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SMART CITIES Conference

Cloud computing developments in Slovenia&EU – past activities and future plans

Dalibor Baskovc
CEO, Zavod e-Oblak, EuroCloud Slovenia
Competence center for Cloud Computing

Presentation focus

A. **Introduction**
B. **Slovene 2011-2013 cloud project KC Class funded by structural funds,**
C. **Impact on national or local economy,**
D. **Lessons learnt**
E. **Future plans towards Slovene cloud enablement of smart city eco-system**

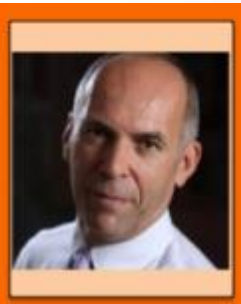
Zavod e-Oblak, established in august 2010

Head office - Dimiceva 13, Ljubljana, Chamber of Commerce of Slovenia

Members

http://eurocloud.si/lang/sl/members-clani/

Management team

				
President of the Board	Member of the Board	Member of the Board	Member of the Board	Founding member
Security	relation with other ICT slovenian stakeholders (government, industry)	research, EU projects	export	Chief Executive manager
Boštjan	Zupančič	Pipan	Stanovnik	Baskovc
Mešič	Dušan	Gregor	Tone	Dalibor
1.09.10	1.09.10	1.09.10	1.09.10	1.09.10

EuroCloud Europe – Luxembourg

Head office EuroCloud Europe at Chamber of Commerce

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Eurocloud Europe – Management Team

Chairman EU Relations / Political Affairs	Bernd Germany		DG Connect / Justice / Enterprise / ETSI / ENISA / Award / Cloud Innovation World Cup
Treasurer Internal Organization / Finance / CIO	Tobias Austria		ISO Cloud book, CloudKongress
Secretary / Headquarter Management / Luxembourg Relations	Amal Lux		
Founding Program Participation Management	Paulo Portugal		EU Relations Research
Marketing Strategy and Congress Content	Phil - UK		SIIA / US Relations / Political Affairs
Start Up Encouragement Management	Dalibor - SI		Dalibor: China - EU Relations

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EuroCloud goals

To create awareness of Cloud Computing throughout the society and take an active role in the design of cloud industry processes and standards

To build a pan-European contact and knowledge sharing network for companies that have interests in Cloud Computing

To build a strong relationship with politicians; European Commission, European Parliament and local Public Authorities

To position the interests of the cloud industry within existing information technology associations (CSA, SIAA, China cloud organizations)

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EuroCloud working structure

Political bodies

EuroCloud

International Counterparts

EuroCloud DEUTSCHLAND | eco

EuroCloud NETHERLANDS

EuroCloud SWEDEN

EuroCloud FRANCE

EuroCloud SLOVENIA

ISV's, SaaS providers, ASP's, Cloud, On Demand, Enablers,...

Unique EuroCloud framework for strong local and European actions

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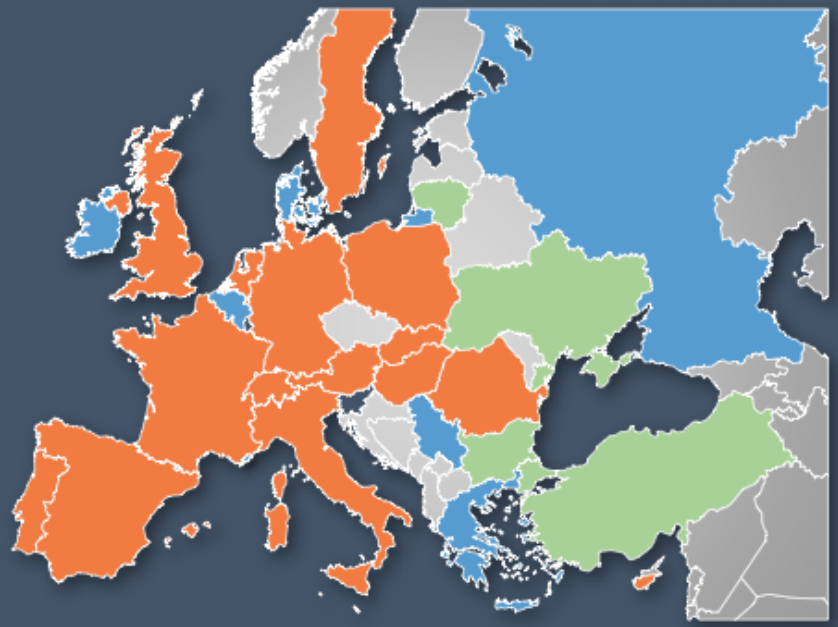
EuroCloud Europe

Coordinators, EC Countries, In Foundation



EC Countries - A	EC Countries - B	In Foundation
• Austria	• Belgium	• Bulgaria
• France	• Denmark	• Cyprus
• Germany	• Greece	• Lithuania
• Hungary	• Ireland	• Turkey
• Italia	• Malta	• Ukraine
• Luxembourg	• Monaco	
• Netherlands	• Russia	
• Poland	• Serbia	
• Portugal		
• Romania		
• Slovakia		
• Slovenia		
• Spain		
• Sweden		
• Switzerland		
• United Kingdom		

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Developed guidelines/programs/working groups in SI & EU, within which we operate

EU Cloud stategy - septembra 2012
- http://ec.europa.eu/digital-agenda/en/european-cloud-computing-strategy

EU Cloud working groups supporting EU strategy implementation:
- https://ec.europa.eu/digital-agenda/en/cloud-computing-strategy-working-groups

EU overview on : standards, certifications schemes, code of conduct, SLA's:
- http://www.cloudconference.eu/media/filer_public/2013/11/05/ken_ducatel.pdf

European Cloud Partnership inicitative:
- http://ec.europa.eu/digital-agenda/en/european-cloud-partnership

European Cloud Partnership program CloudForEurope (11 EU member states):
- http://cloudforeurope.eu and http://www.cloudconference.eu/media/filer_public/2013/11/05/linda_strick.pdf

SI general guidelines on cloud computing
- http://eurocloud.si/wp-content/uploads/EuroCloud-smernice- prevedeno-in-prilagojeno.pdf

SI guidelines on data protection
- https://www.ip-rs.si/fileadmin/user_upload/Pdf/smernice/Smernice_rac_v_oblaku.pdf

