

Международная научно-практическая конференция «ЦИФРОВИЗАЦИЯ ГОРОДСКОГО ПЛАНИРОВАНИЯ И УПРАВЛЕНИЯ», г. Ростов-на-Дону, «ДонЭкспоцентр», 4 декабря 2018 года

International scientific-practical conference "DIGITALIZATION OF URBAN PLANNING AND MANAGEMENT", Rostov-on-Don, "DonExpocentre", December 4, 2018

"REAL SMART CITIES"

Multiple aspects and the essential role of Geodata-Information-Infrastructures (GDII) and Urban Decision Support Systems (U-DSS) (with examples from Europe and China)

Несколько аспектов и важная роль геоданных-информационных инфраструктур (GDII) и городских систем поддержки принятия решений (U-DSS) (примеры из Европы и Китая)

Манфред ШРЕНК (Вены, Австрия) / Manfred SCHRENK (Vienna, Austria) CORP - COnsulting Research Projects in Urban Planning, Smart Cities, Mobility, GeoInformation

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Information & Communication Technologies (ICT) are invading our cities!

What does "massive digitization" in all aspects of human activities mean for Urban Development?

What are

"(Geo-)Information Infrastructures" & "Urban Decision Support Systems (U-DSS)" needed for?

Информационные и коммуникационные технологии (ИКТ) вторгаются в наши города!

Что означает «массовая оцифровка» во всех аспектах человеческой деятельности для городского развития? Для чего нужны «(гео-) информационные инфраструктуры»

U

«Системы поддержки принятия решений в городах (U-DSS)»



What is a "Smart City"?

It depends ...

- WHO is looking at it (who you are),
- **HOW** you are looking at it,
- WHERE you are,
- WHAT your profession is and what CULTURAL BACKGROUND you have ...;

- Are there ,,non-smart-cities"?
- Where is the CITY in ,,Smart City"? Bricks & Mortar, Concrete & Steel, Glass, ...
- "Tech-Driven" vs. "Liveable / Quality-of-Life" vs. "Eco-City" vs. "Control-driven" Smart-City-approaches



What is a "Smart City"?

Smart City definition according to Wikipedia: completely different approaches in German, Englisch and Russian version:

- DE "Smart City is a collective term for holistic development concepts that aim to make cities more efficient, technologically advanced, green and socially inclusive. These concepts include technical, economic and social innovations. The term is also used in city marketing and large technology companies." (Wikipedia in German (translated), <u>https://de.wikipedia.org/wiki/Smart_City</u>)
- EN "A smart city is an <u>urban area</u> that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently.^[1] This includes data collected from citizens, devices, and assets that is processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals, and other community services.^{[2][3][page needed]} The smart city concept integrates <u>information and communication technology</u> (ICT), and various physical devices connected to the network (the <u>Internet of things</u> or IoT) to optimize the efficiency of city operations and services and connect to citizens.^{[4][5]} Smart city technology allows city officials to interact directly with both community and city infrastructure and to monitor what is happening in the city and how the city is evolving. [...]" (Wikipedia in English, <u>https://en.wikipedia.org/wiki/Smart_city</u>)
- RU ""Smart City" the concept of the integration of several information and communication technologies (ICT) and the Internet of things (IoT solutions) for the management of city property; city assets include, but are not limited to, local information systems departments, schools, libraries, transport, hospitals, power plants, water supply and waste management systems, law enforcement agencies and other public services. The goal of creating a "smart city" is to improve the quality of life using urban informatics technology to improve service efficiency and meet the needs of residents. ICTs allow city authorities to directly interact with communities and urban infrastructure, and to monitor what is happening in the city, how the city develops, and what ways can improve the quality of life. Through the use of sensors integrated in real time, the accumulated data from urban residents and devices are processed and analyzed. The information gathered is the key to solving inefficiency problems. [1] ICTs are used to improve the quality, productivity and interactivity of city services, reduce costs and resource consumption, improve communication between city dwellers and the state. [2] The application of the "smart city" technology is being developed with the aim of improving the management of urban flows and a quick response to complex tasks. [3] Therefore, the "smart city" is more prepared to solve problems than with a simple "operational" relationship with its citizens. [4] However, the term itself remains unclear [5] in its specificity, and, therefore, involves many interpretations and discussions. (Wikipedia in Russian (autotranslated), <u>https://ru.wikipedia.org/wiki/Умный город</u>)



