



On the Road to Smart Oman

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On the Road to Smart Oman

Outline

- **Goals of Smart Systems, Sectors, Cities and Nations**
- **Evolution Towards Smart Cities**
- **Infrastructure of Smart Sectors, Cities and Nation**
- **Illustration of Potential Smart Sectors and Services**
- **Main Challenges on the Road to Smart Oman**
 - ◆ **Strategic Plans**
 - ◆ **Business Models**
 - ◆ **Regulatory, Legislative & Policy Issues**
- **Conclusion & Prescription**

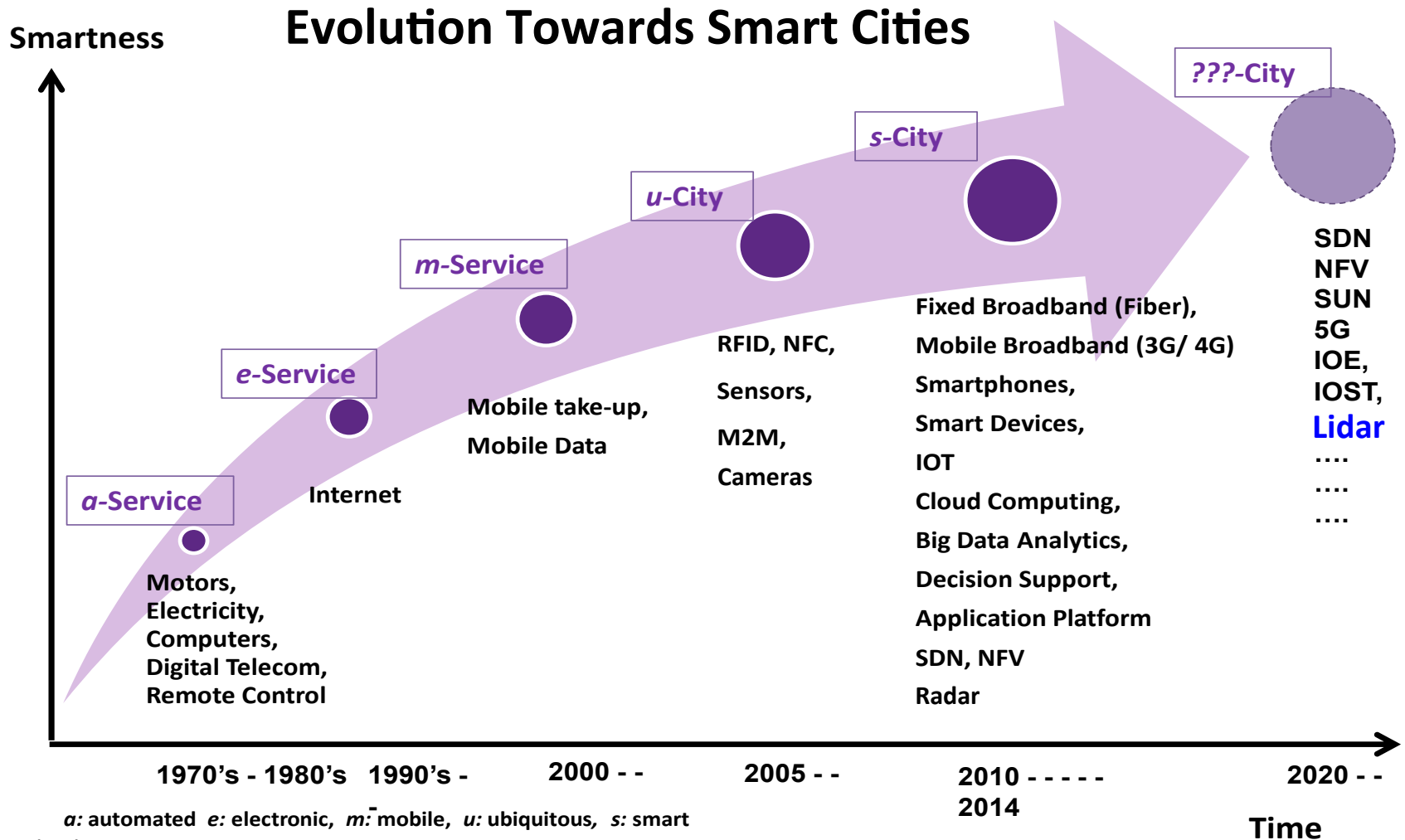
Smartization is about using technology for better life. Smart Cities” may be seen as an attempt for the quest of paradise on earth,