Slovene public authorities cloud computing programs "Quantum Leap" -
- http://www.cloudconference.eu/media/filer_public/2013/11/05/jurij_bertok.pdf

NEW – Slovene SmartSpecialization
- http://s3platform.jrc.ec.europa.eu/documents/10157/443591/National%20RIS3%20Peer-review%20Template-Portoroz_SI%205%2014_SI_Final.pdf
- http://eurocloud.si/lang/sl/2014/05/18/pobuda-usmeritev/

Competitions in EU and globaly

2011

http://eurocloud.si/2011/06/01/nagrada--eurocloud-- slovenije--in--gzs--je--zakljucena/

2012

http://www.eurocloud.org/press-release-slovenian-award-winners/

2013

http://eurocloud.si/2013/06/21/eurocloud-slovenia-award-2013-finalists/

2014

http://eurocloud.si/lang/sl/2014/05/17/eurocloud-award-program-2014/

Cloud Innovation World Cup - http://eurocloud.si/lang/sl/2013/09/30/cloud-innovation-world-cup-kicking-off-at-eurocloud-congress-in-luxembourg/

Award winners 2014 announces in Luxembourg this October

B/ Description of cloud competence center program KC Class developed - 2011-2013

KC CLASS Operation: Key development areas

develop knowledge, interfaces, services in the fields of cloud computing (**everything as a service - Xaas**), innovative services in the fields of **customer relation management** and **product lifecycle management**, **learning through cloud services**, managing **logistic problems**, **e-health** and **environment services**, **Big Data**, **digital encyclopedia of natural and cultural Slovenian heritage**, **discovery a variety of events happening in their vicinity**,…

vision: to create new innovative ICT services within existing as well as emerging industries (smart cities, public services, health&ageing, living, mobility, …)

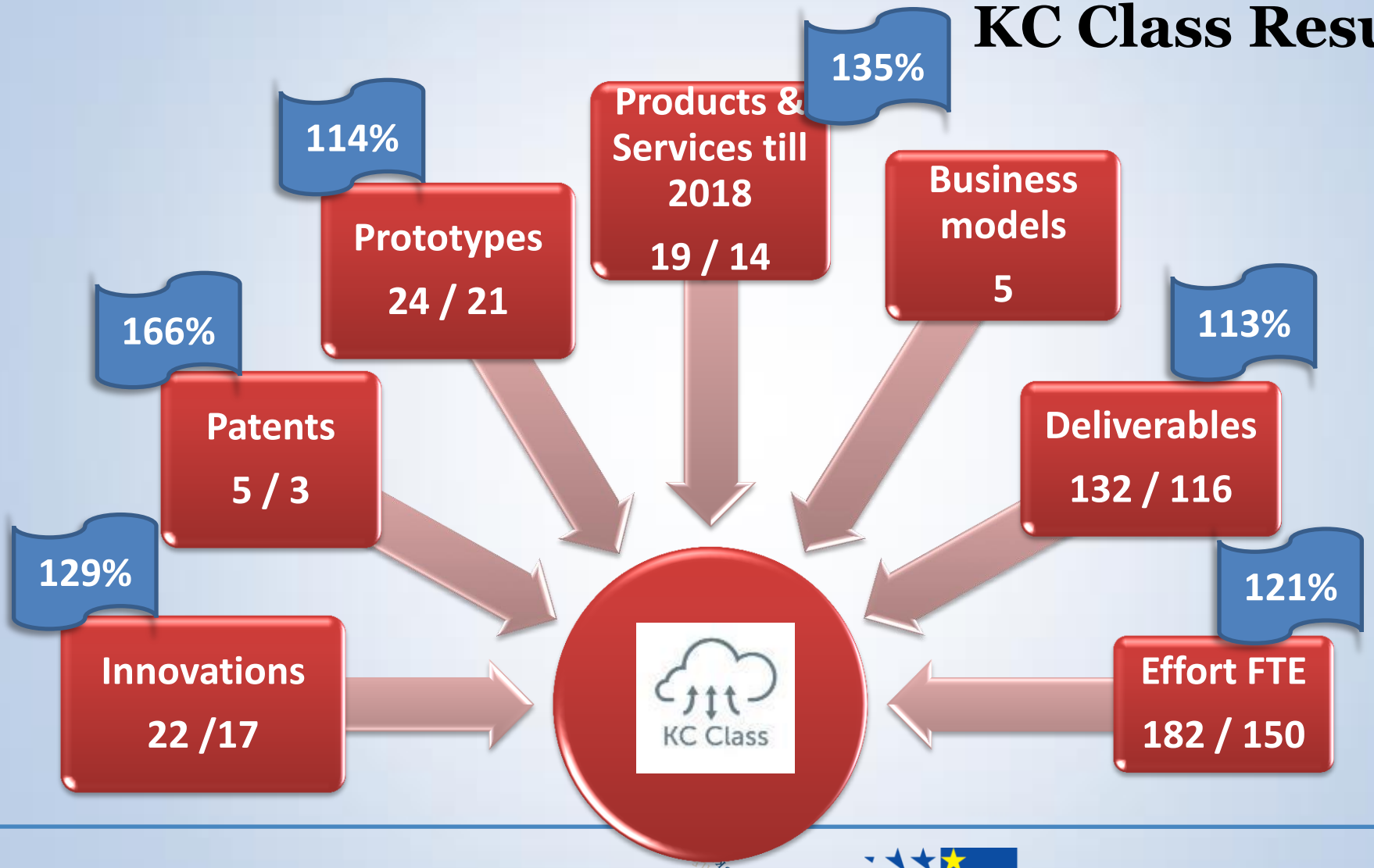
How operation was designed back in 2010

A. *Role of the partners*

The consortium is divided into three basic groups of partners. The main task of research organizations is conducting research in the project. They are followed by the development companies, whose key task is to implement systems and modules for the CLASS platform. The third group represents end-users, whose main task is the implementation of applications and validation of the final platform. Complementarity is shown in Table below.

