

Smart City - výzva pro budoucí vývoj metropolí

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Obsah

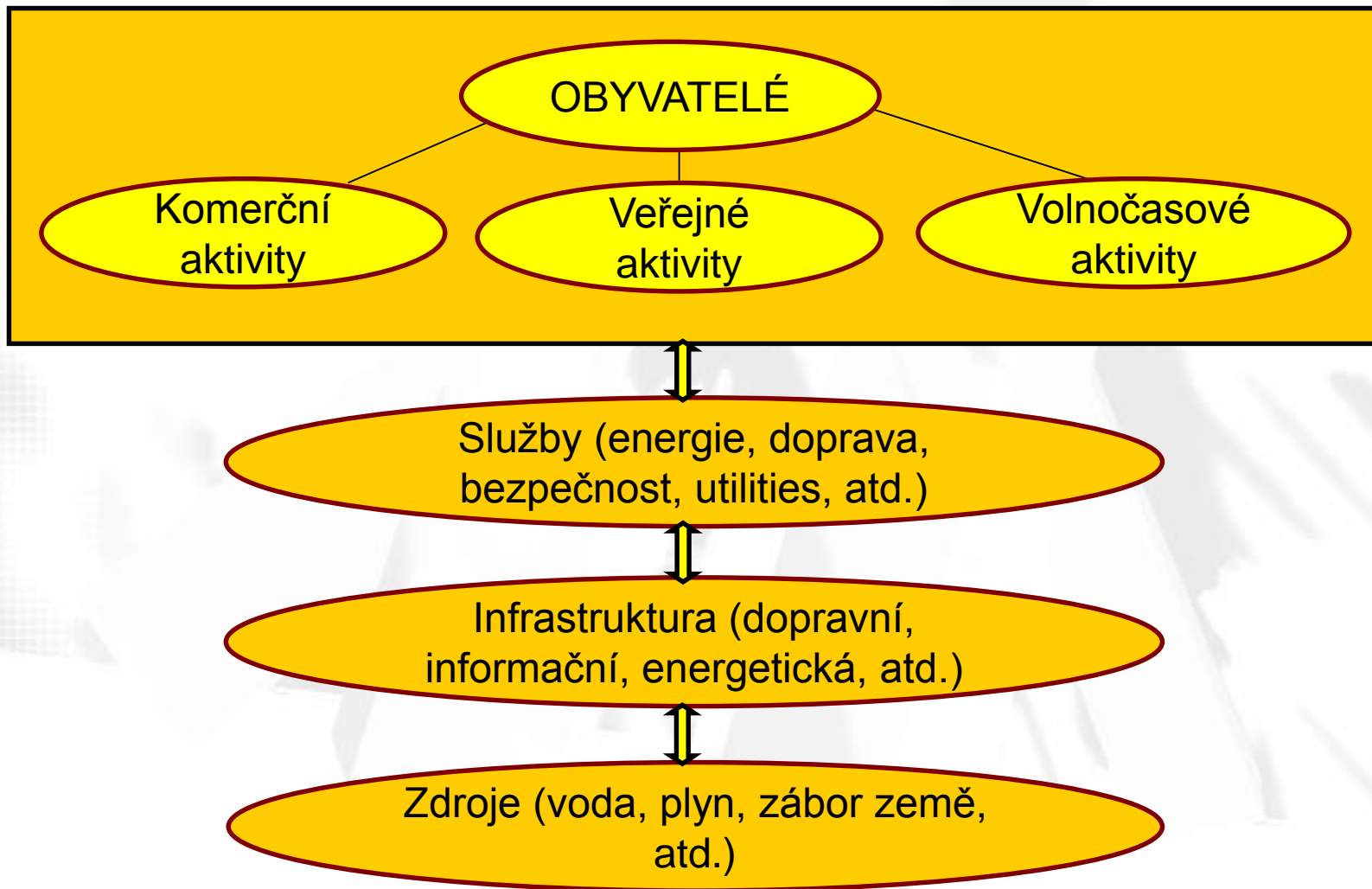
- Koncept chytrých měst
- Urbanizmus a chytrá města
- Kybernetická infrastruktura pro chytrá města
- Ukázky konkrétních záměrů chytrých měst v ČR
- Pokročilá centra řízení chytrých měst



The background features a complex geometric design with overlapping planes in shades of yellow, grey, and white. A semi-transparent grey horizontal band is positioned across the middle of the image, containing the main title. On the left side, there is a vertical grid pattern that fades into the background.

Koncept chytrých měst

Koncept chytrých měst



Koncept chytrých měst

Multidisciplinární obor

Integrace znalostí z několika síťových odvětví:

- Doprava,
- Energetika,
- Bezpečnost,
- Logistika a další

Systemová nadstavba nad aktivitami:

- Chytrých budov (smart buildings)
- Chytrých sítí (smart grids, intelligent infrastructure)
- Inteligentních dopravních systémů (intelligent transport systems)
- Chytrého průmyslu (Industry 4.0)



