

Professional scientific sessions for art, architecture and urban planning Thursday evenings

Held in: Conference hall of Herampey Consulting Engineers

Date: 19.09.2019

Title: Smart Structure and Architecture with an approach on sustainability.

Speakers and panel members: Mrs M. Rezaie and Mrs N. Khaqani.

Mrs M. Rezaie that was the first speaker said that we are living in the era of IT technology and communication. The right information in the right time and the scientific authority as the main manager, are the components that create a scientific unity. Today in the cities that aim to be considered smart, the management of science and knowledge is part of the infrastructures. The analyse of the data and information create the knowledge that is used to find logical solutions and solve the problems. In her opinion only reliable data are subject to be analysed. To create the necessary base, cooperative processes of science production are needed, where they are the involved parties in the life of the cities and have an active participation in the process. In such ecosystems the smart systems are organized by the official authorities and improved by the private sector's activists.

The consideration and diffusion of smart city concept has been considered seriously by the authorities especially during the last two years. The interpretation of sustainability is keeping and protecting, so it's a sign of stability. In this context the influence of the nature is the main way to reach sustainability.

The smart cities in the modern world are important economic poles and are distinguished by other cities because of the smart and creative management systems. In the third millennium the IT technologies are the main base for the evolution and development of the world and their achievements are strictly connected to the everyday life of the citizens and any lack can create huge problems for the wellness of the societies. This is the reason that the decisive role of the IT technologies and communications can't be ignored.

Mrs Rezaie asserted that smart and virtual cities are concepts that attract the citizens to a new world and life in the modern cities, where is possible to live online. The ways to create smart and digital cities are related to the main programs and necessary documentation. In this regard she presented the model prepared by the Industrial University of Vienna, where six main parameters are considered for the definition of smart cities. Another centre for the classification of smart cities is the Spanish university of Navarra. The main 10 parameters are the urban management, public management, urban programming, technology, human resources, economy, environment, global access, social strength and transport. In this context 135 cities have been analysed and classified. She believes that smart economy, smart transport and transfer, smart environment, life and authority are the main factors of a smart city. The concept of smart city will be realized when investments will flow throw this direction.

Mrs Rezaie continued her speech saying that today about %54 of the global population is living in the urban areas and most probably this number will increase until 2050 to up to %66, increasing the number of population to an ulterior 2.5 billion. This “explosion” will create the necessity to new levels of coordination in different fields of urban management.

Talking about the influence of science on architecture and human habitations Mrs Rezaie said that today human society has concentrated his effort on the application of technological achievements in order to improve the quality levels in various sectors of our everyday life. In her opinion may be in some cases the life in smart houses can seem or give the impression of being complicated, but the reality is different and smart cities and houses will just improve the quality of life in various levels and spheres.

The spheres that can improve the final result of their activities are water provision, management of green spaces and the influence that they can have in the increase of urban life quality. Continuing her speech she presented the historical development of the process of beautification of the cities and how the urban management departments acted to make the cities more liveable for the citizens. Through a system of monitoring and analyse of data called EIA, the urban managers' bodies control various components that if are managed in a positive way can improve the quality of life in the cities. One of these factors is the air pollution in the cities that has become an everyday and urgent problem in many cities round the world.

Focusing on the importance of the introduction of various standards in the sphere of urban management Mrs Rezaie talked about the standard of ISO 14000 regarding the environmental systems, created in 1996 by the technical committee 207 of ISO organization, including the organization structure, programming activities, definition of responsibilities, manners and processes that must be considered for pass successfully the process of standardization.

As everybody knows another serious problem are the urban wastes and the manners of their collection, recycling and the final treatment. In this context the daily increase of the urban population create new problems that must be faced. In order to reduce the level of the problems and threats and increase the level of effectiveness the use electronic and telecommunication smart devices in the urban management are used.

Concluding her speech Mrs Rezaie explained that the main goals of environmental smart management goals are divided in three categories that are: the environmental sustainability, green energy and its optimal use. Another category includes the strategies and solutions for the infrastructures and content-use. The last category includes the strategy to increase the environmental and life quality, involving the construction of smart houses and buildings, the use of clean and reusable energies, the use of water and waste water sources. All these factors will create the necessary conditions for the development and the increase of the quality levels in various sectors of the environment.

The second speaker was Mrs Khaqani. Beginning her speech she talked about the introduction of sustainable architecture in the '70s of 20th century, that has experienced its growth and perfection in 80-90s and the session of global society in 1992. The result of this process are the design and realization of outstanding buildings in the EU and other parts of world. From 2002 the concept of smart architecture has been in the centre of attention and discussion of the experts, having as result the combination of smart and sustainable solutions in various fields of architecture as final results.

Talking about the common factors between smart and sustainable architecture, Mrs Khaqani pointed on the facades of the buildings. She explained that there is a system called IBS for the definition of criterions of solutions applied in the smart buildings and how various solutions must work and function in an integral system that is the building. The final goal of such application of solution is of course the wellness and accessibility for the users of such constructions.

During her speech Mrs Khaqani presented a historical of smart buildings from 1967 in the world exhibition in Canada, with a building presented in the American pavilion to the smart researches centre called CJ in 2012.

The smart buildings can be divided in two categories of habitable and others, like hospitals or kindergartens that have a major importance in the urban life. The solutions used in the smart buildings are parallel to the latest scientific and technological achievements that point on the use and application of natural sources, like the sun energy, to increase the sustainability and effectiveness of the buildings where they have been applied.

Mrs Khaqani presented a building built in Nashville-USA called CST 505, where the sunrise is transformed in energy to be used in night time. She talked and presented about various solutions in buildings, solutions that improved and increased the quality of life avoiding to be harmful to environment and natural sources.

Continuing her speech Mrs Khaqani presented the case of smart buildings in a neighbourhood of Warsaw. The aim and goal of such project is to rebuild abandoned or degraded areas with new level of standards and smart solutions.

Mrs khaqani explained that depending on the geographical position, the solutions can vary, like in countries like Denmark that have problems with the provision of energy, because of limited possibility of sunrise use.

The last example of smart building that Mrs Khaqani presented was a building built in the Italian city of Luca. The characteristic of this building built in 2012 is the concentration and application of ideas and concepts of sustainable and smart architecture combinations. In this building the latest achievements in technological spheres have been applied in the construction of the building in order to minimize environmental negative impacts and maximize the final result of smart and sustainable solutions and applications.