Smart Cities: How may São Paulo become one of them?

The workshop took place at the Biblioteca Brasiliana auditorium with the presence of around 160 people, including members of the academic community, government entities, and startups from São Paulo, as well as guests from universities in Rio de Janeiro, Goiás and Mato Grosso do Sul. It was transmitted in real-time over the Internet and reached around 600 people remotely. The event was organized as three themed panels.

Panel 1: Government & Science: Big Data at the service of the City

With Prof. Marcos Buckeridge (IEA/USP) as moderator, the first panelist, Prof. José Eduardo Ferreira (IME-USP), presented the USP infrastructure of optical networks, IoT and datacenters, highlighting the fact that the Cidade Universitária campus may become a research lab for smart city projects.

Then, Prof. Roberto Marcondes Jr. (IME-USP and FAPESP) gave a presentation on research projects in the area of Urban Informatics, notably the USP Urban Vision project, which deals with the extraction of information from urban online cameras for the production of statistics and detection of incidents. Prof. Marcondes Jr., as Deputy Coordinator of the Scientific Board of FAPESP, also made considerations about the size of the research system in the state of São Paulo, which represents 25% of S&T production in Latin America. In this context, he pointed out that USP is well positioned to host world-class research, particularly in the area of Smart Cities, and that FAPESP shall play an important role in supporting research in the area, including startup financing and mediation of Partnerships with large companies.

Prof. Eduardo Hadad (FEA-USP) made a presentation on the economics of urban mobility, with a special focus on understanding the functioning of cities (mobility patterns, accessibility for different types of private and collective vehicles, relationships between mobility and work efficiency and the impact of policies to migrate users to public transport). He highlighted this as an important area for collaboration with other areas around Big Data themes.

The fourth presentation in the panel was made by Prof. Marta Teresa da Silva Arretche (FFLCH and USP Metropolis Research Center), who summarized her research on the use of IT (notably mobile and Web applications) to improve citizens' quality of life at a low cost and in a sustainable fashion. She also highlighted the contribution that the University can make to the production of public policies, considering that the academic community, despite having no experience in public management, can produce quality information with a constant flow, making large databases more accessible to managers to support policy-making.

The fifth panelist was Alexandre Calil (Lab PRODAM), who described several practical and simple initiatives, but with great impact, to automate processes previously executed manually in the various divisions of the City Hall of São Paulo. He highlighted the impact of automation on improving the accuracy of data collected and on creating new possibilities for data use.

The panel ended with a presentation by Daniel Annenberg (then nominated as Municipal Secretary of Innovation and Technology for the 2017-2020 term), who highlighted the new secretariat's emphasis on supporting IT, intended to position São Paulo as one of the ten ecosystems of technology and innovation in the world. He also mentioned the university's role in this context, in particular the re-training of public servants to acquire new knowledge and skills, as well as the co-creation of new public services.

Finally, there was an open session of discussions with the audience that focused on topics such as the role of citizens and incentives for data collection in smart city applications as well as issues related to privacy and the need for systems and

applications to be flexible in order to include new variables and integrate existing systems.

Panel 2: Science, Planning and Urban Mobility

With the moderation of Prof. Fabio Kon (IME-USP), the first panelist, Prof. Miguel Bucalen (EP-USP), addressed the issue of mobility from the perspective of intelligent transportation systems, highlighting developments in long-term strategic planning and exemplifying with ongoing projects such as SP2040, Salvador 500 and São João da Boa Vista 2050, noting that any solution must be adapted to the characteristics of each city.

Subsequently, Prof. Cláudio Barbieri Cunha (EP-USP) gave a presentation on freight distribution and public transport urban logistics, with optimization of the public transport network, noting that good models lack data on people mobility.

The third panelist, Roberto Speicys (startup Scipopulis), discussed tools to improve urban transport, aiming at improving the speed of the slower bus lines through the use of GPS data. He pointed out that the monitoring carried out by his startup made it possible to verify that the city is not so unpredictable in this respect, and that there are buses mobility patterns that allow, for example, to report occurrences of abnormal situations. The systems developed by this startup founded by USP graduates are already being used by the city of São Paulo and being tested by othes.

The panel ended with the presentation of Prof. Nabil Bonduki (FAU-USP), who emphasized that the mere use of technology does not create a smart city, but contributes decisively by opening up new possibilities. He also noted that cities based on automobiles can not be smart and that a compromise might be the sharing of automobiles. The presentation was completed with considerations on how urban policies in the areas of mobility, transportation, environment and housing are key to smart cities.

Discussions with the public dealt with issues such as integration of data from different systems, active mobility (pedestrians and bicycles), study of similar problems in medium-sized cities, integration with environmental issues such as global warming and energy consumption, and funding policies for smart cities Initiatives.

Panel 3: Smart Health, Accessibility and Environment in the City

The panel, moderated by Fábio Feldman, environment specialist, began with the presentation of Prof. Paulo Saldiva (IEA-USP), who discussed the relationship between problems that can be solved with city intelligence and health problems (individual and public). He highlighted the usefulness of smartphones applications in this context, such as applications that indicate or estimate the vulnerability of the city to extreme events, or that make it easier to identify the cause / origin of problems (semaphores, etc.). Demand for applications is very high and there is a need for efforts to build urban application development groups.

The second presentation was made by Prof. Maria Assunção Faus da Silva Dias (IAG USP), who highlighted the problem of extreme rainfall in the city of São Paulo and discussed the need for more accurate weather forecasts, within the concept of nowcasting, and the use of smartphones as a communication and alert platform to specific regions of the city.

The third presentation was made by Adriana Lippi (SALT Ambiental) and described the application SP Árvores (SP Trees), developed by the company for tree monitoring (risk of the fall of trees).

The discussion with the public addressed themes such as the complementarity between the progressive sensorization of the city and the provision of data by

citizens, legal barriers that need to be removed to allow the operation of applications in some areas of smart cities, and the need for the constant update of solutions, given that urban growth has the inevitable consequence of obsolescence of existing solutions.

The workshop was concluded with considerations on the need to inventory the demands of the city and to direct the research to strategic topics. The search for private financing (companies and foundations) and the use of the University as a laboratory for new initiatives were also considered.

The attendees also pledged to seek the possibility of establishing a Smart Cities Innovation Lab, possibly within the IEA-USP, in order to aggregate research results from several USP units, to develop innovative technology, and to effectively transfer this technology to society at large. Support by the Rectory of USP and the Board of the IEA will be used in order to seek external resources from national and international public and private agencies to enable this Smart Cities Innovation Lab. The USP Global Cities program and the INCT for the Future Internet and Smart Cities have already expressed their interest in working together in this direction.

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