Smart Cities – very different approaches and basic questions

- Focus on *Quality of Life*, Sustainability, Resiliance, Social aspects, Gender- and Equality-aspects, ... **technology as a tool**
- Technology-focused approach technology as an end in itself
- Economy / business-centered approach urban technologies as billion € business
- **Environment**al-based approach (resource management, **ecological footprint**, ...)
- Society- vs. Individual-based approach (balancing or good for the fittest)
- **Geographical differences** (EU, US, China, other regions, ...)
- "Smart Cities for Smart People"?
- Do "Smart Cities" improve "Quality of Life"?
- "Shiny Smart Cities" (what about the not so shiny parts of cities?)
- Urban planning / strategic planning?
- Marketing or content???

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Smart City Approaches – all have in mind to improve cities & life in cities

Vienna / Austria (about 2 Mio inhabitants)



Smart City Wien Principle





Yinchuan / China (about 2 Mio inhabitants)

http://www.digitaljournal.com/tech-and-science/technology/yinchuan-china-smodel-for-a-smart-city/article/498423

Typical Smart City topics / Urban Planning & Real Estate context



- Safety & Security (vs. Privacy)
- **Climate Mitigation**
- Smart Environment
- "Urban Farming", Microclimate
- Utilities, Resource- & Waste Management
- Smart Office, Smart Buildings, BIM
- Smart Building & Construction,
- Smart Real Estate
- Big Data; Blockchain
 - Drones (unmanned vehicles), Robots
 - Remote Sensing, LIDAR, Satellite Data, Sensor Networks, Usergen. Content, floating vehicle data
 - 3D-models, ",Digital Twin" (4D ...)

Underlying needs for "Smart Cities": RELIABLE

- **LEGAL SYSTEM** (Laws, Rules, Legal Certainty)
- GOVERNMENT, **GOVERNANCE, ADMINISTRATION**
- ICT-INFRASTRUCTURE (systematic!): Computing Power & Bandwith, remote and mobile access (fiber, 5G, ...), data availability, (Geo)Information(Systems)Infrastructure

https://media.istockphoto.com/vectors/smart-city-concept-and-internet-of-things-vector-id510687292



Picture-Source: https://media.istockphoto.com/vectors/smart-city-concept-and-internet-of-things-vector-id615412738



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How the future Birmingham will look and feel

Ecology???!!???



Technology & Places

Connectivity

Affordable and reliable digital connectivity is accessible from anywhere in the city. Fast speeds are supporting the growth of new telehealth solutions, virtual learning, mobile entertainment, and our businesses are thriving taking advantage of new online service models to support new applications, services and ways of working.

Planning for Digital Infrastructure

New commercial and residential developments and priority intervention areas are benefiting from the early deployment and investment in the right digital infrastructure, such as fibre optic cabling and smart sensors that make Birmingham an adaptable, resilient city, capable of supporting healthy and prosperous communities.

Information Market Places

Publicly available and accessible 'open' data and information is being used and combined by SMEs, entrepreneurs and city stakeholders to provide new insights and the opportunity to make better decisions, deliver new services and apps creating a valuable city asset for social and economic gain.





Health, Wellbeing & Care

New models of people centred digital health and care and use of data in its widest forms is making it easier for individuals to manage their health and wellbeing and bring the people with needs closer to the people that can help to support a better way of life.

ICT & Energy Efficiency

Increased decentralised energy, low carbon energy generation with buildings that use technologies, such as smart grids, use of smart meters and apps are helping control the supply and demand of energy in the home and at work

Mobility

Making our city an easier and more enjoyable place to get around by providing travellers and commercial operators with better journey planning and up to date transport information is helping to ease congestion, reduce air and noise pollution and enhance the travel experience whether by foot, car, train or bus.



