



# Thessaloniki Living Lab: Designing and Testing Applications for Intelligent Cities

Prof. Nicos Komninos

URENIO Research Unit, Aristotle University

[www.urenio.org](http://www.urenio.org)

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# Outline

Introduction: Thessaloniki Living Lab

I. Intelligent cities: A few words about the concept

II. Intelligent cities: Digital space

III. Living Labs for intelligent cities design

# Thessaloniki Living Lab

Initial areas of expertise and focus:

- **Automation:** applications in the field of energy saving, smart buildings, BMS, environmental monitoring, alert, and protection
- **Business software:** applications for ERP, CRM, business intelligence, online marketing, e-commerce, e-business
- **Intelligent cities:** web-based applications for city development, local innovation system management, transport optimisation, city promotion, and e-government
- **WEB services:** provision of services over the web to consumers, businesses and citizens, development of e-services and e-solutions, semantic web, software as a service.

In all the above areas Thess LL will create communities of users involved in new product development and testing

A case study: LLs for intelligent cities design

## I. Intelligent cities: A few words about the concept

# A new model of regional development

6<sup>th</sup> periodic report. Social and economic conditions of the regions in Europe (1999)

- Model for the regional change of GDP

$$\text{GDP/Head} = \text{GDP/Empl.} \times \text{Empl./Popul.}$$

(Productivity x Employment)

4 factors explain 65% of the regional variation of GDP

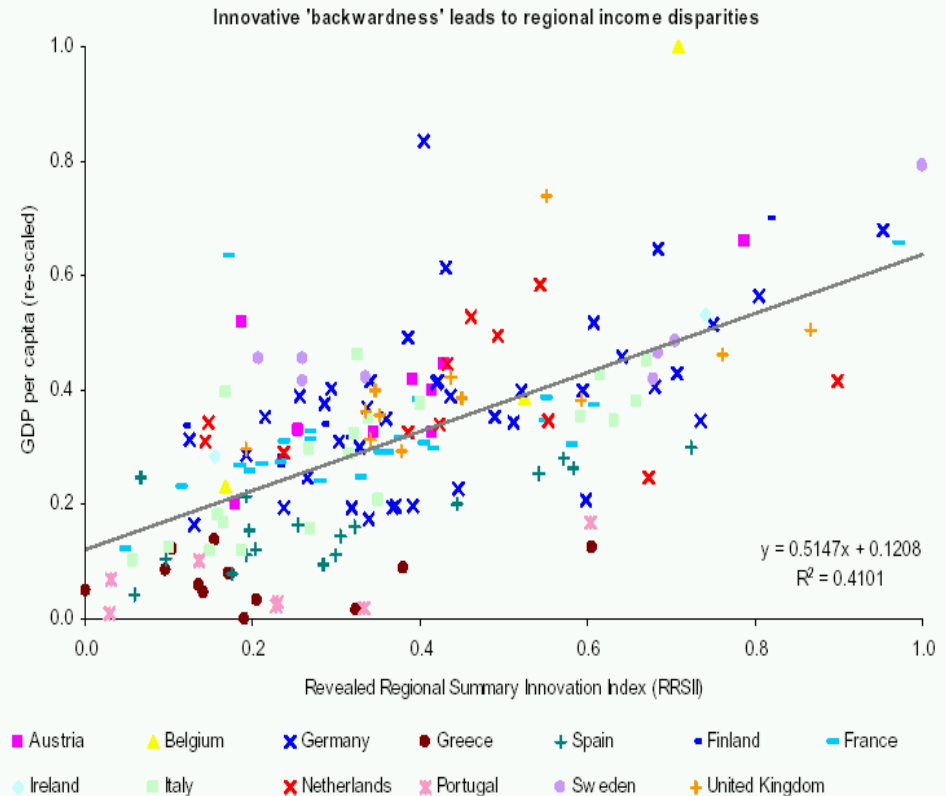
- Contribution of industry and producer services
  - Innovation
  - Education and training level of the employees 25-59
  - Accessibility
- 2/4 are factors are about innovation and knowledge performance

$$\ln(\text{GDP/Pop})_s = a_1 \ln((\text{EmplInd} + \text{EmpSer})/\text{TotEmp})_s + a_2 \ln(\text{Pat/Pop})_s + a_3 \ln(\text{PopTertEdu}/\text{TotPop})_s + a_4 \ln(\text{accessIndex})_s + \varepsilon$$

# Innovation and regional development

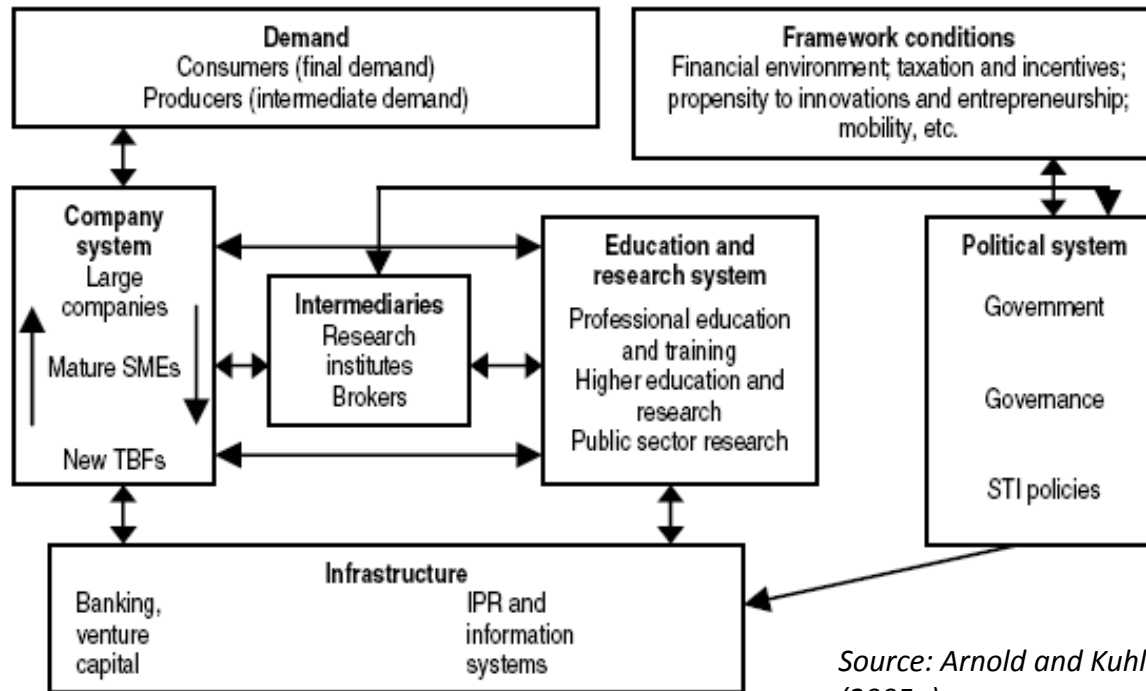
- Clear contribution of innovation to regional development and wealth
- Regional wealth =  $0,5147$  Regional Innovation Index +  $0,1208$
- A rich literature: Cluster theory; Innovative milieu; Industrial districts theory; Evolutionary economics; Systems of innovation; Learning regions; Path dependence;

Figure 1. Innovative and economic performance on a regional level



Source: Innovation Scoreboard, 2004

# Key concept: Regional system of innovation



Source: Arnold and Kuhlmann (2001) cited in OECD (2005a)

The concept refers both to:

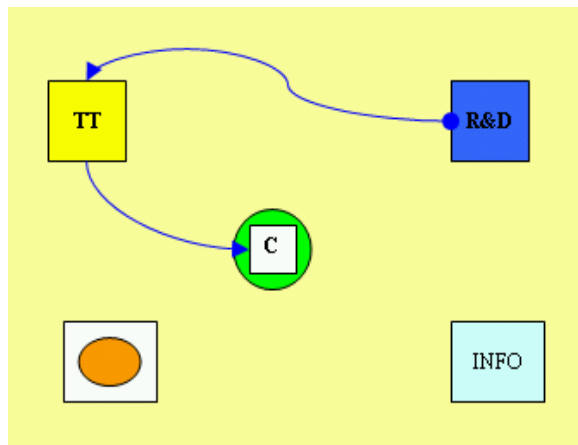
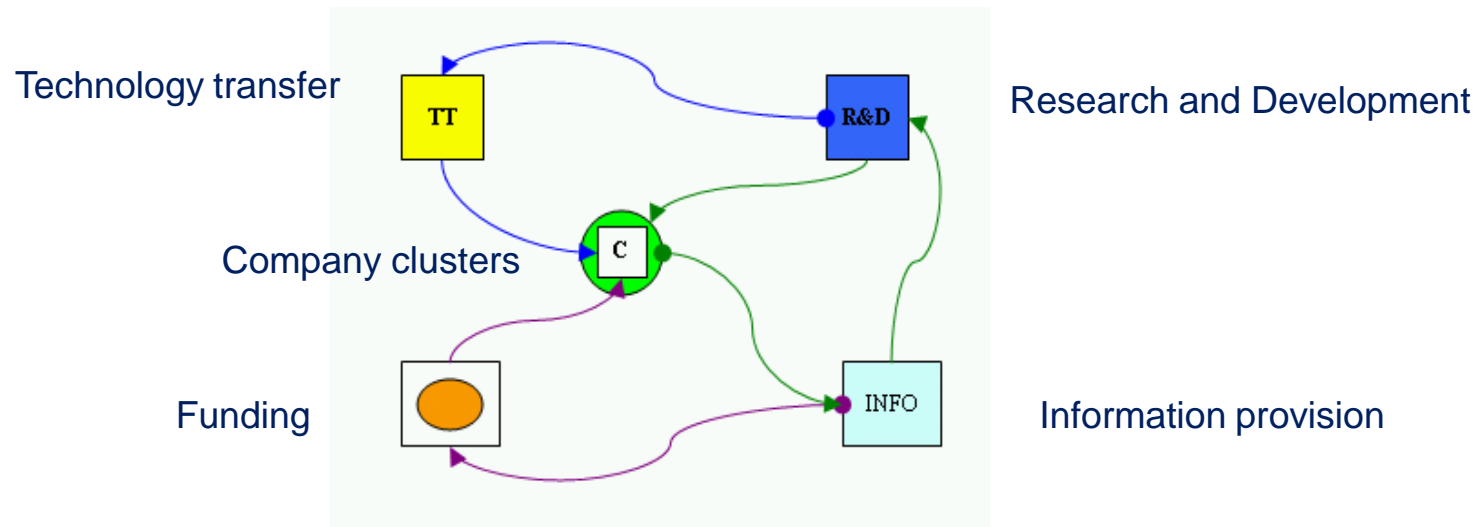
- The region, which is conceptualised as living organisation with technology learning, management, selection, and knowledge development capabilities
- Innovation, which is conceptualised as networks of clusters, R&D, tech transfer, and finance institutions

The system includes (1) demand and supply institutions, (2) knowledge exnetworks

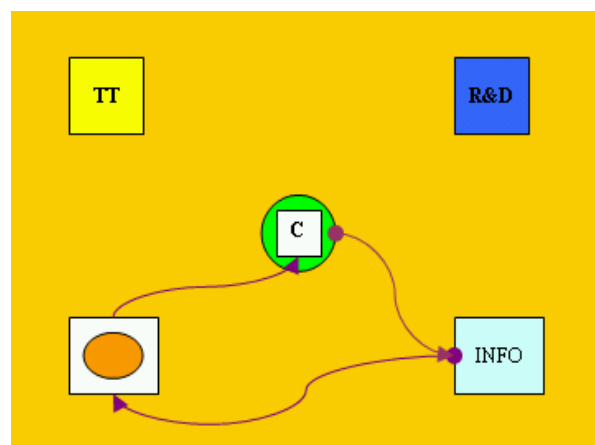
- Networks allocate 'formal' and 'tacit' knowledge and enable collaborative innovation
- Institutions work as switches selecting (on) and rejecting (off) innovations

# Variations of regional innovation systems

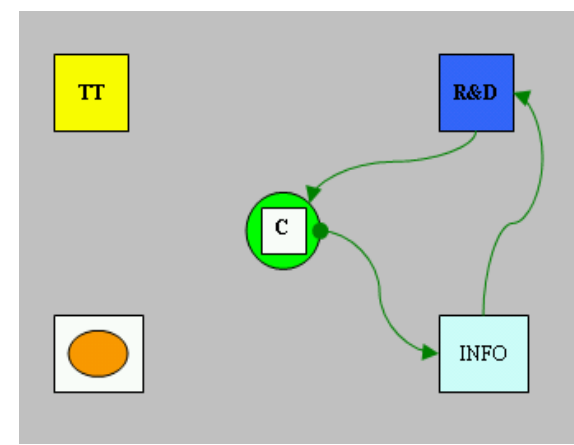
## Different network architectures



Technology transfer



Reverse engineering



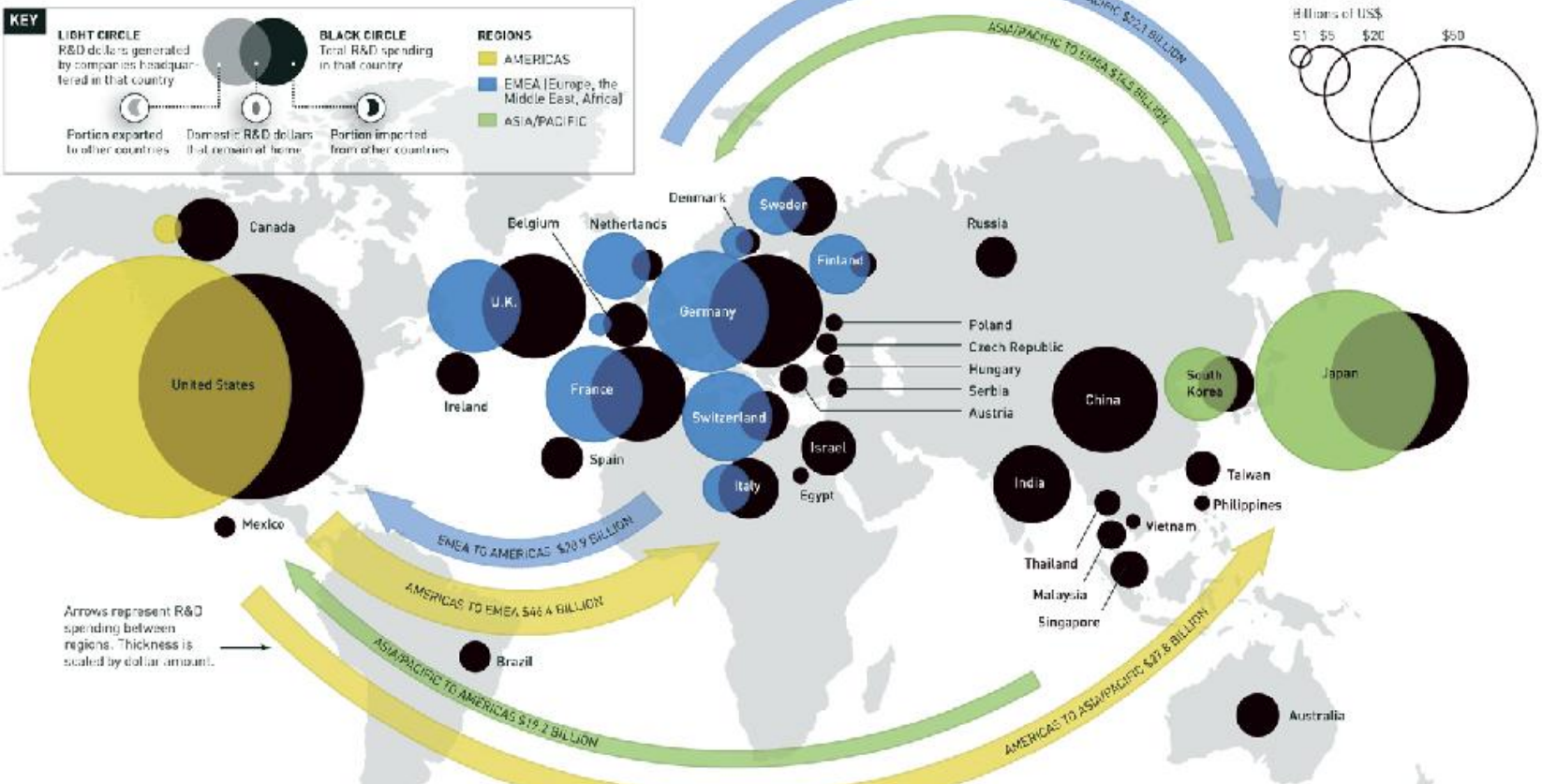
R&D valorisation



# New trends in innovation systems (1): Rising innovation activity in Asia

Exhibit 1: The World of R&D

As business has become increasingly global, so too has corporate spending on research and development. Here is a look at the 2007 flows of the top R&D spenders between the Americas, EMEA (Europe, the Middle East, and Africa), and the Asia/Pacific region.



