

LIVING THE FUTURE: A CHALLENGE FOR THE TERRITORIES

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report

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LIVING THE FUTURE: A CHALLENGE FOR TERRITORIES

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Speakers:

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Anna Lindorfer, Energy Expert, Urban Innovation Vienna

Daniela Luise, Director Coordination Office of Italian Local Agenda 21

Francesco Mazza, Business Development Manager, MOOG inc

Sergio Nardini, Coordinator Special Projects Unit General Affairs Department, Port Network Authority of the Eastern Adriatic Sea

Susana Ruiz Fernandez, Senior Technical Officer, Urban Planning and Territory Department, Bilbao City Council

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Simona Tršinar, Project Manager working in the climate pillar at REGEA (North-West Croatia Regional Energy and Climate Agency)

"Land urbanization is an ancient trend and today more than half of humanity lives in cities. Cities represent both a unity and a diversity of inhabitants, stories and geographies, but above all cities concentrate socio-environmental processes, catalyze transformations and act as indicators. Studying cities is fundamental to knowing ourselves and our perspectives".

Francesco Mazza, Business Development Manager, MOOG inc

Francesco Mazza presented the main results of the report on the LICOF – Laboratory on Imagination of Construction Of the Future research on “Future Construction and Future Cities”, drafting future scenarios for the building sector and society by 2040. LICOF can count on a team of approximately 30 members, representing different stakeholders from the Construction sector (entrepreneurs, managers, experts). The goal of the 12 month-long Area Science Park research project in collaboration with ANCE (National Association of Building Constructors) and Industry Platform 4 was to identify and describe 4 possible scenarios for Construction and Society by 2040.

Main megatrends for the cities by 2040 related to the building sector were identified, including rapid urbanization (leading to growing urbanization and housing crisis), sustainability (resource scarcity, sustainability requirements, energy and climate change) and shortage of qualified labor.

Two drivers for the future were identified in the report: digital transformation on one side, by means of implementation of new business models (servitization of any business) based on the use of data, and circularity and sustainability on the other side, by means of implementation of technologies for the achievement of a more sustainable society, under a social, environmental and economic perspectives.

4 scenarios of possible future cities were presented: “Houses –Forts” in a society of conflicts, “Nest houses” to protect individuals from a sense of uselessness, “Shuttle houses” in a fully digitalized world, “Bike-house” – a society of local communities.

Next steps to forecast future scenarios were presented, including the continuous monitoring of signs of future trends and the creation of an ecosystem and cooperation network, also in order to make all stakeholders ready to face the challenges ahead until 2040 and, building on the results of the research carried out so far, provide a tool to build a vision for 2040.

Fabrizia Salvi, Project Manager, Projects Development and Management Unit, Area Science Park

Fabrizia Salvi introduced the importance of integrated planning for the sustainable, balanced and resilient development of cities, starting from the experience of the project IN-PLAN, funded by the Life program.

Spatial planning requires an interdisciplinary planning approach including scientific, administrative and policy aspects guided by a strong overall strategy and vision. In order to reach a balanced, resilient and sustainable development in line with EU policies and objectives, integration with energy, climate and mobility issues is necessary since spatial planning plays a crucial role in the implementation of climate change related measures.

Through strategic and sustainable integrated planning, cities can take effective actions to fight climate change and mitigate its impacts implementing measures in different fields such as sustainable transportation systems, incentives for energy-efficient buildings and infrastructure, support to compact urban development, promotion of green spaces and adaptation to climate change.

By means of local integrated plans and involvement of the quadruple helix actors (citizens, academia, business and policy makers) city policies converge towards the EU objectives for climate neutrality. In order to reach such objectives some key challenges shall be tackled such as lack of vertical and horizontal integration or alignment of strategies, plans, and policies, lack of a systemic, integrated, and consistent approach to energy and climate planning, lack of a systemic, integrated, and consistent approach to energy and climate planning, lack of a systemic, integrated, and consistent approach to energy and climate planning.

The IN-PLAN project was conceived to respond to all the above-mentioned challenges by means of the development, test and roll-out of a specific practice conceived as a support structure for integrated planning enabling local and regional authorities to implement integrated energy, climate and spatial plans. Municipalities are involved in project activities in 5 countries (Italy, Sweden, Croatia, Ireland, Romania) and it is still possible to enrol in the project as pilot cities. Area Science Park is the national technical partner for Italy.