Goals of Smart Systems, Sectors, Cities and Nations

“Smartness” is facilitated through technology, making use of networked sensors, Smartphones and devices connecting humans and relevant things in the city with processing for optimal monitoring, analytics, automation & control

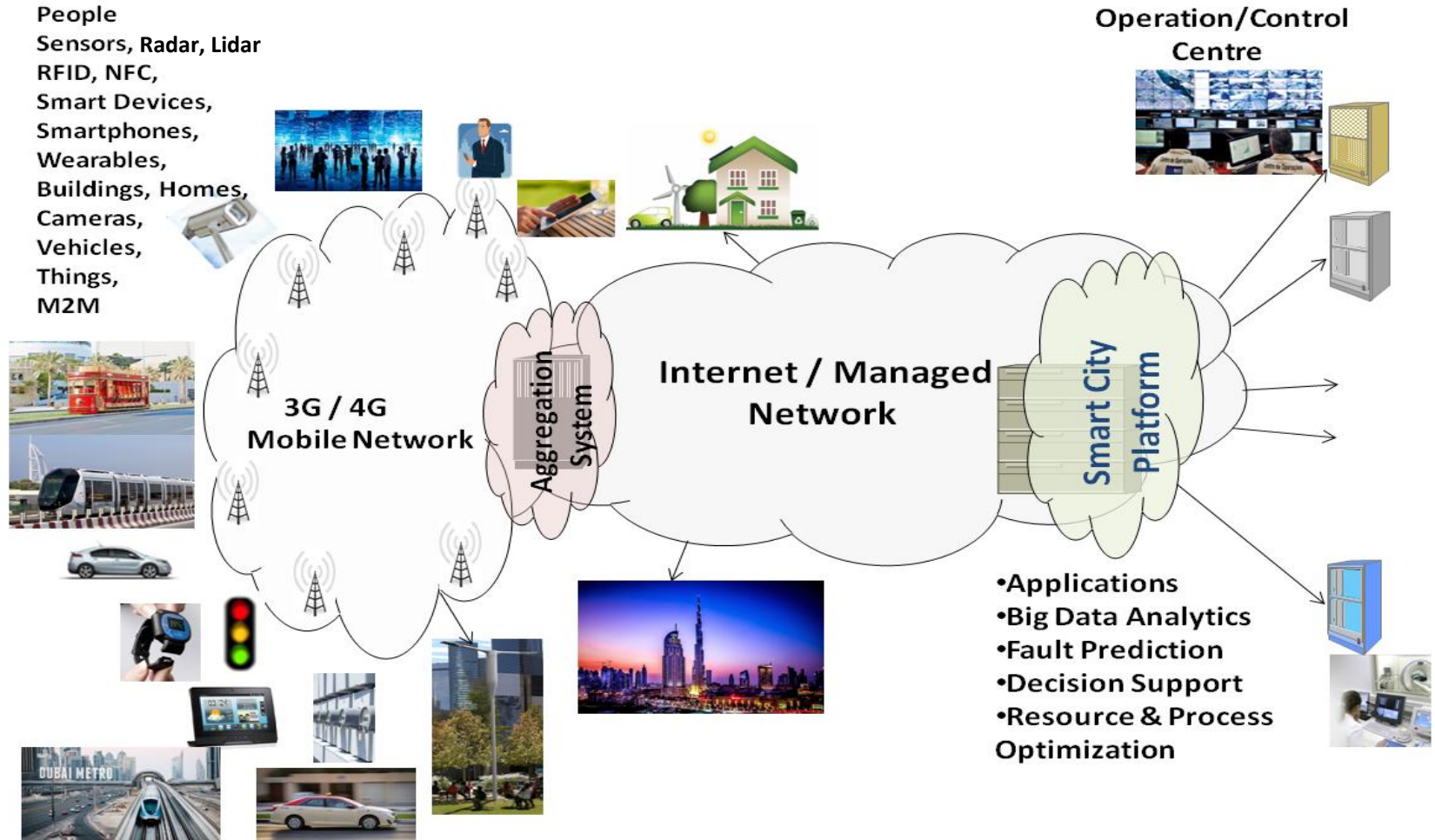
Providing people and societies with Safety, Security, sufficiency, efficiency, economic prosperity, convenience, improved quality of life and happiness

