

Introduction



OMESH Networks (group) is an application provider of smart infrastructures, specialized in smart city, smart community, and v2x related systems and services. We have been operating primarily in China, North America, and EU.

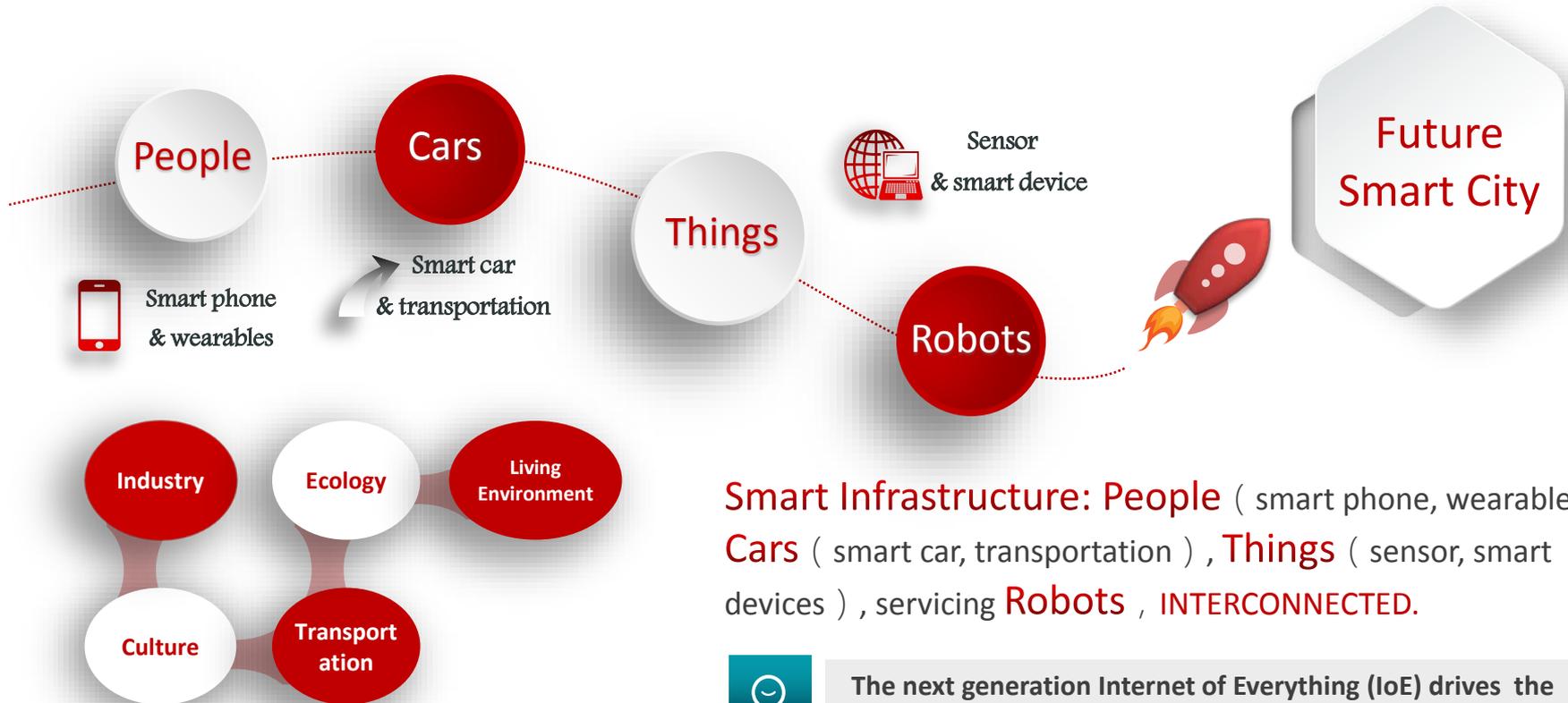


Mission statement: Contributing to the 3GPP community in providing the next generation wireless system, for smart infrastructures and the new Internet of Everything (IoE).



Guest member: ETSI 2018.3
Individual member: ATIS 2018.5, CCSA TBA

Our Vision of the new Internet



Smart Infrastructure: **People** (smart phone, wearable) , **Cars** (smart car, transportation) , **Things** (sensor, smart devices) , servicing **Robots** , **INTERCONNECTED**.



The next generation Internet of Everything (IoE) drives the applications of 5GS!

Mission of R16 5GS

Mission Statement: 3GPP R16 shall provide enabling technologies for the future Internet of Everything, and support initial deployment of 5GS.