Anna Lindorfer, Energy Expert, Urban Innovation Vienna

Anna Lindorfer presented Vienna’s energy planning instruments for decarbonization starting with a quick overview of spatial planning in Austria and the opportunities it offers to integrate strategic energy planning measures by means of specific spatial planning instruments such as the strategic urban development plan Vienna (STEP 2035), Energy Zoning 1.0 and 2.0 and Urban Development Contracts. In Austria there are 9 different spatial planning laws on provincial level having differing spatial planning goals in order to respond to differing planning requirements. It was underlined that Vienna is a special case, since it is both a Municipality and a Province. Municipalities in Austria are in charge of the Zoning Plan, the Building Plan and the Local Development Concept. The role of Vienna’s strategic urban development plan is particularly

relevant since it is a central steering instrument for supra-local spatial development of Vienna; it is revised every 10 years since 1984. STEP 2035 prepares the basis for spatial transformation into a climate-friendly and robust city.

Vienna's energy zoning is a unique example in Europe: as far as Energy Zoning 1.0 is concerned, it will be completed for all city districts by the end of 2023 due to the lack of a national law for ban of fossil fuels in heating. The Energy Planning Map based on heat demand density map and heating plan will be at its basis. The map shows where and which urban planning interventions should take place in coordination with energy planning and where new constructions will not be allowed to use fossil fuels for heating. It is important to note that heating systems are of competence of the province while property rights are dealt with on federal level. The implementation of energy zoning 2.0 depends on a federal law (= Renewable Energy Law), which is still pending. At the moment there are more than 500.000 decentralized gas boilers in the city that need to be phased out by 2040, when Vienna aims to become climate neutral.

Finally, Urban Development Contracts are a legal instrument possible to use in Vienna since the update of the Building Code in 2014. They are Civil law contracts concluded by municipalities and property owners with the aim to involve developers in bearing infrastructure expenses and promote realization of spatial planning objectives. Such a tool though proved not to be adequate for tackling energy issues for several reasons including the tight scope for its application concerning mainly new buildings and the lack of consequences in case of non implementation, also due to the lack of capacity to monitor its implementation.

Spatial impacts of fossil fuel phase-out in urban areas shall not be forgotten (as well as their connected spatial instruments in brackets), such as just to name a few deconstruction of gas grid (coordination: municipality and grid utility), extension of District Heating (DH) Grid (zoning plan), shift towards e-mobility: charging stations on public ground and higher requirements for local electricity production (inner-municipal coordination process), secure new RES production sites and counter urban heat islands (zoning plan).

Simona Tršinar, Project Manager working in the climate pillar at REGEA (North-West Croatia Regional Energy and Climate Agency)

Simona Tršinar introduced the main components of a city to be considered when planning measures oriented to sustainability at the urban level, underlining the importance of the implementation phase after the planning has been finalized, highlighting that a strong political will is required to implement the actions. Spatial plans usually consider energy and climate aspects only in the zoning of the area and energy routes. Moreover, gas pipelines and central heating systems often overlap in an area, which is unnecessary as they are direct competition. She mainly referred to the process of planning and implementing a SECAP – Sustainable Climate and Energy Action Plan, pointing out that even though SECAP outlines concrete plans and actions with monitoring and verification, the implementing mechanisms are missing. REGEA is the Lead Partner of the already mentioned project IN-PLAN, and Simona reminded the main challenges tackled by the project and its practice. She shared REGEA experience with the City of Karlovac in Croatia, from which there was an initial request to introduce a District Heating zone in the City, which was later expanded to developing a "green" spatial plan. Political support was ensured since the beginning of the process, paired with continuous communication with the city officials and several city departments. There was a public presentation of the key elements of the process. Finally, before full rollout, the approach was tested in a brownfield development (a former military barracks area called Luščić). As in the IN-PLAN methodology for effective integrated planning, a series of steps were taken, including identification of appropriate plans, strategies and measures, analysis and development of technical documentation, preparation of measures to be integrated, development of the integrated spatial plan, public consultation and finally formal adoption of the plan.

Some examples of measures were provided, such as installing solar power plants on building rooftops and the protection, preservation, and increased implementation of green infrastructure elements: parks, gardens, protective greenery, and others in public spaces. A second example from Block Badel in the City of Zagreb was also provided.

A set of engaging "lessons learned" was shared, such as the fact that political will is vital, that timely communication with all relevant stakeholders is needed to avoid issues in the long term, as well as that the decisions need to be backed by assessments, silo mentality can be a challenge and shall be tackled appropriately, the developers of spatial plans need to be on board when planning energy and climate measures and finally that the whole integration process takes a lot of time.