Smartness arrived thro ICT evolution, mainly: Internet, Mobile, Fiber, Smartphone, IOT, Big Data Analytics and Sensors (RFID, NFC, Camera, Radar & Lidar,)



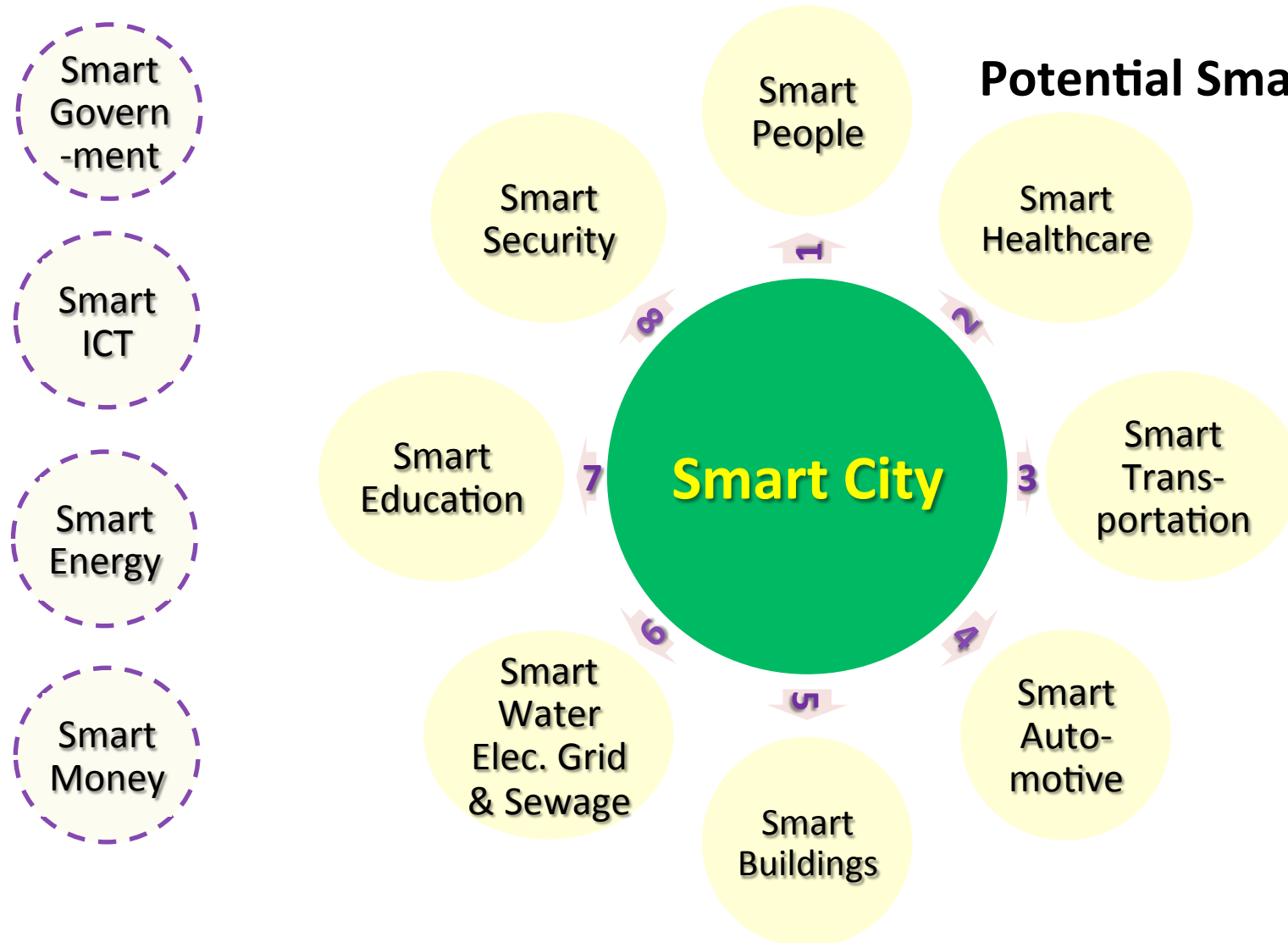
Smart Cities acquire 4 main merits 1) Massive connectivity, 2) Massive data collection, 3) Prediction/Perception capability & 4) Resource and process optimization