Note: Global spending, 2007, of a sample of 104 top spenders on R&D, accounting for 71 percent of the Global Innovation 1000 total. (See Methodology, below.)

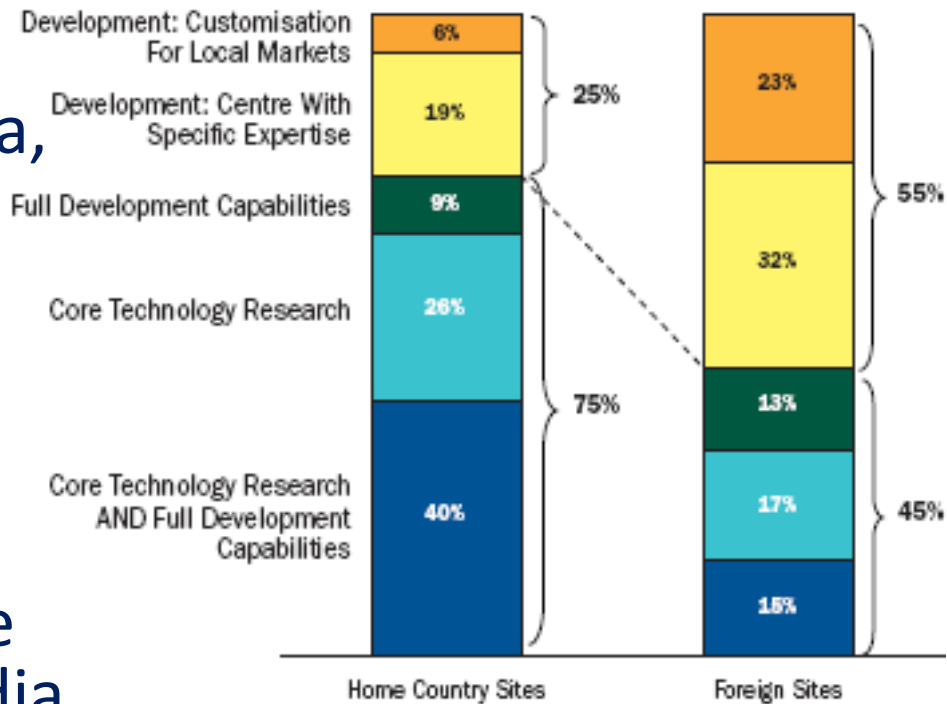
Source: Dooz & Company analysis

Business R&D expenditure rose by 5.2% in North America, 2.3% in Europe, and 3.8% in Japan during 2000-05, but by 17% in India and China, and by 19.7% in Australia, Brazil, Singapore, South Korea, and Taiwan combined.

# New trends in innovation systems (2): Innovation offshoring

The majority of the new R&D centers to be created by MNCs will be located in India, China and Asian cities

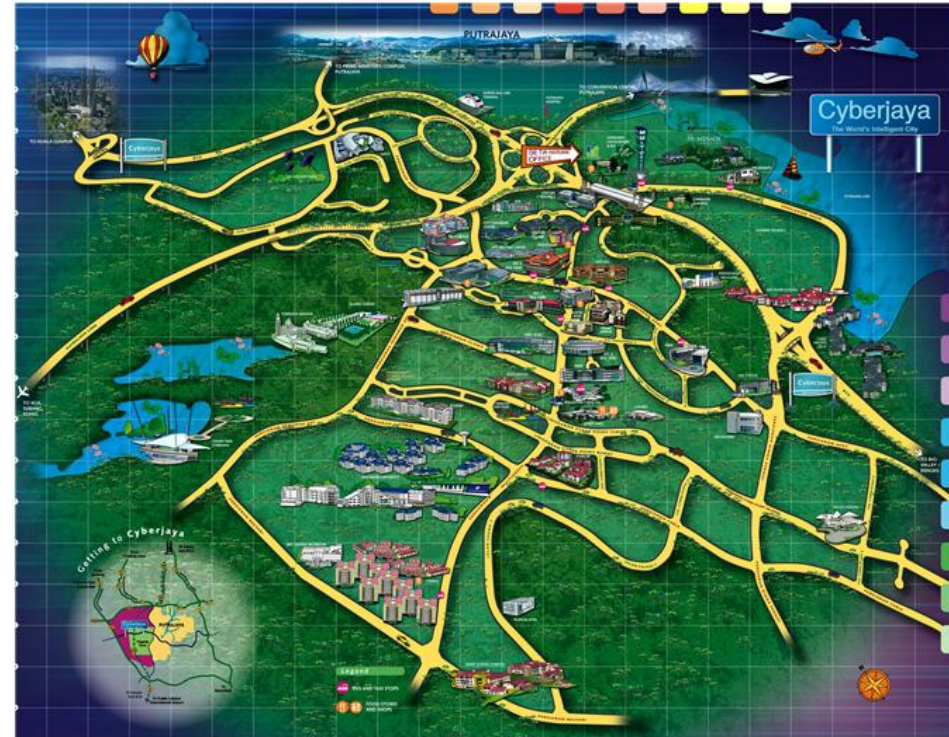
- Cisco has R&D facilities in Bangalore
- Toyota in Thailand
- Nokia operates nine satellite design studios located in India (Bangalore), China (Beijing), and Brazil



Source: United Nations (2005) UNCTAD Survey on the Internationalization of R&D

# New trends in innovation systems (3): Strong innovation clusters in China, India, Malaysia

- Bangalore (India) one of the largest IT clusters (satellite platform).
- Zhongguancun High Technology Development Zone (China), cluster in consumer electronics.
- Taiwan, Hsinchu Science Park, cluster leader in semiconductors.
- Singapore, new clusters in disk drivers, multimedia, broadband technologies, financial services.



- Korea, Teheran Valley near Seoul, a nucleus of national industry, clusters in broadband technologies and mobile communications.
- Malaysia, long term effort in semiconductors, electronics, and software: Multimedia Super Corridor, and cyber cities Cyberjaya, Putrajaya, Penang.

# New trends in innovation systems (4): Global technology brokers

The screenshot shows the yet2.com website with a search bar at the top, navigation tabs for 'Find a Technology', 'List a Technology', 'Insight', 'Using this Site', and 'About Us'. The main content area is divided into several sections:

- Search:** A search input field and buttons for 'Technology Needs' and 'Technologies'.
- Tech of the Week™:** A section for 'Promising technologies available for sale/license'. It features three articles:
  - A rapid process for making complex hard-resin foam components with a unique combination of properties** -- By introducing a high volume of hollow glass spheres into a resin, highly complex parts can be made that are lightweight, mechanically strong, and excellent electrical and thermal insulators.
  - Method for secure and efficient metering on Internet (Web) communications** -- This secure metering method for server accesses in a Web environment does not require the extensive usage of any new communications channels. It is secure against attempts that try to inflate the number of clients and against disruption by clients.
- TechNeed Challenge™:** A section asking 'Can you solve these technology needs?' with two articles:
  - Seeking: Delivery system to modify the release of an organic agricultural compound** -- This need seeks a product that is either biodegradable or that can be removed with no cost, with minimal labor, and with no environmental impact to the user. It should generate less nitrate content, and thus less N2O in water.
  - Seeking: Innovative technology for improved performance of release agents/die lubricants used in high-pressure die casting** -- Current release agents can deposit in and block spray nozzles or deposit on the die, causing surface imperfections. The release agent cycle is complicated and time-consuming. This TechNeed seeks new agents and ways to use them.
- Global Calendar:** A section for 'Technology Marketing Report™' and 'Sensors & Air Systems'.
- Member Log In:** A section for user authentication with fields for 'User Name' and 'Password', and a 'LOG IN' button.
- News:** A section for 'Technology Providers' featuring an article from 'AVERY DENNISON' and an 'executive briefing' for 'April 5-7 2009 Boston, USA' with a 'REGISTER HERE' button.