Several cities and counties in Croatia have recognized the integrated planning approach's validity; consequently, a similar process has been implemented in three additional spatial plans. The included measures for integration include a higher energy efficiency standard, higher requirements on the use of renewable energy and restrictions on the use of fossil fuels; measures focused on climate change adaptation and resilience.

Susana Ruiz Fernandez, Senior Technical Officer, Urban Planning and Territory Department, Bilbao City Council

Susana Ruiz Fernandez shared the experience of Bilbao in implementing an amazing urban transformation project, which is still ongoing and started more than 20 years ago.

Bilbao includes 35 counties (municipalities) bordering the downstream of the Ibaizabal estuary. It is the 5th largest Metropolitan Area in the State and the 10th largest city. The population is concentrated alongside the Ibaizabal riverbanks, also according to the orography of the area. Following the application of a traditional industrial model in the city from 1880 until 1990 there was urban overdevelopment followed in the 90s by a deep industrial crisis which led to a high unemployment and socio-economic problems, paired with a peak in terrorist attacks. In 1983 the worst flood in local history destroyed the city. Reconstruction was therefore a necessity. In the 90s a post-industrial new development model was adopted with the following features: the estuary as backbone of the territory and economy of the city; urban sustainability: abandoned and degraded (brown) fields are put back to use, no green fields have been used as building areas; quality urban planning and architecture, zero debt (public budget was used to finance reconstruction with no financial debt), conservation of industrial GDP by adaptation to new technologies.

The port of Bilbao was significantly extended from 1991 until 2017, freeing up at the same time port and industrial spaces along the river in the Abandoibarra area. An environmental regeneration of the river was carried out with a total Investment: 1,000 million euros in the sphere of the water board (roughly 8 times more than the cost of building the Guggenheim Museum). A transformation of internal and external access mobility was carried out, a metro underground system was built with 3 metro lines in service with 87.100.000 travelers in 2016. The Guggenheim Bilbao Museum was built and is today the symbol of the transformation of Bilbao, the initial investment of Euro 140 million was paid back in only 4 years. Railway barriers in the city were eliminated and railways were moved underground.

The Bilbao RIA 2000 public-public partnership was created in 1992 with the participation of all the main public stakeholders of the area such as the Bilbao Port Authority, the Basque government, the municipal council of Bilbao and the state-owned land management company. All levels of public administration involved agreed on the same renovation and development objectives for Bilbao and acted jointly and consistently.

Many cultural facilities were built or renovated, and tourism became an important source of income. Also, microspaces to facilitate social integration have been implemented in low income neighborhoods.

Integration to improve neighborhoods have been implemented by means of 35 public elevators and 20 mechanical ramps and escalators, providing accessibility in upper neighborhoods with a lower income basis.

A model of eco-urban development was successfully implemented in Bilbao in the last decades. Such model will be further implemented in the Zorrotzaurre Master Plan, planned by the architect Zaha Hadid. New areas of opportunity for eco-urban development have been identified such as the area of Abando. And so the urban transformation process in Bilbao goes on.

Daniela Luise, Director Coordination Office of Italian Local Agenda 21

Daniela Luise introduced the experience of Agenda 21 implementation by means of integrated and participated planning in a selection of some examples from Italian cities. Today cities face major challenges, being inhabited by about half of the world's population, responsible for 70% of climate-altering emissions, consuming 75% of natural resources, producing 50% of global waste and using 60-80% of the world's energy, while occupying only 3% of the planet's surface. Climate change, the major global challenge of our time, is underway and will continue to have significant effects on our cities, which on the one hand will have to be made more resilient by planning and implementing adaptation and mitigation policies and measures.

The city of the future should be a sustainable urban center, inclusive, safe, lasting. It should pay attention to waste management and air control, protect and enhance the landscape and cultural heritage, ensure safe and quality housing and at the same time, ensuring citizens' access to decisions regarding the planning and improvement of cities. Planning will play a key role in the ability of cities to govern the innovation process by integrating different policies engaging citizens: building together the Future Cities.

In Italy as in Europe, many cities are experimenting with projects, initiatives to involve citizens, to identify how to build a city where they are integrated: social justice, economy, climate neutrality, health, but also technological innovation and the ability to balance the growth and innovation of urban areas with social needs and the mitigation of environmental risks and social inequalities, the concern to protect and promote material and intangible cultural heritage for future development.