	Research	Development	Application
Security	IJS, EF	INO, SC	SC, NIL, IAM
Reliability	IJS, IAM, FERI	NIL, JOC	SC, TI, EPL
Services	FRI	INO, IT	SM, CHS, TI, IAM
Data	FERI	IT, SC, IAM	EPL, NIL
Identity	ALP, IJS	NIL, IT, IAM	NIL, SM, IAM
Infrastructure	FRI	INO, JOC	JOC, SC

KC Class Results



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+ Coordination and dissemination through EuroCloud Slovenia

WP content

- Positioning Slovene cloud “brand” in EU and globally
- Creating EU certification program
- Demo room in Slovenia
- Internationalization & networking
- Project results dissemination

Results can be found under

http://www.kc-class.eu/datoteke/presentation%20KC%20Class.pdf

Creating EU certification program

Creating EU certification program

ORGANISATION	DESCRIPTION
	**EuroCloud Europe** (ECE) is an independent non-profit organization that aims to facilitate acceptance for Cloud Services on the global market. In order to establish trust in cloud services EuroCloud Europe has developed the certification scheme EuroCloud Star Audit.
	**EuroCloud Star Audit** (ECSA). The purpose of the ECSA program is to avoid insecurities by assessing and auditing Cloud Services according to a set and published catalogue of criteria. ECSA is an international partner program based on European quality values for a worldwide usage.

C/ Impact on national or local economy

- Sustainability was implemented in KC Class through 2018 (19 new services on global market)
- Development of startup program (http://startcloud.si) touching other industries through LEAN development - based on GAP defined, within: Education, Sport, Bioinformatics, Wine production,Medicine, Ecommerce, Music, Geolocation, Event management, Warehousing,Transportation) and new jobs/startups creation - 47 projects, 45 workshops in 15 months
- New inovation cycle in Slovene Smart Specialization fields started
- Governmental cloud developments through http://www.cloudforeurope.eu&"Quantum Leap" (just launched with 14 MIO budget project, led by IT and E-Services Directorate of Ministry of the interior
- Boosting acitivies outside EU (China, India)

D/ Lessons learnt

Financial:

- Public investment: 6.395.388,00 (85% EU; 15% SI)
- Private investments: 2.930.000,00 EUR (30% from each consortia member participation)
- On top investments: 4.959.000,00 EUR

Criteria:

- Consortia partners parameter in SI – see bellow (Above average - GVA per employee&export from industrial partners)
- **strategic partnership in joint R&D projects (to tackle „valley of death“)**

Performance

- Not every partner performs the same, so **it is difficult to manage a project for longer period as programmed in the very beginning**
- **Our proposal for 2014-2020:** Lean development needs to be incorporated in mechanisms

Bigger players against smaller, research versus industry:

- **Developing innovation culture through LEAN development concept** from research through industry towards market
- **IP integration on common prototyping and “gotomarket” activities with proper business models behind**

SWOT done for Slovenia from cloud computing competence center

Strengths

- Bring competences together on country level
- We can develop our innovation ecosystem through lean development concept, where user centric models prevail
- Develop knowledge through market approach (business canvas, MVP proof of concept, ...)

Weaknesses

- **Political changes influence on implementation of policies two often**
- Development of local industry through cloud enablement – not enough knowledge on potential new business models behind

Opportunities

- **Public administration is difficult to convince to enable local SMB's innovation based on opendata datalayer & IaaS framework approach because there is not enough political will to understand the economic potential behind**
- Smart specialization is our big opportunity for bringing innovations into pilots
- **Fostering collaboration between different stakeholders towards foreign markets through innovative public procurement models, such as PCP or PPP models**
- Main driver for collaboration is global market
- Implement interdisciplinary studies serving knowledge development
- **EU crowdsourcing model financing is a good way USA is moving forward - (develop Europe's "Kick starter" model)**
- strategic partnership in joint **R&D projects should be industry driven (to tackle „valley of death")**

Threat

- Consortia partners typically follow their own strategy before joining
- Strategy and support mechanisms change to often – **we suggested 5-10 years mechanisms with impact KPI attached**
- **Being local too long makes you not being able to try globally**

E/ Future plans towards Slovene cloud enablement of smart city eco-system

EuroCloud SLOVENIA

Slovene digital coalition

(for digital jobs)