Digital Inclusion

A digitally capable city, where everyone is enjoying the social, economic and cultural benefits of being online; access to jobs, education, civic participation and health are improving choices and opportunities for a better way of life.

Skills & Employment

Nurturing digital skills and talent spanning education to employment has built cross sector capacity to support innovation and SME growth leading to increased job opportunities and entrepreneurship.

Innovation

People and businesses come together to collaborate and exploit the city's assets, data, technology and networks to design new solutions to our societal and economic challenges and are valued for what they do.

Some impacts of "Urban Digitization" on Urban Planning & Development, **Construction & Real Estate Industry** (this list is far from complete)

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- Digitization is taking place in all core aspects of Urban Development and Real Estate Business, from the very early Ι. planning stage via realization, operation and maintenance until the "end of an object" -BIM (Building Information Modeling) is one of the big trends in this field.
- Data Availability and Acquisition: governmental data (digital cadaster, census, utilities, zoning, building regulations, ... Ι. (trend towards OPEN governmental data - OGD); commercial data (utilities, market data, analyses, ...; remote sensing (satellites, orthophotos, airborne LIDAR, drones); sensor networks, laser scanning, "user generated data", "humans as sensors" – "emotional cities / buildings",
- 2. 3D- / 4D-Modelling - the "Real World" will have a "Digital Twin" – for simulations, scenario building, for decision making, for use in case of emergency, for public discussion and negotiation – and also for transferring "Real World Activities" into "Virtual Space".

3D cadaster is a seriously discussed topic in several countries – until now mainly in research.

- 3. Massive changes are going on in the building and construction industry – i.e. prefabrication and automation is developing quickly, as well as 3D-printing (CAD/CAM; "robot workers", drones, ...)
- A "mobility revolution" is going on, and changes in mobility, traffic, transport and logistics do have significant 4. impacts on Urban Development – eMobility?, multimodal transport systems, offering "mobility on demand" instead of selling vehicles, (semi-)autonomous driving, automation in cargo-transport and delivery systems, ...), drones, sharing, ...
- 5. Climate change adoption and mitigation can only be successful if there is a holistic / coordinated approach including Real Estate and Construction industries – adoption of existing structures, anticipatory planning for future projects.



Some impacts of "Urban Digitization" on Urban Planning & Development, Construction & Real Estate Industry (this list is far from complete)

- 7. Green space management and "Urban Farming" (with high tech support) can on the one hand a contribution to local food production with short transport distances and also contribute urban micro climate improvement, even some "abandoned areas" might be reused again.
- 8. "Underground Space" can be seen as a "new exploration/expansion area of dense cities" that can only be successfully developed unveiling Underground Space will only work with massive use of ICT (ventilation, lighting, temperature control, transport, logistics, ...)
- 9. "Knowledge- and Information Society", "Creative Industries", "Maker Spaces" and other developments may bring new / different requirements for floor plans, equipment and room design and most probably also for rental contracts (duration, flexibility, ...) and thereby for "Re-Mixing the City"
- 10. Virtual Reality (VR) and Augmented Reality (AR) are already in use for a while in professional application to virtually explore (planned) buildings and do simulations and scenarios. These technologies are currently leaping into the consumer market and for sure will change the way people use and move through cities and buildings.
- II. IoT (Internet of Things), Clean Tech, Blockchain, Artificial Intelligence (AI), Big Data

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Yinchuan Smart City – "first mover", "innovation hub ", "testbed", ...



Technology Testbed & Living Lab & Innovation Hub





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Yinchuan Smart City – "first mover", "innovation hub ", "testbed", ...





The Functions of Smart City

The Functions of Smart City

Improving the City Management Level Benefiting, Favoring and Serving the Citizen Improving the Development of Industry









FUNCITIONS of SMART CITY Improving the City Management Level Benefiting, Favoring and Servicing the Citizen Improving the Development of Industry

Yinchuan Smart City – "first mover", "innovation hub ", "testbed", ...

SMART

City



The Functions of Smart City

The First Function: Improving the City Management Level

The main driving force of economic development requires

structural adjustment, alleviating poverty, migration,

improvement of ecological environment and resource saving. etc.

