

Norme za pametne gradove – što primijeniti u hrvatskoj?



The background features a colorful illustration of a city skyline with various buildings in shades of blue, red, yellow, and green. A network of black lines with white nodes connects various points across the scene, representing a smart city infrastructure. There are also icons of people walking, a yellow car, and a person on a bicycle. In the top right corner, there is a blue logo consisting of three horizontal bars. The text is overlaid on a semi-transparent white circle on the left side of the image.

Što su to pametni gradovi ?

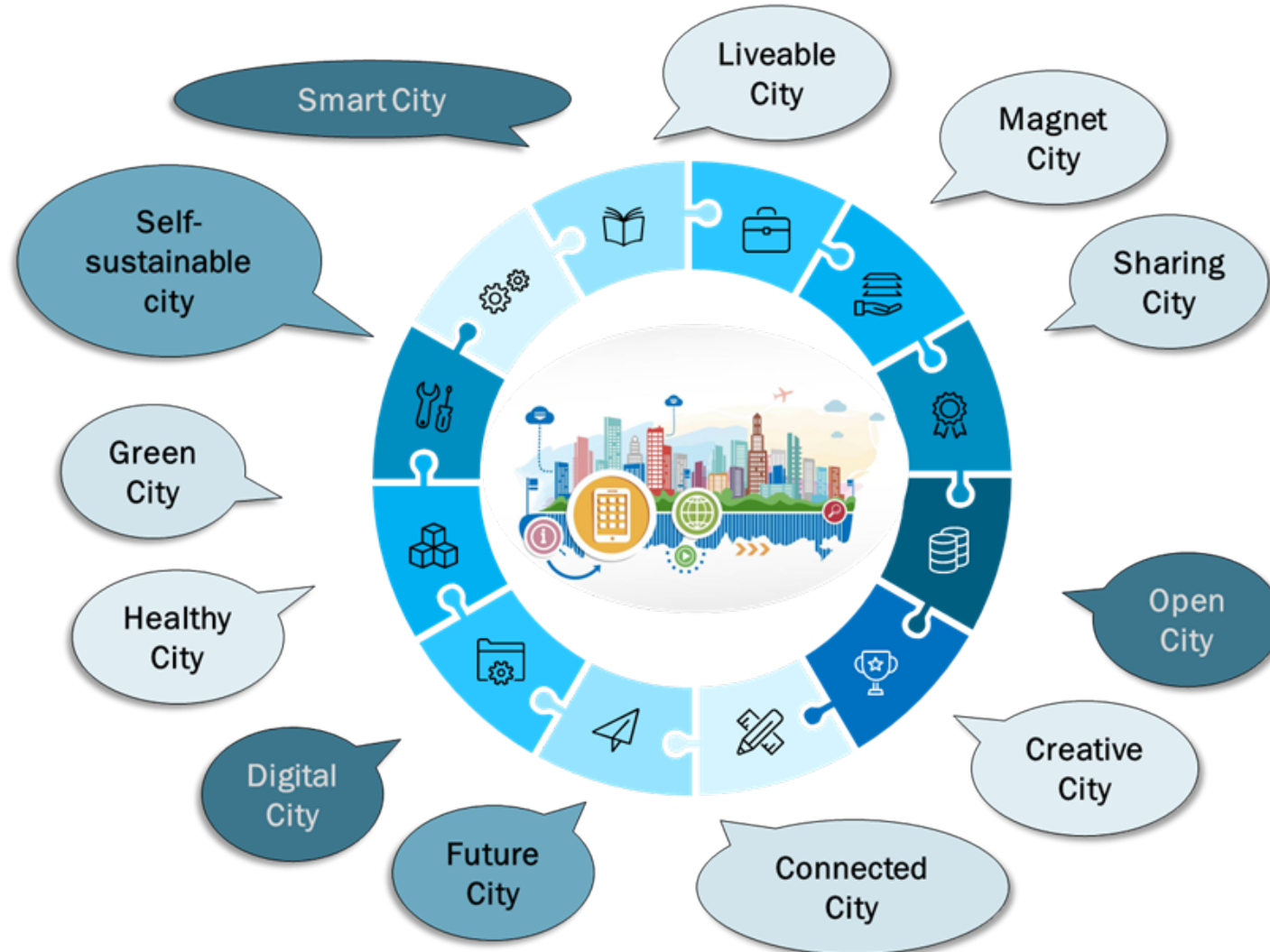
Inovativan i učinkovit pristup upravljanja gradom, njegovim resursima, procesima i javnim uslugama koje omogućava adekvatna **primjena razvijenih digitalnih tehnoloških rješenja**. Uravnoteženo korištenje tehnologije omogućuje primjenu naprednih alata te **pristup pravovremenim strukturiranim podacima** neophodnima za kvalitetno donošenje odluka i pametno upravljanje regijama i gradovima.



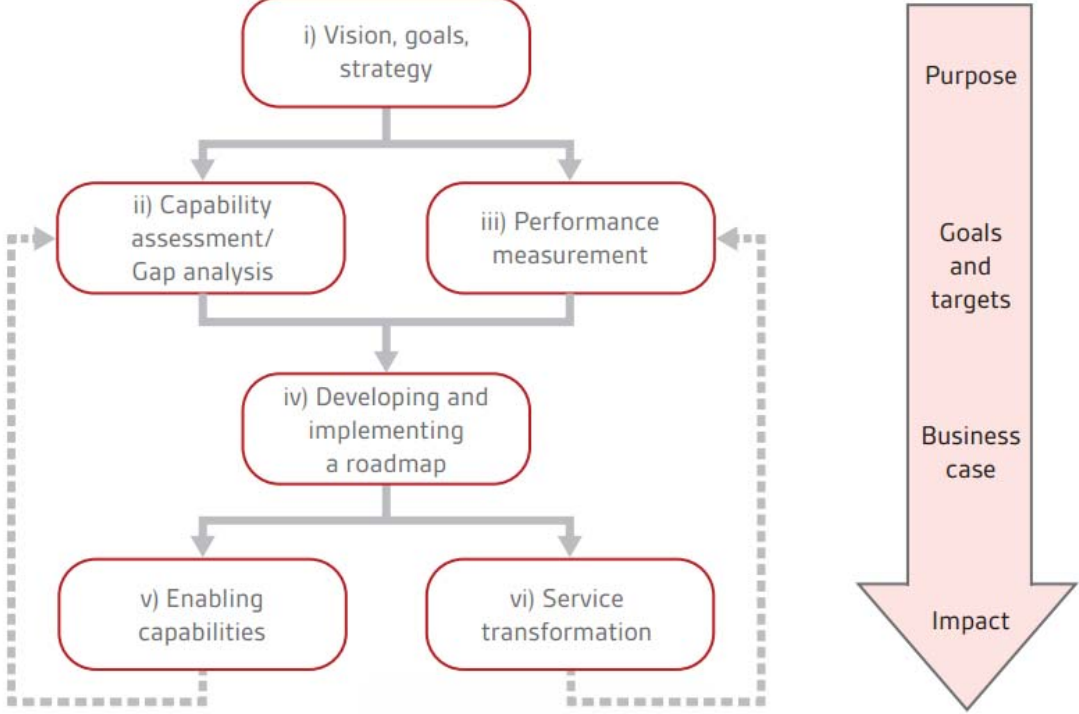
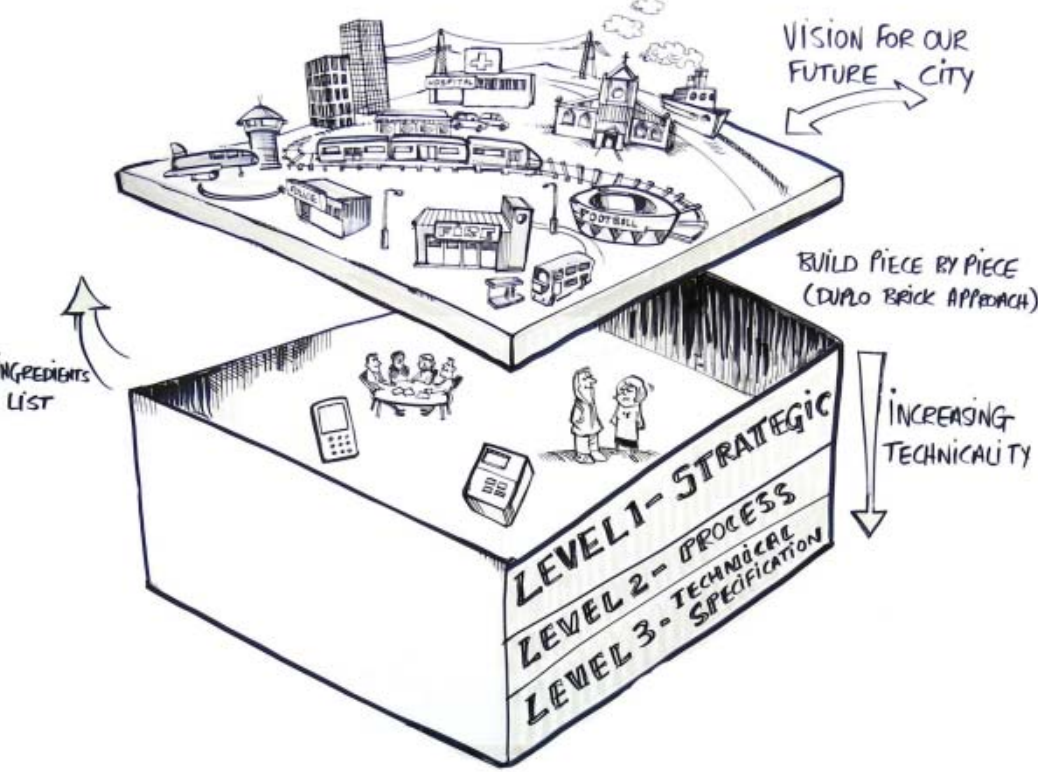
Što pružaju PAMETNI GRADOVI ?