The screenshot shows the talentica website with the tagline 'SPREAD YOUR WINGS'. The navigation menu includes 'site map', 'contact us', 'print page', 'BuildODC', 'WHY TALENTICA', 'CUSTOMERS', 'ABOUT US', and 'CAREERS'. The main content area features:

- BuildODC:** A section titled 'Extend your Product Development Team Offshore' with the subtext 'reduce product development cost' and 'In minimal time to start up'.
- 'The Risk Free Way to Setup Your Own Offshore Development Center':** A section describing Talentica's services for setting up offshore development centers for small and medium-sized software product development companies across the USA. It includes a quote from Mark W. Nakada, Vice President of Mediaport Entertainment, Inc., and a 'CASE STUDY' section for GEMSTONE.
- Consider the benefits. You can:** A list of benefits:
  - Conserve cash, while continuing to innovate
  - Leverage our experience in setting up offshore development centers
  - Quick start your operations using our ready infrastructure
  - Fast track productivity due to the superior quality of...

# New trends in innovation systems: Global technology brokers

**InnoCentive**  
WHERE THE WORLD INNOVATES

Register Log In Help Contact Us

Products  
Seekers  
Solvers  
Marketplace

**Disciplines**

- Business and Entrepreneurship
- Chemistry
- Computer Science and IT
- Engineering and Design
- Food Science
- Life Sciences
- Mathematics and Statistics
- Physical Sciences
- Requests for Partners/Suppliers

**Pavilions**

- SAP Innovation & Technology
- The Rockefeller Foundation
- Clean Tech and Renewable Energy
- Global Health
- Public Policy and Citizens in Action

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Blog  
News and Events  
About Us

**Welcome to the InnoCentive Open Innovation Marketplace™!**

Choose a **Discipline** and search for a Challenge that you can solve! Submit the winning solution and earn cash awards from \$5,000 to \$1,000,000. Or visit one of our **Pavilions** to search for Challenges based on areas of interest.

To check out some of our past winners, visit our [Awarded Challenges](#).

**Disciplines:**

- Business and Entrepreneurship**  
Product Development, Business Development, Marketing, ... [More](#)
- Chemistry**  
Organic, Polymer, Synthetic Chemistry, ... [More](#)
- Computer Science and Information Technology**  
Applications/Programming Languages, Artificial Intelligence, Bioinformatics, ... [More](#)

**Pavilions:**

- SAP Innovation & Technology**  
SAP is proud to sponsor the Innovation and Technology pavilion, where you'll find Challenges posted by SAP and other Seekers in Computer Science, Information Technology, and related fields. [More](#)
- The Rockefeller Foundation's Accelerating Innovation for Development Initiative**  
Solve pressing challenges facing poor or vulnerable people around the world. [More](#)
- Clean Tech and Renewable Energy**

Calculator  
Performs basic arithmetic tasks with an on-screen calculator.

00-Intel city C...  
InnoCentive - ...  
Intelligent City...  
Adobe Photos...

EN 10:21 μμ

# The foundations of intelligent cities: Global networks over local innovation systems

- New trends (innovation offshoring and digital brokers) create a **global networking space** over the local / regional system of innovation
- **Glocalisation** of innovation: Local systems open to global cooperation networks in technology acquisition, new product development, supply chains, product promotion
- **Intelligent cities formation**



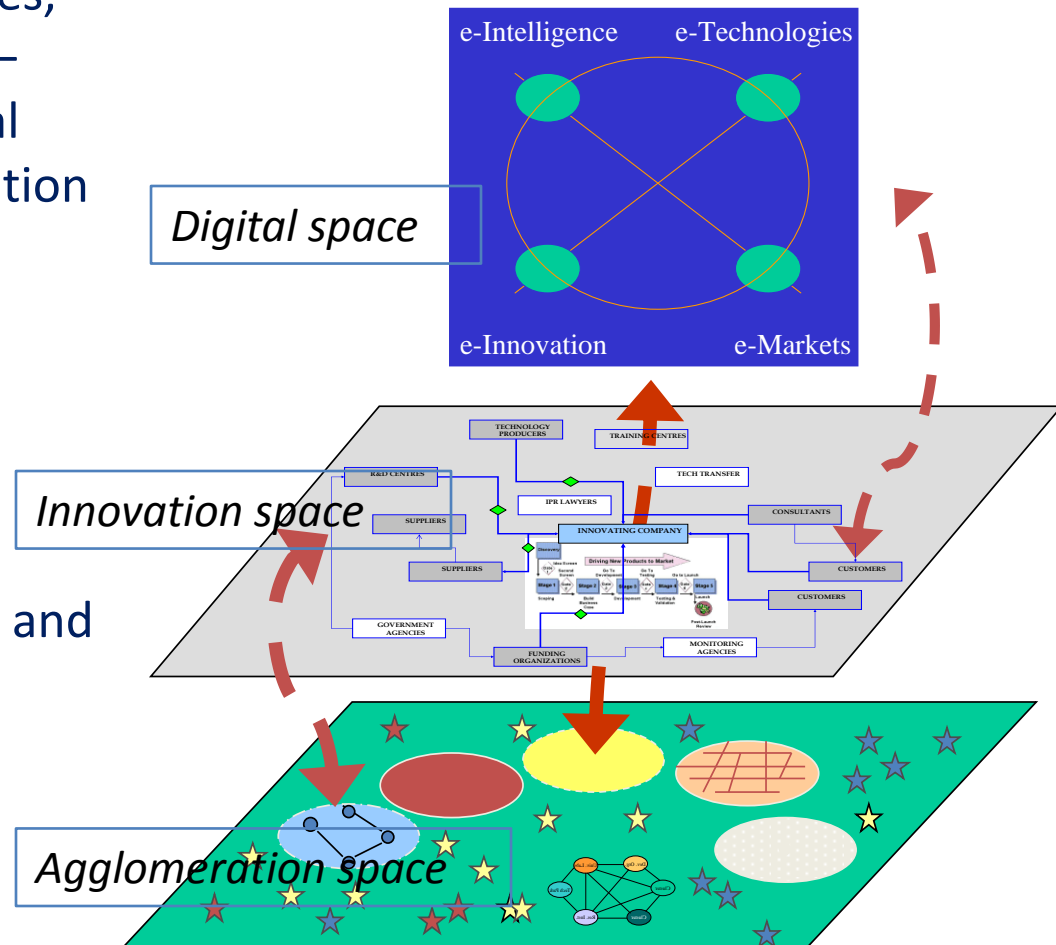
# Intelligent cities concept: Local innovation system+ global networking

Intelligent cities integrate three spaces:

- (1) the agglomeration of activities,
- (2) the institutional knowledge – innovation system, (3) the digital spaces and facilitators of innovation offered worldwide

Added value of intelligent cities:

