERS – Project Preparation Support

Joint Assistance to Support Projects in European Regions

- Partnership between the European Commission (EC) and the European Investment Bank (EIB)

- Independent advice to beneficiary countries to support the strategic planning and preparation of high quality projects

- Capacity building and appraisal support to ESIF projects

- Mandates with
  - DG-REGIO: Support to ESIF financed projects
  - DG-MOVE: Support to CEF transport projects
  - DG-NEAR: Support to IPA Countries

- Expertise in main sectors of investments: Mobility, Circular Economy, RDI, Social, Climate, Environment, Urban, Energy
JASPERS Impact since 2007

More than 660 JASPERS-supported projects approved since 2007

For a total project cost of over EUR 120 bn

and EU grant volume of over EUR 69 bn

Nearly 1000 Assignments completed

In 21 countries across EU & Neighborhood
JASPERS Support for Digital Cities

Place based urban development at national, regional and city level with respect to

- Advisory support to *upstream strategic planning, project identification, project development, and specific sector issues* (e.g. state aid, climate change)

- Advisory support to *Integrated Territorial Investment Instruments*

- Advisory for *Pilot project support – innovative/replication potential*

- Advisory support to *Strategic and major ESIF financed projects – thematic and multisector*

- Capacity building including training

- Independent Quality Review
Focus on Smart Cities - Digitalisation

- **Have a multisector sustainable development strategy**
  - Smart Cities are those planning and executing investments and/or investment programmes in their territories on the basis of medium-long term integrated strategies (“planning-led”), which target the sustainable development (“sustainability”) of the city/region.

- **Set investment priorities taking into account their comparative advantage**
  - Smart Cities ensure the efficient use of human capital, economic/financial resources and material or immaterial assets, so as to optimise the city/region’s comparative advantages (“place-based”).

- **Take into account the opinions of their stakeholders**
  - Smart Cities take into account the views of the city/region stakeholders, among them their citizens directly or through their associations, as well as the representatives of economic, social, cultural and political organisations undertaking their organisations activities within the city/region (“inclusive”) through appropriate governance structures.

- **Adopt a comprehensive approach in the making of investment decisions**
  - Smart Cities make decisions to implement investments in view of the:
    - Analysis of costs and benefits, sustainability over their life-cycle, integration within the urban system and other planned investments/interventions (“integrated”), as well as overall consistency with the city/region development strategy (“planning-led”).

- **Make use of skills, innovation and new technologies**
  - Smart Cities include a substantial portion of their overall capital programmes oriented to investments which apply advanced technologies (“innovation”), in particular information and communication technologies (ICT).

- **Foster a pro-innovation environment**
  - Smart cities foster an innovative ecosystem through investment and by encouraging and collaborating with universities, industry and other partners to put in place the infrastructure, services and skills needed to support and nurture innovation.
Planning-led, Integrated, Digitally Empowered and Enabled Cities
Revitalisation of Novo Mesto, Slovenia
• Investment: EUR 55m
• Urban renewal, energy efficiency & sustainable mobility

Smart City
• [Data] Expansion of air quality data collection points
• [Services] Digitalization of municipal services with IT provider
• [Innovation] Pilot Project with E-vehicles (EDISON)

Research Infrastructure “ELI-NP” in Magurele, EUR 356m
• A catalyst through further development of the innovation eco-system (“Laser Valley”) incl transport, housing, retail, skills, business, culture and social infrastructure
### Smart City-Regions Czech Republic, Hungary, Poland and Slovakia – V4

#### Integrated governance and planning
- Approach to smart cities in the city’s strategic documents
- Planning-led, comprehensive approach in the city investment decision-making
- Effective community engagement
- Climate resilience

#### Energy and building environment
- Smart street lighting systems e.g. LED street lighting, remote control technologies, motion sensors etc.
- Coordination of energy efficiency and building environment efforts
- Energy data collection, monitoring and management

#### ICT
- **Digital public services**
- **Open Data use and re-use**
- **ICT infrastructure and integrated centre of city operations**

#### Social infrastructure
- Smart public spaces and social infrastructure
- Innovation based local economy and smart community
- Inclusive development

#### Mobility & networks
- Modern and attractive public and alternative transportation
- Integrated traffic system
- Sustainable mobility – restrict parking and promote biking

#### Waste and water management
- Sustainable waste processing
- Smart waste collection and prevention of illegal landfills
- Water management / Flood prevention

#### Integrated funding and delivery models
- Smart city requires integrated programme financing
- EU funds to serve local needs
- Employing multiple and alternative EU financing sources
- Capacity to design bankable solutions

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Includes urban, education, health, innovation infrastructure
Supporting the digital challenge

EC – Digital Cities Challenge

KICK OFF – JASPERS support in Iasi, Romania

- Review of potential to strengthen smart Iasi
- Potential & high-level options for Smart City district
- Embedded solutions for digital

**EIB provides lending, blending and advisory services in support of the digital challenge**

**including financing to innovative solutions i.e. to SME’s**
ESIF funds support the Digital Challenge in many ways – infrastructure/services, support for better governance & planning systems, through technological solutions, capacity building etc. This contributes to smarter Europe!