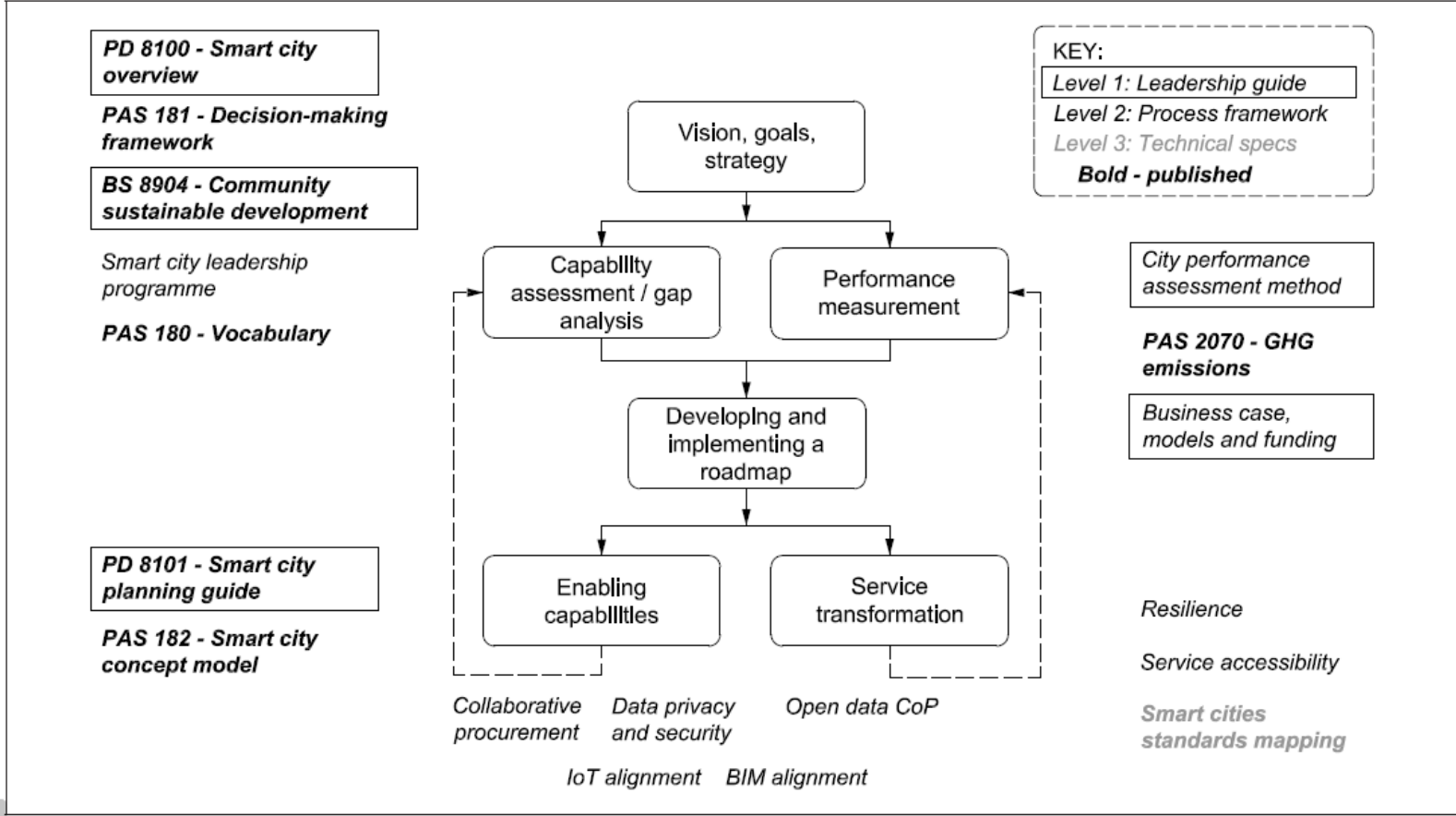
DIMENZIJE PAMETNOG GRADA



Uloga standarda za izgradnju pametnog grada

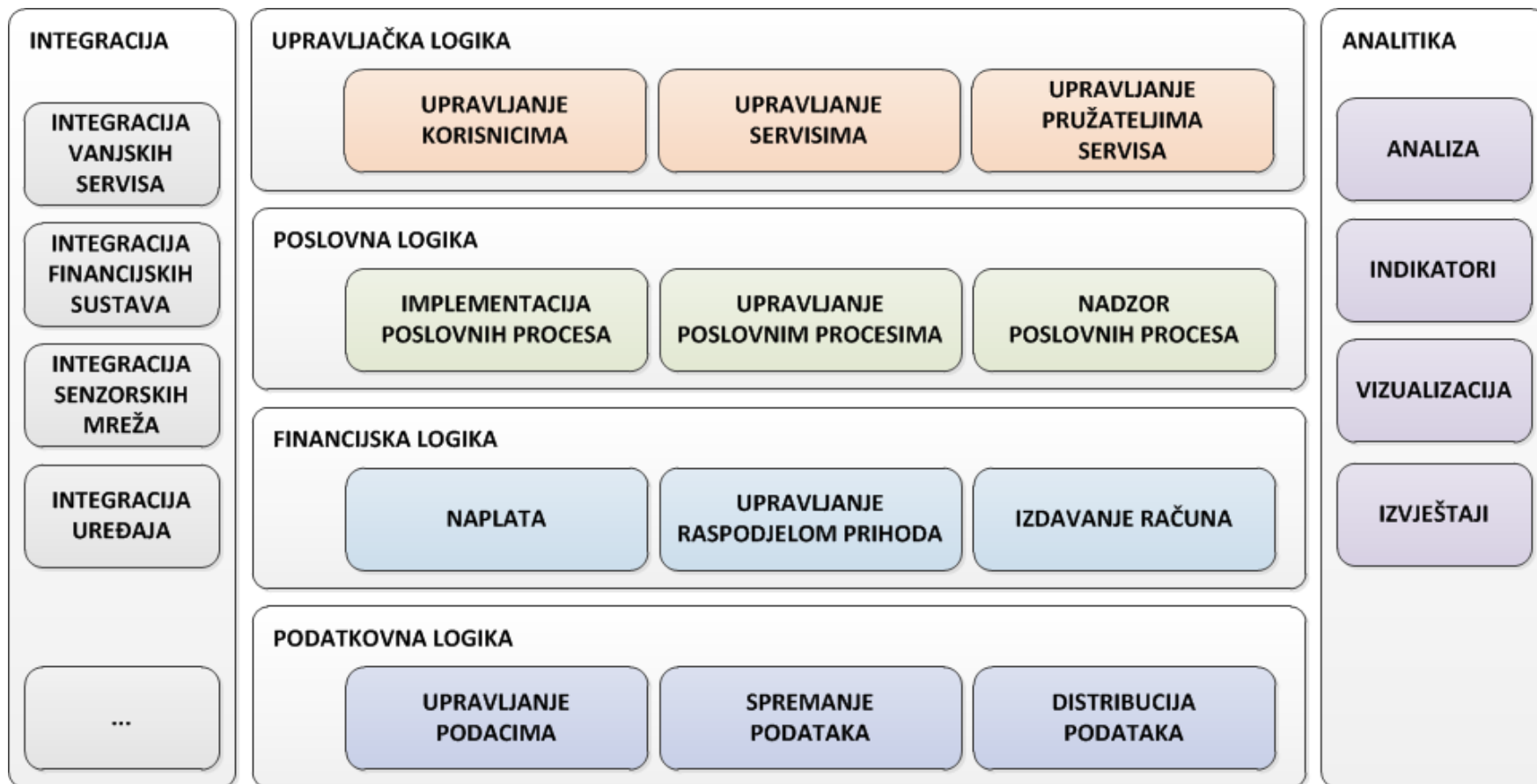


ULOGA STANDARDA za izgradnju pametnog grada



British Standards Institution (or BSI), Guide for city leaders: Summary of PD 8100

