

F-05

Application methods for 5G that meet the diverse requirements in the industrial field

Social Issues that we have focused on

5G, which has already begun commercialization, is also attracting attention as a technology that will support future industry and society, but its introduction in industry is currently limited and not widespread enough. Analysis and multifaceted verification that can flexibly respond to a wide range of requirements and diverse environments are required for the introduction of 5G in industrial fields.

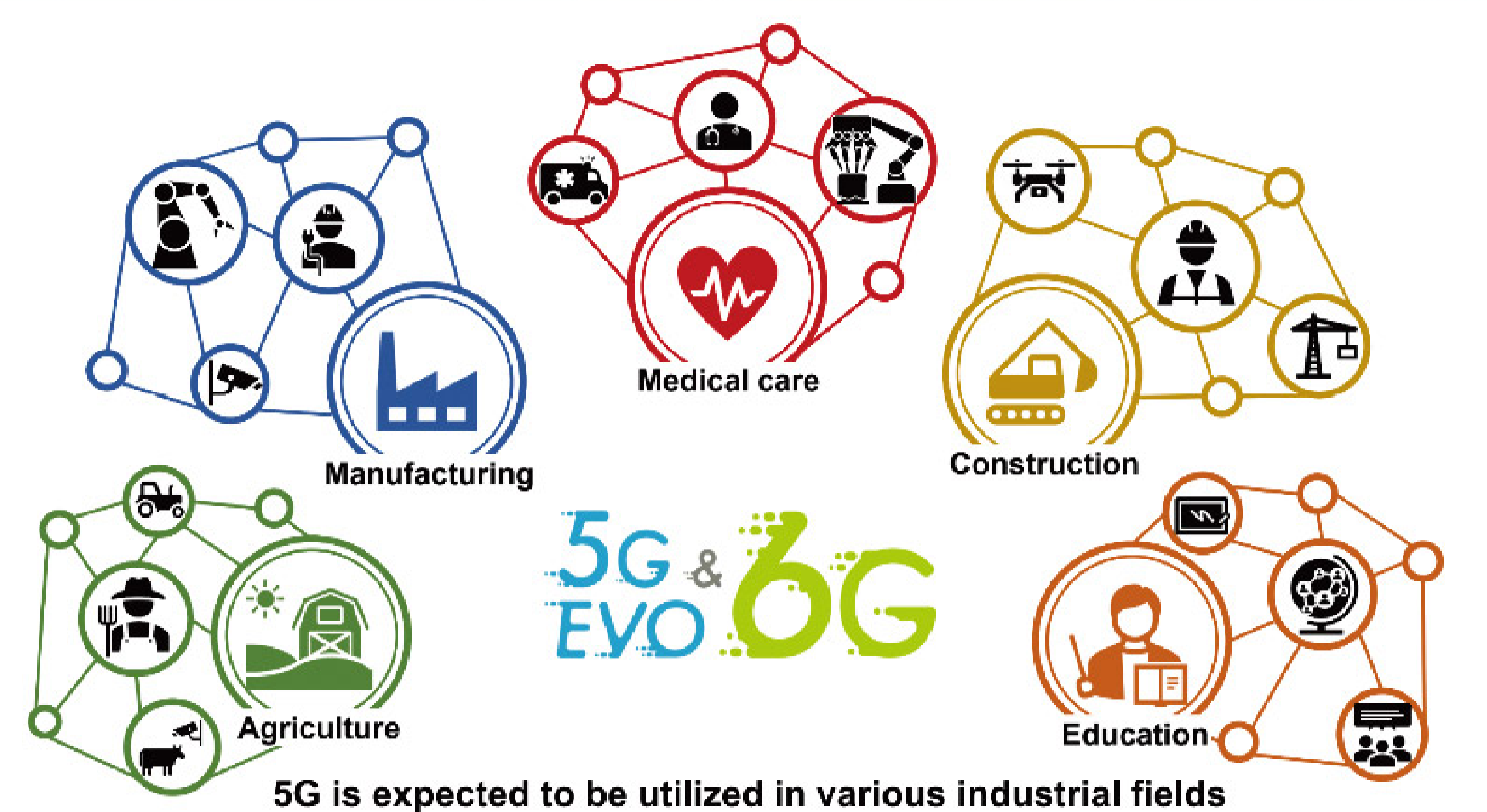
Initiatives to resolve issues

Overview

In this exhibition, we will show a conceptual image of 5G deployment and the effects of that through advanced simulations and experimental trials in the real environment so that visitors can become familiar with the industrial use of 5G and 6G in the future, with the aim of spreading 5G in industrial fields. We are also working on portable evaluation tools to ensure that 5G can be safely used without concerns about electromagnetic interference.

Technology to Support Initiatives

We have developed a simulator that can use point cloud data to evaluate wireless characteristics of a specific environment with high accuracy. It visualizes the introduction of 5G and 6G deployment at industrial sites and allows for a simple understanding of the effects after deployment. We also developed the "portable electromagnetic interference evaluation tool" as a countermeasure against electromagnetic interference caused by 5G to existing facilities and electronic devices. The smaller and simpler tool has improved the flexibility of investigations.



An introduction of possible implementation plans, results, and solutions, targeting the acceleration and evolution of 5G in industrial fields

<p>Area evaluation technology using a high precision point cloud model</p> <ul style="list-style-type: none"> Obtain point cloud data using LIDAR and generate a high precision polygon model for transmission simulation Development of tools which can show calculation results of radio wave strength and throughput based on the integration of existing simulation technology and consideration of making service area evaluation technology more advanced for 5G/6G <p>Simulation using point cloud</p>	<p>5G experimental trial at a manufacturing site</p> <ul style="list-style-type: none"> Demonstration of 5G transmission experiments in each frequency environment using 28 GHz band and 3.7 GHz band radio waves in an actual manufacturing factory The evaluation of 5G utilization in the factory installed base station and AMR mounted mobile station through 5G transmission characteristics <p>Base station antenna Mobile station and AMR</p>	<p>Portable electromagnetic interference evaluation tool</p> <ul style="list-style-type: none"> Portable tool is developed which can simulate various radio waves emitted from cellular phones. Electromagnetic interference evaluation can be conducted accurately related to not only 4G/5G but WLAN, L5G, etc. 5G/6G will be supported. <p>Portable electromagnetic interference evaluation tool</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Co-creation
Partners

OMRON Corp. / Nokia Solutions and Networks Japan G.K.

SDGs



The real-time control of manufacturing robots and construction machinery via 5G is expected to be effectively utilized in industries where manpower shortages are an issue. In addition, by making it possible to easily investigate electromagnetic interference, we promote safe and secure use of radio waves in places where sensitive equipment is handled, such as in medical facilities.

Promoting the use of 5G in industrial fields will expand opportunities for new co-creation and solution creation in society.