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Siemens promotes interconnection of city infrastructure in assisting Taiwan towards achieving City 4.0

- **Convergence of IoT, AI, 5G and Big Data analytical technologies will drive further upgrading of the smart city, ushering in the arrival of the age of City 4.0**
- **Siemens is committed to providing advanced smart infrastructure technology to help Taiwan move towards City 4.0 and realize the vision of becoming a smart nation**

A United Nations report¹ indicated that over 60% of the world's population in 2030 will live in urban areas, while cities will consume over 70% of the world's energy and bear responsibility for greenhouse gases of that amount. Amid climate change, urbanization, globalization, and digitalization are bringing unprecedented challenges. Cities need to make good use of digital technology to be able to rapidly adjust urban planning and design to strengthen national competitiveness and social sustainability. By 2020, the convergence of IoT, AI, and 5G communications technologies are acting as the foundation for the integration of infrastructure, such as buildings, energy, and transportation in the city. Comprehensive lifecycle simulation and interconnected infrastructure turn big data into valuable information, creating the basis for the future development of smart cities, promoting economic growth in cities, and unlocking the potential of innovative applications, paving the way for the era of City 4.0.

Siemens has long focused on the electrification, automation, and digitalization of infrastructure. It has developed 14 key technologies² based on IoT, integrating its specialized solutions and services in infrastructure, rail transportation, digital industry, and energy, thereby developing diversified applications and innovative portfolios. It has also introduced the open IoT cloud-based

¹ Economic and Social Council, United Nations (2016), Smart cities and infrastructure, report of the Secretary-General

² Additive Manufacturing, Autonomous Robotics, Blockchain Applications, Connected (e)Mobility, Connectivity and Edge Devices, Cybersecurity, Data Analytics, Artificial Intelligence, Distributed Energy Systems, Energy Storage, Future of Automation, Materials, Power Electronics, Simulation and Digital Twins, and Software Systems and Processes

operating system MindSphere, which is presently used in data collection and analysis of about 800,000 systems around the world, including gas turbines, traffic control centers in over 200 cities, and skyscraper monitoring and inspection. This assists in the overall digital transformation of urban infrastructure, such as manufacturing, energy supply, transportation, and buildings. Representative success stories throughout the world in promoting the smart City 4.0 concept include:

- 1) New Brunswick Power in Canada: The Canadian government invested nearly US\$100 million in which Siemens has integrated buildings and smart grids, and also has created the cloud-based Energy System Platform. Buildings became devices to store excess power, helping to realize diversified power management, reduce power waste and carbon emissions, and prepare for the greater integration of renewables in the future.
- 2) Singapore: Siemens and the Singaporean government set up a digitalization center in Singapore in which sensors are used to collect data on infrastructure in Singapore. The data is fed to the Siemens open cloud IoT operating system MindSphere to further analyze and provide decision makers with information to improve the efficiency of urban operations and realize sustainable development.
- 3) Expo 2020 Dubai: Siemens is a cooperative partner in the construction of digital infrastructure for Dubai World Expo. Based on the open IoT cloud-based platform MindSphere, Siemens is employing digital solutions to connect, monitor and control exhibition buildings. The data collected by over 200,000 sensors in the exhibition area offer a tool to help managers make smart decisions and assist the expo in achieving its goals of energy efficiency, comfort and safety, while building a model for the world of a future smart city.

The Taiwan government in 2017 introduced the DIGI+ initiative, while the National Development Council also began working with the Ministry of Economic Affairs on the Asia Silicon Valley Development Plan-Demonstration Project for Smart City Flagship Application Service, striving to promote smart city development and satisfy complex urban governance needs. This is helping to realize the Digital Nation, Smart Island vision. As an important technology partner of Taiwan, Siemens is committed to helping Taiwan move towards becoming a smarter City 4.0 and in a broader sense a smart country. Siemens Ltd., Taiwan President and CEO Erdal Elver said, "Digitalization means data speak, enabling urban infrastructure to become interconnected, thus optimizing and making city operations smarter. Siemens has developed roots in Taiwan for over

30 years, helping to create a number of important milestones in the development of urban infrastructure. We will continue to fulfill our commitment to Grow Taiwan Together. Siemens will share its successful experiences from throughout the world and its advanced technologies, supporting Taiwan's urban infrastructure to become smarter and to forge ahead to the City 4.0 vision."

Siemens Taiwan is also committed to the digitalization of data to achieve the smart operation of cities. It hopes to employ advanced building technologies to create applications that focus on user needs, while also using sensors to collect internal and external building operation-related data that can be analyzed. This can then be integrated with automated systems to optimize a building's space and the user experience, helping Taiwan create smart buildings that work in tandem and interact with urban infrastructure. In addition, smart transportation systems will be a crucial link in greatly reducing carbon emissions, making urban areas even smarter, and fostering sustainable development. Siemens can provide innovative and environmentally friendly smart charging solutions for vehicles used by households or the corporate and commercial sectors, along with electric buses used in mass transit. Siemens also provides smart transportation systems to collect road and transport system data, following which analysis and prediction will optimize routes suggested for drivers to take. This will also address traffic congestion and manage the flow of vehicles, effectively controlling traffic in urban areas and realizing an important facet of City 4.0.

Looking ahead to FY 2020, Siemens will continue to focus on the areas of Smart Infrastructure, Digital Industries, and Mobility, providing state-of-the-art technologies and solutions. It will also be involved in the Taoyuan City Hutoushan IoT Innovation Base, which is part of the Asia Silicon Valley initiative, along with training digital talent at the high school and university level in Taipei City. These will promote Taiwan's digital transformation and upgrading, and will help Taiwan be in the forefront globally in implementing smart City 4.0.



Mr. Erdal Elver, Siemens Taiwan President & CEO shares that Siemens will continue to fulfill our commitment to Grow Taiwan Together and will support Taiwan's urban infrastructure to become smarter and to forge ahead to the City 4.0 vision.

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