march 2014

SI-Slovene digital coalition for digital jobs through cloud enablement

DUŠAN KRIČEJ, state secretar
Cabinet of prime minister of Republic of Slovenia

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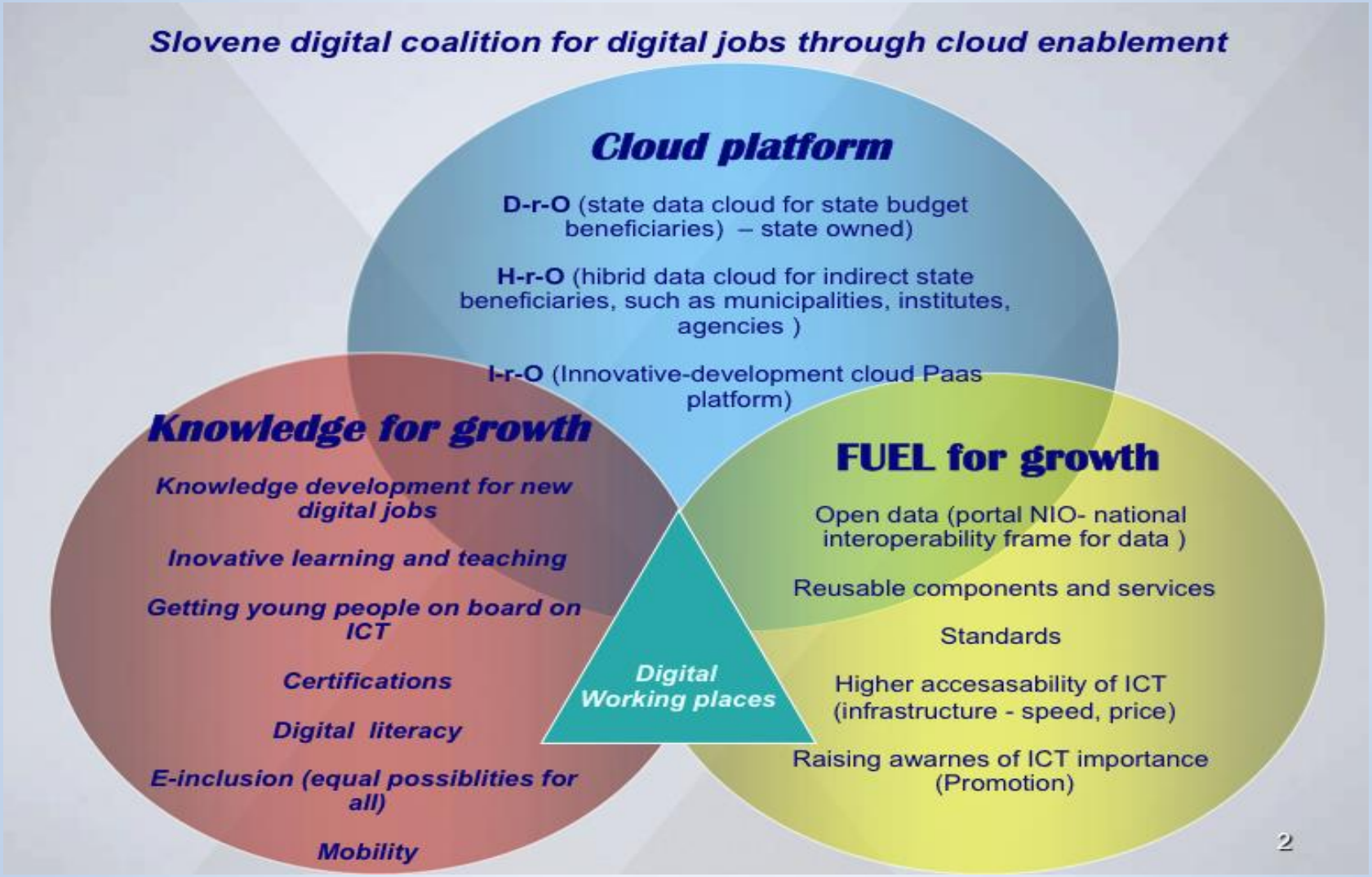
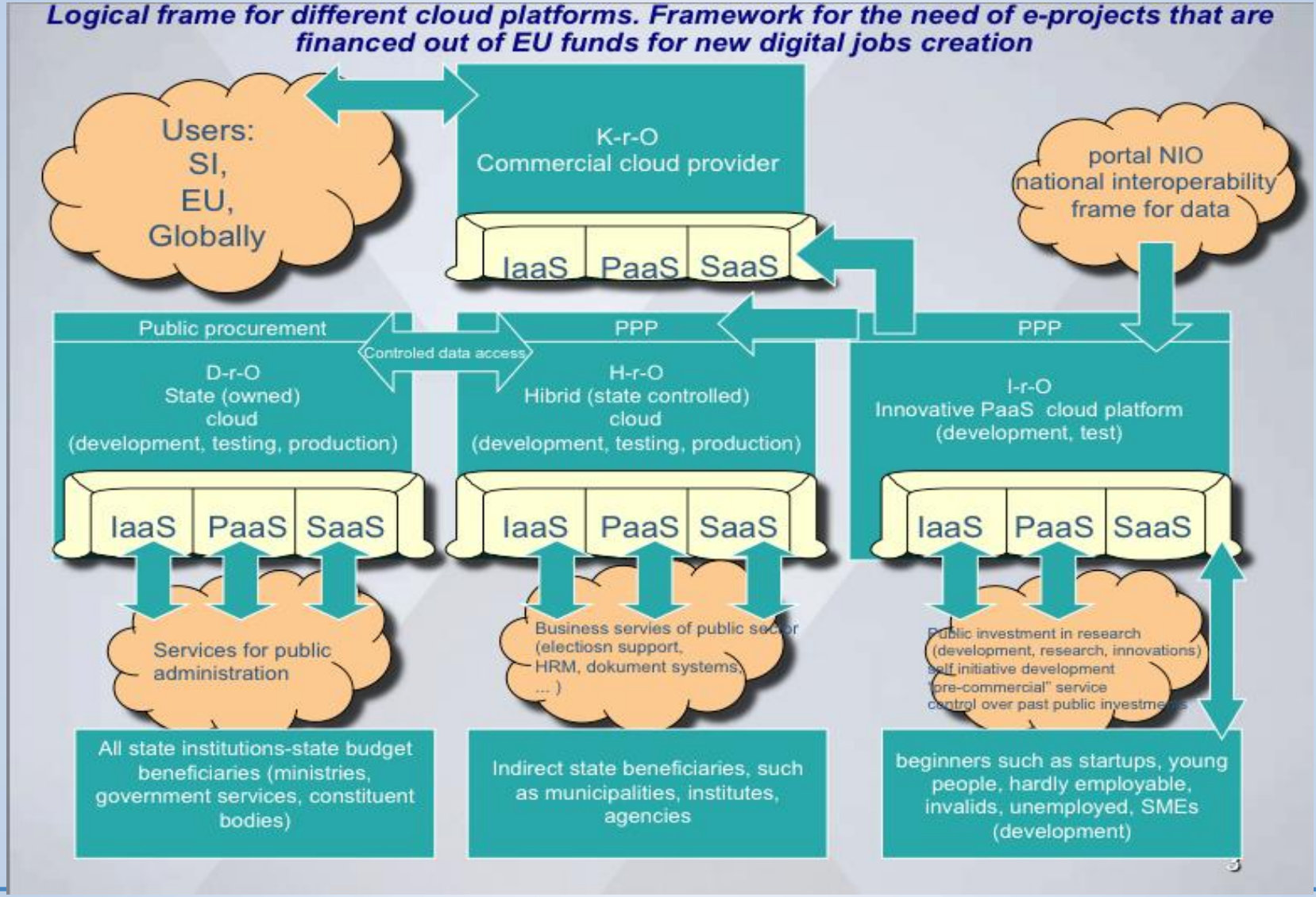

Slovene digital coalition for digital jobs through cloud enablement
Cloud platform
D-r-O (state data cloud for state budget beneficiaries) – state owned)
H-r-O (hibrid data cloud for indirect state beneficiaries, such as municipalities, institutes, agencies)
I-r-O (Innovative-development cloud Paas platform)
Knowledge for growth
Knowledge development for new digital jobs
Inovative learning and teaching
Getting young people on board on ICT
Certifications
Digital literacy
E-inclusion (equal possiblities for all)
Mobility
FUEL for growth
Open data (portal NIO- national interoperability frame for data)
Reusable components and services
Standards
Higher accesasability of ICT (infrastructure - speed, price)
Raising awarnes of ICT importance (Promotion)
Digital Working places
2