EU smart-cities project – příklad hodnocení města Plzeň

www.smart-cities.eu

Smart Economy

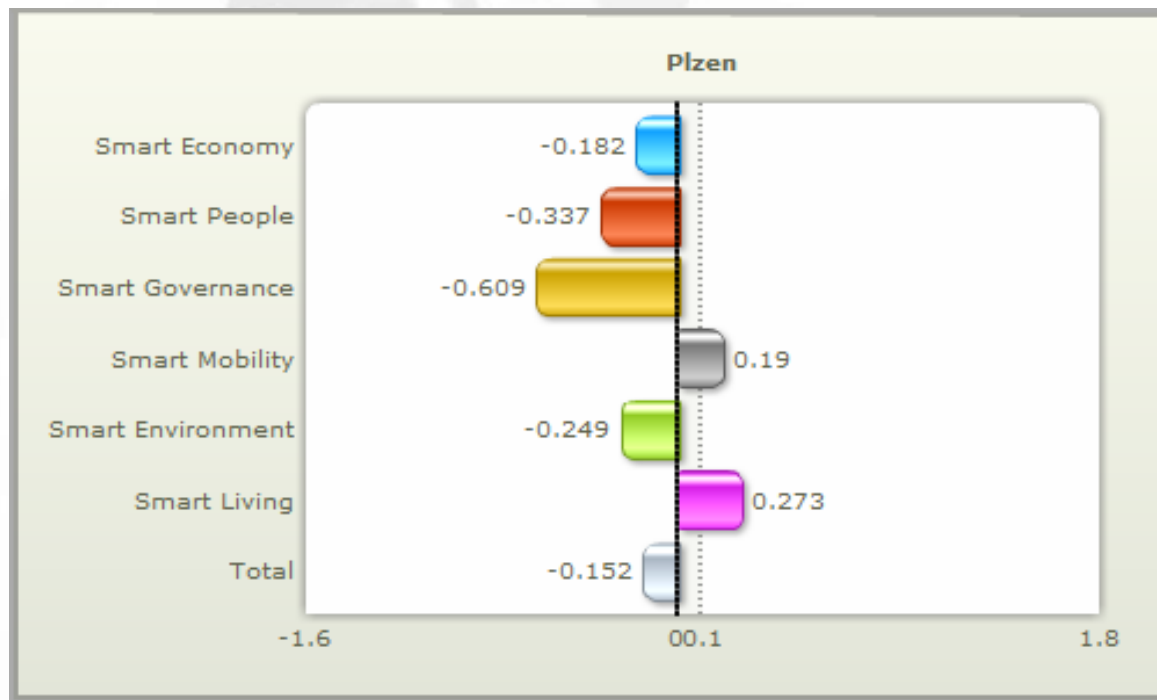
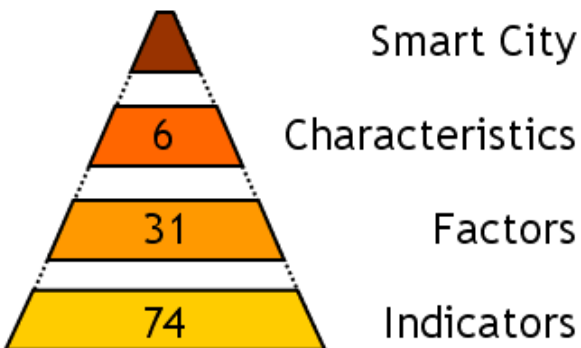
Smart People

Smart Governance

Smart Mobility

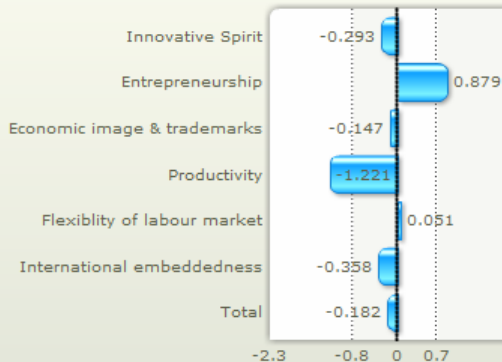
Smart Environment

Smart Living

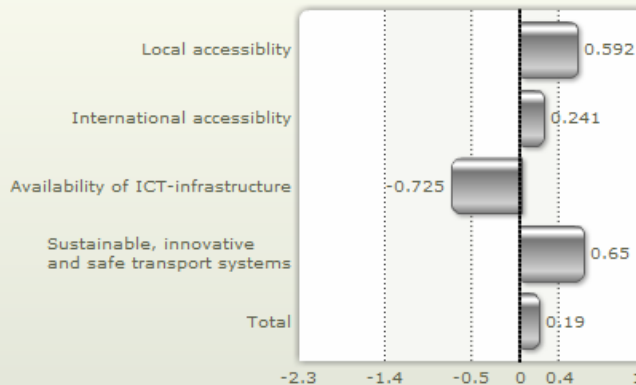


EU smart-cities project – příklad hodnocení města Plzeň

Smart Economy PLZEN



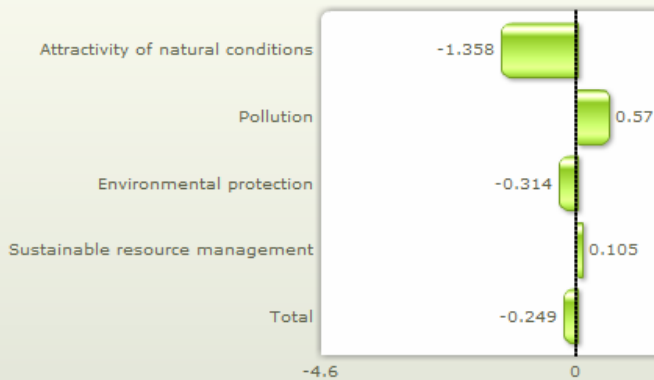
Smart Mobility PLZEN



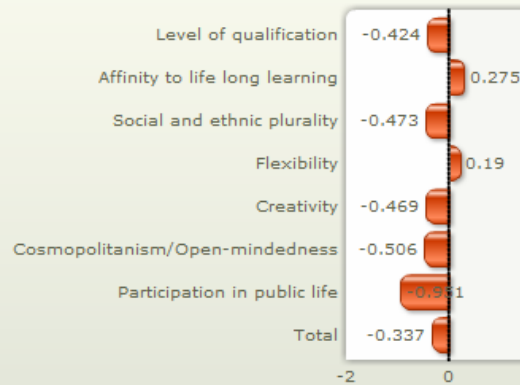
Smart Governance PLZEN



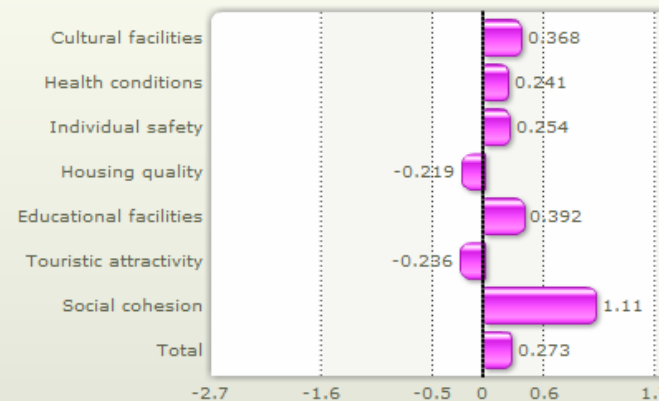
Smart Environment PLZEN



Smart People PLZEN

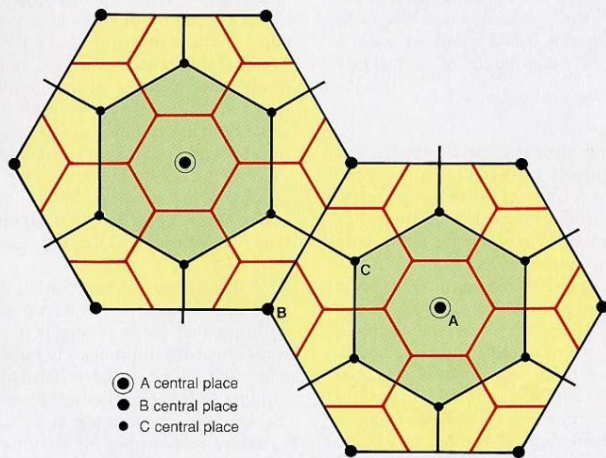


Smart Living PLZEN



- Historie EIP-SCC:

- **červen 2011** - průmyslová aktivita "Smart Cities and Communities" zahrnující vazbu mezi dopravou a energetikou
- **listopad 2011** - vznik Smart Cities and Communities (SCC) Stakeholder platform
- **červenec 2012** - zahájena činnost European Innovation Partnership on Smart Cities and Communities (EIP-SCC) - rozšíření průmyslové aktivity z roku 2011 spolu se zahrnutím ICT sektoru
- **červen 2013** - Annual Stakeholder Conference of Smart Cities Stakeholder Platform in Budapest



Evropské inovační partnerství pro Smart Cities and Communities (EIP-SCC)

www.eu-smartcities.eu

The screenshot shows the homepage of the Smart Cities and Communities platform. The browser address bar displays "eu-smartcities.eu/users/miroslav-svitek-svitek". The page features the "Smart Cities and Communities" logo, navigation links for "Publications", "Groups", "Blogs", "Events", "Solution Proposals", "Members", "Cities", and "Logout", and a search bar. A prominent blue banner reads "Join the Platform... to share your smart city solution proposals, best practices, project ideas and more!".

Navigation: Home /

Miroslav Svítek (svitek)

View Edit

Dr Miroslav Svítek



Czech Technical University in Prague Faculty of Transportation Sciences
Dean of Faculty

Miroslav Svítek was born in Rakovník, Czech Republic, in 1969. He graduated in radioelectronic from Czech Technical University in Prague, in 1992. In 1996, he received the Ph.D. degree in radioelectronic at Faculty of Electrical Engineering, Czech Technical University in Prague. Since 2002, he has been associated professor in engineering informatics at Faculty of Transportation Sciences, Czech Technical University in Prague. Since 2005, he has been nominated as the extraordinary professor in applied informatics at Faculty of Natural Sciences, University of Matej Bel in Banská Bystrica, Slovak Republic. Since 2008, he has been full professor in engineering informatics at Faculty of Transportation Sciences, Czech Technical University in Prague. He is currently teaching courses and doing research in theoretical telematics, intelligent transport systems and smart cities. Miroslav Svítek is president of Association of transport telematics of the Czech and Slovak Republic (it covers more than 80 public and private

The screenshot shows a thank-you page on the Smart Cities and Communities website. The browser address bar shows "http://eu-smartcities.eu/solution_proposal_intro". The page title is "Thank you for your interest in submitting a Solution Proposal." Below the title, it says "Please find a description of the objective and the process of collecting Solution Proposals below." The page is divided into sections: "Why collect Solution Proposals?", "Submitting a Solution Proposal", "What happens next?", and "The next review date is 30 April 2013." A list of categories for solution proposals is provided: Energy Efficiency and Buildings, Energy Supply & Networks, and Transport and Mobility. The page also includes a search bar and navigation links.

Navigation: Home /

Thank you for your interest in submitting a Solution Proposal.

Please find a description of the objective and the process of collecting Solution Proposals below.

Why collect Solution Proposals?

The Solution Proposals on this platform aim to provide a portfolio of innovative technologies or processes, that help cities improve their energy supply, building stock, or transport infrastructure. To be useful and attractive for cities visiting the platform, they should be clear, comprehensive, complete, practical and nicely presented.

Submitting a Solution Proposal

The link at the bottom of this page takes you to the Solution Proposal form. This asks for information about the technology or process, the benefits it can achieve, and the requirements for cities to implement them successfully. Please ensure that you complete the different sections of the form, so that cities can judge whether they are suitable for their circumstances. This enhances the chances of your Solution Proposal being taken up and implemented in European cities.

What happens next?

After a Solution Proposal has been submitted, the relevant Working Group chair reviews it for errors or gaps, after which it is published on the platform website. From this moment, cities visiting the platform can find it when looking for solutions.

During the year, the members of the Working Groups review the Solution Proposals submitted, to select the most promising and innovative suggestions. These reviews are based on clearly defined evaluation criteria for each working group topic:

- Energy Efficiency and Buildings
- Energy Supply & Networks
- Transport and Mobility

The next review date is 30 April 2013. Solution Proposals submitted up to and including this date will be considered in the subsequent review cycle.

The Solution Proposals selected are developed into Key Innovations. Apart from enhancing their profile, these provide input for the Smart City Toolkits, that explain in detail they can be applied and what financing tools are available. They are therefore more likely to attract the attention of cities and be realized.

The Windows taskbar shows several application icons including Internet Explorer, Firefox, Chrome, and various office applications. The system tray on the right shows the date and time as 13:47 on 28.4.2014.

Mascalucia - Sicily Italy
Interesting!
Title: Houses for Smart Cities -

The Windows taskbar shows several application icons including Internet Explorer, Firefox, Chrome, and various office applications. The system tray on the right shows the date and time as 13:42 on 28.4.2014.

Strategické skupiny EIP-SCC – High level group

SMART CITIES AND COMMUNITIES

European Commission

European Commission > Eip > Smart Cities and Communities > Who's who

Home

About the partnership

Who's who?

Timeline

Smart Cities and Communities

KEY DOCUMENTS & LINKS | EVENTS

Who's who?