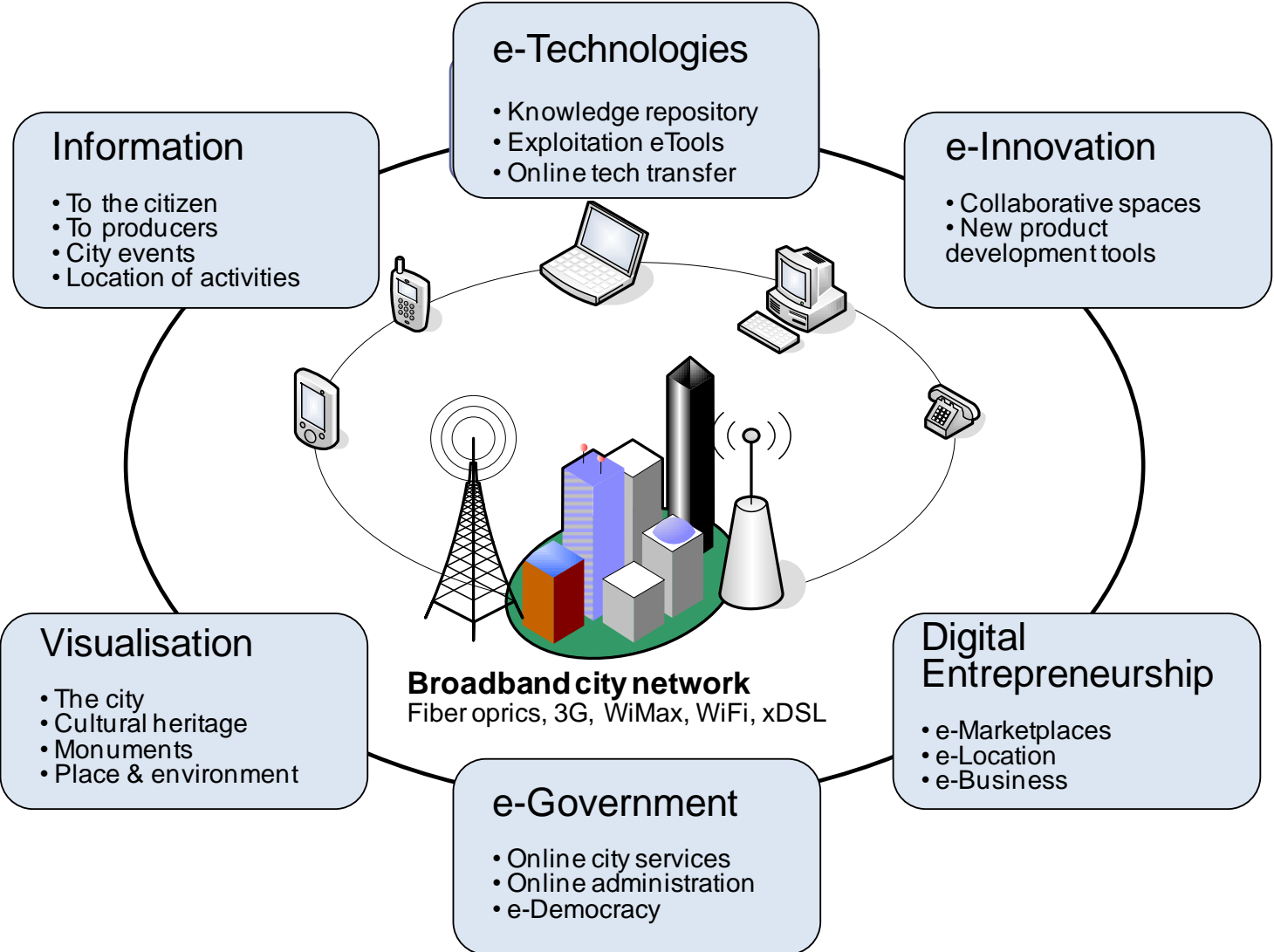
- 🌱 Online learning and technology management
- 🌱 Virtual technology co-operation and exchange
- 🌱 Virtual innovation communities
- 🌱 Digital innovation marketplaces
- 🌱 Dematerialisation of city infrastructure



## II. Intelligent cities: Digital space



# Digital components of intelligent cities: Network and Services

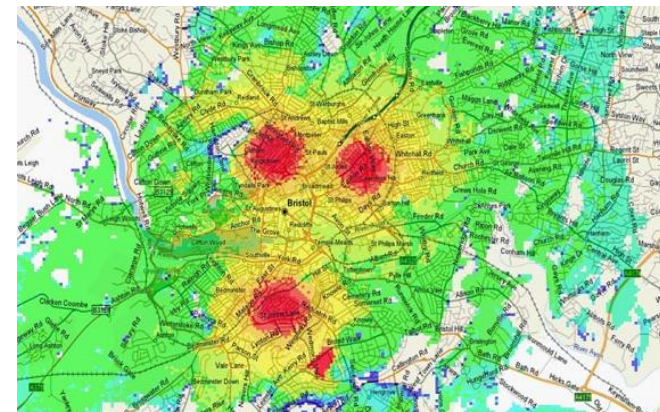


# Network:

## Alternative technologies, bandwidth, coverage

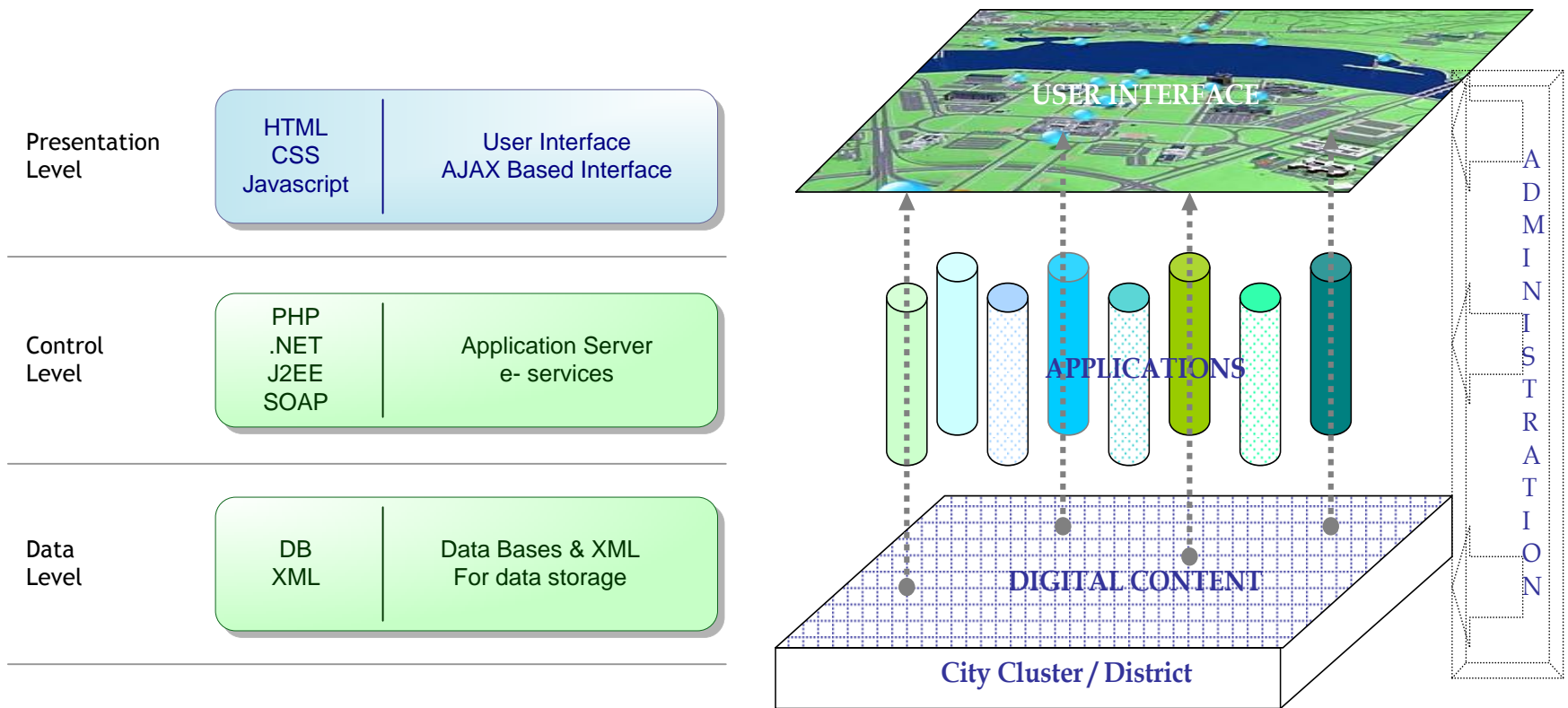


Wired broadband technologies	Wireless broadband technologies
<ul style="list-style-type: none"><li>• Fiber optic networks</li><li>• Copper xDSL networks</li></ul>	<ul style="list-style-type: none"><li>• Wi-Fi</li><li>• WiMAX</li><li>• 3G/UMTS</li><li>• Satellite Internet</li></ul>



# Services:

## Data, application, presentation, administration



### Services

- ✦ The information storehouse, including all digital content: texts, images, video, multimedia.
- ✦ The applications level, which structure the digital content: information, commercial, and governmental services.
- ✦ The user interface, the web pages that users visit in order to get the services provided.
- ✦ The administration, a tool for managing user rights to the applications and the digital content.