Infrastructure of Smart Sectors, Cities and Nations



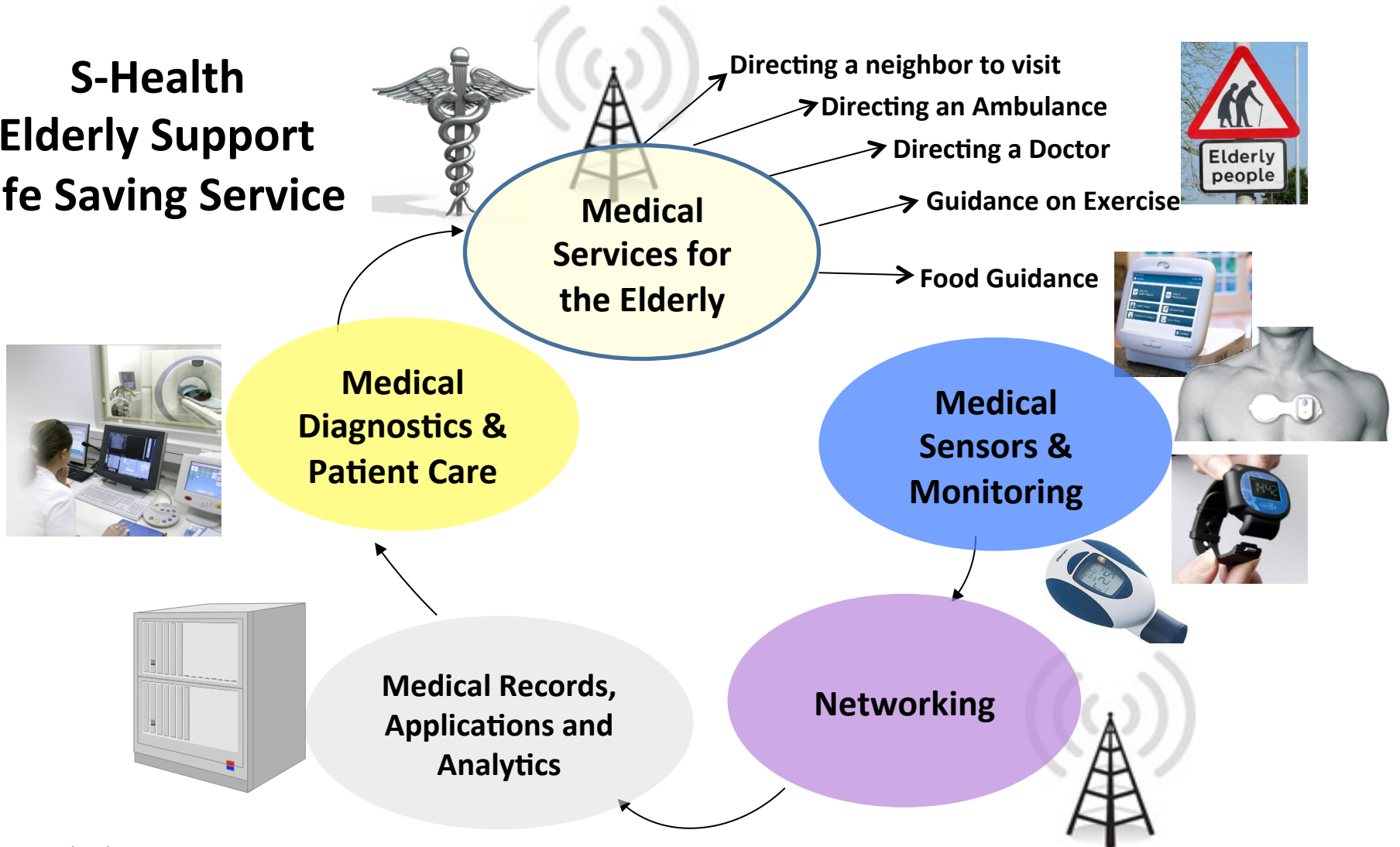
Smart Cities are cities built on “smart” solutions in several areas, non-mutually exclusive, some are enablers and others directly affect quality of life