[High level group](#) [Sherpa group](#)

High level group

Name Surname	Function	Affiliation	Associated Sherpa member
Olivier Bouyges	Deputy CEO	Bouygues SA	Paul Cartuyvels
Roland Busch	Executive VP Member Managing Board, CEO Infrastructure & Cities Sector, CEO Asia-Pacific	Siemens	Pedro Pires de Miranda
Michel Crochon	Executive Vice President of Infrastructure at Schneider Electric SA, member of Executive Committee	Schneider Electric	Charbel Aoun
Ulf Ewaldsson	Senior Vice President and Group CTO	Telefonaktiebolaget LM Ericsson	Magnus Madfors
Alain Flausch	Secretary-General	UITP	Philip Turner
Milan Ftacnik	Mayor	Bratislava	Jana Svecova
Nicky Gavron	London Assembly Member, Chair of Planning Committee	London Assembly	Graham Floater
Hanna Gronkiewicz - Waltz	Mayor	City of Warsaw	Vanda Knowles
Michael Halbherr	Executive Vice President, Location & Commerce	Nokia	Michael Bueltmann

BG Professional Lighting

11:04 9.9.2014

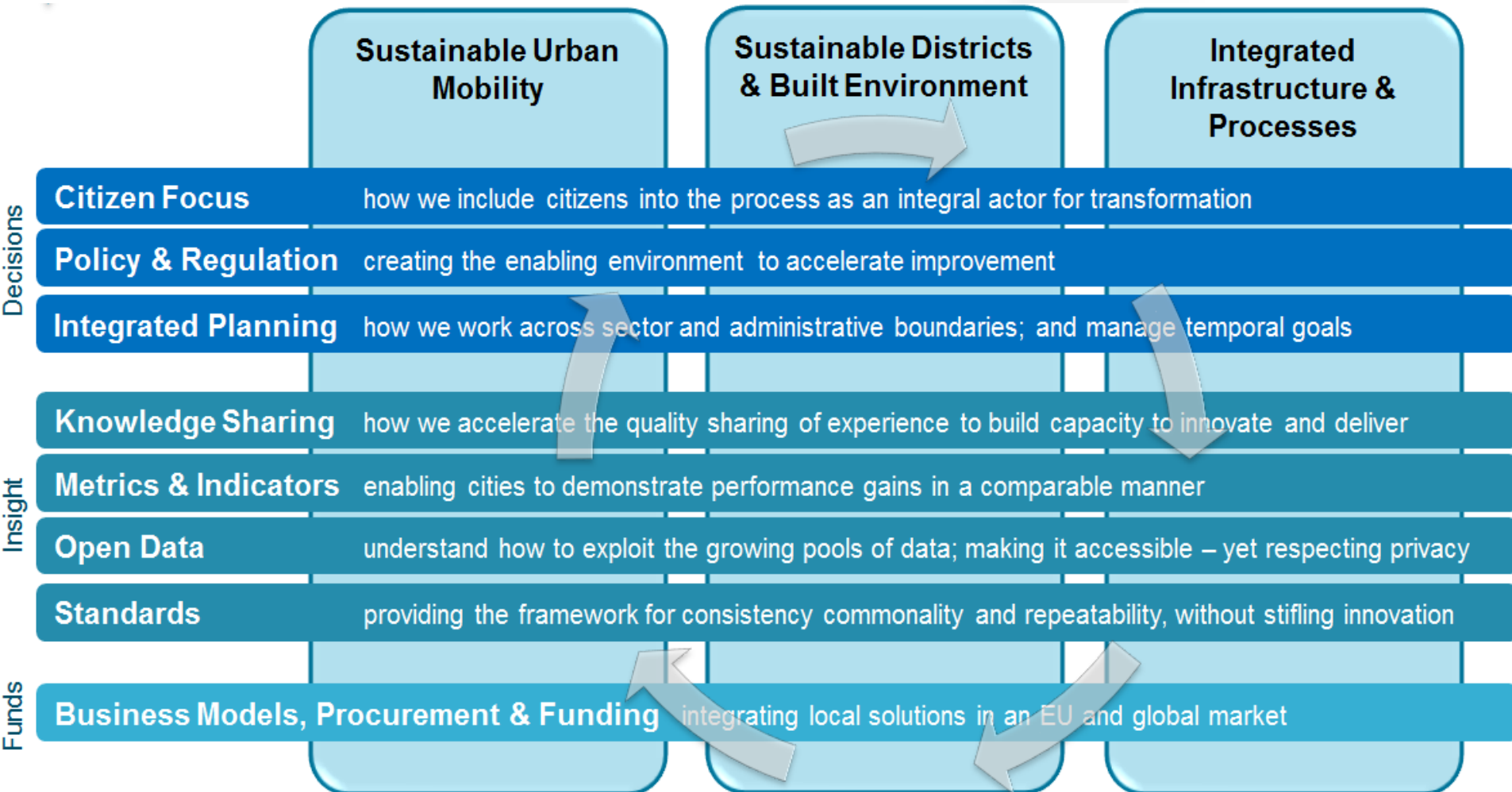
Strategické skupiny EIP-SCC – Sherpa group

The screenshot shows a web browser window with the URL http://ec.europa.eu/eip/smartcities/whos-who/index_en.htm. The page title is "Who's who? - European Co...". The main content is a table titled "Sherpa group" listing members, their affiliations, and associated high-level group members.

	Affiliation	Associated high level group member
Rein Ahas	University of Tartu	Ülar Mark
Salla Ahonen	Microsoft	
Charbel Aoun	Schneider Electric	Michel Crochon
Mark Atherton	Smart Cities Stakeholder Platform and Association of Greater Manchester Authorities	
Brigitte Bach	Austrian Institute Technology	Erkki Leppävuori
Alain Berger	Alstom	Gregoire Poux Guillaume
Johan Bouwmeester	Almere City	Annemarie Jorritsma
Frederic Boyer	Energy Cities (Convenant of Mayors)	
Michael Bueltmann	HERE	Michael Halbherr
Paul Cartuyvels	Group of Bouygues S.A.	Olivier Bouyges
Graham Coldough		
Rod Coombs	University of Manchester	
Simona Costa	Smart Cities Stakeholder Platform and Office Regione Liguria	
Alexander D'Hooghe	MIT Center for Advanced Urbanism	
Keith Dickerson	ETSI	
Graham Floater	Climate Centre	Nicky Gavron
Ashok Ganesh	CEN-CENELEC	
Lutz Heuser	Urban Software Institute/ IRT	
Mark Hidson	ICLEI	
Gernot Klotz	MAPEI	Giorqio Squinzi