# Intelligent City Platforms

Intelligent cities are **systems of innovation** combining innovative clusters, technology learning institutions, and digital innovation spaces. The platforms enable the creation of digital spaces facilitating five key innovation processes.

## Intelligent City Platforms

- Strategic intelligence**, allowing to gather, analyze and disseminate information about technologies, markets, and competitors;
- Technology dissemination**, allowing to acquire and adapt existing knowledge;
- Collaborative innovation**, for creating networks of product design and new product development;
- New company creation**; and
- Online marketing** of products, promotion and delivery of services.

## Strategic intelligence

The Strategic Intelligence Platform supports the dissemination of information about R&D and technologies. It has the ability to generate and filter content to maximize the research and technological effectiveness.

**Services:**

- It is designed to make the creation of content and facilitate each action.
- Make and manage each a repository, take an alternative track or disseminate the action.
- The service is required for a virtual management of intellectual property, studies and business creation.
- Make and manage each a repository for the collection of information on patent, technologies, projects, labels, centers, etc. Data is made accessible in real time.

**Features for Platforms:**

- Virtual to handle the technology with:
  - On-line
  - Interoperability with other sites or data
  - Business service
  - Personalized content
  - Geographical site
  - Business performance
- Real-time activity data
- Information and dissemination
- Analysis and

**Intelligent Cities:**

- Virtual products for content
- Business content creation
- Market
- Web and access

Contact Person: Mónica Pérez. Tel: +34 910 250 40360 Fax: +34 910 250 40361 Email: [monica@urenio.es](mailto:monica@urenio.es)

## Technology Dissemination

The Platform facilitates the dissemination, expansion and promotion of R&D results and technologies. It has the ability to generate and filter content to maximize the research and technological effectiveness.

**Services:**

- It enables the creation of virtual content in the form of technology transfer, under the property rights, training, invention testing and measurement.
- Technology information organizations (data centers, open offices, knowledge transfer centers) use the Platform to provide training services, technology training, and training technology provider and user.

**Features for Platforms:**

- Real content database
- Real results / product database
- On-line training modules
- Real-time content creation
- Business management modules
- Dissemination / technology transfer
- Real-time training tools
- Business performance tool

**Intelligent Cities:**

- Analytics, research content analysis
- Business analysis
- Number of contents and results
- Market
- Content and technology data
- Training expansion
- Technology transfer services
- Invention creation

Contact Person: Patricia Pacheco. Tel: +34 910 250 40360 Fax: +34 910 250 40361 Email: [patricia@urenio.es](mailto:patricia@urenio.es)

## Collaborative Innovation

The Innovation Platform is a platform enabling digital-to-real creation of efficient innovation-based products.

**Services:**

- Platform facilitates online cooperation in different areas of innovation:
  - Cooperative open product development
  - Cooperative open product design
  - Cooperative concept development
  - Cooperative design
  - Management of intellectual property
- It may be also used for training activities as it supports the collection and systematic guidance to a large portfolio of new product development technologies, tools, and techniques.

**Features for Platforms:**

- Cooperatively build
- Cooperatively analyze
- Quality function deployment
- Cooperatively manage
- Cooperatively design
- Cooperatively analyze
- Cooperatively manage
- Cooperatively design
- Cooperatively analyze
- Cooperatively manage

**Intelligent Cities:**

- Innovation analysis toolkits
- Innovation analysis and management
- Innovation and technology activities
- Training companies and organizations
- New enterprises starting a new company
- Company development and analyzing new products
- Business, online to design a new product based on their research

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## New Company Incubation

The New Company Incubation Platform helps users to create projects that also during the creation of start-up companies. It provides a real solution for guiding the user in defining business plans, marketing plans, and production cost/benefit analysis, technology audits, and market research.

**Services:**

- Drafting business plans for new companies or new product lines.
- Drafting marketing plans for new companies or new product lines
- Market research studies and analysis.
- Technology audits for the expansion of technology capabilities and resources.
- Cost benefit analysis comparing cost and return of different technology or production solutions.

**Features for Platforms:**

- Business Plan
- Marketing Plan
- Cost Benefit analysis
- Technology Audit
- Market Research

**Intelligent Cities:**

- Entrepreneurship training a new company
- Company development in emerging new markets
- Innovation analysis toolkits on new product development
- Business analysis comparing cost and return of different technology or production solutions
- Company development and analyzing new products or services
- Innovation analysis
- Technology benefit comparison

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## Virtual Tour & e-Market

The Virtual City Platform supports the creation of digital sites and the promotion of virtual services in various fields of virtual life, such as government, education, entertainment, education.

**Services:**

- Virtual tours: Promotion of cities, monuments, and city objects or products
- Real-time marketing and promotion of products and services
- Real-time promotion of virtual public services, such as government, marketing, education, research, and other services for the citizens of the city. Life in digital

**Features for Platforms:**

- Virtual tour
- Virtual services
- Virtual services
- Virtual services
- Virtual services

**Intelligent Cities:**

- Commerce and city selling to promote the location on the internet
- Training opportunities for their marketing campaigns
- Local and regional authorities for their marketing and attraction strategies
- Local association of production willing to market digital life products

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# Strategic Intelligence / Market and Technology Watch



## The Platform



## Services

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

### Applications

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

The SI Platform enables the provision of market and technology watch services.

Market and technology watch is the systematic follow up of emerging trends in different industry sectors. The service is important for institution managing and promoting industries, clusters, and business associations.

Market and technology watch 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 on the Platform

- Portal for market and technology watch
- Data miner
- Benchmarking of different fields of data
  - Industry sectors
  - Commodities and markets
  - Communities and cities
  - Regional performance
- Feed back by the users
- Newsletter creation and dissemination
- Members area

## Potential Users

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

## Technology Dissemination

### The Platform



### Services

In the simplest form, the **Technology Dissemination Platform** supports the dissemination of information about R&D and technologies.

In more advanced versions it may provide online guidance and support at different phases of technology exploitation, such as licensing, technology transfer, spin-off creation.

Applications

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

The Platform facilitates the dissemination, marketing and promotion of R&D results and technologies. It may be useful to universities and R&D centres to make known their research and technological achievements.

It enables also the provision of online consulting services in the fields of technology transfer, intellectual property rights, licensing, laboratory testing and measurement.

Technology intermediary organizations (relay centres, liaison offices, technology transfer centres) may use the Platform to provide training services, technology brokering, and matching technology providers and users.

### Tools on the Platform

- 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

## Innovation Roadmaps

### The Platform



### Services

**The Innovation Roadmap** is a platform enabling a step-by-step solution of different innovation related problems.

It may be used to resolve new product development problems, spin-off and new company creation, training, and any problem which may take a linear step-wise solution.

#### Applications

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

Platform facilitates online cooperation in different areas of innovations

- Cooperative new product development
- Cooperative product design
- Cooperative concept development
- Spin-off creation
- Management of intellectual property

It may be also used for training purposes as it supports the collection and systematic guidance to a large portfolio of new product development methodologies, tools, and techniques.