Logička arhitektura PAMETNOG GRADA



Elementi koncepta pametnog grada



Kvaliteta života



Kvalitetno upravljanje javnim prostorom
(Smart Urban Space)



Kvalitetno i sigurno upravljanjem prometom i mobilnošću (Smart Mobility)



Visoka kvaliteta zdravstvenih i javnih usluga
(Smart Health & Living)



Razvoj temeljen na suradnji, podržavanju različitosti i toleranciji (Smart Society)



Razvoj temeljem na održivosti i visokoj razini brige o okolišu (Smart Environment)



Standard života



Ekonomski razvoj i stvaranje poduzetničkog ekosustava (Smart Economy)



Visoka razina kvalitete infrastrukture i umreženosti (Smart Infrastructure)



Visoka razina kompetencija, znanja i vještina stanovnika (Smart People)



Razvoj održivih industrija s visokom dodanom vrijednošću (Smart Business)



Efikasno upravljanje gradskim operacijama i resursima (Smart Governance)

Zrelost pametnih gradova u Eu

Gradovi veći od 100.000 stanovnika



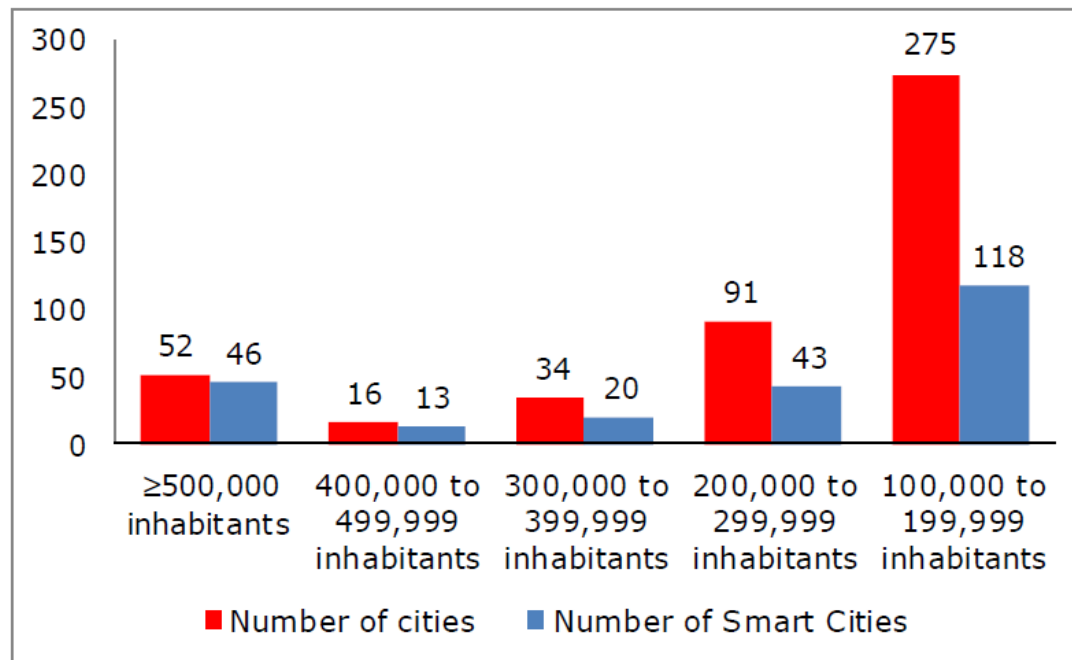
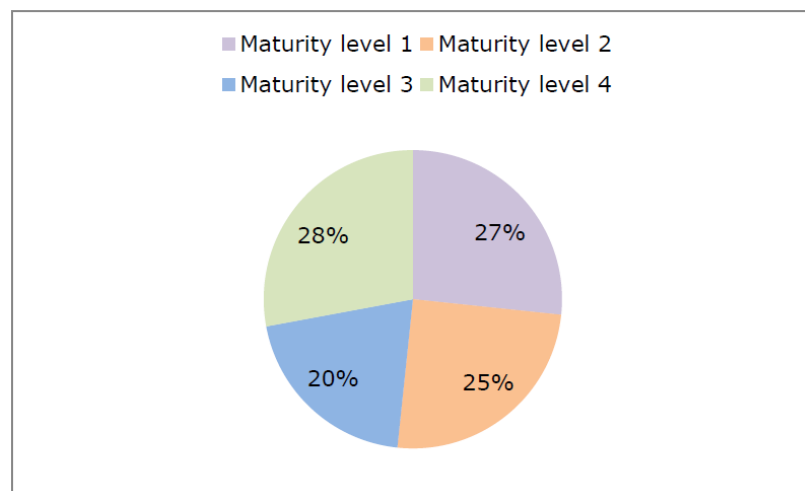
Razine zrelosti (*Maturity level*):

Zrelost prvog reda: Postoji izrađena strategija

Zrelost drugog reda: uz razinu 1, izrađen je detaljni projektni plana za implementaciju ali još nema pilota

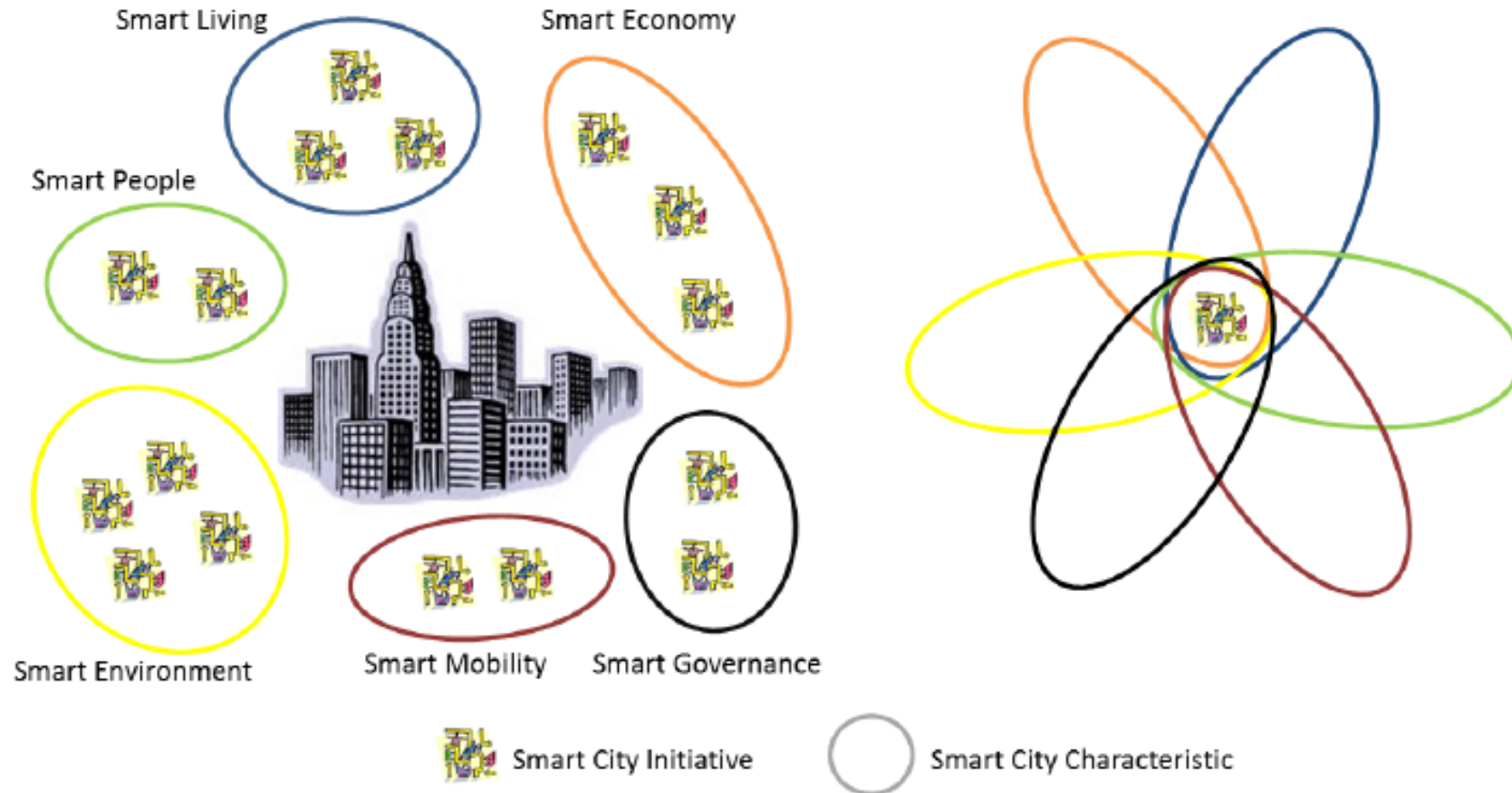
Zrelost trećeg reda: uz razinu 2, u tijeku je pilot projekt

