Linking Virtual Spaces & Collaborative Innovation

FOUR PLATFORMS FOR INTELLIGENT CITIES

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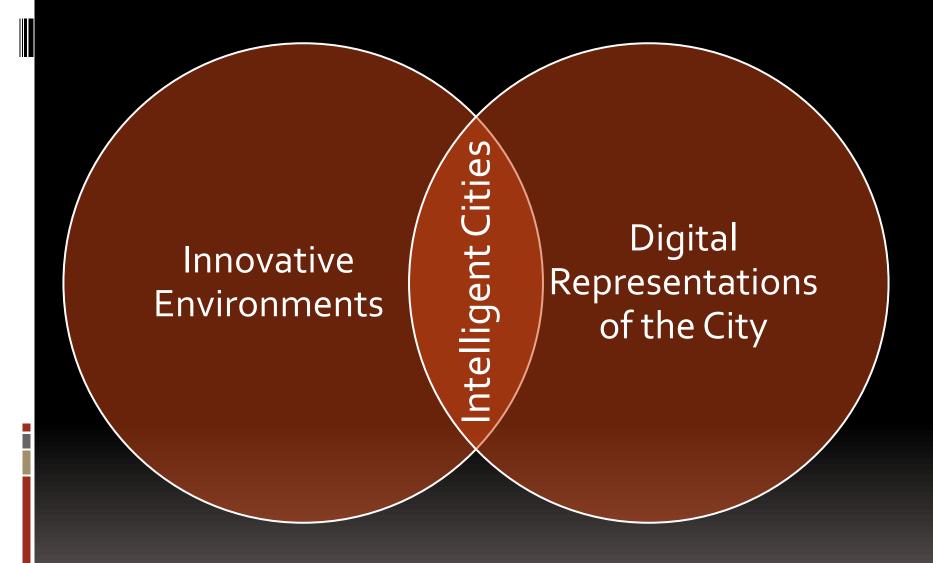


The URBAN AND
REGIONAL INNOVATION
Research Unit is a University
Lab in the Aristotle
University of Thessaloniki.

URENIO's current research emphasis is on intelligent cities and regions.

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Local System of Innovation





Intelligent Cities

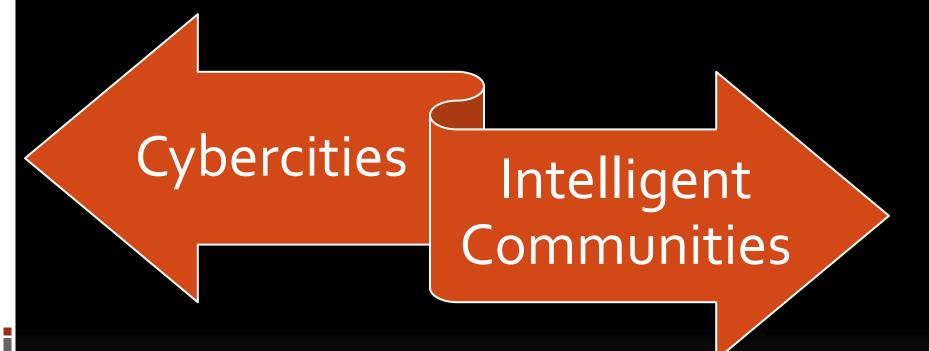
Digital
Networks
& Online
Services

Local system of innovation

 Drives the development of innovations inside the organisations composing the system (companies, R&D centres, intermediaries, incubators, etc.)

Digital city

 Facilitates communication, data storing and retrieval, knowledge transfer, cooperative product development, and product promotion



A Definition

Intelligent cities (communities, clusters, regions) are those territories characterized by high capacity for learning and innovation, which is built-in the creativity of their population, their institutions of knowledge creation, and their digital infrastructure for communication and knowledge management. The distinctive characteristic of intelligent cities is the increased performance in the field of innovation, because innovation and solving of new problems are distinctive features of intelligence

Levels of an Intelligent City

Understanding intelligent cities as multilevel systems of innovation integrating knowledge-based activities, institutions for innovation, online communication, and knowledge management tools is a prerequisite for describing the structure of these cities.

Physical

People and knowledge-intensive activities of the city

Institutional

Institutional mechanisms & organisations that make innovation possible

Digital

Digital tools & spaces for communication and innovation

Level 1: People & knowledge-intensive activities

Innovation ability is based on human skills, direct communication and cooperation of people and organisations within the community (cluster).