To design a sustainable future for cities, an integrated and comprehensive approach for "greener and healthier" cities should be adopted (natural ecosystem components closely linked to the components of the social, economic, cultural and political system of cities), including combating soil consumption and urban diffusion (according to the "culture of reuse" - urban areas to be redeveloped and degraded areas to be recovered), combating territorial segregation of persons and functions, aiming at a balanced development of the territory (mutual relationship between town and country), including prevention, adaptation and resilience strategies to address climate change risks, promoting new lifestyles (collaborative consumption), new economy (sharing economy), new welfare (community welfare), new policies: based on territory and people and new, more flexible governance models.

In the second part of the presentation examples were provided of Italian cities and regions working on adaptation to climate change also by means of inclusion of specific measures in integrated spatial plans, such as the municipalities of Mantua (where adaptation has been adopted as a transversal strategy to planning), Brescia (where a strategy of climate transition was elaborated and applied), Padua (a 2030 climate neutral city working on climate neutrality since 1999 also by means of integration of municipal plans) and the Veneto region (where the Life project Veneto Adapt developed an operational tool to foster adaptation of Italian cities to climate change which had several follow ups in Italian cities).

Khalid El-Metaal, Rettore of the United World College of the Adriatic

Khalid El-Metaal stated his experience as an international educator and an urban dweller, having the chance to experience life in different metropolis such as London, Cairo and Toronto. At present as the Rettore of the United World College Adriatic he fully embraced the UWC movement mission to “make education a force to unite people, nations and cultures for peace and a sustainable future”.

In his experience of life in London, people living in less privileged parts of the city tended to be more creative and innovative, especially with reference to urban agriculture and growing food in an urban setting, for instance by means of setting up a citizens’ cooperative in Lea Valley in order to set up a just food system controlled by the people not by the market or corporations. Another example is Growing Communities, a community-led organization based in Hackney, North London, which is providing a real, practical alternative to the current damaging food system – changing what we eat, how we eat and how it's farmed since 1996, working to harness the collective buying power and skills of the local community to reshape the food and farming systems that feed them.

From 2008 to 2016 Khalid lived in Cairo, where the Zabbaleen community, the informal garbage collectors in the city since 1940, is based. He shared their story: for several generations the Zabbaleen supported themselves by collecting trash door-to-door from the residents of Cairo for nearly no charge. Notably, the Zabbaleen recycle up to 80 percent of the waste that they collect via local Egyptian companies, whereas most Western garbage collecting companies can only recycle 20 to 25 percent of the waste that they collect. The Zabbaleen use donkey-pulled carts and pickup trucks to transport the garbage that they collect from the residents of Cairo, transport the garbage to their homes in Mokattam district, sort the garbage there, and then sell the sorted garbage to middlemen or create new materials from their recycled garbage or use part of the organic waste as animal feed leading to a remarkable recycling rate of 80%. The living situation for the Zabbaleen is poor, especially since they live amongst the trash that they sort in their village and with the pigs to which they feed their organic waste. Nevertheless, the Zabbaleen have formed a strong and tight-knit community, understood the local context and adapted what they did to local conditions. However, their existence and way of life has come under threat after the Cairo municipal authorities’ decision in 2003 to award annual contracts of \$50 million to three multinational garbage disposal companies which proved not to be able to efficiently cope with Cairo’s needs.

From 2016 to 2022 Khalid lived in Toronto, one of the most culturally diverse cities in the world, where a culture of street festivals was developed as a consequence of the presence of many diverse communities to celebrate cultures and traditions associated to different ethnic groups, food and music traditions. Many immigrants from several countries arrived after World War II, having the opportunity to access education at university level they could not have had back at home, allowing them to soon move to the middle class and to become a vital part of the city’s life. Toronto successfully embraced a multi-faceted identity, where multiculturalism is seen as a vital, positive force and as a collective social project.

Contemporary urban life should embrace diversity as the core of a vibrant urban center. Education is the key to sustainable urban communities of the future, shaping the citizens of tomorrow and creating new mindsets, since such communities require the engagement of their citizens who shall be able to make their voice heard and to understand the context around them. All these aspects, as well as intercultural understanding and appreciation are at the core of the UWC movement mission as well as UWC Adriatic, thus contributing to sustainable urban communities of tomorrow, where context shape people but people shape context as well.

Sergio Nardini, Coordinator Special Projects Unit General Affairs Department, Port Network Authority of the Eastern Adriatic Sea

Sergio Nardini presented the ongoing implementation strategy for sustainable growth and development in the ports of Trieste and Monfalcone referring to resources and their qualitative use, the Port Authority shall balance market and capitalism with public interest. He underlined the importance of intermodal connections from Trieste and Monfalcone to several Northern, Central and Eastern European countries, where the port of Trieste started investing on the modal shift of rail freight decades ahead of the EU modal shift target. Today 50% of containers come and go by train.