Logical frame for different cloud platforms. Framework for the need of e-projects that are financed out of EU funds for new digital jobs creation
Users: SI, EU, Globally
K-r-O Commercial cloud provider
IaaS PaaS SaaS
portal NIO national interoperability frame for data
Public procurement
PPP
PPP
Controled data access
D-r-O State (owned) cloud (development, testing, production)
H-r-O Hibrid (state controlled) cloud (development, testing, production)
I-r-O Innovative PaaS cloud platform (development, test)
IaaS PaaS SaaS
IaaS PaaS SaaS
IaaS PaaS SaaS
Services for public administration
Business servies of public sector (electiosn support, HRM, dokument systems, ...)
Public investment in research (development, research, innovations)
self initiative development
"pre-commercial" service
control over past public investments
All state institutions-state budget beneficiaries (ministries, government services, constituent bodies)
Indirect state beneficiaries, such as municipalities, institutes, agencies
beginners such as startups, young people, hardly employable, invalids, unemployed, SMEs (development)

Slovenian Enriched Cloud Ecosystem for Innovation – 2014-2020

EuroCloud SLOVENIA

Smart Household
Mobile Home
Smart Home
Telemedicine

Smart Government
Personal services
Open Government
SmartEconomy

Safe Society
NG Emergency Serv.
Notification Service
First responders

SME Innovation
iBusiness
eGreen&Forest
eLearning

Innovative Vertical Applications

Communication | Computing & data analytics | Security, Privacy and Trust | Domain Specific Services

Platform Services Ecosystem

Operational Services

Service Connectivity Cloud

IT & Real-time Cloud (IaaS,PaaS)

Service Connectivity Cloud

Guaranted E2E QoS for IoE, HA and determinism

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Cloud INNOVATION NETWORK

Bridging grant and investment markets with evidence-based entrepreneurship

Challenges

General challenges:

Fragmentation of knowledge and competences

Bridging science-driven and innovation-driven research

Enhancing innovation potential in SMEs

Specific challenge is to integrate and bridge:

- Financial instruments to support innovation projects in SMEs
- Research, innovation and societal EU/regional policies
- Research/Innovation/Industry

Our Approach

Innovation Network

Cloud-4-SMEInst

Business Models
Evidence-based Entrepreneurship

Standardized description of how a company generates, delivers and captures value

Market and business model validation parallel to product development

Knowledge and information sourcing for value chain actors

Communication channel for regional and EU policies, market intelligence, and the business environment

Outcomes & Impacts

Outcomes:

Standardized evaluation and monitoring of publicly-funded projects for SMEs

"SME-friendly" communication of policy instruments and resources

Platform for evidence-based entrepreneurship and agile product development at the very start of innovation development

Impacts:

Opportunities for SMEs to address emerging markets

Bridging grant and investment markets

1 Funding Readiness Level
Problem/Solution fit demonstrated
Horizon 2020 SMEInst Phase 1

2 Investment Readiness Level
Product/Market fit demonstrated
Horizon 2020 SMEInst Phase 2

3 New value chains
Company growth
Horizon 2020 SMEInst Phase 3

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Case from Slovenia: Lean development through startCloud

Development of startup program startCloud

Based on our vision on startup GAP we are facinghttp://eurocloud.si/wp-content/uploads/Position-on-innovation-through-cloud-computingSI-programs-development.pdf) we have developed a program in partnership with Slovene telco provider Si.Mobil, EuroCloud Slovenia (KC Class) and Chamber of commerce(Zitex – export ICT organization within) and Hekovnik Start-up School.

The program is based on transferring knowledge from Silicon Valley, learning about market and cloud computing in cooperation with experienced mentors from technical and business area.

The goal is to help participants develop and monetize their business ideas. In the program participants work on their ideas, test the market, seek for their target market, and define the business model. Technical part of the program is focused on learning about cloud computing technologies, different approaches to developing cloud services, case studies, and ways of providing security and control of business solutions. Program is a mix of 22 lectures, workshops, and individual work with mentors.

Startup developments - EU commission support on startup eco- system 2014-2020 (1/2)

- The Startup Europe initiative is an action plan aimed at strengthening the business environment for web and ICT entrepreneurs in Europe and contributing to innovation, growth and jobs
- The initiative is based on 5 pillars of action: Network Creation, Celebration and recognition, Evidence gathering, Funding opportunities and Scaling-up Tech Business.

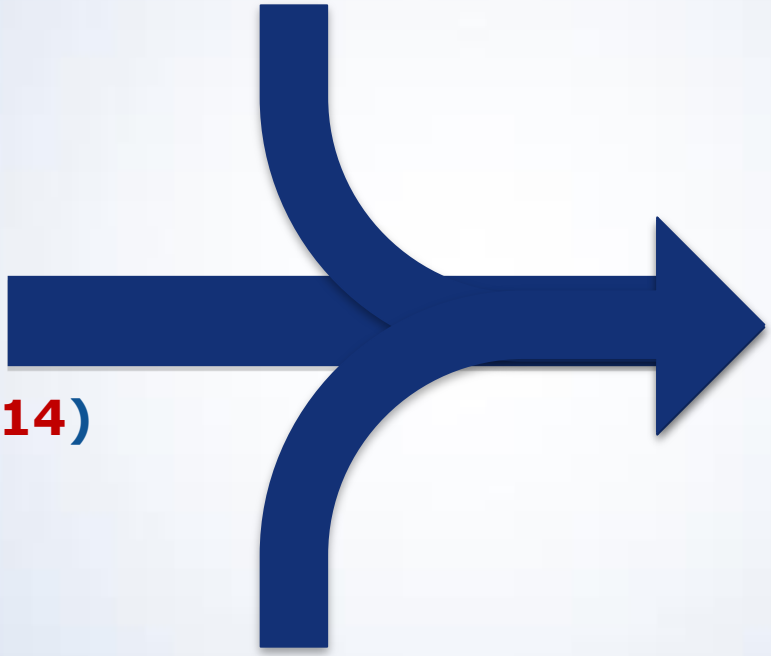
Startup developments - EU commission support on startup eco-system 2014-2020 (2/2)