Digital cities as market creators require

- **Governance** – embedded ecosystem solutions
- **Planning** - integrated
- **Skills** – enhanced skills development to attract and retain talent
- **Digitalization** – right-sizing of IT solutions, open business standards, data management of core infrastructure
- **Business model** – public/private involvement
- **Local engagement** – citizen participation
- **Urban resilience & climate proofing** – sustainable urban development
- **Innovative and sustainable financing solutions** – multiple financing sources

Emerging issues of importance - regulatory requirements for innovation procurement, digital law, cybersecurity, privacy (GDPR), new business models (sharing economy)
Thank You!

e.kazamaki@eib.org

More information:
http://jaspers.eib.org/
The Digital Cities Challenge: A Strategy for EU Cities in the 21st century

Cities leading the global economy

Paulius Kulikauskas, Chief of the Office for Europe
Global framework: Agenda 2030 and SDGs
Where are cities and digital in that framework
Three examples:
- Initiative of Secretary-General / Data
- UN joining private sector / Digital access
- UN joining cities / Rights-based approach to digital
UN entities at work together
Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
Example: Harnessing big data for development and humanitarian action

Achieve a critical mass of implemented innovations
Lower systemic barriers to adoption and scaling
Strengthen the big data innovation ecosystem

How data science and analytics can contribute to sustainable development

1. **NO POVERTY**
   Spending patterns on mobile phone services can provide proxy indicators of income levels

2. **ZERO HUNGER**
   Crowdsourcing or tracking of food prices listed online can help monitor food security in near real-time

3. **GOOD HEALTH AND WELL-BEING**
   Mapping the movement of mobile phone users can help predict the spread of infectious diseases

4. **QUALITY EDUCATION**
   Citizen reporting can reveal reasons for student drop-out rates

5. **GENDER EQUALITY**
   Analysis of financial transactions can reveal the spending patterns and different impacts of economic shocks on men and women

6. **CLEAN WATER AND SANITATION**
   Sensors connected to water pumps can track access to clean water

7. **AFFORDABLE AND CLEAN ENERGY**
   Smart metering allows utility companies to increase or restrict the flow of electricity, gas or water to reduce waste and ensure adequate supply at peak periods

8. **DECENT WORK AND ECONOMIC GROWTH**
   Patterns in global postal traffic can provide indicators such as economic growth, remittances, trade and GDP

9. **REDUCED INEQUALITY**
   Speech-to-text analytics on local radio content can reveal discrimination concerns and support policy response

10. **LIFE BELOW WATER**
    Maritime vessel tracking data can reveal illegal, unregulated and unreported fishing activities

11. **LIFE ON LAND**
    Social media monitoring can support disaster management with real-time information on victim locations, effects and strength of forest fires or haze

12. **PEACE, JUSTICE AND STRONG INSTITUTIONS**
    Sentiment analysis of social media can reveal public opinion on effective governance, public service delivery or human rights

13. **PARTNERSHIPS FOR THE GOALS**
    Partnerships to enable the combining of statistics, mobile and internet data can provide a better and real-time understanding of today’s hyper-connected world
Global e-Sustainability Initiative (GeSI)

There is a strong and positive link between digital access and SDG achievement.

GeSI’s new Digital Access Index allows the digital industry to track its contribution to the SDGs.

Early indications suggest that causal relationships may exist between digital access and the SDGs.

The digital industry needs to act in three ways: scale, flip and innovate.