Evropské inovační partnerství pro Smart Cities and Communities (EIP-SCC)

www.eu-smartcities.eu



Smart Cities Council

www.smartcitiescouncil.com

The screenshot shows the Smart Cities Council website homepage. The browser address bar displays <http://smartcitiescouncil.com/>. The website header features the logo "SmartCitiesCouncil®" with subtext "Livability | Workability | Sustainability" and a search bar. Navigation links include HOME, OUR PARTNERS, CITY RESOURCES, PREMIUM RESOURCES*, GLOBAL ALLIANCES, JOIN SCC, ABOUT US, CONTACT US, and LOGIN. The main content area is divided into several sections: "Learn about the Council's Smart_" with a large image of a modern building interior; "BE A SMART CITY INSIDER!" featuring a quote from Jesse Berst, SCC Chairman, and a "CONTACT ME" link; "LATEST NEWS AND TRENDS" with two news items: "Partner spotlight: Ooredoo, Alphinat, Silver Spring, ABB, Siemens (and more)" and "More coastal cities could be seriously flooded. Is yours prepared?"; "Smart Cities Solutions" with two links: "How can I deliver enough clean water to my city?" and "How can I accelerate economic development in my city?"; and "SCC Partner Spotlight" for Verizon, with text: "Verizon's Smart Cities solutions empower municipalities to solve some of today's biggest challenges -- including public safety, traffic and energy". The Windows taskbar at the bottom shows various application icons and the system clock indicating 10:22 on 28.10.2015.



Urbanizmus a chytrá města

Ing. Arch. Michal Postránecký

Horizontální urbanizmus



Horizontální urbanizmus



Vertikální urbanizmus



Vertikální urbanizmus



Kombinovaný urbanizmus



Nové pohledy na urbanizmus chytrých měst

- Kombinace horizontálního a vertikálního urbanizmu povede na vznik nových 3D „City megastructures“
- Tyto nové 3D „City megastructures“ budou vyžadovat jiný přístup k poskytování služeb (doprava, produkce potravin, dodávka vody, svoz odpadů, atd.)





Kybernetická infrastruktura pro chytrá města

Kybernetická infrastruktura pro chytrá města – Internet věcí

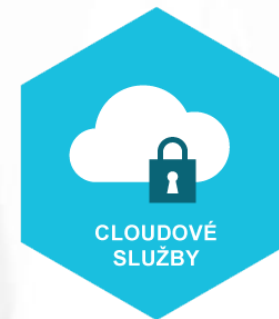
- **Internet věcí** (IoT - Internet of Things) – tvoří základ pro vznik chytrých produktů (Smart products)
- **Internet lidí** (IoP – Internet of People) – tvoří rozhraní pro komunikaci řeči, vizuální či hmatové informace
- **Internet služeb** (IoS - Internet of Services) – zahrnuje zejména inteligentní dopravu a logistiku (Smart mobility, Smart logistics)
- **Internet energií** (IoE - Internet of Energy) – určuje, jak vhodně jsou využívány přírodní zdroje (elektřina, voda, zábor země, atd.)
- **Internet materiálů** (IoM – Internet of Materials) – zajišťuje vzájemnou komunikaci použitých materiálů po celý životní cyklus (Smart materials)



- **Inteligentní infrastruktura** – zahrnuje inteligentní prvky umístěné na infrastruktuře (inteligentní dopravní systémy, smart grids, inteligentní odpady, atd.)
- **Inteligentní budovy** – zahrnují inteligentní prvky umístěné v budově/areálu (smart buildings)
- **Inteligentní služby** – vznikají vzájemným propojením IoP, IoT, IoE, IoS, IoM včetně inteligentních prvků různých infrastruktur a staveb (smart services)

Cloudové služby (Cloud services) pro chytrá města

- **PaaS** (Platform as a Service)
- **SaaS** (Software as a Service)
- **IaaS** (Infrastructure as a Service)
- **NaaS** (Network as a Service)
- **STaaS** (Storage as a Service)
- **DaaS** (Data as a Service)
- **DBaaS** (Database as a Service)
- **TEaaS** (Test as a Service)
- **BaaS** (Backend as a Service)
- **XaaS** (Everything as a Service)

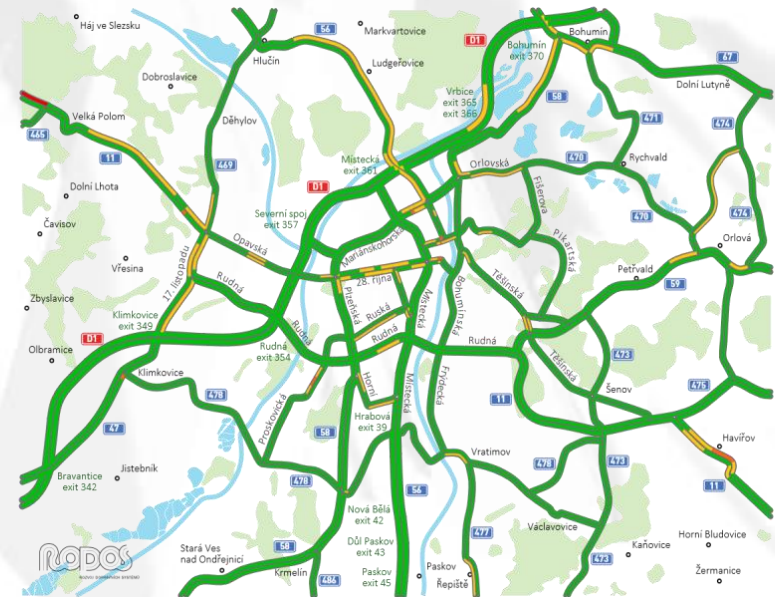


Projekt RODOS – Rozvoj dopravních systémů (získávání dopravních informací)

