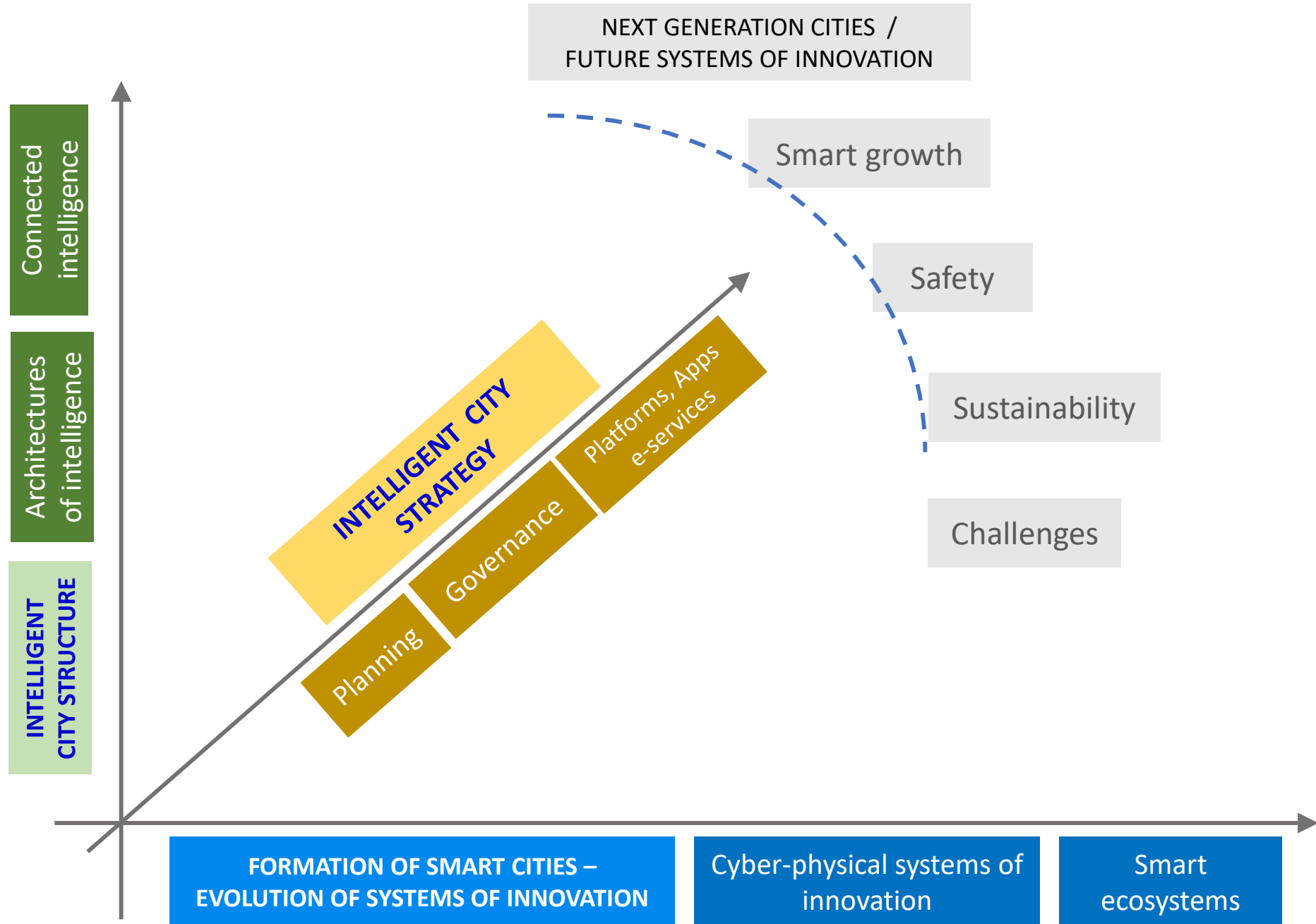
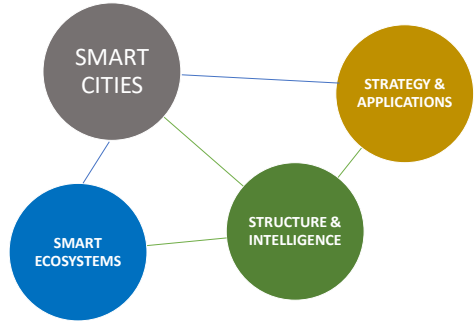