### Tools on the Platform

- Creativity tools
- Conjoint analysis
- Quality functional deployment
- Reengineering
- Reverse engineering
- Industrial design
- Rapid prototyping

### 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

## Virtual Tour & e-Market



The Platform	Services	
 <p>The screenshot shows the platform's interface with a header for 'Κρήνη' (Crete) and a main section for 'Digital City' services. Below this, there are several icons representing different services like 'Digital Corfu', 'Digital Aegean', and 'Digital Market'. A large image of a white building with a blue dome is also visible, representing a virtual tour.</p>	<p><b>The Virtual Tour &amp; e-Market Platform</b> supports the creation of digital cities and the provision of online services in various fields of urban life, such as e-government, e-education, e-promotion, e-business.</p> <p>Applications:</p> <ul style="list-style-type: none"> <li>■ Digital Corfu</li> <li>■ Digital Aegean</li> </ul>	<p><b>Virtual tours</b> Panoramas of cities, monuments, and arts, objects and products</p> <p><b>e-Markets</b> Marketing and promotion of products and services</p> <p><b>e-Government</b> Provision of online public services, such as e-government, e-learning, e-information, e-health, and other services to the citizens of a locality, city or region</p>
<p><b>Tools on the Platform</b></p> <ul style="list-style-type: none"> <li>■ Virtual tours</li> <li>■ Panoramics</li> <li>■ Information services</li> <li>■ Digital market places</li> <li>■ Online government services</li> </ul>	<p><b>Potential Users</b></p> <ul style="list-style-type: none"> <li>■ Communities and cities wishing to promote their localities on the Internet</li> <li>■ Tourism organisations for their marketing campaigns</li> <li>■ Local and regional authorities for their marketing and attraction strategies</li> <li>■ Local associations of producers wishing to market digitally their products</li> </ul>	



## New Company Incubation



### The Platform

The screenshot displays the 'e-Tools' platform interface. At the top, it lists navigation options: Home, Strategic Intelligence, Technology Dissemination, Collaborative Innovation, New Company Incubation, and Virtual Tour & e-Market. The main content area is divided into several sections:

- Technological Match:** Focuses on using tools and cost analysis to research results and technology alternatives.
- Technological Assessment:** Provides a checklist to evaluate the potential of successful innovation.
- Business Plan:** Offers a full toolbox for guiding users in drafting business plans, marketing plans, and undertaking cost-benefit analysis, technology audits, and market research.
- Marketing Plan:** Provides an implementation guide for successful introduction of innovative products.
- Technology Audit:** Enables the identification of cooperation or spin-off building blocks of technology within clusters and ecosystems.
- Cost-Benefit Analysis:** Provides a decision matrix to improve the process of choosing technologies using the Cost-Benefit matrix (CBM tool).
- Technology Assessment:** Enables the user's technology report in an easy-to-use and practical way.

The interface includes a search bar, navigation tabs, and a sidebar with a list of tools: Business Plan, Marketing Plan, Cost-Benefit Analysis, and Technology Assessment. A table at the bottom shows a summary of financial data over 12 months.

### Services

The **New Company Incubation Platform** helps users to resolve problems that arise during the creation of spin-off companies. It provides a full toolbox for guiding the user in drafting business plans, marketing plans, and undertake cost-benefit analysis, technology audits, and market research.

Applications:

- Virtual Technology Park
- e-Tools: the business toolbox

Drafting business plans for new companies or new product lines.

Drafting marketing plans for new companies or new product within established companies.

Market research studies and surveys.

Technology audits for the appraisal of technology capabilities and weaknesses.

Cost benefit analysis comparing cost and returns of different technology or production solutions.

### Tools on the Platform

- Business Plan
- Marketing Plan
- Cost Benefit Analysis
- Technology Audit
- Market Research

### Potential Users

- Entrepreneurs starting a new company
- Companies diversifying or entering into new markets
- Incubators assisting start-ups or new product development
- Established companies having developed a new product or service
- Innovation centres
- Technology based companies

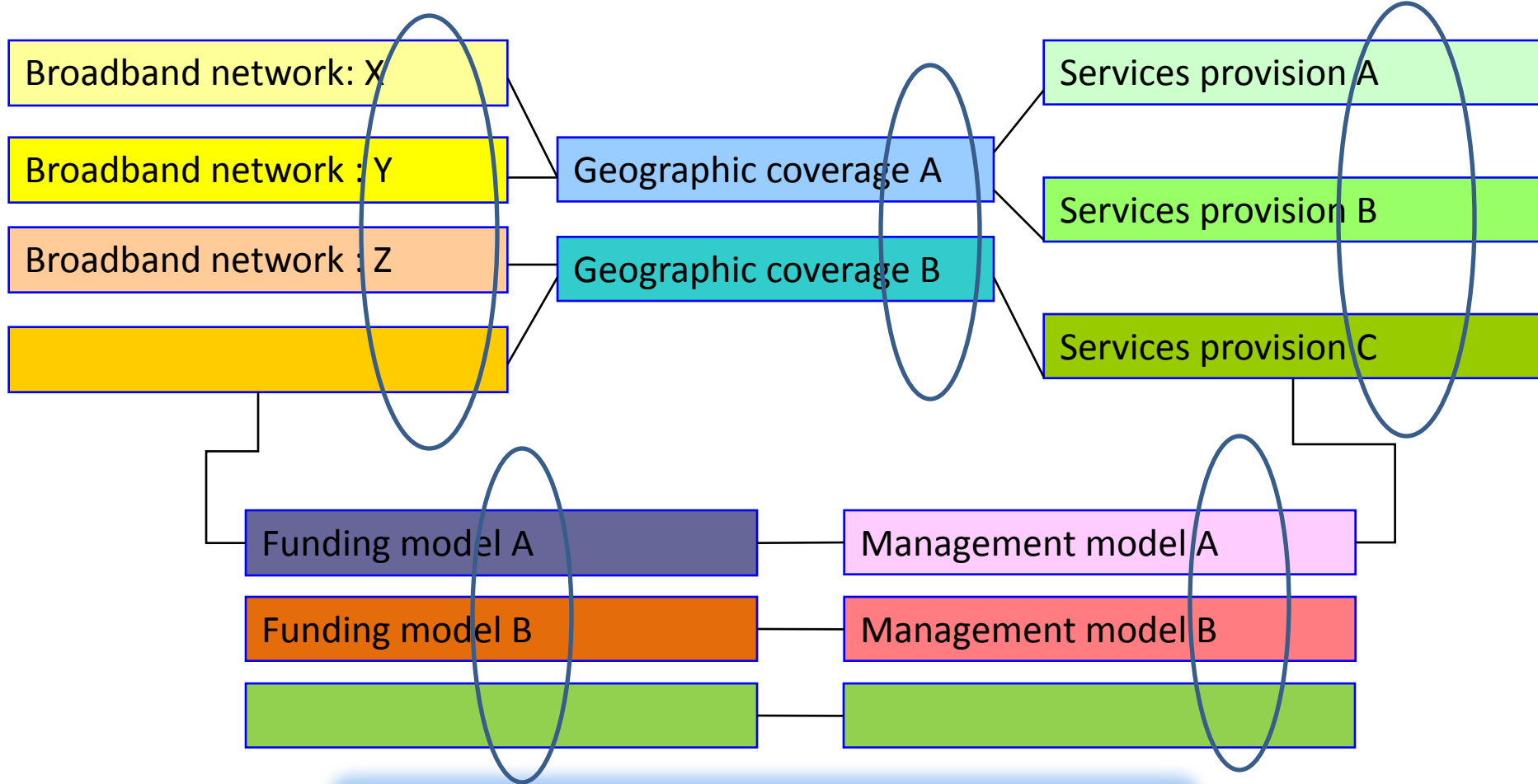
# Survey: Intelligent Thessaloniki project