- Urban Diseases with urbanization
- ✓ traffic congestion
- ✓ environment pollution
- ✓ poor public security
- ✓ resource exhaustion
- ✓ interaction divide

Smart City is the cure of these urban diseases while boosting the

urbanization at the same time.

The wisdom of Smart City is from **BIG DATA MINING**

by collecting the data from the government, corporation and individuals, resulting in forming the big data, in order to analyze and export directional results and utilized by the different departments of city in intelligent management and operation.



The Wisdom of Smart City

Where does the wisdom of Smart City come from?

The wisdom of Smart City is from the **BIG DATA MINING**. by collecting the data from the government, corporation and individuals, resulting in forming the big data, in order to analyze and export directional results and utilized by the different departments of city in intelligent management and operation. First Function: Improving the City Management Level

Urban Diseases with urbanization

- / traffic congestion
- environment pollution
- ✓ poor public security
- ✓ resource exhaustion
- Interaction divide

BIG DATA

Smart City is the cure of these urban diseases while boosting the urbanization at the same time.







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TM Forum &

Yinchuan Smart City – "first mover", "innovation hub", "testbed", ...



http://www.digitaljournal.com/tech-and-science/technology/yinchuan-china-s-model-for-a-smart-city/article/498423

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Smart City Expo Barcelona major industry event



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(Section)

ZTE

a reason

FCC

Hosted by

http://www.smartcityexpo.com





No "Smart City Presentation" without Songdo ... ;-)

Songdo International Business District, South Korea, close to Incheon International Airport, Seoul



https://newcities.org/cityquest-songdo-south-korea-conceptualized-ultimate-smart-sustainable-city/ https://en.wikipedia.org/wiki/Songdo_International_Business_District



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India is building a high-tech sustainable city from scratch



Andhra Pradesh has enlisted Norman Foster to help redesign its capital city, Amaravati

Image: REUTERS/Arko Datta

Emma Charlton

Skyscrapers, high-rise apartments, neon signs and congested roads. These are a few things that might spring to mind when you think about a modern city.

Many of the world's major conurbations are organically grown sprawls - think of London, Tokyo, New York or Mexico City - and face challenges including air



of the bank, opened fraudulent loan accounts in the names of farmers - even people who are dead — and swindled Rs 2.3 the gram panchayat level for crore. They accuse Biradar of the main purpose of disburs-

has accrued to them Agriculture primary cooperative banks were formed at

India needs 3 lakh town planners by 2031: Unesco report

Aditi.Gyanesh@timesgroup.com

Bengaluru: India is on a path to rapid urbanisation, but the country lacks adequate number of urban planners. Accor-

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- ding to the Unesco Global Education Monitoring report 2019 that was released on Tu-
- esday, India requires 3 lakh urban town and country planners by 2031 to rejuvenate and develop its cities into smart ones. However, the country has only one urban planner per4lakh people.

URBAN PLANNING EDU

In India, 21 universities offer postgraduate town planning programmes and only five offer them at the undergraduate level. As per the 2011 census, the country had only 4,500 qualified town and country planners, stated the report. And according to the report and experts, when it comes to urban planning education, nothing much has changed.

Prof N Sridharan, director. School of Planning and Architecture, Bhopal said: "The reason why urban plan-

CMK

ning education is lagging is due to lack of awareness about availability of any such course at the school and college level. Students are mostly told about mainstream professions. Urban planning education is different from architecture studies and has a lot more social, environmental and technical exposure."

A review of institutions accredited by India's Institute of Town Planners showed many planning students lacked exposure to town and city problems. Further, they were unfamiliar with the functioning of urban development institutions and not up to date about urban development programmes.

But Professor Kala Seetharam Sridhar, head of department, centre for research in urban affairs. Institute for Social and Economic Change, Bengaluru, felt civic bodies. do not have enough freedom. "They have to depend on the urban development department for these requirements. If they are financially strong enough and can recruit town planners directly, the shortage can be addressed.'