The space is physical, and intelligence in producing innovation is predominantly human.

Main assets are human skills, human ingenuity, and creativity.

Level 2: Institutional mechanisms and organisations

Institutions regulating IPR, spin-off creation, technology transfer and licensing, joint product development, innovation financing are preconditions of innovation; as important as the human skills referred to in level I.

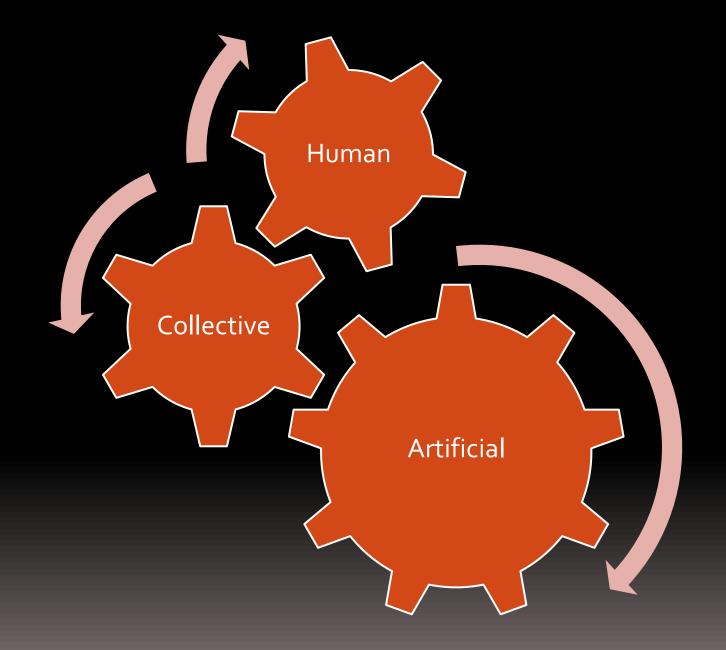
Intelligence at this level is predominantly social and collective. It regulates how a collective effort to promote innovation is organised and how its benefits are distributed within the community.

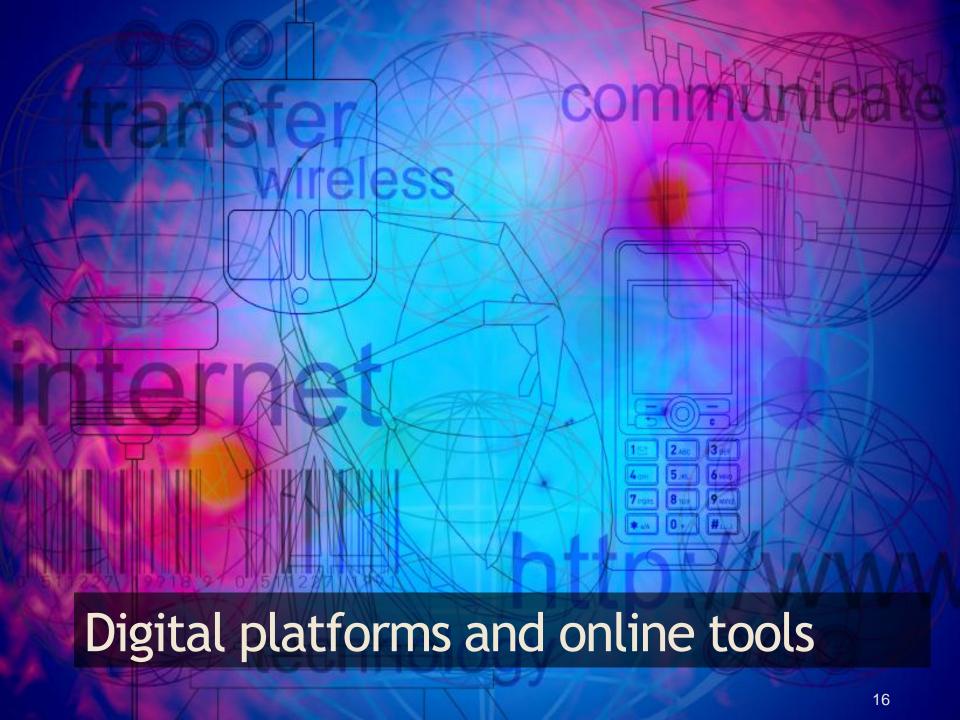
Level 3: Digital tools and spaces for communication and innovation

They offer an intelligent virtual environment with mainly web-based applications in various fields (information management, e-learning, e-commerce, e-government, e-promotion, e-tools, etc.) enhanced by AI technologies.