<http://www.urenio.org/2009/01/02/intelligent-thessaloniki/>





# Design of intelligent cities: Hundreds of alternative solutions



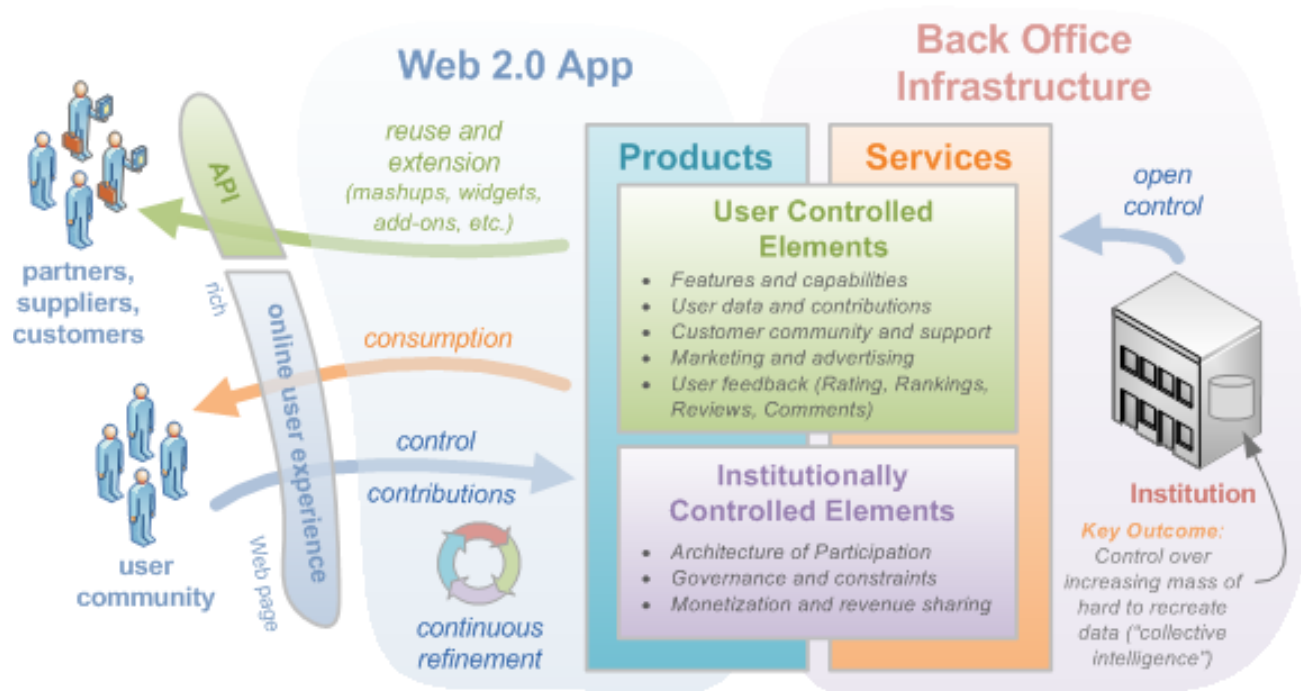
Evaluation of alternative solutions—  
Selection of best configuration

### III. Living Labs for intelligent cities design: Three principles

# Principle 1: New product development according the Web 2.0 logic

Dion Hinchcliffe uses the term Product Development 2.0 to describe a concept that embodies the use of Web 2.0 concepts such as harnessing collective intelligence, users as co-creators, and turning applications into platforms, into the product development

## Product Development 2.0: Using the Web to Put Users in Control and Co-Create Better, Richer Products Faster



# Some strategies for successful Web 2.0 product development

1. Create prototypes as early as possible.
2. Get people on the network to work with the product prototype rapidly and often.
3. Release early and release often.
4. Gather usage data from your users and input it back into product design as often as possible.
5. Choose the technologies later and think carefully about what your product will do first.
6. When you do select technologies, consider current skill sets and staff availability.
7. Plan for testing to be a larger part of software development process than non-Web applications.
8. Have an open source strategy.
9. Consider mobile users as important as your regular browser customers. .
10. Whenever users can provide data to your product, enable them.
11. Make sure your product can be spread around the Web by users
12. Create an online user community for your product and nurture it.
13. User experience should follow a "complexity gradient."
14. Go to the user, don't only make them come to you.
15. Know the popular Web standards and use them.
16. Build on the shoulders of giants; don't recreate what you can source from elsewhere.
17. Explicitly enable your users to co-develop the product.
18. Design your product to build a strong network effect.
19. Know your Web 2.0 design patterns and business models.
20. Integrate a coherent social experience into your product.

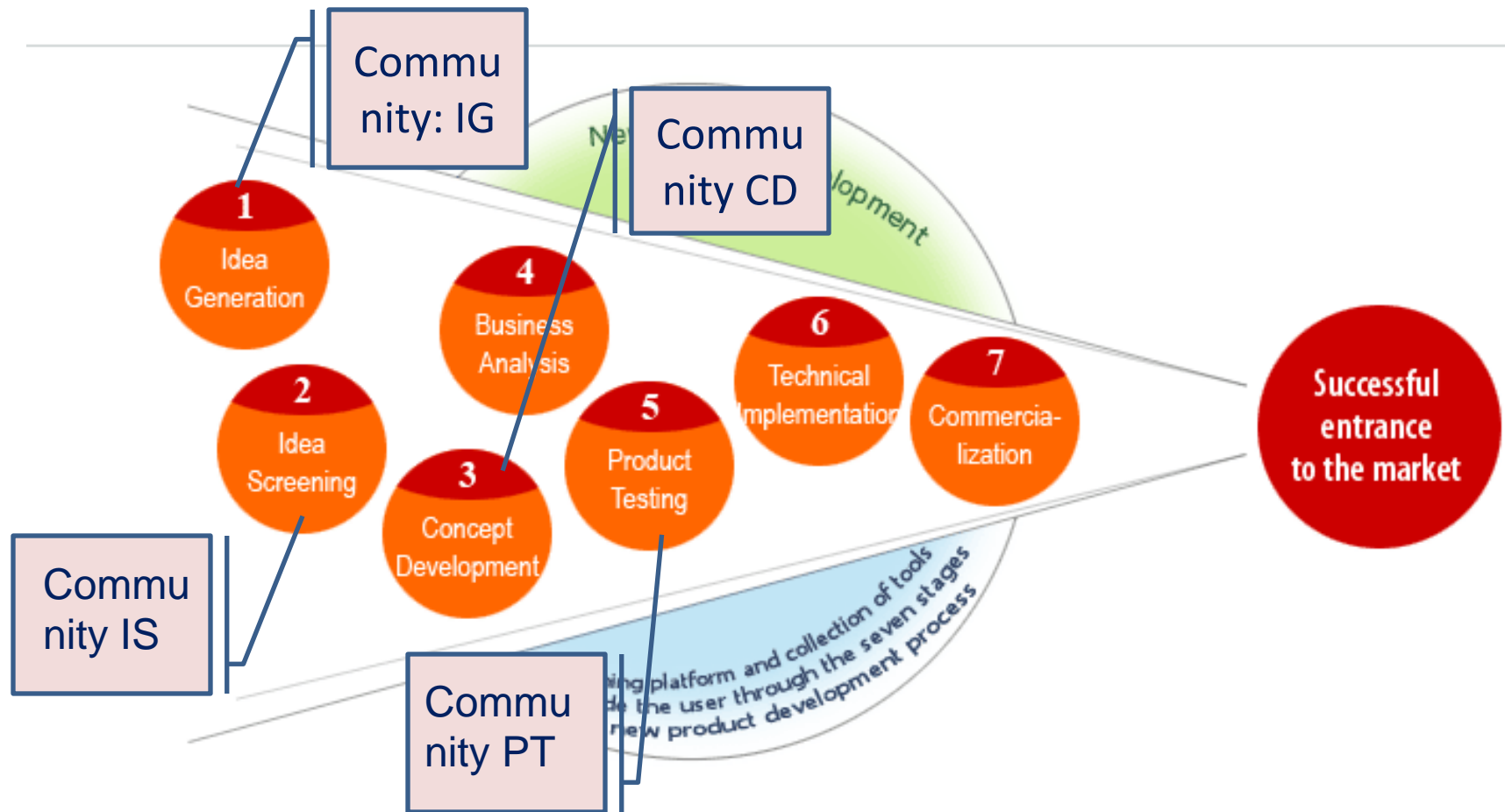
# Principle 2: User-led new product development – Integrating customers, supply chain, and partners choices

The screenshot shows the Crowdspirit website interface. At the top, there are logos for partner organizations: Grenoble génie industriel, INP, SCOP (Sciences pour la Conception, l'Optimisation et la Production), Umanlab, and primeco. The main header includes the Crowdspirit logo and a navigation menu with links for Home, Challenge, Innovators, Companies, Contributions, and My account. A central banner features a lightbulb icon and the text: "crowdsprit offers you the chance to make them happen, discover how". To the right, a diagram illustrates the "sweet spot" of the community, represented by four overlapping circles: Customers (green), Crowdspirit Supply Chain (orange), Partners (orange), and Crowdspirit Community (blue). A search bar is located at the bottom right of the page.

Source: <http://www.crowdsprit.com/>



# Principle 3: Involving communities along the new product development process



➤ Setting users communities per city district and NPD stage

## Further reading

Komninos N. (2008) *Intelligent Cities and Globalisation of Innovation Networks*, London and New York, Routledge.

Komninos, N. (2009) (ed.) 'Intelligent Clusters, Communities and Cities: Enhancing innovation with virtual environments and embedded systems, Special Issue, *International Journal of Innovation and Regional Development*, Vol. 1, No. 4.