Potential Smart Sectors



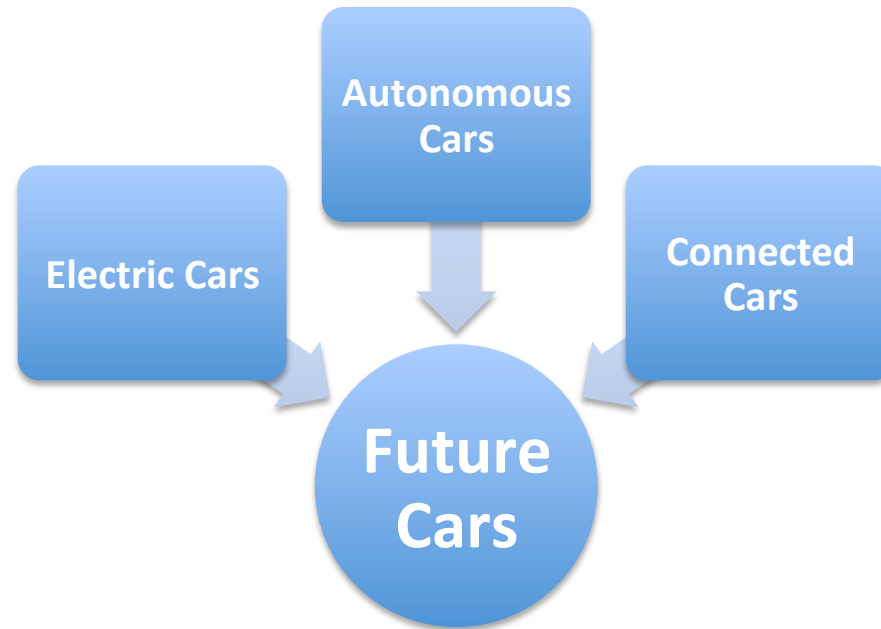
In 1970 there was 13.5 supporting 2 elderly. In 1990, became 10.5, in 2010 became 7.5, in 2020 will be 3,6 and in 2030 will be 2.1

**S-Health
 Elderly Support
 Life Saving Service**



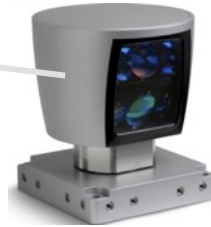
Major automotive OEMs as well as ICT companies are working towards the smart goals of **life saving and Green environment** for improved quality of life

Smart Cars Technology Trends



Forbes Magazine Nov. 2015 issue stated that Quanergy will make Driverless Cars possible by 2019

Lidar on Google Driverless Car



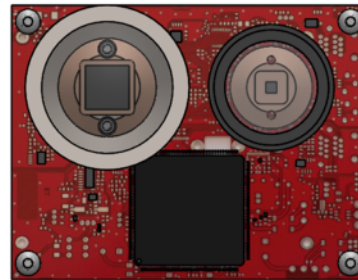
Quanergy's World 1st Solid-state Lidar



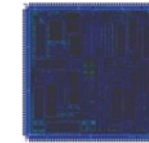
Quanergy is leading the Lidar development to become as ubiquitous as cameras



1st Product
Mechanical
(now)
(Mark VIII)



2nd Product
Solid State
(2017)
(MCM)

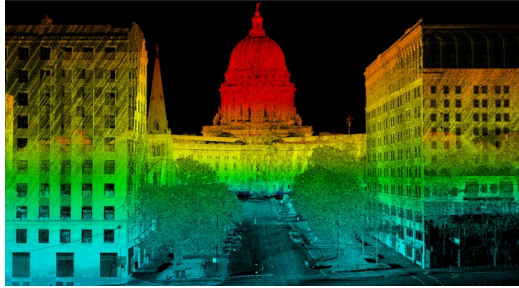


3rd Product
Solid State
(2019)
(ASIC)



Quanergy's Lidar Product Roadmap

Quanergy's breakthrough is that of bring Size and Cost of Lidar considerably down while improving performance and reliability to become suitable for Mass Market



3D Mapping



Safe & Autonomous Vehicles



Driverless



Drones

3D LiDAR sensors enable safety and efficiency in applications that are unserved today due to:
COST
SIZE
RELIABILITY
PERFORMANCE