Verizon, Swisscom, Samsung, AT&T, Deutsche Telekom, Taiwan Mobile, ETNO
Example: citiesfordigitalrights.org

Universal and equal access to the internet, and digital literacy

Transparency, accountability, and non-discrimination of data, content and algorithms

Privacy, data protection and security

Participatory Democracy, diversity and inclusion

Open and ethical digital service standards
U4SSC serves as the global platform to advocate for public policy and to encourage the use of ICTs to facilitate and ease the transition to smart sustainable cities.
United 4 Smart Sustainable Cities – current work

- Guidelines on tools and mechanisms to finance SSC projects
- Guidelines on strategies for circular cities
- City science application framework
- Guiding principles for artificial intelligence in cities
- Blockchain 4 cities
- Thematic Group on "The Impact of Frontier Technologies in Cities"
  - The impact of Sensing technologies and IoT in Cities
  - The impact of Artificial Intelligence and Cognitive Computing in Cities
  - The impact of Data Processing and Computation in Cities
Thank you
EIT Digital for a strong digital Europe

EIT
• 'become the leading European initiative that empowers innovators and entrepreneurs to develop world-class solutions to societal challenges and creates growth and skilled jobs.'

EIT Digital
• Address strategic interest of a strong digital Europe
• Delivery on
  • Innovative digital products and services
  • Start and growth digital ventures
  • Skilled digital entrepreneurs
• Impact and thought leadership
EIT Digital pan-European ecosystem
The future of innovation
Innovation & Entrepreneurship

Ecosystem

Entrepreneurial Education
EIT Digital is about Innovation and Entrepreneurship

Pre-incubation
950+ Activities supported
120+ DeepTech startups created
380+ new DeepTech products launched on the market

Scaleup Acceleration

~300 total supported scaleups
90%+ Alumni in operation
17 Scaleup origin countries
€550m+ Total investment raised by the scaleups
€100m+ investment facilitated by the Accelerator

*The value includes M&A activities
EIT Digital is about Entrepreneurial Education

120,000+ MOOC learners
1,800+ Summer Schools students
180+ PhD thesis defined with the Industry
1,500+ Master School Graduates

Discover the future of Education with the EIT Digital Master School
Europe needs to better capture opportunities of digital platforms

- 1.9% GDP growth in Europe
- 1% GDP growth in Germany p.a. over 10 years
- 350,000 jobs (net)
- €250b manufacturing investments

if the top 100 EU manufacturers use big data analytics
(European Policy Strategic Centre EPSC)

through Industry 4.0
(Boston Consulting)

75% of EU firms see them as an opportunity, 41% have yet to adopt digital tech

over next 15 years, EU firms need to invest €90b p.a. to catch up with global competitors

Europe needs industrial platforms to capture the value in Europe
Digital Platforms are posing challenges to the European social values

digital platforms are strongly associated with increasing inequality

New jobs created are increasingly “non-standard” jobs

Lower tax and social security contributions
Digital platform related policy measures have varying impact on platform opportunities and social values.
Scenarios based on the two dimensions of labor and tax policies

<table>
<thead>
<tr>
<th></th>
<th>Utopian</th>
<th>Dystopian</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labour Market Regime</strong></td>
<td>Lower taxes, increased spending on social topics</td>
<td>Welcomed by social groups, leads to financial crises and political instability</td>
</tr>
<tr>
<td>Labour-Friendly</td>
<td>Ultra-Social</td>
<td>Dystopian</td>
</tr>
<tr>
<td><strong>Corporate Taxes</strong></td>
<td></td>
<td>High automation, but slow growth; more non-standard work, pressure on social systems</td>
</tr>
<tr>
<td>Corporate Neutral</td>
<td>Ultra-Liberal</td>
<td>Ultra-Social</td>
</tr>
<tr>
<td>Corporate Friendly</td>
<td>Stimulate innovation and cut corporate taxes; no social reforms</td>
<td>Digital intermediate taxes, „Flexicurity 4.0“ model for social protection, invest in both human capital and R&amp;D</td>
</tr>
<tr>
<td>Labour Neutral</td>
<td></td>
<td>Increased wages and social cohesion, political stability, but challenged by globalization</td>
</tr>
</tbody>
</table>
MyCarLot

City Data Platform for sustainable parking for cities and drivers

MyCarLot leverages parking management, occupation sensors and park availability forecasts to optimize parking areas occupation.

It provides a seamless experience from finding available parking lots based on user’s preferences and needs, by relying on predictive algorithms, to booking and payment.
CEDUS

Data Platform for city service development and deployment

FIWARE-based software product allowing urban service providers and local governments to exploit urban data

Deployed in Europe (Italy, France, Belgium, Serbia, Norway, Spain, Germany), South America (Brazil, Argentina) and US

Engaged in the final phase of the SELECT for Cities PCP issued by Antwerp and Helsinki
WELCOME

City data platform for crowd and city dynamics monitoring

WELCOME promotes a participated model for crowd monitoring at city scale and the empowerment of urban ecosystem with awareness on city dynamics. It offers personalised analytic solutions to drive decisions, strategies and economic impact assessment.