Zrelost četvrtog reda: pametni grad sa barem jednom funkcijom pametnog grada u produkciji



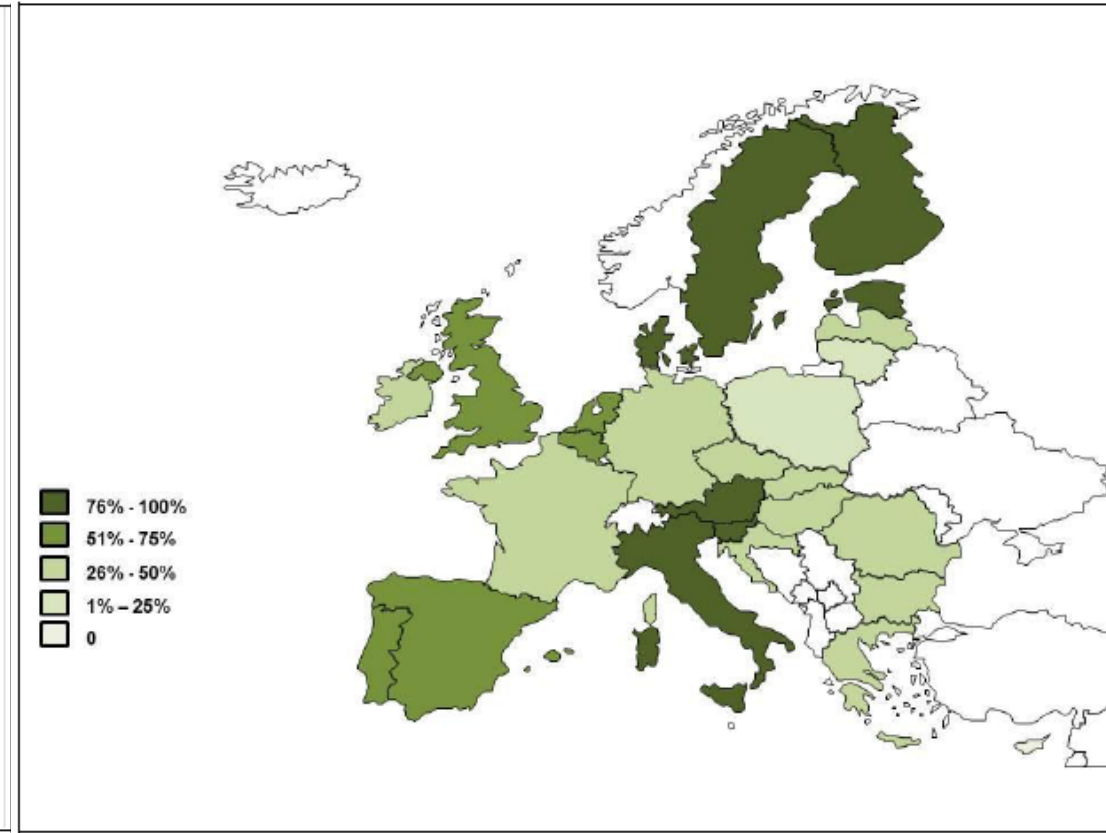
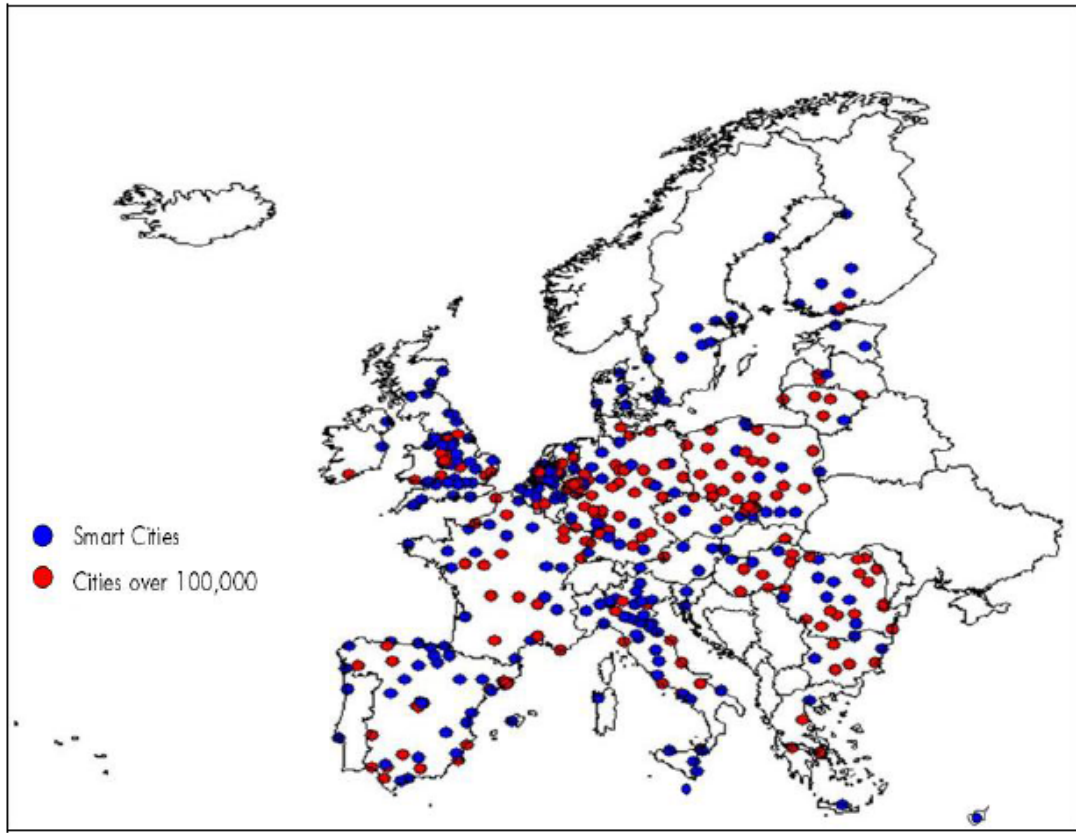
Izvor: Mapping SmartCities in EU