- we have created networks of stakeholders willing to make a real shift within their field of action [Accelerator Assembly, Web Investors Forum, Crowdfunding Network, Coworking Assembly]
- we celebrate and recognize the merits of the web entrepreneurs (NK Tour, Techallstars and Europioneers competitions); The Startup Europe Leaders Club — an independent group of founders in the field of tech entrepreneurship developed a manifesto for economic growth in the internet economy. So far more than 7,600 entrepreneurs have signed the Manifesto. http://startupmanifesto.eu/
- we gather evidences to get a stronger EU tech entrepreneurship ecosystem: we are building a dynamic map of 20 startup EU ecosystems and we have found that there are 1.8 mil jobs within the EU app economy through a recent study [Eurapp].
- As for funding opportunities, we are in the process of allocating €10M funding as our deadline for applications has just ended. However, there are several Calls available for SME and Startups with a budget of over 800M Euros in 2014 such as SME Instrument or Cosme programmes: http://ec.europa.eu/digital-agenda/en/better-access-capital-lower-barriers-success
- we are taking the startups to a next level, helping them to scale up through Startup Europe Partnership, putting together corporates, web startups and universities.
- In terms of successful companies, please find here a list of 120+ EU companies http://tech.eu/features/186/ignorance-is-remiss/
  - made by Outfit7 (Slovenia/Cyprus)
  - CubeSensors (Slovenia)

H2020 WP2016-2017 preparation

Internal EC consultation

Public consultation (Sept 2014)
Workshop (Nov 2014)



Adoption: Q3 2015?

H2020 WP2016-2017
ICT?, ICT?, ICT? …
EUJ? EUB? EUK?

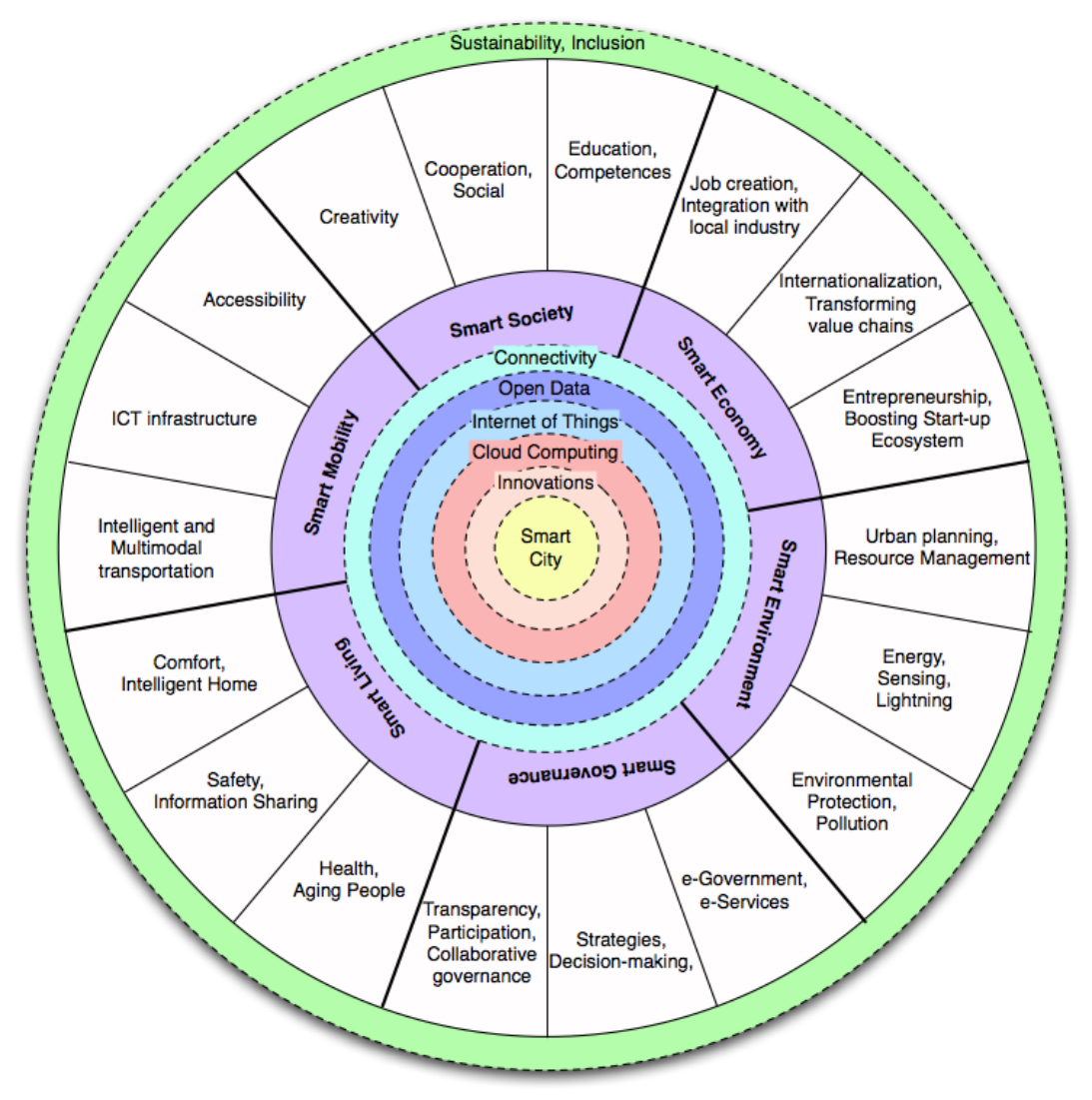
Other sources: reports available at public consultation website, outcome of CloudWatch concertation

Further information on SmartCities

- https://ec.europa.eu/digital-agenda/events/cf/ictpd14/item-display.cfm?id=12638

- Please disseminate and encourage contributions

Slovene Eco-System building blocks



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- *Competence centres of Slovenia (CoCoSi.si) have build competences in the cross-technology fields, which enable key technology players to interconnect with other EU smart city initiatives.*
- *As Slovenia smart specialization program 2020 sees smart communities as one of the future development potential, where Slovenia would look for global niches within new value-chains, we will provide a map of how we tend to involve technologies, involve talented people present within city environments, and involve users on the city level as well, to be part of pilot projects, which we tend to develop within 2014-2020 period.*

Slovene Smart Specialization pillars - with model to open inovation 2014-2020

http://esiskladi.wix.com/strategijaps

We are searching for niche services with social impact, but with global potential