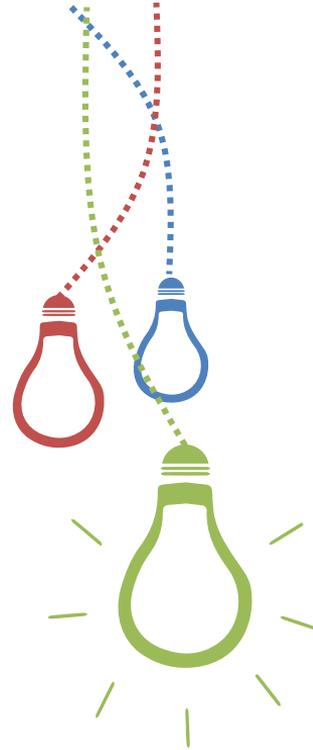
OUR PROPOSAL

System Wide Focus:

- Initial deployment of 5GC (Fs_eNS, Fs_eSBA, etc.)
- Enabler of low latency applications (Fs_5G_URLLC, etc.)
- Supporting of new verticals and edge computing (Fs_eV2XARC, Fs_CIoT_5G, TBA-FS_Smart_Infrastructure, etc.)

Key RAN Impacts:

- NR-V2X and potential NR-IoT (evolution of NB-IoT and LTE-M) to develop an enhanced NR Side-link supporting multi-hop UE/Network relaying, so as to provide a highly efficient traffic tunnel for eMBB, eMTC, and URLLC.
- NR-URLLC to develop an enhanced NR Uu, so as to enable extremely low latency controlling and scheduling, as well as to support network-assisted side-links.



Smart Infrastructure: Community

Justification: Traditional community services have been based on pure virtual community on Internet, or OFFLINE entity services in the real-world. O2O (Online to Offline) failed to make community services smart, unified, or integrated; and legacy smart community Internet applications have high limitations and poor user experience.

In the future smart community, consumers shall be provided with intelligent services based on the real-time processing of IoE information from the sensors (things), vehicles, retailers and people, and an integrated Online-Merge-Offline environment that seamlessly combines the physical world and the virtual world. Smart community presents a potential **Killer Application for Consumers**, where network operators could charge based on the number of connections and QoS instead of pure bandwidth. It is therefore important to capture the requirement of smart community services on 5GS, so as to meet the fast development of market thrusts and consumer experiences.

Vertical	Application Scenarios	High Density	Coordinated Edge Computing	High Date Rate	Low Latency	Low Power	High Reliability	High Mobility	Extended Network Coverage	High precision positioning
Smart Community	Micro-environment services	•	•		•	•			•	
	Parking and transportation services	•	•	•	•		•	•	•	•
	Elders and children services	•	•	•	•				•	•
	Retailer services	•	•	•	•				•	
	Social networking services	•	•	•	•		•		•	•



Smart Infrastructure: City

Justification: Smart city has been a hot topic for cities world-wide, however many issues and limitations still exist. The ideal future smart city is to connect every people, transportation/vehicles, and various infrastructures in the city through real-time sensor networks. Through a comprehensive city-sensing system based on massive IoT and v2x, it can integrate all data and services of smart city management, and provide real-time visualization. At the same time, it can deliver a variety of online-merge-offline interactions in a comprehensive service system.

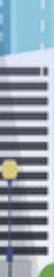
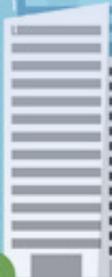
For the management of future smart cities, convenient, accurate, and high-quality services will be the key features for developing the standards of future city operation. Smart city presents a potential **Killer Application for Government and Business**, where network operators could charge based on the number of connections and QoS instead of pure bandwidth. It is therefore important to capture the requirement of smart city management services on 5GS, so as to meet the fast development of market thrusts.

Vertical	Application Scenarios	High Density	Coordinated Edge Computing	High Data Rate	Low Latency	Low Power	High Reliability	High Mobility	Extended Network Coverage	High precision positioning
Smart City Management	Infrastructure Management	•			•	•	•		•	
	Environment and Traffic Management	•	•	•	•			•	•	
	Industrial Park Management	•	•	•	•		•		•	•
	Community Management	•	•	•	•				•	•
	Tourism Management	•	•	•	•				•	•



Roadmap toward R17 and the new IoE

Based on our proposal of R16 system wide features and focuses, 3GPP R17 shall enable the world-wide deployment of IoE infrastructure, and the intelligent services for consumers, municipalities, and businesses/industries.





THANK YOU!

OMESH

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