A lakh equals 100.000 (or "very many")

Image: Foster + Partners

https://www.weforum.org/agenda/2018/10/india-is-building-a-green-high-tech-city-amaravati

Russian Smart Cities

Moscow shows the world how to do smart city







В апреле 2017 года Губернатор Санкт-Петербурга Г. С. Полтавченко дал старт городской инновационной программе «Умный Санкт-Петербург».

https://www.petersburgsmartcity.ru/

Aug 6, 2018

As cities rush to embrace smart technology globally, it seems that there could be 'platform' lessons from Russia

For the thousands of football fans travelling across Russia for the World Cup, smart technology was unlikely to be on their 'check it out' lists. Yet, the digitally savvy could have saved themselves local hassle on transport at least - Moscow is one of the world leaders in Smart City development and another 18 cities are taking part in a national smart technology project.

https://www.eyefortravel.com/mobile-and-technology/moscow-shows-world-how-do-smart-city



Standards or Standardization for/of Cities?



Connected cities

As our world becomes increasingly connected, so too does the risk of security breaches and their associated dangers.

Standards like ISO/IEC 27001 and ISO/IEC 27002 for information security management systems help organizations address security and privacy issues, while ISO/IEC 38500 on corporate governance of information technology provides a framework for the effective, efficient and acceptable use of IT within organizations.

 Another useful standard in the field is: • ISO/IEC 30182, Smart city concept model – Guidance for establishing a model for data interoperability

There are also three standards in development:

- • ISO/IEC 21972, Information technology An upper level ontology for smart city indicators
- • ISO/IEC 27550, Information technology Security techniques Privacy engineering
- • ISO/IEC 27551, Information technology Security techniques Requirements for attribute-based unlinkable entity authentication

Sources:

 <u>https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100423.pdf</u> <u>https://www.iso.org/publication/PUB100423.html</u>

Comment:

• Makes a lot of sense in technical terms (like same traffic rules, same voltage, same units, ...), still for cities it must be the goal to keep their uniqueness!

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(Urban) (Geo)Information Systems, Information Infrastructures (2D, 3D, 4D (time), (5D – scenarios) ...)

In operation for "long time", strategic planning and decision making,

core field for city administration, geographers, urban planners, ...

- Collect
- Describe
- Analyze, Calculate
- Simulations, Scenarios
- Plans
- Participation
- Decision making

(DSS – Decision Support Systems)

Categories of Spatial Data according to their "spatial exactness" (same for time)

- Exact, clearly defined
 - No sharp boundaries, depending on perspective
- Contionuously changing over area
- "Spatial Information", that_acan hardly be described spatially











(Urban) (Geo)Information Systems, Information Infrastructures (2D, 3D, 4D (time), (5D – scenarios) ...)

In operation for "long time", strategic planning and decision making,

core field for city administration, geographers, urban planners, ...

- Collect
- Describe
- Analyze, Calculate
- Simulations, Scenarios
- Plans
- Participation
- Decision making

(DSS – Decision Support Systems)

Categories of Spatial Data according to their "temporal exactness and validity"

- "permanent", eternal, … (geology? cadastre? …)
- Very constant (infrastructure?)
- Constant in a life-span (buildings)



- Temporal
 - Periodically changing (day/night, weekends, holidays, high season, festive season, ...;
 i.e. traffic/parking regulations)
 - Permanently changing, REAL TIME CHANGES (traffic situation, energy consumption, ...)



(Urban) Information Systems: Data – Information – Knowledge – Wisdom (Where/What is "smartness"??? Is "Big data" the answer?)





Building Information Modeling (BIM) Market - Global Industry Forecast & Growth Analysis Report till 2022



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DecisionDatabases.com offer Building Information Modeling (BIM) Market Research Report. This Report covers the complete 3D VISUALIZATION Industry Outlook, Growth, Size, Share and Forecast till 2022.