Intersection



Fleets

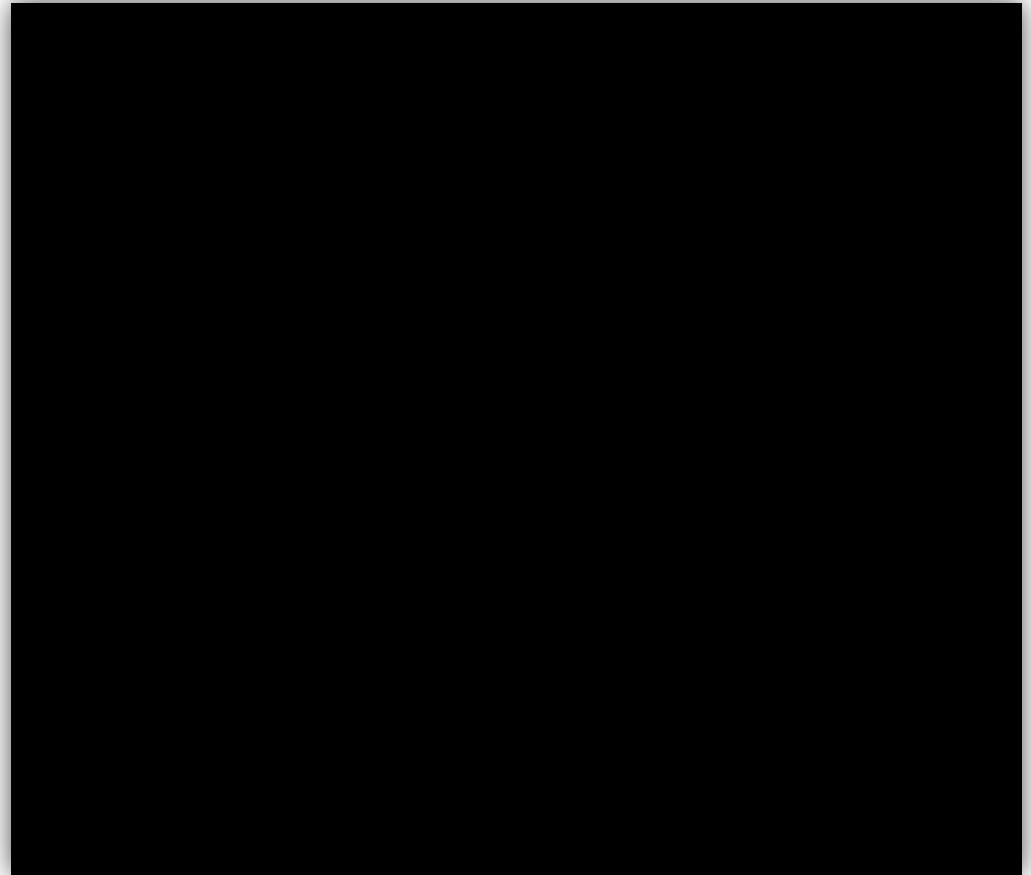


Smart Homes

Quanergy launches its LiDAR-based security technology for accurate intrusion detection and perimeter fencing.