Al and advanced information technologies on the web enable functions quasi-similar to human intelligence to be performed, such as comparing, selecting, informing, and learning.

At this level, machine intelligence predominates, which makes use of the public system and infrastructure for digital communication, public digital spaces, content, and online tools available to the population of the community.





Intelligent City Platforms



Research work at **URENIO** over recent years has led to the development of a series of digital platforms and tools which offer solutions to the problem of integrating different forms of intelligence described above.

The concept

To create digital spaces adapted to fundamental processes of innovation and skills enhancement. Such processes are those of strategic intelligence, technology absorption, joint new product development, product promotion and marketing, and new company creation.

For each of them a separate platform has been developed containing information management tools, AI applications for alert, search, classification of information, processing, and dissemination of information.

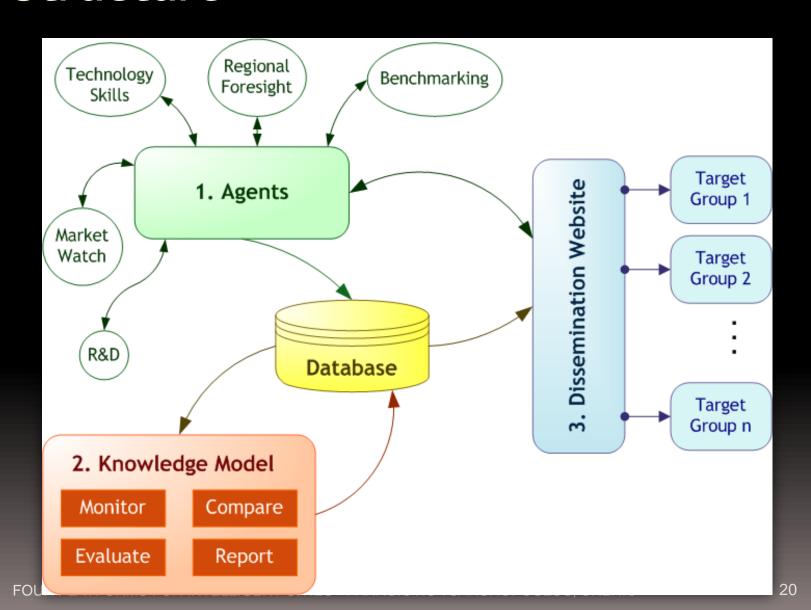
The platforms correspond to level III of the aforementioned classification of capabilities, but are designed according to the characteristics of levels I and II.

Strategic Intelligence

The Platform supports information mastering. It is structured according to strategic intelligence principles, including data collection, data analysis, and data dissemination modules.

All the modules are based on a knowledge model that is monitored by a relational database, which forms the core of the Platform.

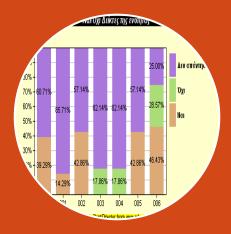
Structure





Collection

- Innovation
- Market opportunities
- Funding opportunities
- Competition
- Resources



Benchmarking

- Industry sectors
- Commodities & markets
- Enterprises' numerical data
- Communities & cities
- Regional performance

SI Platform Overview

Applications

- Metaforesight
- URENIO benchmarking
- Digital innovation centre, Thessaly
- Infopeloponnisos
- MediCube

Services

 Market and technology watch, i.e. the systematic follow up of emerging trends in different industry sectors. It is based on the collection of information on prices, technologies, new products, suppliers, competitors, etc. Data is analyzed and reports are sent to recipients.

Tools

- Portal for market and technology watch
- Data miner
- Benchmarking
- Newsletter
- Members area and feedback

Potential Users

- Chambers of industry and commerce
- Industry sectoral associations
- Clusters
- Cities and regions

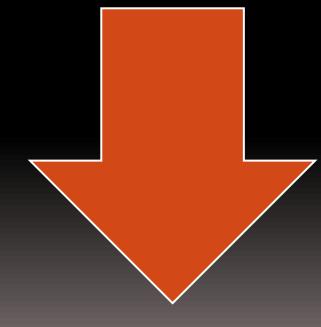
Exploitation of R&D / Technology Transfer

The Platform serves as a hub for connecting innovation and technology-demanding companies with organisations capable of delivering R&D solutions. It offers the necessary aggregation that facilitates the dissemination, marketing, and promotion of R&D services. Online tools are also used to provide guidance and support during different phases of technology exploitation, such as licensing, technology transfer, spin-off creation, etc.