For Global Growth and Competitiveness

CoCoSi
Competence Centres of Slovenia

More info -> www.cocosi.si

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Seven …

CC BME – Biomedical technology, health and knowledge about life

CC BRIN – Biotechnology development and innovations, food and health

CC CLASS - Cloud computing technologies with services

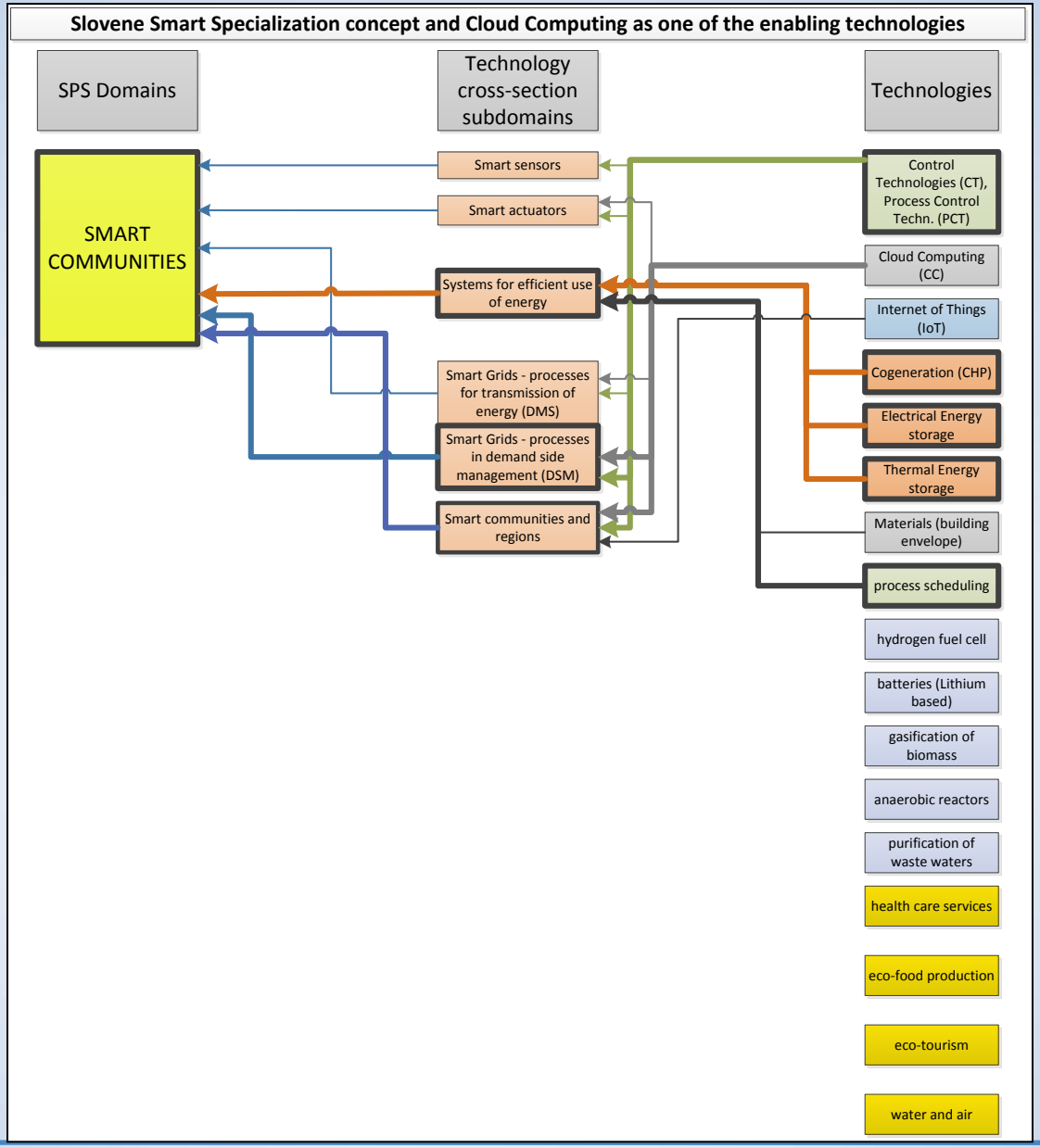
CC OPCOMM – Internet of things and open communication platform for integrated services

CC STV – Advanced control technologies

CC SURE – Efficient use of electric energy

CC TIGR – Sustainable and innovative construction technologies

Slovene Smart Specialization concept and Cloud Computing as one of the enabling technologies



More about our future plans-

Presented at Class 2014 event in Bled, september 26., 27th 2014

- More can be found
  - http://www.cloudconference.eu/media/filer_public/2014/10/06/class_2014__wrap_up.pdf

Cloud technologies enablement of SmarCity Sensing – Wireless

Slovene smart-city 2014-2020 roadmap proposal from CoCoSi.SI

- *Within this roadmap we have seen cross technology areas, which are part of technology pool, such as cloud computing, internet of things, sustainable and smart-buildings of the future, smart-grids, etc.).*
- *On the social challenges fields we tend to focus towards EU smart cities, energy efficiency on the city level, climate goals, sustainable city developments based on new technologies*

To build a model of SmartCity based on 6 pillars

- ***Smart economy***: *Economy represents one of three key areas of sustainable developments based on economy driven ecosystem, enabling creativity, innovation and collaboration towards new jobs. Once this eco-system partners work hand in hand, economy models on local but also on global scale of economy change, as new global opportunities arise via new innovative business models. Local industry gets involved as well, start-ups get involved as well and internationalization becomes key economy driver, new investments readiness gets higher visibility through by local players.*
- ***Smart environment***: *lower energy consumption is one of key goals future cities have to dedicate their activities/programs/services. By that we mean from smarter lightning systems to alternative energy usage enablement, optimize power consumption based on distributed power provider systems of alternative energy sources, such as solar energy, etc. Other very important field of smart environment is smart planning of resources, such as water consumption, loss control, waste management and recycling capabilities, pollution control, connected with smart mobility, smart buildings, connected with smart city environment via new technology enablement in smart city environment, based on sharing data on city/community level, provided by city authorities, based on infrastructure sharing, etc*

To build a model of SmartCity based on 6 pillars

- ***Smart management****: presents efficient and transparent public services, which enable safe and stable environment for business and industry development with enablement of public collaboration of managing cities (public proposal offering, open innovation platforms, etc). It means simpler, ICT supported public services for citizens. Smart management is enabled via e-services, which have public interfaces towards users. E-services on all levels enables paperless communication, supports better mobility and quickens city processes. It opens the fields of open innovation, where citizens are invited to participate within the transformation into smart-city. Also innovation management support is crucial to bring innovation as part of core system, which enables new smart city services in place, which a close to real needs. Terms like open data, open processes and open services get in use at this point, which support transparency, collaboration and participation, which in the end brings new innovative solutions into real life situations.*