Detects and tracks
“human” sized volumes
in 3D space

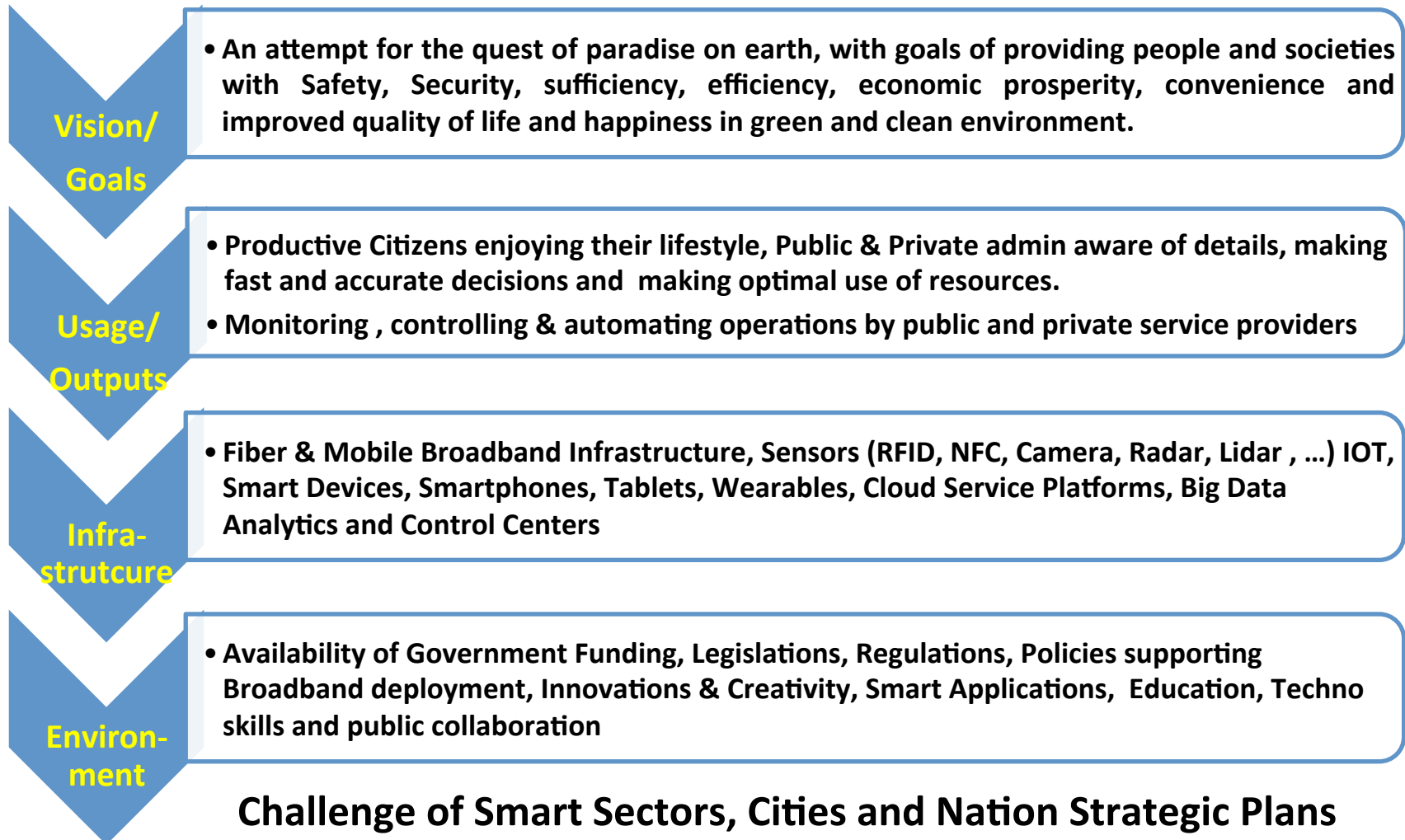
Detects breaches of
configurable surveillance
zone



Main Challenges on the Road to Smart Oman

- ◆ **Strategic Plans**
- ◆ **Business Models**
- ◆ **Regulatory, Legislative & Policy Issues**

Smartization Strategic Plans are to be developed and harmonized at the National, Sectorial and City level in a holistic approach with high political will and support