Innovation increasingly depends on dense networks of public and private participants and large pools of IP that routinely combine to create end products.

Technology transfer is primarily viewed as a collaborative activity occurring within networks of formal and informal relationships between universities and firms



Past Years

Innovation occurred inside a company and was protected through patents, trademarks, and copyrights.

Components

Online R&D database

The most important research outcomes, especially those that lead to the development of new products, new production processes and new services, are listed in this database. Technology providers, from universities and other R&D institutions, submit information about research products and services, while technology users, from both the private and public sector, can access this information over the web.

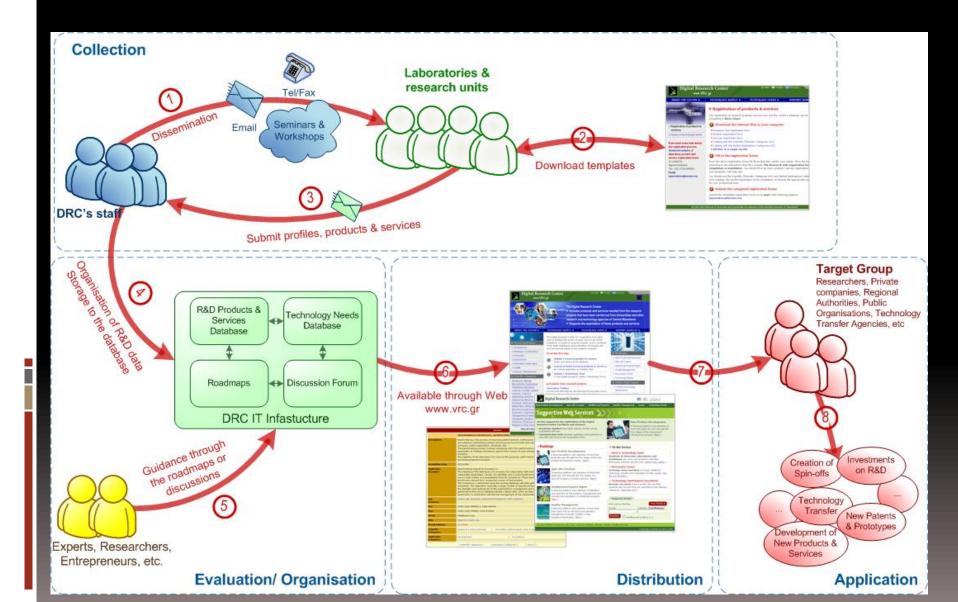
innovation learnin Online

Technology training and learning are based on roadmaps (guides) that clarify aspects of R&D exploitation and usage. They are complete self-training modules that help users to accomplish tasks such as new product development, spin-off company creation, IP management, management of quality, etc.

Online collaboration

Collaboration between academia and businesses is achieved through the use of two online communication tools: a technologymatching tool and a discussion forum. Both create a digital space where entrepreneurs, SMEs, and public organisations can post their technology needs which are then automatically communicated to the closest technology provider in order to open dialogue and find a solution.

Platform's Processes



RETT Platform Overview

Applications

- Digital Research Centre, Central Macedonia
- Liaison Office, Democritus University of Thrace

Services

- Dissemination, marketing, and promotion of R&D results and technologies.
- Provision of online consulting services in the fields of technology transfer, intellectual property rights, licensing, laboratory testing and measurement.
- Training services, technology brokering, and matching technology providers and users.