Šest tipičnih dimenzija pametnih gradova

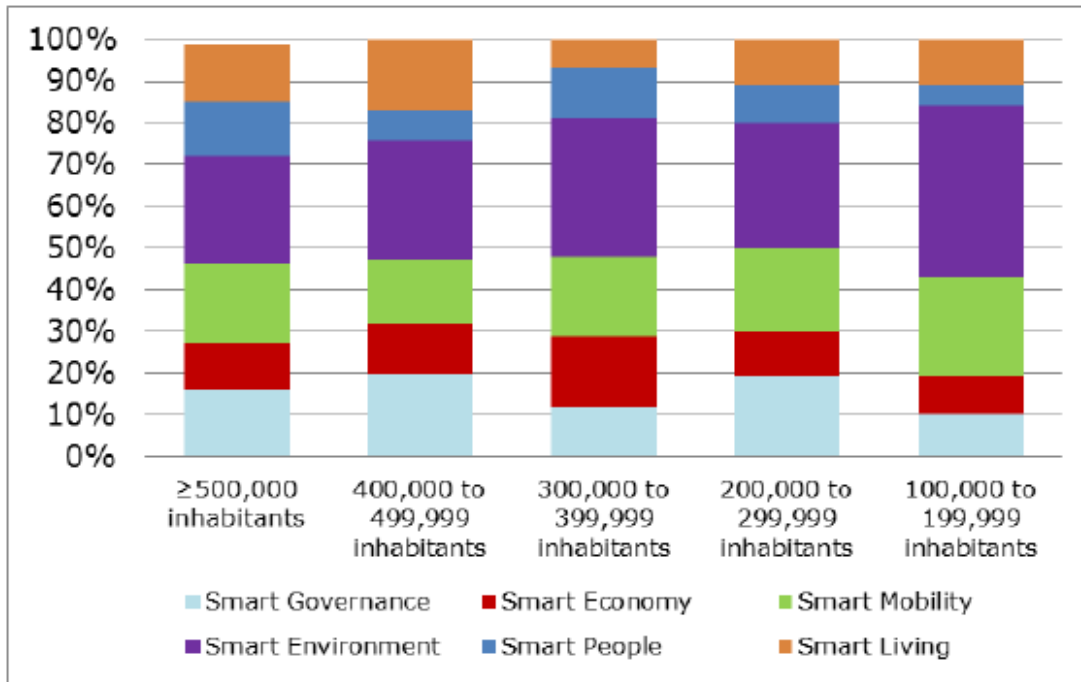
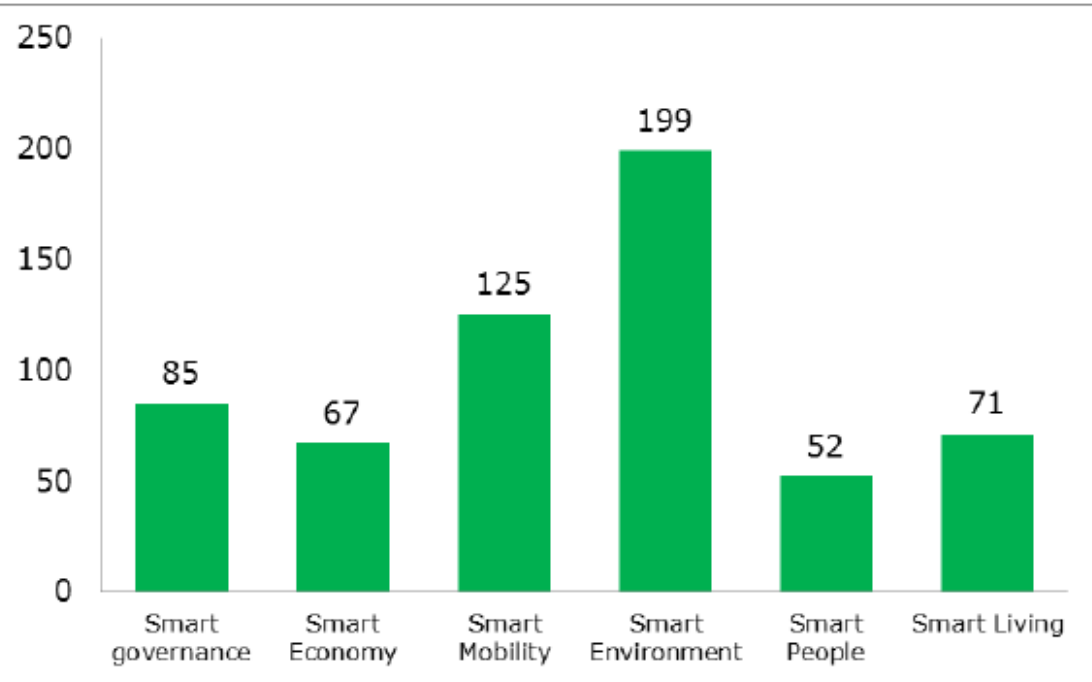


PAMETNI GRADOVI U EU

Gradovi koji imaju implementiranu barem jednu dimenziju pametnog grada



Šest tipičnih dimenzija pametnih gradova





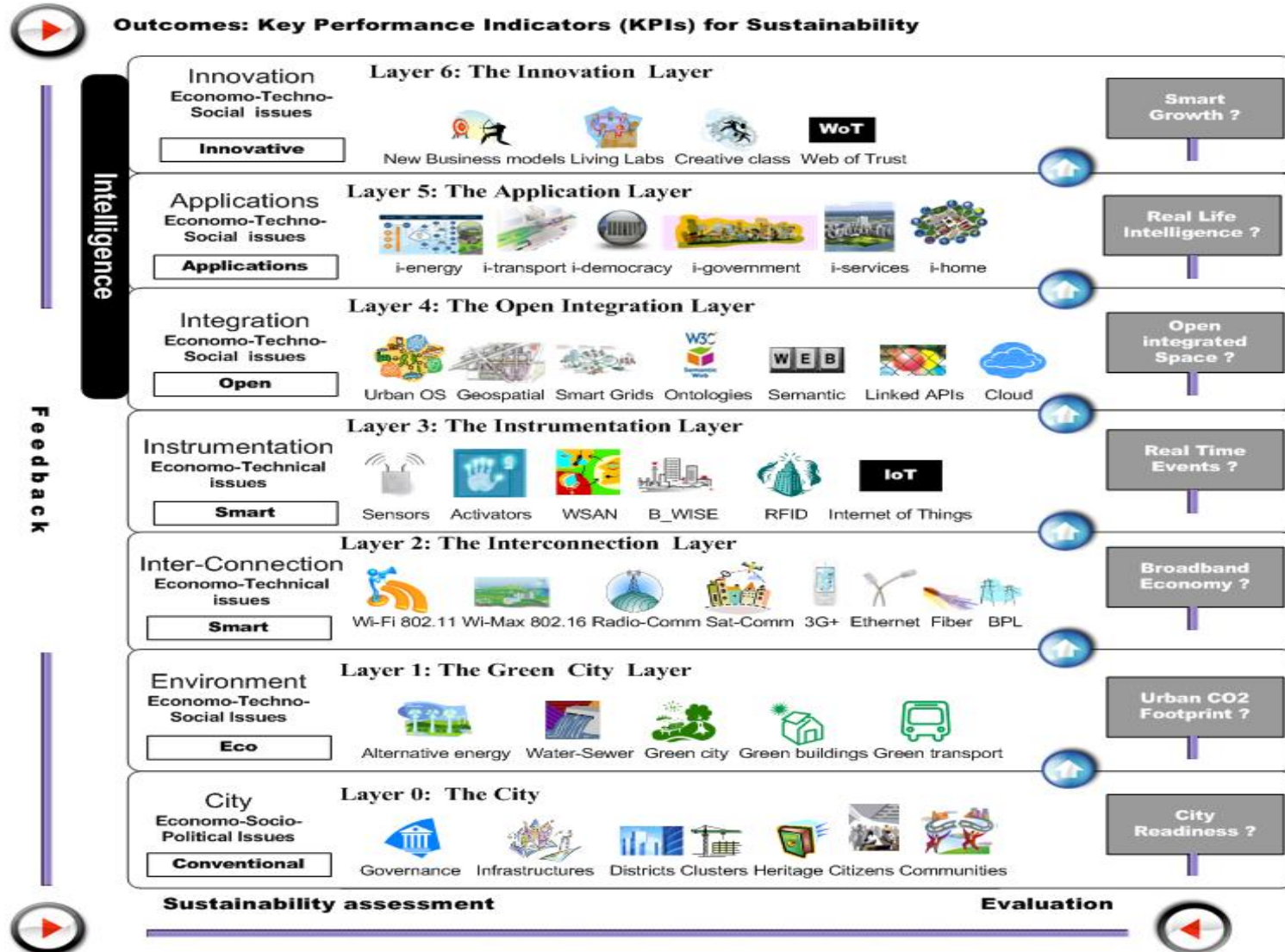
Anatomija pametnog grada

... jer detalji su važni.

Što građani očekuju od pametnog grada ili regije ?