The report on global building information modeling (BIM) market evaluates the growth trends of the industry through historical study and estimates future prospects based on comprehensive research. The report extensively provides the market share, growth, trends and forecasts for the period 2015-2022. The market size in terms of revenue (USD MN) is calculated for the study period along with the details of the factors affecting the market growth (drivers and restraints).

https://thebimhub.com/2016/08/25/building-information-modeling-bim-market-global/#.W_ZXEfZFxTc

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Robots and Drones building a bridges, (Russian) 3D-printer prints a house in 24 hours

- •3D-printed Bridge (steel elments) is finally built by robots https://www.youtube.com/watch?v=SEaht2tQ8P8
- •Flying Drones Building Rope Bridge: https://www.youtube.com/watch?v=CCDluZUfETc
- •3D printing house in 24 hours (Apis Co is a Russian company that has developed a 3D printer capable of building a house in just 24 hours.) https://www.youtube.com/watch?v=GUdnrtnjT5Q
- Prefabricated Building: https://www.youtube.com/watch?v=CiB-mxxfuP4





Building a rope bridge with flying machines - YouTube YouTube · Federico Augugliaro





77 apartments.6 levels.Assembled on site in just 10 days.







The Internet of Things

From connecting devices to human value





WHAT IS INTERNET OF THINGS?



WHAT WILL IOT DO?

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- 1. Over 80% of IT experts believe that IoT will be beneficial to the world.
- 2. IoT will enhance data exchange and living standards.
- 3. IoT promises a high level of efficiency, and will reduce costs in our homes, workplaces and cities.
- 4. Nearly 24 million cars will have access to the Internet by 2016. This is from just 8.7 million cars in 2010.

80% \$ 24m



Underground Space – the new frontier? (just parking???)



Han Admiraal and Antonia Cornaro

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"Urban Farming" – multiple aspects: Local Food Production, Greening the City (microclimate), enter abandoned spaces

(no tractors in the streets ;-))



By 2050, urban buildings that breathe and adapt



What will a skyscraper built in 2050 look like? How will it function





AGRITECTURE ... - https://www.agritecture.com/blog-feed-old/2018/5/2/the-future-with-urban-farming





Digital City Rotterdam

1. Digital City and spatial planning







Digital City Rotterdam

- 2. Pilotproject 'SAFE Rotterdam 3D'
- A lot of people on a small part of the city
- Lot of activities and 'uncertain times'
- Fire Department uses 2D PDF files per floor





Digital City Rotterdam

2. Pilotproject 'SAFE Rotterdam 3D'

- 3D model outdoor and indoor
- Real time data indoor/outdoor presence of people
- Development dashboard and tooling for disaster- and evacuation scenarios





Digital City Rotterdam

- 2. Pilotproject 'SAFE Rotterdam 3D'
- Better safety policy
- Knowledge and development of 3D indoor tools
- Privacy issues data collection, storage and use



Группа компаний 344000, г.Ростов-на-Дону пер.Газетный, 121/262А, офис 4 Теп./факс (863) 242-9970, 242-9968 ٢ The Smart City's Hierarchy of Needs f

> City as a platform Manifesto Vision alignment

0 **Digital Ecosystem** management tools

Urban Actualization (insert triangle recycle

Dynamic Menus Multi-stakeholder governance & engagement

City data platform

Static then real-time open data

ICT Technology Infrastructure

Benchmark & maturity model Peer-to-peer progress Benchmark. setting goals

Manifesto Challenges Urban catalysts

tmferum



Smart Mobility ... Do we really build our Cities today like illustrated here?





Digital Technologies are everywhere - already!

The "digital revolution" is already going on for a while in Cities, in Urban Planning and Development and Real Estate Industry, and as said in the beginning: "*Resistance is futile!*".

Still our cities are physical cities,

they are the **places for people** to live, love, work, learn and study, enjoy culture and arts, experience human life with all it's ups and downs, amenities, sufferings and pleasures – and last but not least *do good business*.

ICT and data- / Information- / Knowledge-Systems (hardware & software) have become **CRITICAL KEY INFRASTRUCTURE** for Smart Cities & Regions and thereby for Real Estate Industry.