Tools

- R&D suppliers database
- R&D results / products database
- IPR licensing roadmap
- Spin-off creation roadmap
- Quality management roadmap
- Discussion forum / technology needs announcement
- Technology matching tool
- Promotion multimedia tool

Potential Users

- Universities, Research centres and labs
- Business associations
- Chambers of commerce and industry
- Clusters
- Science and technology parks
- Brokering organisations
- Technology transfer centres
- Innovation centres

Platform's Installations



Future Plans

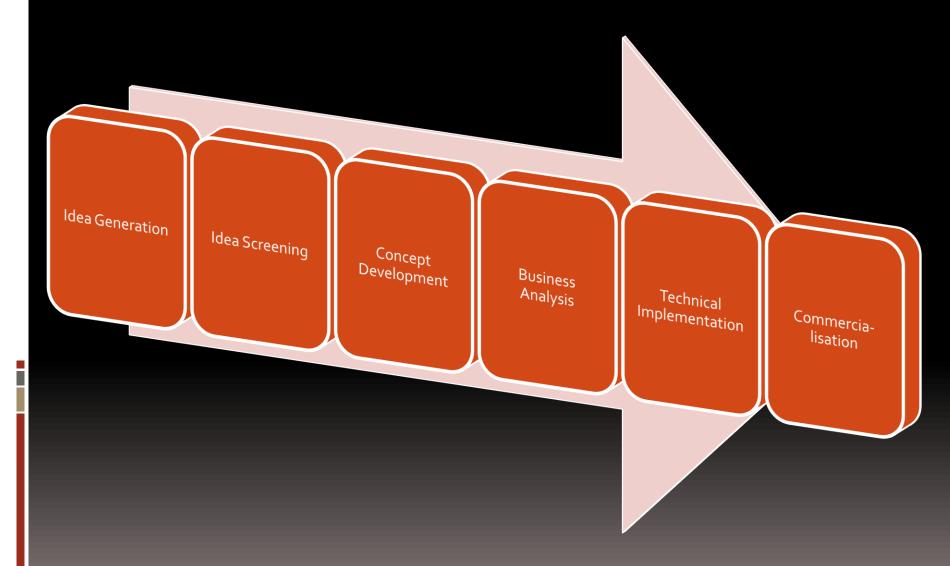
The evolution of the Platform is related to the development of new tools that may increase its intelligence, such as online recommendation systems, market estimation, value analysis tools, and communication tools that may connect the Platform with others providing similar or supplementary solutions

New Product Development

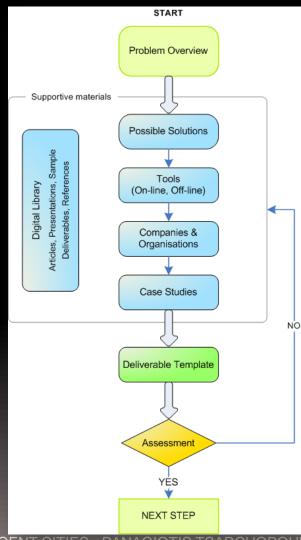
Platform is designed both to support learning and to facilitate the process of New Product Development. It follows the concept of "orchestration" in which many organisations and experts cooperate to develop a new product.

The Platform brings together a set of tools that can assist companies and organisations to successfully develop new products or upgrade existing ones through a series of logical steps, starting from the process of idea generation and ending at the launch of the product onto a market.

NPD Process



Anatomy of a step



NPD Platform Overview

Applications

- Digital Research Centre, Central Macedonia
- Entrepreneurship in Thessaly
- Knowledge-clusters in Western Macedonia
- NPD-NET

Services

- Online cooperation in different areas of innovation:
 - Cooperative new product development
 - Cooperative product design
 - Cooperative concept development
 - Spin-off creation
 - Management of intellectual property
- Training, as it supports the collection and systematic guidance to a large portfolio of NPD methodologies, tools, and techniques.

Tools

- Creativity tools
- Conjoint analysis, Quality functional deployment
- Reengineering
- Reverse engineering
- Industrial design & Rapid prototyping
- Business & Marketing Plan
- Cost Benefit Analysis
- Market Research

Potential Users

- Incubators assisting start-ups
- Innovation centres assisting innovators
- Universities and technology institutes
- Training companies and organisations
- New entrepreneurs starting a new company
- Companies diversifying and producing new products
- Scientists wishing to develop a new product based on their research

Future Plans

Research fields regarding optimisation of the Platform though are broad. The introduction of models that compare and benchmark NPD projects can be considered an interesting evolution of the tool. The benchmarking approach can assist in identifying best practices and justifiable critical success factors.

Virtual Tour & e-Market

The platform covers those aspects of a digital city/community that are related to the promotion and delivery of products and services which citizens, companies and government authorities produce. Such products and services extend over various fields of urban life from e-government, eeducation, e-promotion, to e-business.