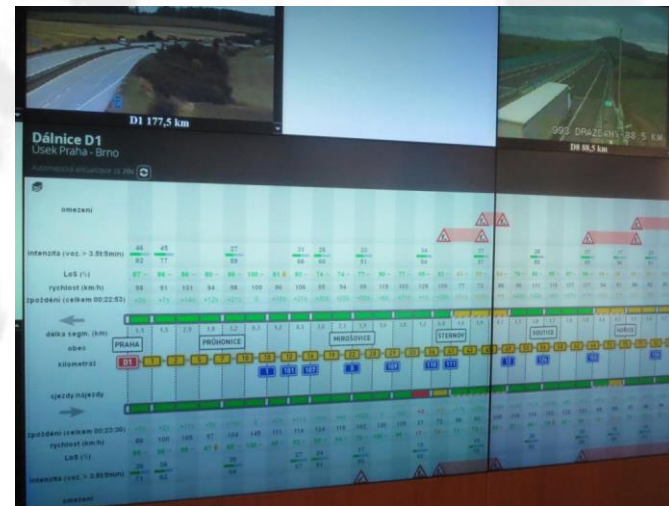
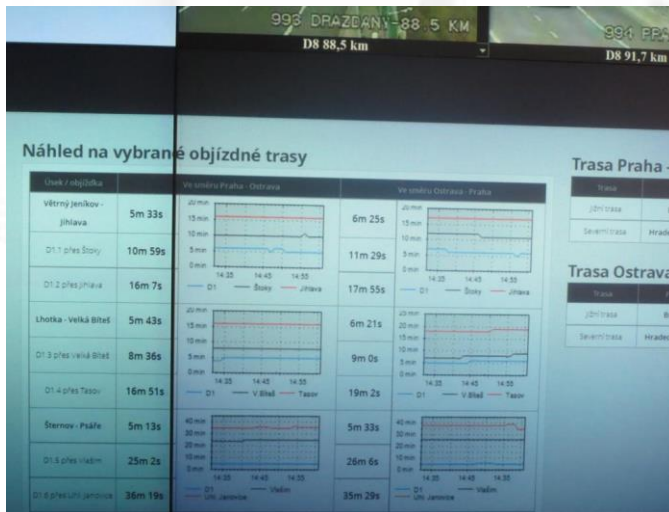
Floating Car Data (GPS/GPRS) - asi 140 000 vozidel, pokrytí přibližně 5%

Data ze systému elektronického mýta (Electronic Toll Collection System) – data vozidel nad 3,5t pohybující se na zpoplatněné infrastruktuře - 7,2 milionů transakcí za den

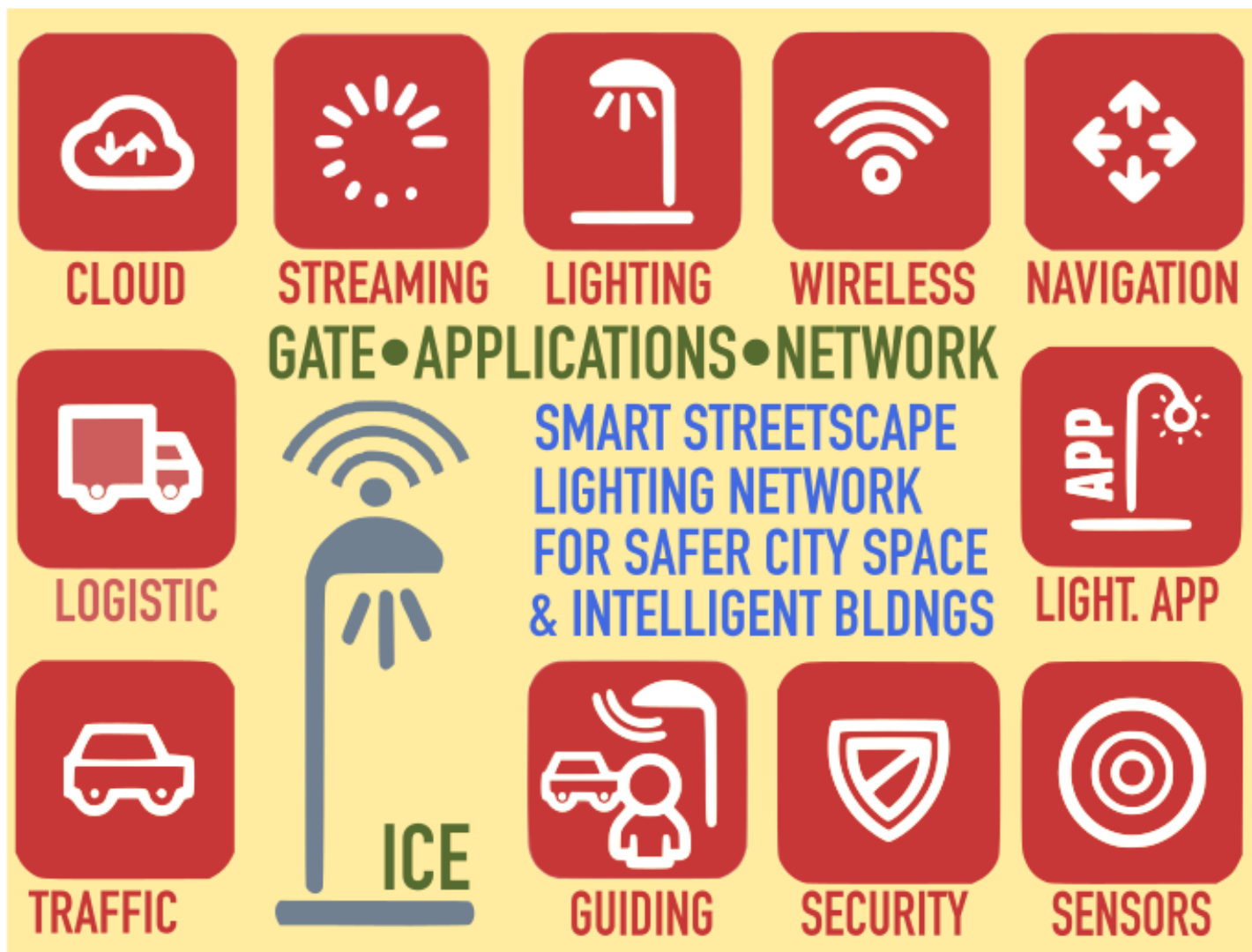
Signalizační data od GSM operátorů – anonymní monitorování mobility v konkrétním čase a prostoru – přibližně 5 milionů uživatelů GSM sítě



Projekt RODOS – Rozvoj dopravních systémů



Kybernetická infrastruktura pro chytrá města – chytré osvětlení



Open Data – ukázka: San Francisco

<https://data.sfgov.org/>

The screenshot shows a web browser window displaying the SF OpenData website. The browser's address bar shows the URL <https://data.sfgov.org/>. The website's header includes the title "SF OpenData" and navigation links for "About", "Data", "Developers", "Showcase", and "Help". Below the header, a welcome message reads: "Welcome to SF OpenData! SF OpenData is the central clearinghouse for data published by the City and County of San Francisco and is part of the broader open data program, DataSF. Explore, view, and download our data. Developers - check out our developer page for tips on API access and use. Read more on our About page." A search bar is positioned below the message, containing the text "search SF OpenData". The main content area features ten teal-colored boxes, each with an icon and a label representing a department: "Economy and Community", "City Management and Ethics", "Transportation", "Public Safety", "Health and Social Services", "Geographic Locations and Boundaries", "Energy and Environment", "Housing and Buildings", "City Infrastructure", and "Culture and Recreation". A button labeled "View data by department" is located at the bottom of these boxes. The background of the website is a scenic view of San Francisco at sunset. The browser's taskbar at the bottom shows various application icons and the system clock indicating 14:10 on 1.5.2015.