# Research on Intelligent / smart cities

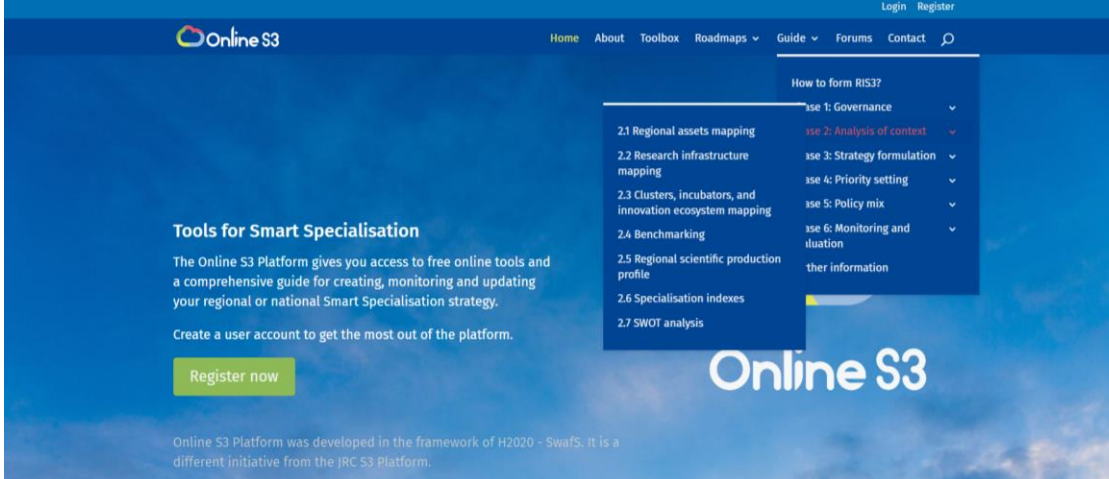


# 1. Systems of innovation & smart ecosystems

- This strand is about the **building blocks and drivers of smart cities**, the convergence of urban, innovation, digital systems
- **Question:** What happens to the system of innovation of a city when it connects to the Internet? Which mutations occur at the supply and demand sides of innovation?
- **Focus** on improvement of **innovation system of cities by digital means:** Innovation by online services, online collaboration, software enabled services, online datasets & analytics

## Recent research:

- Digitally assisted systems of innovation. Research & Innovation Strategies for Smart Specialisation (RIS<sup>3</sup>), H2020 & DG Regio
- ONLINE S3: Facilitate RIS<sup>3</sup> by 28 online apps and 4 roadmaps
- Entrepreneurial Discovery Process (EDP) in the context of ecosystems, platform-based ecosystems



The screenshot displays the Online S3 website interface. At the top, there is a navigation bar with the Online S3 logo and links for Home, About, Toolbox, Roadmaps, Guide, Forums, and Contact. A 'Login Register' link is also present. A dropdown menu is open under 'Guide', listing 'How to form RIS3?' with sub-items: 'Use 1: Governance', 'Use 2: Analysis of context', 'Use 3: Strategy formulation', 'Use 4: Priority setting', 'Use 5: Policy mix', 'Use 6: Monitoring and evaluation', and 'Further information'. Below the navigation, the 'Tools for Smart Specialisation' section is visible, featuring a description of the platform's purpose and a 'Register now' button. The footer contains information about the platform's development within the H2020 - SwaFS framework.

# Online S3 Platform: 28 applications for regional S3

## Context analysis

**Phase 1: Governance**

- Vision sharing** (Use the app): Allows RDS managers to create visually attractive infographics to present the strategy's vision.
- Stakeholder engagement** (Available soon): Invite RDS stakeholders to use online deliberation functionalities specifically tailored for EDP.
- Debate at a glance** (Available soon): Enables participatory deliberation using argument mapping software.
- Legal administrative framework** (Available soon): Provides an overview of EU processes of selecting and funding projects.