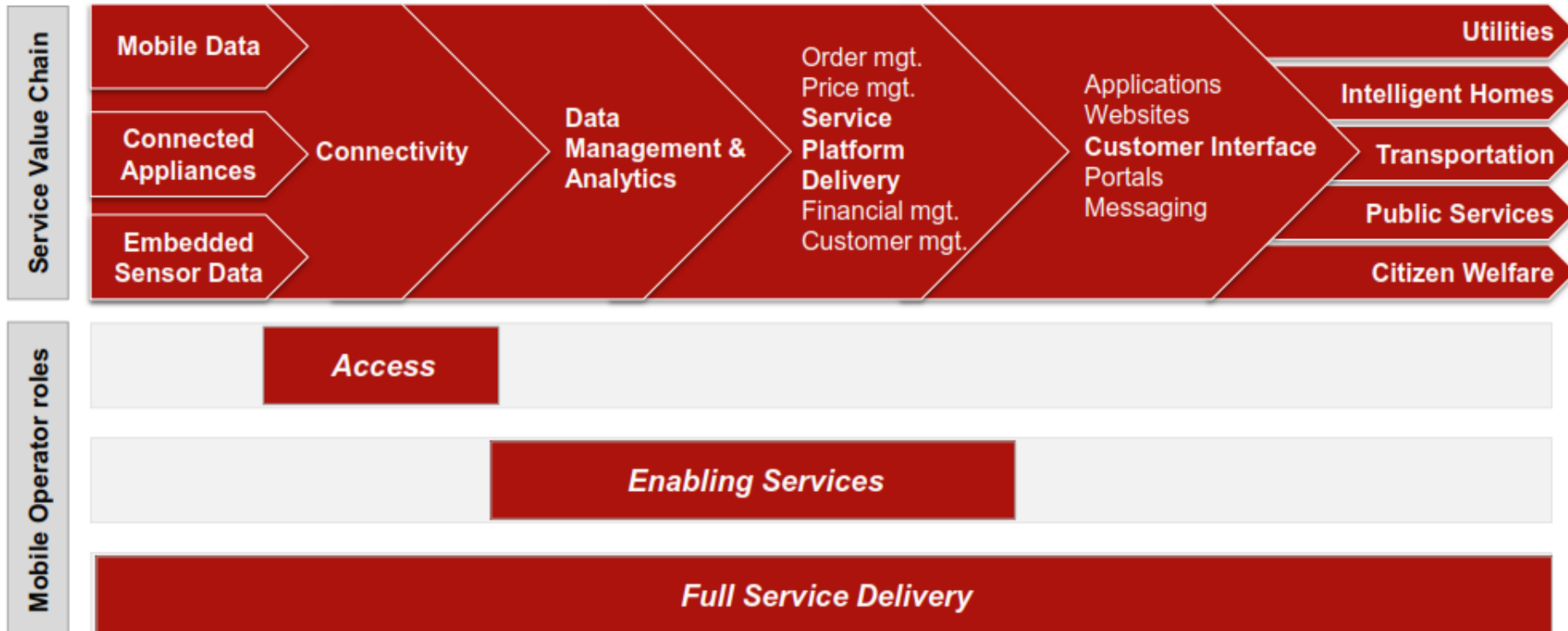


Ranking of Countries According to UN EGD I & WEF/INSEAD/Cornell-Univ. NRI shows that Oman is the World's best improving country

Country	EGDI Rank 2010	EGDI Rank 2012	EGDI Rank 2014	NRI 2015
UAE 	49	28	32	23
Qatar 	62	48	44	27
Bahrain 	13	36	18	30
Malaysia 	32	40	52	32
Saudi Arabia 	58	41	36	35
Oman 	82	64	48	42
Turkey 	69	80	71	48
Jordan 	51	98	79	52
Kuwait 	50	63	49	72
Tunisia 	66	103	75	81
Egypt 	86	107	80	94
Iran 	102	100	105	96

EGDI: eGov. Dev. Index, NRI: Network Readiness Index

Smart Cities Business Model involves many stakeholders, including Telecom Operators, ICT vendors, System Integrators, Ministries, Regulators, municipality & city admin, utility providers, citizens and the scientific community.



Challenge of Smart City Business Model

“ Developing collaborative mobile-based city solutions for smart cities”, GSMA Connected Living Summit, Shanghai, 24 June 2013

Policies and Regulations should be drivers of Smart City deployment, not Barriers

Regulation of M2M & IOT (enablers of Smart Cities)

Numbering of Machines & Things

**Customer Data protection and
maintenance inside and outside country**

**Ease of change of service
provider/'number portability'**

Permanent Roaming & Nat. Roaming

Spectrum for Device to Device comms

Cybersecurity Security & Privacy

Lawful intercepts and national security

Standards and Type Approvals

2G Sunset

**Incentive Regulation such as eCall, Safety
ADAS , Digital Grid, Digital Payments**

General Regulations related to Smart Cities

**Classifying City Network as Private or
Public, Old/New City**

**Regulation of Managed Services of telcos
and others with dominance**

**Regulation of Open Access furnished by
telcos and municipalities, develop**

Regulation of eServices

(Asymetric) regulation of MVNOs & OTTs

Partnership and competition regulation

**Regulation relevant to new business
models**

Conclusion

- ✓ **Smartization should strive to achieve human ultimate goals**
- ✓ **Sensors, Smartphones, Broadband and Analytics technologies are the main drivers**
- ✓ **Smart People, Smart Cities and Smart Sectors are steps on the Road to Smart Oman**
- ✓ **Smartization may encounter several challenges and thorns However it is far rewarding to drive through such challenges and reap the taste of paradise in Oman**



On the Road to Smart Oman

Prescription Towards Smart Oman

- ☑ **Make “Smart Oman” a National project** (same as Singapore)
- ☑ **Address Smartization Strategic Plans in a holistic approach with high political will.**
- ☑ **Promote Smartization Environment (e.g. “ICT Infrastructure”, “Innovation & Creativity”, “Regulations & Legislation”, “People Awareness & Engagement”, ...)**
- ☑ **Ensure regulations and legislations as enablers and not barriers**
- ☑ **Harmonize stakeholders in an optimal choice of Business Model**
- ☑ **Prioritize life saving services such as “Elderly Support”, “Autonomous Cars”/Advanced Driver Assistance System. Smart Transportation Safety and Critical Infrastructure Security.**



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