Ukázky konkrétních záměrů chytrých měst v ČR

Ing. Ivo Vaněk, EUR ING
Mgr. Lukáš Zicha
Ing. Vladimír Zadina

Písek – Pilotní Projekt Smart City

- Vedení města
- Průmysloví partneři
 - Technologické Centrum Písek (TCP)
 - Schneider Electric
 - Smart Plan
 - Inovation Centre of Excellence
 - E-ON
 - Česká Spořitelna
- Akademičtí partneři
 - Fakulta dopravní, ČVUT
 - Jihočeská univerzita
 - Vysoká škola logistiky



Příprava „Smart City Cluster“ & budování ukázkového „show room“ možných aplikací

Písek – Pilotní Projekt Smart City

Modrožlutá kniha Smart Písek – oficiální strategický dokument

<http://www.piseckysvet.cz/zastupitele/hlasovani/29>



MendelCity – Pilotní projekt smart city v Praze

- Vytvořit pilotní projekt Smart City v Praze
- Ing. Ivo Vaněk, EUR ING zastupitel Prahy 4, koordinátor pilotního projektu
- Mgr. Lukáš Zicha, první místostarosta MČ Praha 4, odpovědný za nemovitosti, movitý majetek a podporu podnikání



MendelCity – Pilotní projekt smart city v Praze

- Společný cíl: realizace projektů ve veřejném prostoru
 - celoplošné pokrytí wifi připojením k internetu,
 - chytré odpadové koše na solární energii,
 - chytrá mobilita (eMobilita, pokročilé navigační systémy)
 - chytré osvětlení (vytvoření senzorické sítě), atd.



Pokročilá centra řízení chytrých měst

Ing. Arch. Michal Postránecký

Intelligence – využívání znalostních systémů pro simulace

- **Macro/micro simulace** (použití on-li dat, simulace různých řídicích strategií)

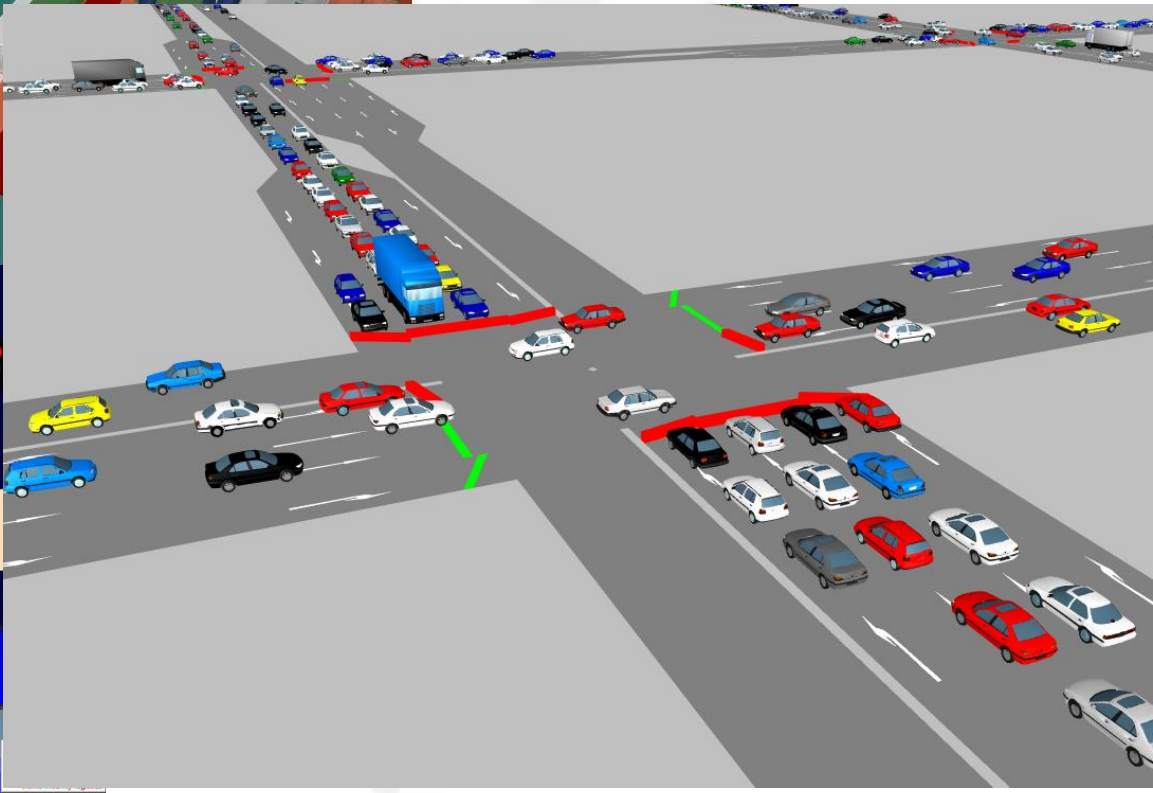
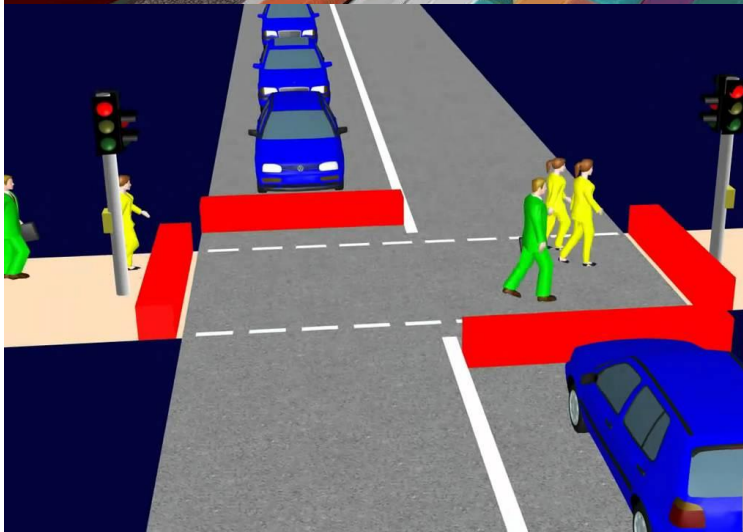
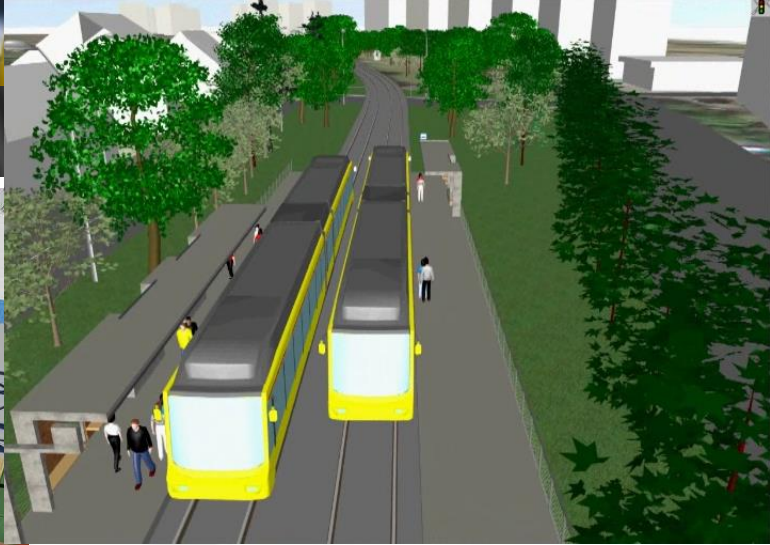