**Phase 2: Analysis of context**

- Regional assets mapping** (Use the app): A comprehensive and up-to-date mapping of the key regional assets.
- Research infrastructure mapping** (Use the app): A comprehensive and up-to-date mapping of the existing and planned research infrastructures across the EU regions.
- Clusters, incubators & innovation ecosystem mapping** (Available soon): Defining the framework, concepts and categories for mapping the innovation ecosystem of each region.
- Benchmarking** (Use the app): Compares the performance of a region with regions that are structurally similar.
- Regional scientific production profile** (Use the app): Production of 'scientific profiles' for regions based on Web of Science (WoS) data, Scopus and Google Scholar data.
- Specialisation indexes** (Available soon): Technological and economic indexes for understanding the position of regional activities in global value chains.
- SWOT analysis** (Use the app): Analysis of regional strengths, weaknesses, opportunities and threats is a key starting point for applying more elaborate RDS methods.

## Strategy design

**Phase 3: Strategy formulation**

- Collaborative vision building** (Available soon): Tailored online guidelines on the necessary additional steps to arrive at a shared vision for regional smart specialisation strategy.
- Scenario building** (Available soon): Creates different scenarios to illustrate visions of possible future or aspects of possible future.
- Delphi - Foresight** (Available soon): Delphi is the most emblematic foresight or future studies method. The method makes the data collection and analyses faster and easier.

**Phase 4: Priority setting**

- EDP focus groups** (Available soon): Supports focus groups of stakeholders and business leaders involved in the EDP process, and the communication of conclusions about the opportunities emerged by the local and national authorities.
- Extroversion analysis** (Available soon): Detects possible industry segments in which regions present increased extroversion, in terms of exports, attraction of FDI, or other forms of regional openness.
- Related variety analysis** (Available soon): Calculates the Related/Unrelated variety entropy indexes. It will compare 2-digit and 5-digit sector shares (%) and will estimate the entropy index for regions.

## Implementation

**Phase 5: Policy mix**

- Intervention logic** (Use the app): Allows to identify if different policy measures are coherent with the vision and objectives of the region.
- Action co-design plan** (Available soon): Co-design is a well-established approach in the process of creation, particularly within the public sector.
- Budgeting** (Available soon): Provides a framework for using different budgeting methods (incremental, zero budgeting) to capture the funding dimension.
- State aid law compliance implementation** (Available soon): Aims at considering the funding possibilities of public authorities to sustain competition within the internal market.
- Calls consultation** (Available soon): Enable RDS stakeholders to assess calls for projects under S3 operational programmes that are made by regional authorities.
- Innovation maps** (Available soon): Online visualisation tool that traces out information about regional technological trends using grant data.
- Open data tool** (Available soon): Data repository that allows for a freely grained tracking of projects and initiatives implemented in each region with a link to respective S3 priorities.