Anatomija pametnog grada – transformacija infrastrukture i društvenih vrijednosti



Pristupi Modeliranju pametnog grada



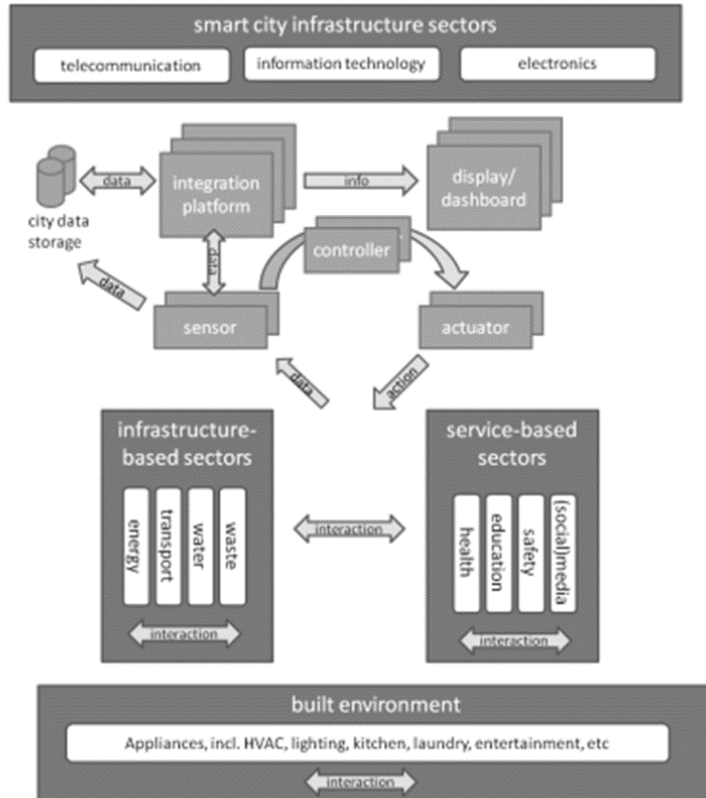
	Model	Description
IBM [10]	Nine Pillar Models Smarter City Equation	Planning and Management Services Infrastructure Services Human Services <i>Instrumentation (the transformation of urban phenomena into data) + Interconnection (of data) + Intelligence (brought by software)</i>
ITU [13]	Smart Sustainable City Key Performance Indicators	Environmental Sustainability, Productivity, Quality of Life, Equity and Social Inclusion, Infrastructure development
UN Habitat [14]	Dimensions of City Prosperity	Productivity and the Prosperity of Cities, Urban Infrastructure: Bedrock of Prosperity, Quality of Life and Urban Prosperity, Equity and the Prosperity of Cities, Environmental Sustainability and the Prosperity of Cities
Anthopoulos [7]	Smart city dimensions	Resource, Transportation, Urban infrastructure, Living, Government, Economy, Coherency
ISO [15]	ISO 37120 Sustainable development of Communities Indicators for city services and quality of life	Economy, Education, Energy, Environment, Finance, Fire and Emergency Response, Governance, Health, Recreation, Safety, Shelter, Solid Waste, Telecommunication and Innovation, Transportation, Urban Planning, Waste water, water and sanitation
Neirotti et al. [1]	Smart City domains	Natural resources and energy, Transport and mobility, Buildings, Living, Government, Economy and people
Lee et al. [5]	Framework for smart city analysis	Urban Openness, Service Innovation, Partnerships Formation, Urban Proactiveness, Smart city infrastructure integration, Smart city governance

Pristupi evaluaciji komponenti pametnog grada



	Benchmarking Tool	Description
Pires et al. [15]	Local Sustainable Development Indicators	21 ECOXXI Indicators, grouped in the following sectors: Sustainable, Development Education, Marine and Coastal Environment Institutions, Nature Conservation and Biodiversity, Forest Planning, Air, Water, Waste, Energy, Transport, Noise, Agriculture, Tourism
Kourtit et al. [16]	Global City Performance Measurement Indexes	Economy, Research and Development, Cultural Interaction, Livability, Environment, Accessibility
Desouza and Flanery [3]	Resilience City Evaluation and Implementation Framework	City components: Resources and Processes (Physical) People, Institutions, Activities (Social)
da Cruz and Marques [17]	Sustainable Local Government Scorecard	Social, Economic, Environmental and Government <i>criteria</i>
Singhal et al. [18]	Competitiveness parameters	Physical Environment, Social Capital, Finance, Development, Investment, User Potential
UN Habitat [19]	Good Urban Governance indicators	Effectiveness, Equity, Participation, Accountability, Security
Lazaroiu et al. [20]	Model for computing “the smart city” indices	Economy, Mobility, Environment, People, Living, Governance
Duarte et al. [21]	Digital City Assessment Framework	Connectivity, Accessibility, and Communicability

Tehnicki standardi



ISO 37120 Themes

1. Economy
2. Education
3. Energy
4. Environment
5. Finance
6. Fire & Emergency Response
7. Governance
8. Health
9. Recreation
10. Safety
11. Shelter
12. Solid Waste
13. Telecommunications & Innovation
14. Transportation
15. Urban Planning
16. Wastewater
17. Water & Sanitation

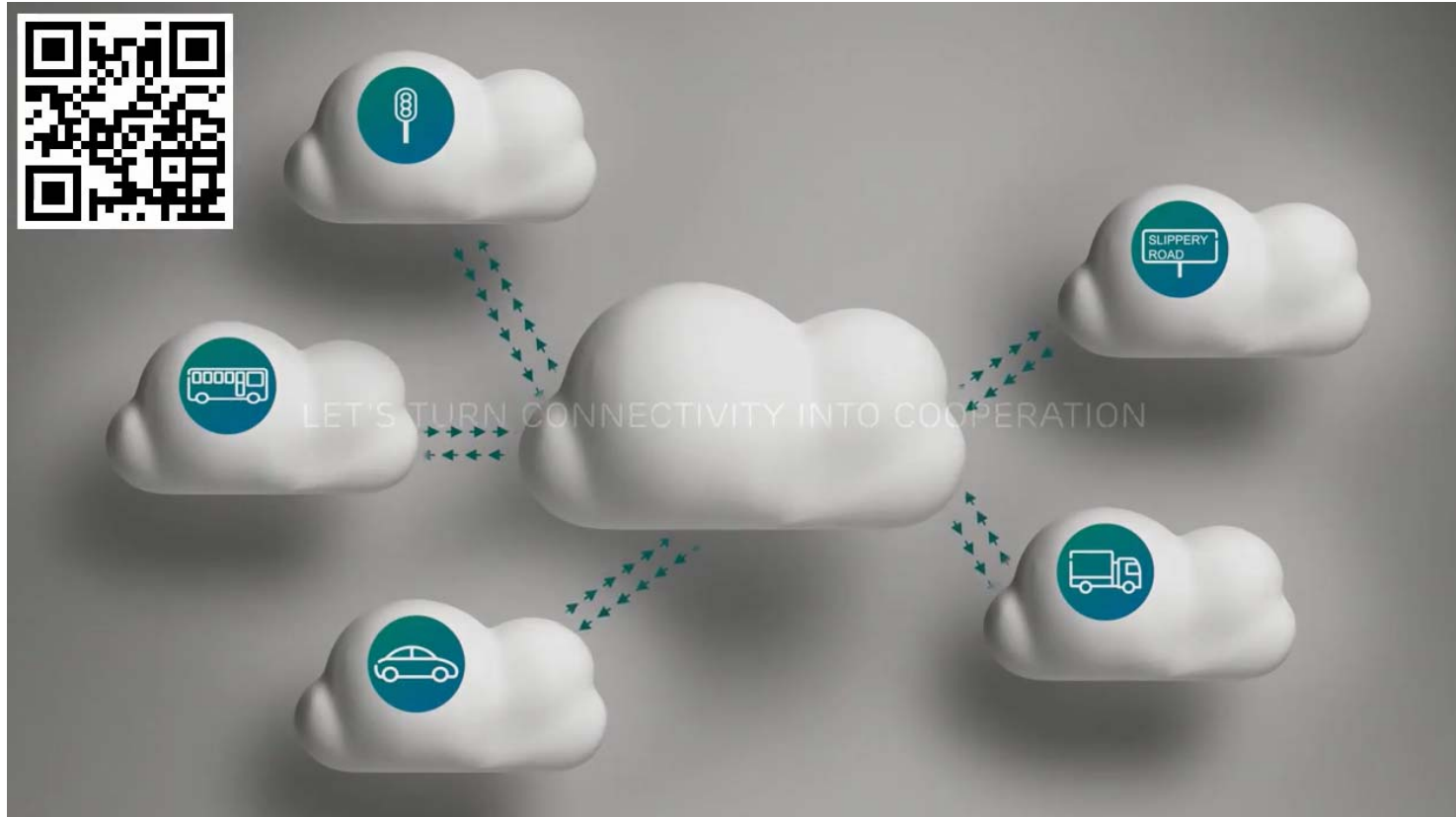
ISO 37120:2014 - Sustainable development of communities indicators for city services and quality of life

http://www.iso.org/iso/catalogue_detail?csnumber=62436

1st ISO certifiable global standard for Smart City Indicators
Published: June 2014