The screenshot shows the interface of a simulation software. It includes a 3D view of a road intersection, a top-down map view, and several data tables. The top table lists links with columns for Count, No, Name, BehaviorType, DisplayType, NumLanes, IsCam, FrontCam, Tolink, Gradient, LinkEvalAct, LinkEvalFlegan, and AvgLinkEvalSegi. The bottom table lists vehicles with columns for Count, No, and Speed.

Count	No	Name	BehaviorType	DisplayType	NumLanes	IsCam	FrontCam	Tolink	Gradient	LinkEvalAct	LinkEvalFlegan	AvgLinkEvalSegi
15	15	1: Urban (motorized)	1: Road gray (invisible)		2	90,291			0,00		10,0	65,12
16	16	1: Urban (motorized)	1: Road gray		2	201,077			0,00		10,0	0,00
17	17	1: Urban (motorized)	1: Road gray		3	58,616			0,00		10,0	0,00
18	18	1: Urban (motorized)	1: Road gray (invisible)		1	48,546			0,00		10,0	4,7
19	19	1: Urban (motorized)	1: Road gray		2	9,443			0,00		10,0	52,42
20	20	1: Urban (motorized)	2: Tram (Road)		1	2,250			0,00		10,0	60,34
21	22	1: Urban (motorized)	1: Road gray		2	234,178			0,00		10,0	18,402
22	22	1: Urban (motorized)	1: Road gray		1	9,618			0,00		10,0	36,584

Count	No	Speed
1	21	0,00
2	3	0,00
3	4	0,00
4	7	9,12
5	10	52,42
6	16	60,34
7	18	40,2
8	36	58,4

Macro/micro simulace města



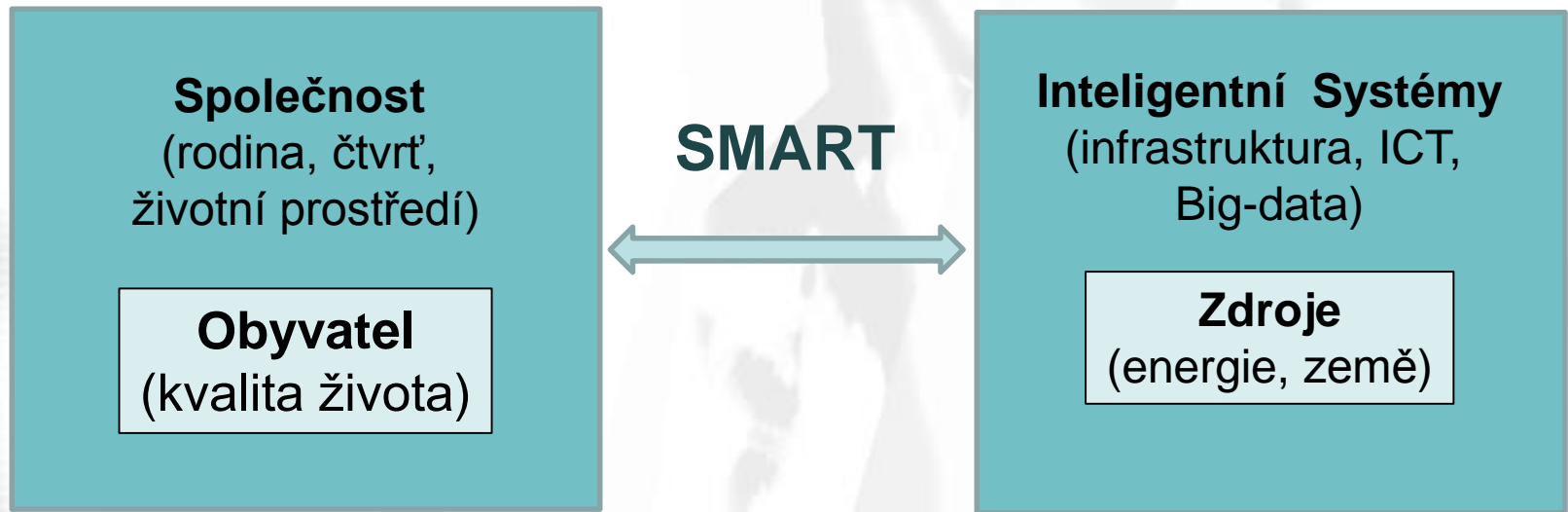
Intelligence – vytváření virtuálního města

- **Virtuální město** (inspirace - Second life)



Výzva konceptu chytrých měst pro budoucí vývoj metropolí

„Dělejme města více humánními
a ne pouze více technologickými“



S Y N O P C I T Y
SMART CITY ENTITIES SOCIAL NETWORK
CONNECTING PEOPLE AND KNOWLEDGE

Děkuji za pozornost