To build a model of SmartCity based on 6 pillars

- ***Smart living****: On the level of individual and the quality of his life at home and outside, public need of the citizen need to be addressed. Therefore it is important that we enable innovation potential on personal level in the fields of health, security and wellbeing. Special car needs to be considered towards elderly people, which is getting bigger and bigger, due to long-life, which again, gives a huge potential of bringing new innovative services towards elderly people especially in respect to their health-care, which needs to be enabled from their home, based on their personal needs, which will in the future even be more important due to demographic changes. Furthermore, smart-living also means information on a specific situation you might be in at current time, which is relevant for you at that time, which can also influence on the quality of living in city environment at important events, such as accidents, social events, activities important to your lifestyle and age, etc. And in the end also bring all this information into your homes, to ease the living within our homes, houses, apartments within smart home environment.*

To build a model of SmartCity based on 6 pillars

- ***Smart mobility****: Mobility is a key element of successful city life, therefore optimization of traffic is of utmost importance. Smart mobility wants to get to very smooth traffic within city centres, lower personal traffic need and use public transportation means instead, integrated multimodality is key aspect, which can help extensively towards this goal, meaning integration of different public transportation means (time management, integrated tickets for all public transportations within one area, integration of all information on public transportation services). In the end this means transformation of public transport services, which becomes much more citizens friendly and time and also economic efficiency becomes very important in comparison towards private car transportation. To enable such as transportation system, one must think of developing better and much more real time traffic control in respect to lowering the traffic jams, car accidents and consequently quicker response mechanisms for avoiding jams on your way.*

To build a model of SmartCity based on 6 pillars

- ***Smart society****: smart society is a society, which needs collaboration with others an also new ways of learning experiences. It proposes open space collaboration places where people can meet and exchange new creative ideas on all levels of education. Smart society is targeting toward raising the technological competences of people, leaving within city, better access to internet and usage of digital technologies into learning processes – it is open and inclusive society, adopted to their citizens as well as tourists (different services, multilingual services, etc); the main vision here is to enable social and cultural gathering, which enables support to individuals and create environment for creativity and cooperation. From the social point of view smart society means cooperative society, which embraces differences and intercultural dialog and open mind creativity.*

Complexity within 6 pillars

- *All six pillars of smart city are put together in a very complex way, therefore the vision needs to be very clear on the city level, which support its separate part or pillars and also enables interconnectivity and optimization all partial pillar activities. This way Smart City can enable innovation an collaboration, based on high-tech around us and therefore offers more healthy environment for individuals, institutions, businesses and public services.*

Basic conditions for smartcity environment is technological environment, which needs to consist of:

- Scalable sensorial network, which can be controlled efficiently and is two-way communication enabled (internet of things)
- Scalable program modular platform, which enables complex data analysis (analysis of huge sets of multimodal real-time datasets (hi-performance computing – HPC) from the user perspective it runs in the cloud
- High speed network connectivity (wireless, other)
- Interoperability and integration of interfaces which enable connectivity with sensors, IOT devices, internal and external services and applications and systems
- Monitoring control and KPI control enablement and metric for information delivery
- Open authentication and authorisation mechanisms
- Human-computer interaction systems

Basic framework

- For smart city enablement one must create more specific parts/elements, which need to collaborate also on the international level. Into these activities key stakeholders need to be included and connected within international environments in the fields of smart-cities.

- It is obligatory to enable such an environment, where integration of different technologies is enabled for the service support, which make cities smart, innovative, creative, open, nice towards its citizens and tourist and transparent for:
  - Individual - citizens
  - Businesses
  - Public services (for city management, regions, tax authorities, geographical services, public institutions, universities, etc)

If smart city's vision is to provide smart and sustainable components in place, on the level of individual buildings one most provide components, which are:

- Energy efficient, from the user as well as provider viewpoint
- Comfort to people living in buildings
- Building block, which are coming from materials, enabling long term sustainability of a city
- Strong clean environment policy support towards city sustainability
- Services, which enable interconnection on the city level

“Smart city” outputs therefore consist of:

- “Open datasets”, which enable wider user under secure measure in place, which support safe data exchange
- development platform (PaaS – development tools), which will serve public usage for integration between services and interoperability of those services, which enable big data management of all events within (“SmartCity” ecosystem)
- set of public services, which deliver data towards user in user context way towards citizens on all level of city living
- a city with lower energy consumption due to efficient consumption management in place
- a city with high energy independency (city energy performance certificate)
- city with high usage of alternative materials with low impact on environment (smart waste recycling, higher usage of renewable materials)
- public services, which enable optimized city management; efficient two-way communication enablement (between city management and city residents)
- synergy between services, managed directly by city management with so called secondary services, which enhance the experience of resident or tourist, such as “smart taxi services”, etc

Other collaborations on SmartCity in EU

- We work closely with Porto's city council to develop a partnership on this topic:
  - This goal is to find a collaboration framework in the context of lighthouse projects with Slovenian cities - currently we are negitiating agreements with following cities:
    - Maribor, Koper, Kranj)
- The work could be extended to include possible partnership with the Portuguese and Spanish networks for Smart Cities

Other collaborations on SmartCity in outside EU

- **Cloud computing:**
  - Political dialog on cloud
    - The outcome: for the moment no scope for cloud dialog, because of EU requirement for commitment to open internet and market access as a precondition
    - Some possibility for co-operation on recognition of international standards and certificates
  - Possible steps forward (short term activity)
    - Coordination or collaboration between working groups at operational level to agree a set of standards (technical requirements) and certificates, based on a common use cases/implementation scenarios
    - EU mapping will be provided by mid Dec 2013 (ETSI cloud standard coordination)
- **<u>Green Smart cities cooperation launched (main elements)</u>**
  - Timeframe of cooperation 2013-2015
  - Experts framework
  - Selection of pilot cities
  - Themes of pilots
    - Intelligent transport, Energy management, Medical services, Water resource management, City emergency management
  - Assessment and review seminars dissemination
  - Cooperation on standards

Thank You

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