

5G for Health

- Driving Innovations in Healthcare with 5G and Smart Networks

Oct 22nd , 2020

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Health is One of the Top Vertical Markets for 5G & B5G



➤ China

2019 June 25 Shanghai MWC
CAICT (China Academy of Information and Communications Technology)
Deputy President Ms. Zhiqin Wang –
China top 3 vertical market = Smart factory, automotive, **eHealth**



➤ Europe

Horizon Europe – The next research and innovation framework programme.
The Commission's proposal for Horizon Europe is an ambitious €100 billion research and innovation programme to succeed Horizon 2020



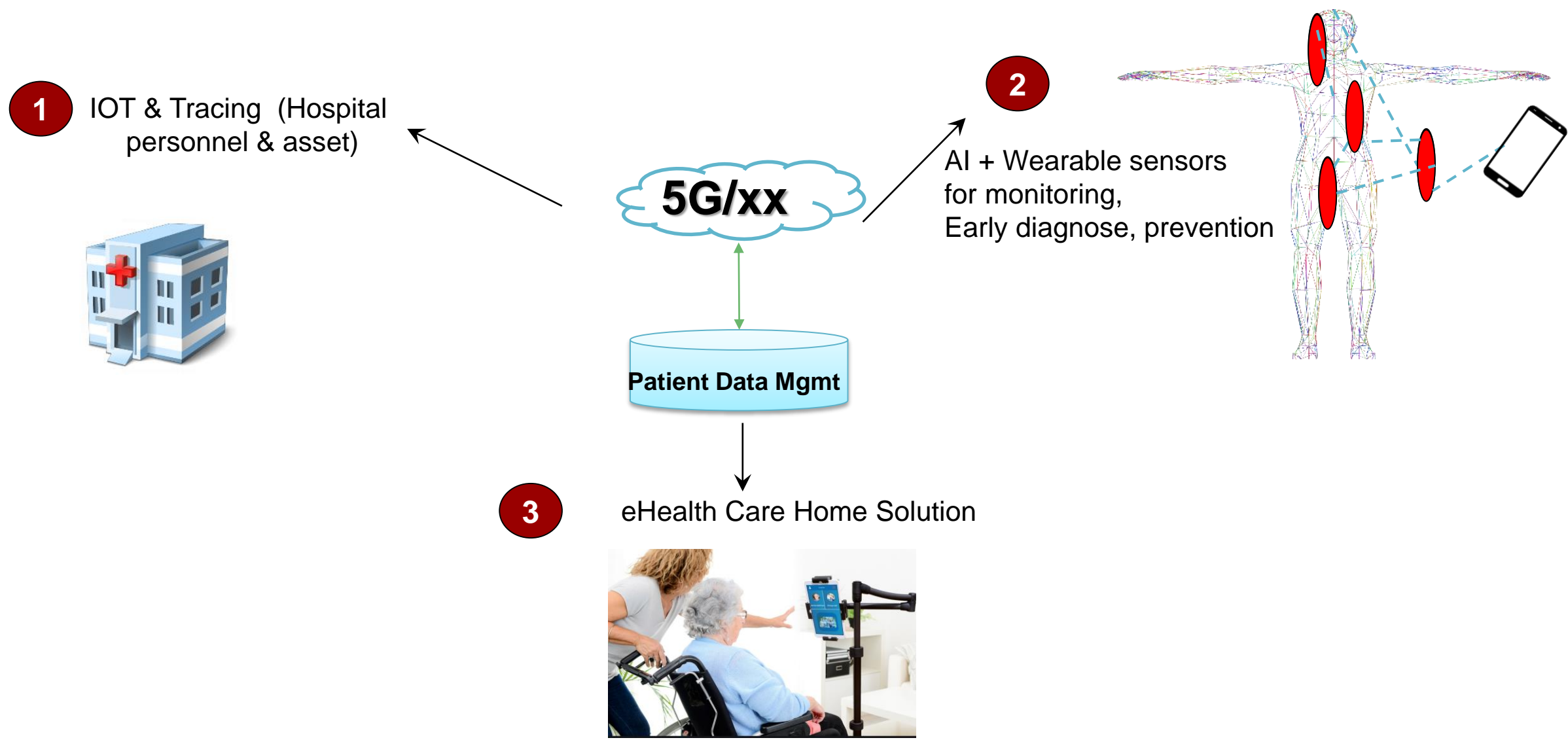
Promoting U.S. Leadership on the Path to 6G
May 2020

- **Healthcare** - By many estimates, healthcare spending is expected to exceed 20 percent of U.S. GDP in the next few years. These costs are directly borne by
- **Agriculture** - It is estimated that the farming industry will need to produce 70 percent more food by 2050. *Agriculture 4.0: The Future of Farming Technology* (from the World Government Summit) notes the difficulty in applying water, fertilizers and pesticides uniformly across entire fields.