There has been a steady growth in traffic in the port of Trieste in the last few years that generated income, employment, fiscal benefits and other positive indirect effects, growth opportunities related to sustainability shall be mentioned as well such as blue growth (using the ecosystem in a sustainable way), people (growing number of employees at the port authority and its sister companies as well as in private companies), R&D (in maritime industrial development areas), a future oriented agenda (less impacting activities for brownfield areas in logistics and manufacturing also attracting foreign investments) and cultural heritage.

The port is expanding and growing, total future investments in the port area are about 2,000,000,000 Euro and will enjoy the further opportunities offered by the Resilience and Recovery Fund (PNRR), for example by means of the acquisition of a former industrial brownfield area to be reconverted to vertical agriculture avoiding the use of new land. This is an example of how to rethink and redesign global value chains in an urban context. A focus on green investments is also foreseen and it will lead to green on-shore power supply for ships possibly based on biogas, green hydrogen, floating photovoltaic at sea.

Roberto Siagri, DeepTech Entrepreneur

Roberto Siagri presented the role of digitization in the cities and lands of the future, first introducing what digitization is. In industry, digitization refers to the use of digital technologies to change the business model in order to generate new revenues, but more importantly to change the purpose of the economy. From selling products to selling results from products and from consumer relationship to customer relationship. This changes the production system from linear to circular and sustainable.

In cities and territories, digitization refers to the use of digital technologies to change people's experience in order to achieve greater efficiency in public services, better quality of life and greater sustainability. But it is not just that; the paradigm shift in the production system enabled by digitization also has profound implications for the role of cities and territories and how we will live in them in the future.

We focus a lot on cities, considering that the trend is one of urbanization. We have to consider that the change in the production system made possible by digitization can also change this megatrend: rural regions can experience a new role thanks to digitization.

Rural regions in the EU cover about 45 percent of the territory with about 93 million inhabitants. Urbanization is a consequence of the challenges these regions face, such as an aging population leading to a decline in people of working age, a lack of infrastructure and services, a poorly diversified economy, and the digital divide, which, as a result, lead more and more people to move to urban areas in search of better job prospects and public services. Today 55 percent of the world's population lives in urban areas and this is projected to rise to 68 percent in 2050. But these projections are the consequences of the industrial production system.

The scenario opened by digitization may be exactly the opposite. Digitization, combined with artificial intelligence, robotics and autonomous vehicles, can break this vicious cycle with an impact on mobility and

education, which are the main challenges in rural and mountainous areas. With digitization, it is services that come to us and not us from services.

In this new scenario, for example, young people will be able to continue to live in the mountains where they enjoy the quality of life because they will no longer be dissatisfied with the quality of services offered or the long commute times, especially mobility, which is a crucial problem in the mountains that dampens the overall quality of life, will be addressed brilliantly with smart-working, telemedicine, and autonomous vehicles. Digitization can lead to a decentralization process that favors rural and mountainous areas.

But there is more behind digitization, the roles of the center and the periphery become interchangeable, we can do in the city what used to be done in rural areas, such as farming and animal husbandry that will be replaced by vertical farming and cultivated meat. Today, we have a set of technologies that allow us to redesign our future for the better and centered on people's inspirations and creativity: cloud, IoT, AI, blockchain, 5G, 3D printing, humanoid robots, DNA editing, unmanned aerial and ground vehicles, to name just a few of the best known. Thanks to these technologies, people can stand in the territory that best embodies their values, where they feel they belong. Digitization is not based on spatial segregation, but on the contrary is inclusive, this will enable communities to adopt inclusionary goals based on culture rather than ethnicity.

Digitization, initially deceptive, will shortly show its disruptive nature, a consequence of its ability to dematerialize and demonetize goods and transform them into advanced services, democratizing their access. This effect has the power to change the economy from unsustainable to sustainable. But this green transition that can be enabled by digitization is not automatic.

This promise, to become a reality, also requires a change in the attitude of people, who must recognize that the real value lies not in the tangible content of a product, but in its intangible content. The new generations (millennials and gen-z) are showing this new attitude that is a consequence of being born digital.

Digitization with AI and robotics plays a crucial role in shaping the future of our cities and territories. As we embrace this digital transformation, it is essential to rethink everything from the bottom up. The future of cities and territories can be different from what is envisioned, and this is thanks to the digital transformation of territories into smart lands and not just cities into smart cities.