Components

Provides virtual tours of the city, presenting monuments, art crafts, and products with the use of digital maps and panoramic photographs.

Companies and associations associations can provide information, present offers, carry out e-commerce, form business relationships, etc.

Provides the seamless aggregation of service provision in the public administration realm.

Virtual City

• The main medium for the city's promotion in tourism and cultural terms. By showing places of interest (monuments, sights, public buildings, transport infrastructures, education and health facilities, recreation areas, etc.) on the map and providing relevant cultural information it helps the city's residents or visitors organise their visit or spare time according to their special interests.

e-marketplace

• Enables companies and citizens to sell their products and services over the Internet to the largest audience. Transactions are completed online with the use of a credit card.

e-Government Shop

 Primarily operated by the city's municipal authority, allows users to report a wide range of problems and queries, to apply online for many municipal services, opportunities and certificates, and to pay for many council services online using a credit card. The e-government module also provides information regarding the activities of local government or municipal authorities.

VT & e-Market Platform Overview

Applications

- Digital Corfu
- Digital Aegean

Services

- Virtual tours: Panoramas of cities, monuments, and arts, objects an products
- e-Markets: Marketing and promotion of products and services
- e-Government: Provision of online public services, such as e-government, e-learning, e-information, e-health, etc.

Tools

- Virtual tours
- Panoramas
- Information services
- Digital market places
- Online government services

Potential Users

- Communities and cities wishing to promote their localities on the Internet
- Tourism organisations for their marketing campaigns
- Local and regional authorities for their marketing and attraction strategies
- Local associations of producers wishing to market digitally their products

Platform's Installations



Future Plans

- Provision of online services in other areas such as e-learning, e-health, e-work, surveillance and security, environment, etc., and
- Implementation of applications that increase its intelligence using interactive agents, collaboration tools, and tools that retrieve relevant information (images, video, etc) from other websites, etc.



Digital Cities & Collaborative Innovation

Platforms' Advantages to the Communities

- Identify ongoing and emerging trends in technology and innovation in any sector of the community. Particularly for communities specialising in one sector of activity, such capabilities are extremely helpful in identifying market opportunities and reaching new markets.
- Generate ideas and turn them into projects or products.
 The platforms offer specific tools for assisting enterprises, individuals and other organisations, generate ideas, and step-by-step turn them into products and services.
- Network and circulate information, ideas and projects.
- Search for and share best practice, and benchmark communities against selected others. There is no unique strategic model for innovation, but success and failure stories that communities may use and share are provided.

Transformation of a network of settlements into intelligent communities

- The project aim to stimulate the integration among the three levels of an intelligent community (skills, innovation institutions, digital platforms)
- The network is composed of 10 small mountain settlements, which were selected with respect to their productive specialisation. All are active in sustainable tourism and the production of traditional local brand-name products using bioand environmental friendly processes.

Project's actions

- 1. The creation of a *producer's network* (comprised of businesses or individuals) with certified capabilities and skills in their respective business sector. Needs in terms of technology know-how are identified and training courses transfer technologies that are vital for the competitiveness of the sector.
- 2. The creation of a **technology transfer centre** that acts as a central hub of the network, both in terms of transferring know-how and technologies and supporting the operation of the local broadband network and online services.
- 3. The creation of a *digital environment* for the supply of online services in the four domains of the platforms: strategic intelligence, technology transfer, product development, and product promotion. The digital space is based on local municipal broadband networks, which also offer free e-mail and Internet access to citizens and visitors of the settlements.

Expected results

The above three components, which correspond to different forms of cooperation over the physical, institutional, and digital space, are combined together to create an intelligent entrepreneurial environment.

Using the digital platforms and tools a significant upgrading of the local innovation capabilities is expected. Producers may improve their know-how and technologies, their methods of work and product promotion; products or services of the local productive system may gain a better presence into various virtual - digital markets; citizens may have better access to local governance services; the area (region) may improve its attraction potential for visitors, new businesses, and employment.

Conclusion

Intelligent city platforms should be seen as digital assistants and a toolkit for strengthening and supporting human resources and institutional mechanisms.

However, the use of the digital platforms is not sufficient to achieve intelligent communities. There are other crucial issues for a community's intelligence, such as human creativity, collaboration, citizen and public sector participation in the creation of an innovation culture.

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THANK YOU VERY MUCH FOR YOUR ATTENTION