Fast vs. Precise, Long-Term-Forward-Thinking vs. Quick Results

Still the view on these changes in technology might be ambivalent:

Digital Technologies are still in rapid development and there are no signs that this will change soon. Single components are getting cheaper and cheaper, but as "Smart City" is not about single components but about interlinked networks and grids with thousands or even millions of components the **investment, maintaining and renewal costs sum up to significant amounts**. Still the **renewal cycles are rather short**, as even "breakthrough solutions" can become outdated rather quickly.

Urban Planning as well as **Real Estate Business usually means dealing with long lasting objects with high investment volumes and maintaining costs per unit**, that have to be very seriously calculated and need an excellent expertise for taking the right decisions on all levels – forward thinking and planning for many years - even decades - is part of the business.

With all the sometimes mediated digital technology euphoria as a general problem solver by "digital believers" and of course by solution providers from this industry a certain skepticism against all too fast and more frequent "fundamental changes" seems appropriate.

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Kind of Summary ...

- "Smart Cities" will hopefully still be "Real Cities" for "Real People" with excellent Urban Environments, affordable housing, high class architecture and design
- Integrative with high levels of interaction "Cities for All"
- Technology on it's own does not build cities it depends how we use it and what we make out of it!
- Main purpose of cities: PEOPLE can unfold their talents and activities there live, love, learn, work, enjoy ... and make good business
- Not major purpose of "Smart Cities": playground for as many and as expensive technologies as possible, no matter if useful in specific context or not "Smart City Renderings" are probably not completely the bright future we dream of

• VISIONS of a LIVABLE FUTURE

are even more important then technological solutions, but technology can help a lot to improve things

- Data- / Information- / Knowledge-Systems are KEY INFRASTRUCTURE for Smart Cities & Regions
 - Numerous new data sources: remote sensing, sensor networks, real time information, "humans as sensors", ... can help to find better solutions
 - Real time data, monitoring, surveillance, (semi-)automated transport, ...
 - OPEN DATA / INFORMATION policy is hopefully irreversible
- Responsible Decision Makers, Urban Planners, Architects, Real Estate Experts, "City Lovers" have to claim their role in Smart City development to build and maintain REAL CITIES for REAL PEOPLE!



Smart Cities – "usual" Major topics and preconditions

- ICT (bandwith, computing power)
- Administration, communication (fast, simple, one-stop-shop, ...)
- Energy management, resource management
- Transport and MobilityClimate mitigation, "Urban Farming"
- REAL ESTATE (still often missing in such overviews, or just "Smart Home)
- Mobile Applications / Remote activities / Sensors "everywhere"
- Safety & Security (+privacy), maintainance
- Inclusion & Accessability
- Does "smart" include "sustainable" & "resiliant"?

PREREQUISITES for successful implementation of ICT-infrastructures and SERIOUS APPLICATIONS in City Management and Urban Development in the best sense of a livable, sustainable, resilient, business-friendly "Smart City" are seen in

RELIABLE

- Legal System: Laws, Rules, Guidelines, ...; rules of conduct; Legal Certainty
- Government, Governance, Administration
- Data & Information Systems as a basic necessity for smart cities and regions, (Geo-)Information Infrastructures

It needs a solid foundation to make DREAMS COME TRUE!



"Smart" does not necessarily mean "Digital", "High Tech" or "ICT"

Smart, intelligent solution: the Roman Aqueduct!

This technology had a massive impact on Urban Development and the Real Estate Industry!

100% ICT-free!

Curitiba / Brazil is probably one of the smartest cities in the world – but it's not specifically known for IT



"The Aqueduct of Segovia is a Roman aqueduct in Segovia, Spain. With the Pont du Gard in France, it is one of the best-preserved elevated Roman aqueducts. It is the foremost symbol of Segovia, as evidenced by its presence on the city's coat of arms." (Source: Wikipedia)



Did I forget something? What did I hardly mention?

Oh yes ... - money, cash, budget ... - it is essential for each strategy, but ...



Achieving something is about the

VISION!

Where do we want to go?

"Impossible is nothing!"



Thank you for your attention and your enthusisam for the fantastic cities and regions you are working for!

ROSTOW ON DON has all the potential to make VISIONS come TRUE!



Manfred Schrenk, ms@corp.at



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