Konkretan primjer



Menadžer prodaje za nova poslovna područja

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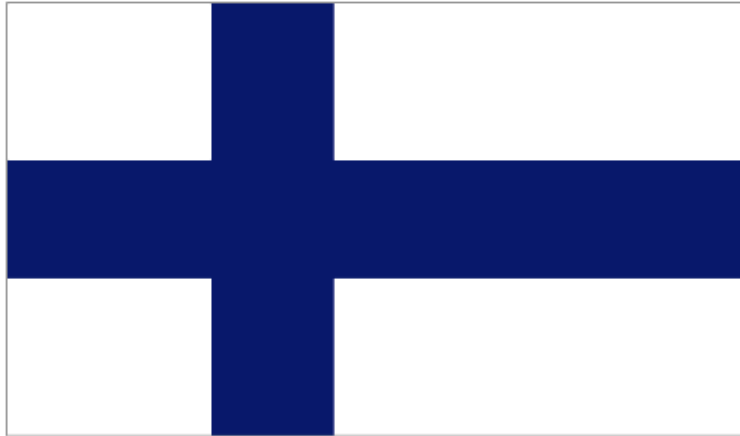




Dodatak : Primjeri najbolje prakse iz bliže i dalje okolice

Zašto otkrivati „toplu vodu” ?

Pametna specijalizacija - Kriteriji koji regiju Helsinki čine privlačnom



- 1. **ljudski kapital visoke razine vještina i kompetencija**
- 2. istraživačko i obrazovno okruženje visoke međunarodne kvalitete
- 3. vibrantno poslovno okruženje
- 4. koncentracija SME i velikih tvrtki (i međunarodnih)
- 5. razvijena industrijska infrastruktura
- 6. internacionalizirana društvena struktura
- 7. kvalitetna prometna povezanost (ceste, željeznica, zračne luke, more)
- 8. povezanost regije s međunarodnom tržištima



In recent years, Amsterdam has stepped up its pace to be a leading smart city. Amsterdam Smart City is a public private partnership focused on using the city as an urban laboratory for the use of open data, new mobility solutions and ultimately improved quality of life for all residents and visitors. The collaboration has already supported more than 40 smart city projects ranging from smart parking to the development of home energy storage for integration with a smart grid.

Aarhus – koncept pametnog grada primjenjiv je i na manje gradove



Working Groups as Living Labs

Open data
Digital entrepreneurship
Digital Cultural Heritage
Smart Utilities
Sustainability
Smart Governance
Smart Culture
Digital Infrastructure
Urban Media Space
Smart Education
Social Innovation
Citizen Engagement
Smart Future
Smart Citizen Services
Design in a Digital City

Digital Public Space
Digital tourism
Urban Space
Smart Well being
Telemedicine
Mobility
Privacy
Gellerup
New Districts
Research
News & Media
Mobil services
Smart Retail
Campus
Emergency Response
Smart Activism
Crazy ideas



Rio



Smarter Emergency Management client

Rio de Janeiro, Brazil's second-largest city, needed better ways to respond to landslides, floods and other disasters and to better ensure the safety of citizens during public events, from Carnival festivities to the upcoming 2016 Olympics. Working with IBM, Rio implemented a new centralized operations center that integrates data from 30 agencies plus numerous sensors, such as traffic surveillance and rain meters.

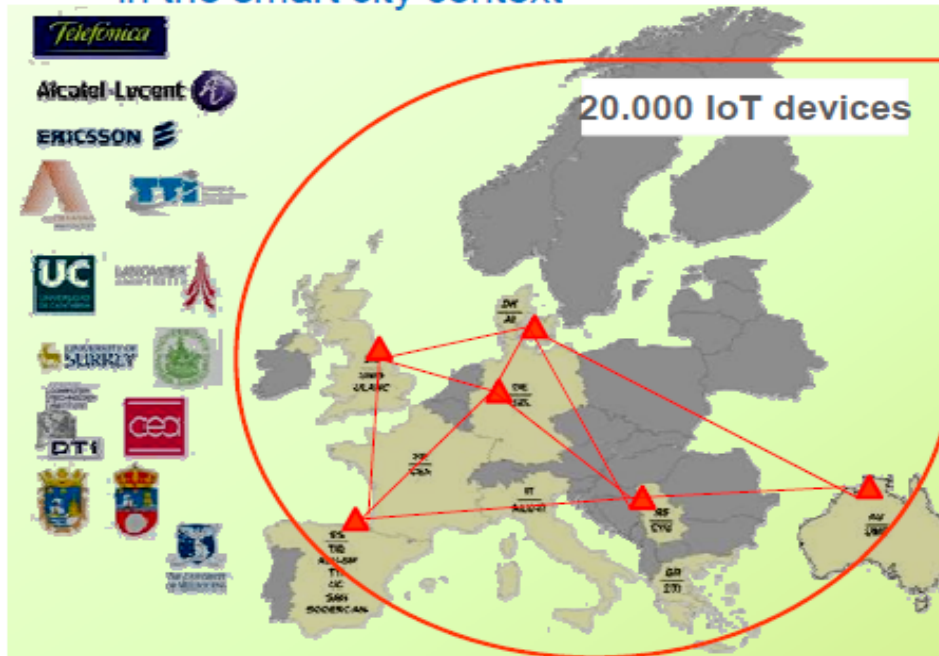
Personnel can now conduct real-time analysis of weather, energy, building, transportation and water data, and achieve near-real-time situational awareness in a single view. Enhanced communications capabilities enable city officials to share information across agencies and synchronize response efforts. Now the city can marshal its resources within hours, instead of days, to warn the public and provide a targeted emergency response to help save lives.





SMARTSANTANDER

- › European, large-scale experimental test facility for IoT
 - in the smart city context



Smart Santander Highlights

- **Targeting:**
 - Researchers
 - End users
 - Service providers
- **Duration**
36 months
- **Consortium**
15 Organisations
8 EU countries + AU
- **Budget / Funding**
8.67 M€ / 6.69 M€
- **Resources**
854.9 PM