**Phase 6: Monitoring & evaluation**

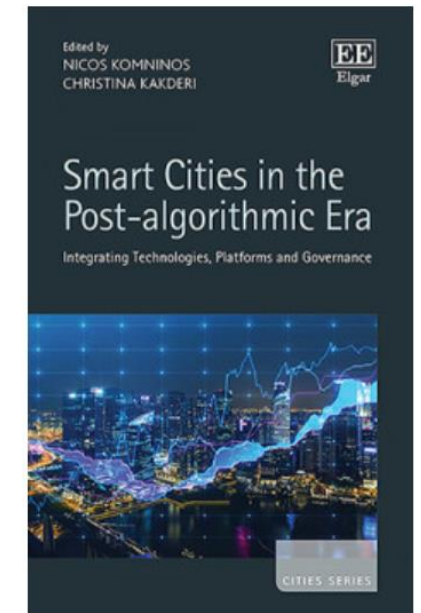
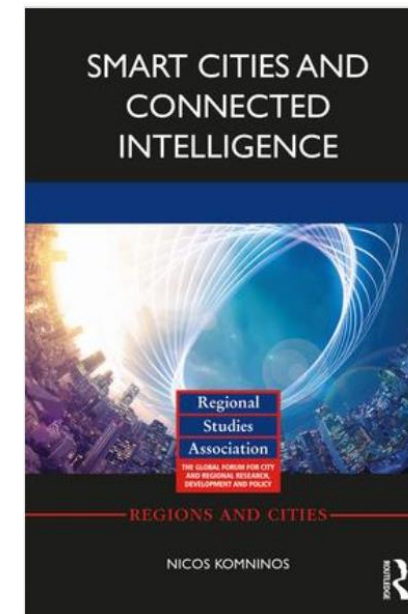
- Monitoring** (Available soon): Collects and processes information about the achievement of expected results and the degree of implementation of policy measures.
- Definition of output and result indicators** (Use the app): Output and result indicators constitute an essential part of RDS monitoring and evaluation.
- Balanced scorecard** (Available soon): Ensures that the activities are in line with its vision and strategy, and monitors the performance against strategic goals.

## 2. Smart city structure: Architectures of intelligence

- This strand is about the **structure, ontology, architectures of networking, and operation of smart cities**. Networks between the physical, social, and digital layers of smart cities and their components
- **Question:** Which structures make cities intelligent? How different types of intelligence in smart cities (human, collective, AI) are connected?
- **Focus on digital platforms** that bring together citizens, communities, digital infrastructure and technologies and create ecosystems & network effects

### Recent research:

- Platforms, setting of smart ecosystems, addressing growth, safety, sustainability challenges
- Two books on connected intelligence, linking humans, communities and machines

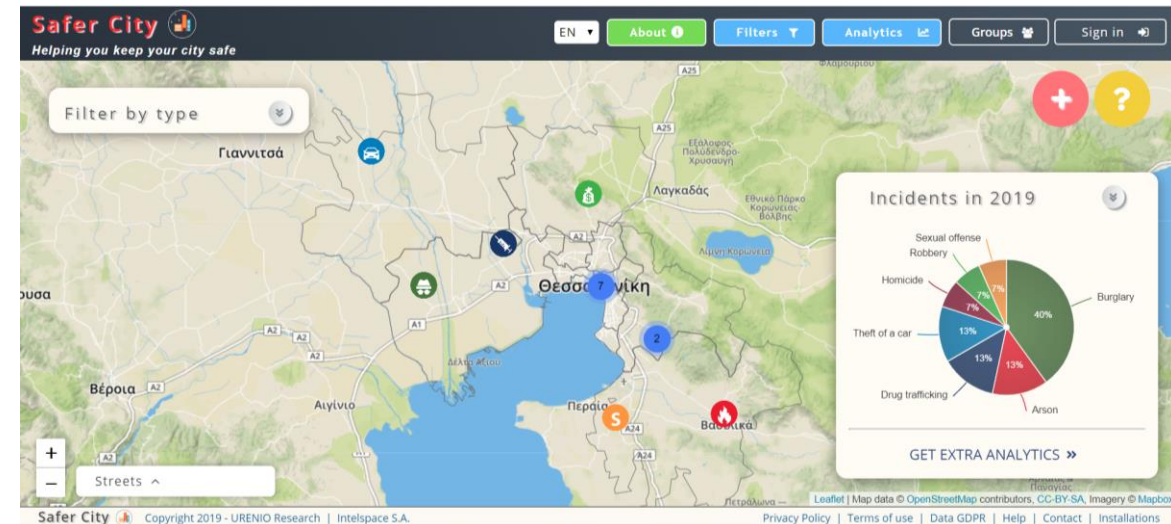


# 3. Smart city strategy, e-services, applications

- This strand is about **strategies and applications** based on cyber-physical systems of innovation and connected intelligence networks
- **Question:** How to manage the complexity of smart cities and the low control over the urban system?
- **Focus on vertical markets and city ecosystems**, lowering city complexity and increasing control. Software applications by city verticals.