➤ USA

ATIS <Promoting U.S. Leadership on the Path to 6G> whitepaper - 6G core technologies as – AI Enabled Advanced Networks and Services, Advanced Antennas and Radio System, Multi-Access Network Services, **Healthcare**, Agriculture

Digital Health Top Use Cases Overview



Hospital Solution Overview

Massive Connection

- Sensors
- equipment



High Throughput

- Video
- ICU visitation
- Remote consultation



Accurate Position

- Equipment
- Logistics



Low Latency (later)

- Remote ultrasonic diagnosis
- Remote VR Surgical assistance)



**Specification for Hospital Network
Construction Based on 5G Technology
(Radio Access Network Part)**

Oct.2019

National Telemedicine and Connected Health Center

Liaoning Cancer Hospital & Institute

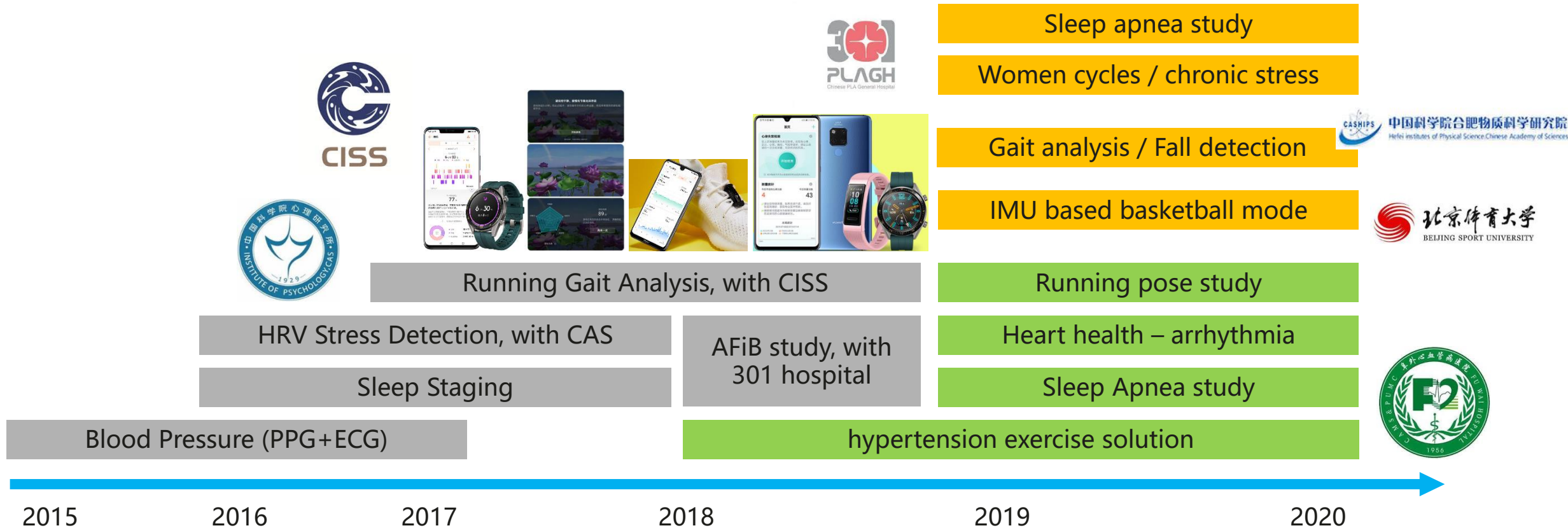
Shengjing Hospital of China Medical
University

Guangxi Zhuang Autonomous Region

The People's Hospital of Liaoning
Province

The First Hospital of China Medical
University

Wearables Support Top Health Care Research Institutions



"Bi-directional" collaborations

- Absorb latest innovations from top academic and startups, to use in the wearables, smartphones, and accessories etc.
- Provide new devices, technologies and software platform to help accelerating research in academics.

Home eHealth Solution

5G Side Link
Unified Air interface = Any
equipment easily combined
together



Home Level AI MEC

Health Monitor

Diseases Detection



Building Blocks for detection.
Such as defined motion
detection, facial recognition,
object detection, voice
recognition, etc.

Technical requirements and KPIs for healthcare use cases

- Assets and interventions management in Hospitals
 - ✓ Connectivity of **thousands of objects**
 - ✓ Find objects around **1 meter positioning**
 - ✓ Indoor, outdoor – **good continuity**
 - ✓ Medical Helicopter > **300KM/H**
- Robotics
 - ✓ **Reliability** of transmit/received data - in case of **natural disaster** (remote surgery)
 - ✓ Low latency **30 ms**
- Remote monitoring of health or wellness data
 - ✓ Coverage – Doctor
 - ✓ **Energy consumption** (wearable / implants, **10 years**)
 - ✓ High speed train > **300KM/H**
-

Regulation

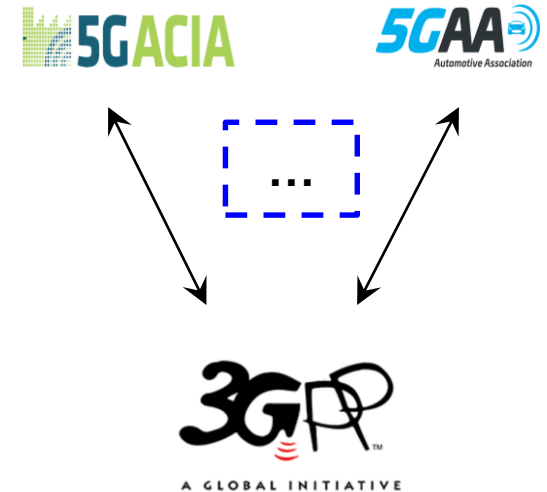
■ Regulation is an important challenge for the full deployment of m-Health solutions in Europe

■ **New m-Health devices are often covered by two regulatory frameworks**

- ✓ Radio Equipment and Telecommunications Terminal Equipment (RTTE)
- ✓ EU Medical Devices Directives (MDD)
- ✓ **Questions regarding the application and coordination between these different regulations**

■ Extended regulation for **medical software**

■ **Data protection legal framework** including practices and processes



Thank you.

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每个组织，构建万物互联的智能世界。

Bring digital to every person, home, and
organization for a fully connected,
intelligent world.

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