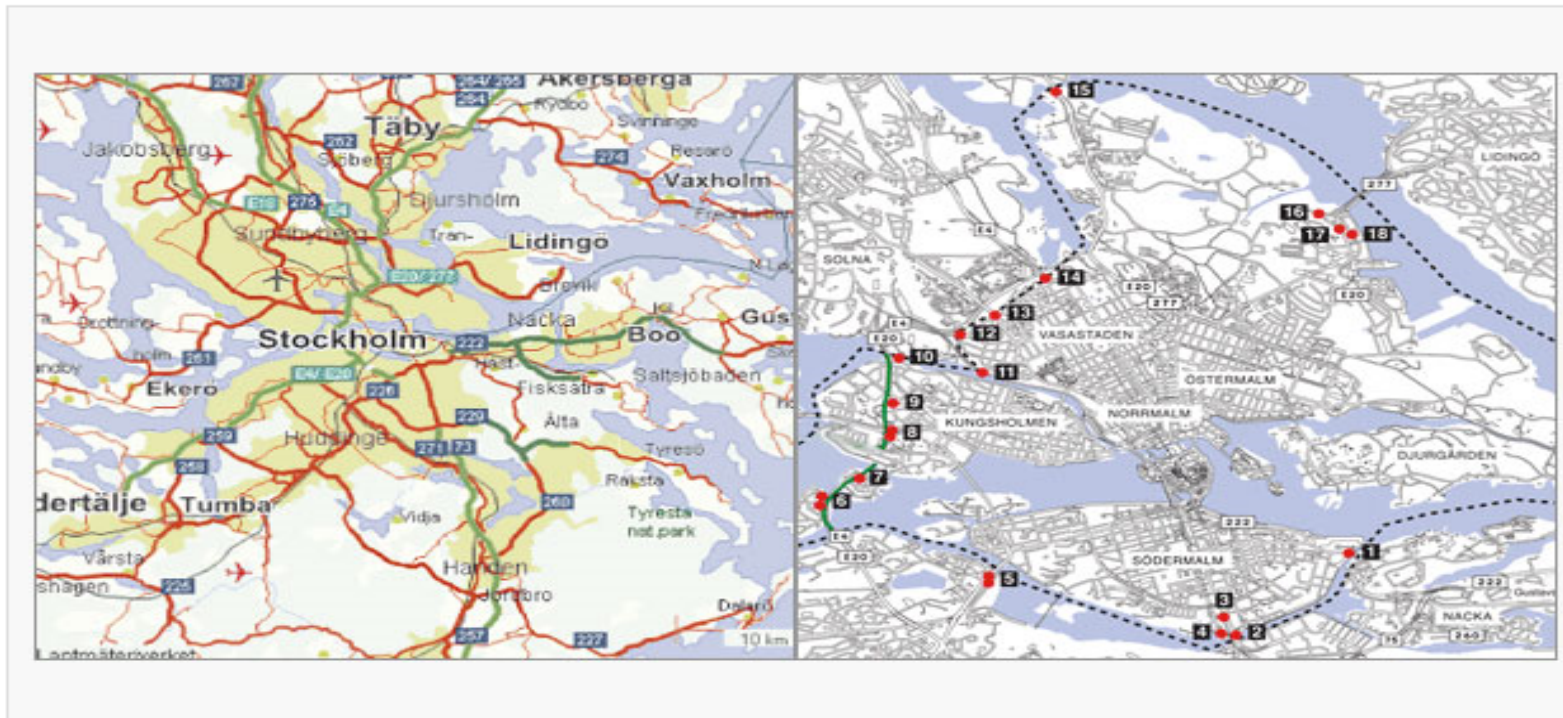
Hamburg - Seatropolis



In recent years, Hamburg has embarked on widescale transformation. At 157 hectares, Hafencity (Harbor City) is Europe's largest urban regeneration project. When completed in 2025, this roughly \$14 billion project will house a university, a port, and lots of mixed-use residential and commercial development connected with excellent, green transit.

Stockholm

TRANSFORMING THE WORLD



The City of Stockholm gets out of a jam

To help Stockholm overcome its traffic congestion problems, IBM helped them develop a road charging system that covers a 24-square-kilometer area of the inner city with 18 barrier-free control points equipped with cameras and a mix of payment channels. This project resulted in a 50 percent drop in morning traffic waiting time, an increase of 60,000 passengers per day in public transportation ridership and an overall improved quality of life for the residents of Stockholm.



01 / 03

Eindhoven...designer Daan Roosegaarde



Copenhagen



Notching top spot for the second year in a row Copenhagen has established a reputation as the leading green city across the globe. Copenhagen led the Siemens Green City Index for Europe and has also been selected as the European Green Capital for 2014. And with good reason. Copenhagen has one of the lowest carbon footprints/capita in the world (less than two tons/capita). Copenhagen also has the most ambitious ~~carbon reduction~~ plan of any major city in the world. They aspire to achieve carbon neutrality by 2025. That may sound a ways away but that is only 12 years from now.

In order to achieve such an ambitious goal, the city has established hardcore targets including energy efficiency and renewable objectives, green building standards (all new buildings to be carbon neutral by 2020), and increased transit access to name a few.

Rijeka – CEKOM ZA PAMETNE GRADOVE



Korištenje najbolje prakse i suradnja



MAJOR CITIES OF EUROPE
IT USERS GROUP



THE NETWORK
OF MAJOR
EUROPEAN
CITIES

EURO
CITIES



Covenant
of Mayors
Committed to local
sustainable energy



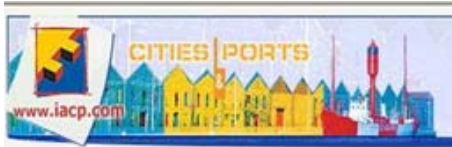
UDRUG
GRADOVA



UDRUG GRADOVA



CITY OF RIJEKA



www.iacp.com



Healthy Cities 21st Century



CITIES ON WATER

Superračunalo Bura

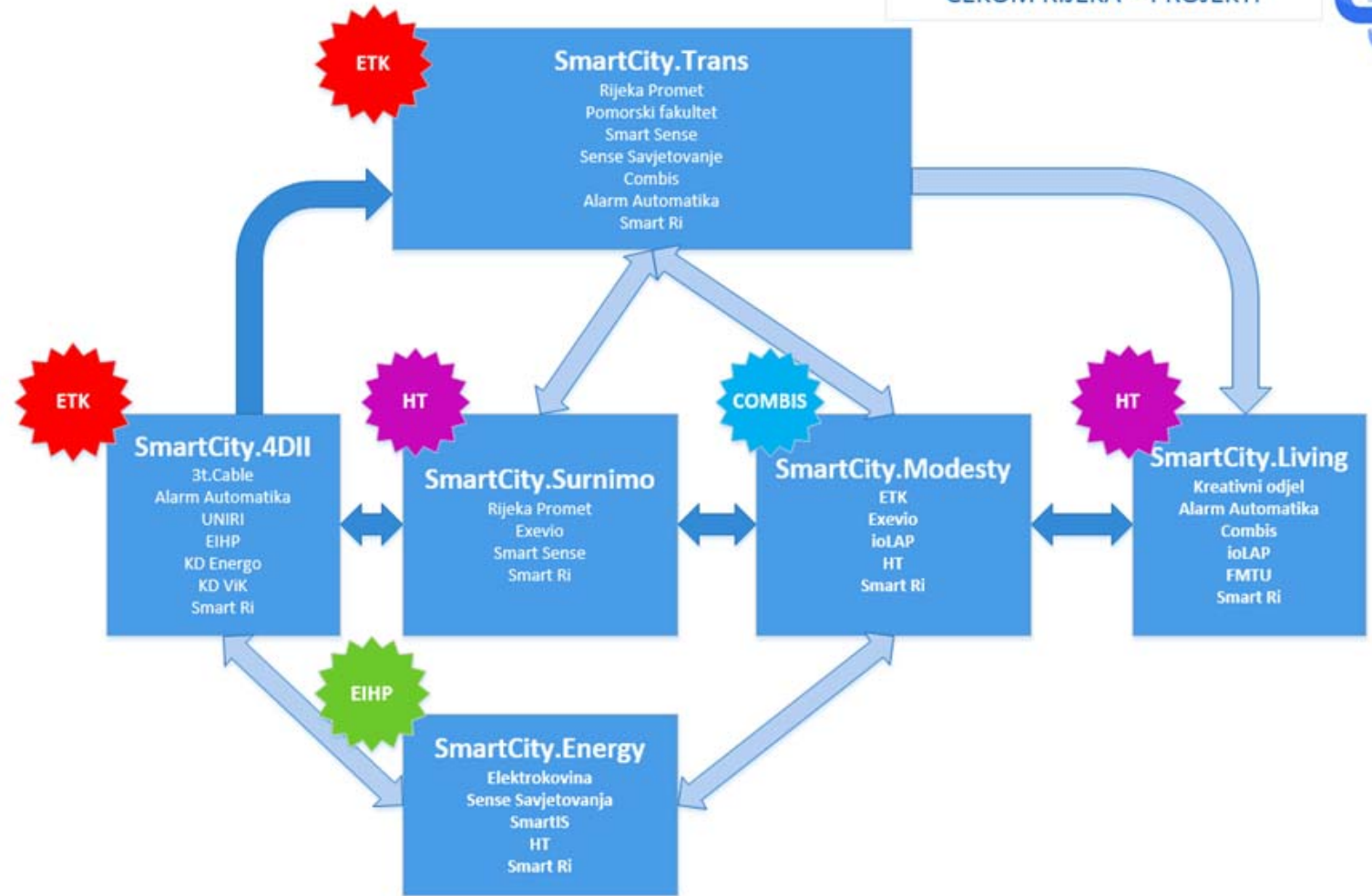
ključna komponenta za kompleksne simulacije pametnog grada





SmartCity.Modesty

Razvoj platforme za energetske učinkovito upravljanje i monitoriranje pametnog grada uz pomoć računarstva u oblaku sa setom aplikacija za građane i poslovne subjekte visoke razine sigurnosti podataka





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