## Recent research:

- Digital Cities Challenge, DG Grow
- A portfolio of smart city applications for ecosystems and vertical markets. A repository of applications. Cloud computing, apps and e-services

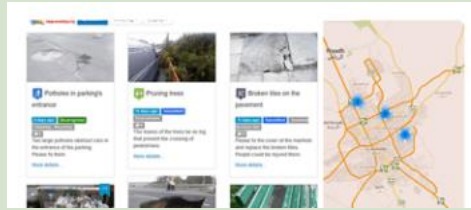


# GOVERNANCE

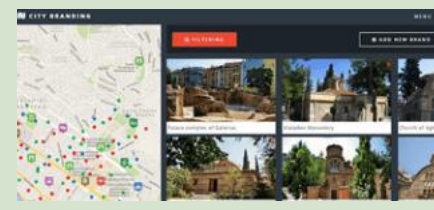
# ECONOMIC GROWTH

# SAFETY

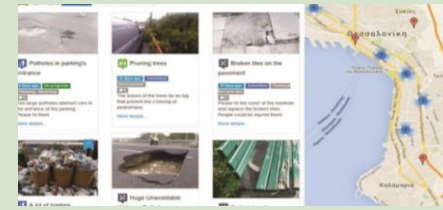
# ENVIRONMENT



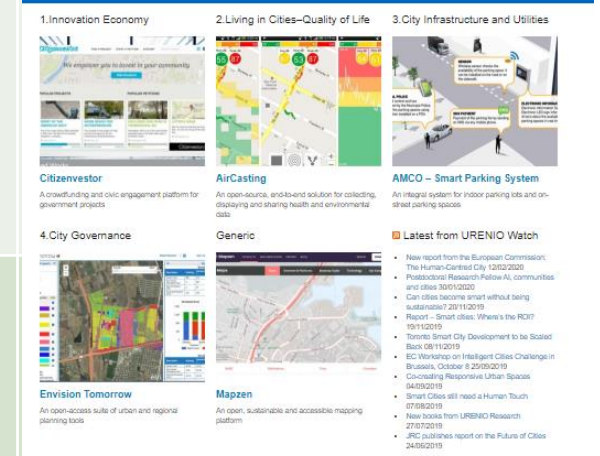
## CITIZEN REQUEST



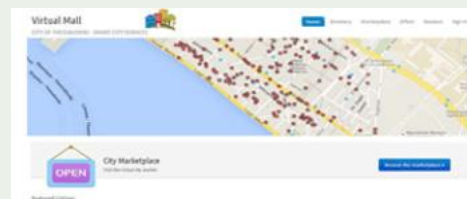
## CITY BRANDING



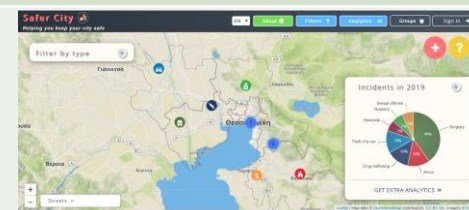
## SAFETY REQUESTS



## STRATEGY CO-DESIGN



## MARKETPLACE



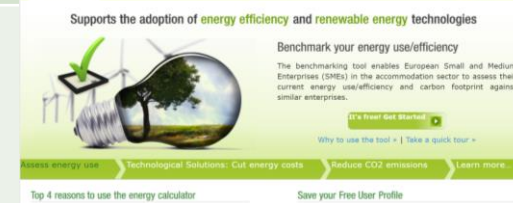
## SAFER CITY



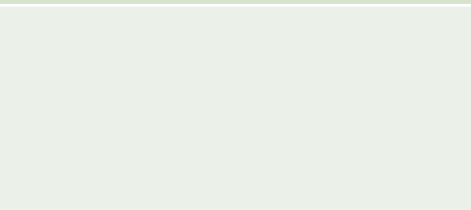
## ASSESSMENT & DATA



## CROWDFUNDING



## ENERGY & CO2



## R&D REPOSITORY



## AIR POLLUTION