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Session 6: WTDC 17 Regional Initiative ARB4 - Internet of Things (IoT), Smart Cities, and Big Data

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Building an ecosystem for a digital nation

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I O what...

- Widely disparate definitions of the IoT.

- The ITU has defined the IoT as *"a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies"*

- (Recommendation ITU-T Y.2060).

The need to go beyond IoT

- All digital services and applications require robust connectivity: that requires significant investment.

- Focusing just on IoT connectivity is not a significant business opportunity for Telcos – given the investment requirements.

- The value lies in smarter use of the IoT connectivity to drive the digital revolution – but that needs a major change within the Telcos themselves....

- ...and major changes to sector specific laws and regulations!

"Telecommunications is the only industry where volumes are growing 40–60% a year, but revenues are shrinking... and where increasingly, competition comes from outside the sector"

What the digital revolution might look like?

The digital revolution

An interconnected world – smart decisions come about when you integrate data from multi-sources

Big Data

Virtual / Augmented reality

Smart government

Smart cities / buildings

Digital identities

Smart transport

Smart everything

Smart supply chain / contracts

Smart financing / currency

Smart health

Smart agriculture

Smart education

Economies of scale / Competition / Government policies / Taxation on sector / Device affordability

Affordability

Applications / Usability / Relevance / Capability to use

Acceptability and Engagement

Availability and choice

Infrastructure roll-out / Regulations / Broadband Policies / Liberalization / Technology neutrality / Fair treatment of all operators

Supply conditions: Quality and readiness of digital and physical infrastructure

Demand conditions: Consumer willingness and ability to engage in the digital ecosystem

Institutional environment: Laws, regulations and policies

Culture and history: Innovation, change, collaboration, trust, education, empowerment

The unfortunate reality

- Approx. 50% of the world's population is still not using the Internet.

- Research by ITU shows that 4/5 of the offline population are located in Asia-Pacific and in Africa*.

- Reasons for this includes both lack of infrastructure, as well as demand-side barriers (lack of capability, relevance and affordability).

Policy and regulation: acting as a barrier

- Telecommunications sector taxed disproportionately in many countries. → **Affordability**

- Education designed for last century.

- Dichotomy between open data / cross border sharing and national security concerns. → **Acceptability and engagement**

- Different regulations for same service – e.g. OTT.

- Regulations restrict infrastructure roll-out – e.g. network sharing.

- De-facto monopolies in some sectors – IGW / Fiber.

- No real catalyst from Government for digital take-up. → **Availability and choice**

Technologies underpinning a digital nation

- Hyper fast, low latency, reliable connectivity.

- Cloud and data centers.

- Power supply and storage.

- Nano-technologies and sensors.

- Data storage and analytics.

- Virtual / Augmented reality / Artificial Intelligence / Machine learning.

- Robotics.

- E-payments / E-commerce / Block chain.

- Cyber security.

What is important is how these technologies converge – and the impact they have on everyday lives – some positive, some negative

Infrastructure underpinning the digital nation

1. • Robust and resilient fixed and mobile connectivity:

    – 4G and 5G for mobile
    – Fiber connectivity for mobile backhaul
    – FTTx
    – IGW for international connectivity
    – Access to land / sites for towers

2. • Trust and Security – securing dumb IoT terminals that may cost $1.

3. • Privacy and data protection.

4. • Open data (especially for smart cities).

5. • Legal frameworks conducive to digital (e-commerce, cryptocurrencies etc.).

Enablers of a digital nation

1. • Education and awareness – build a talent pool that is attractive to the world.

2. • Reskilling of jobs for the digital world.

3. • Applications and content that is relevant to country, local customs and need.

4. • Taxation that is proportionate.

5. • Policies and rules for the digital age: Regulation that is functionality based rather than structure or technology based - clear rules for things like autonomous cars / drones etc.

6. • Encouragement for entrepreneurship – failure seen as badge of honor for entrepreneurs.
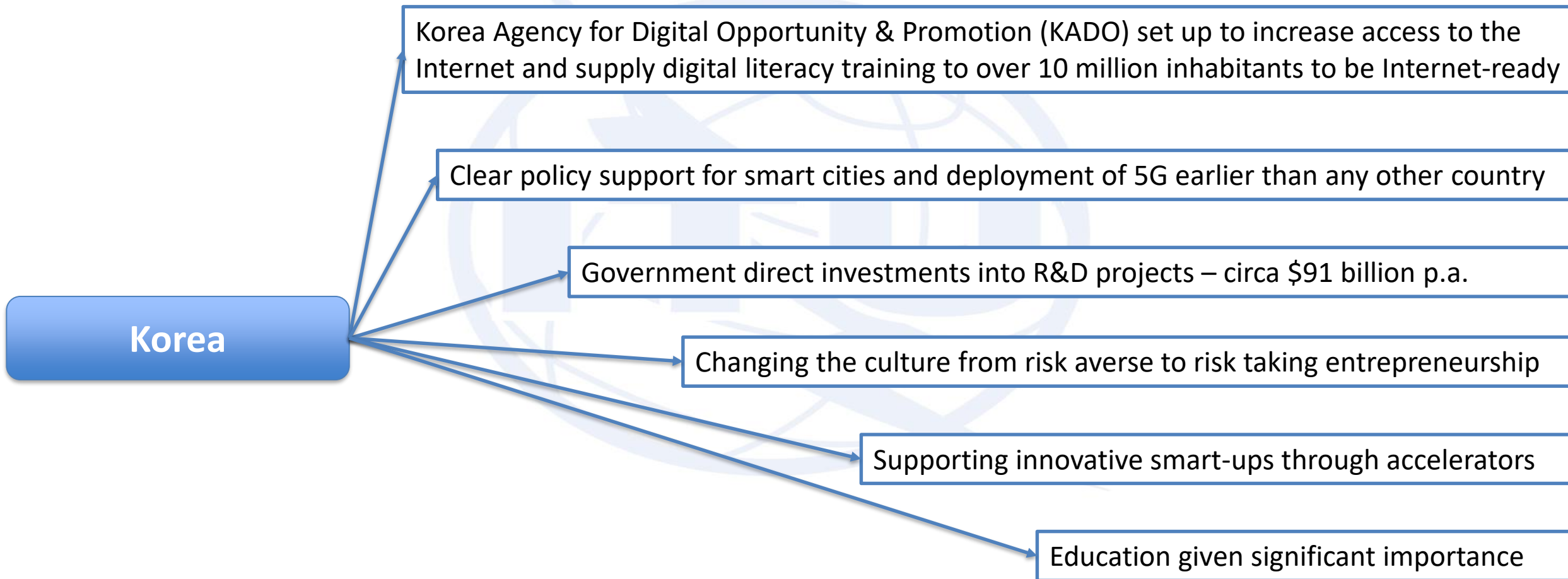
7. • A start-up funding eco-system and a collaborative culture between Research and Commercial entities.

8. • Government to fill genuine funding gaps – e.g. Rural areas.

Lessons from leaders in ICT and Smart...

Korea

Korea Agency for Digital Opportunity & Promotion (KADO) set up to increase access to the Internet and supply digital literacy training to over 10 million inhabitants to be Internet-ready

Clear policy support for smart cities and deployment of 5G earlier than any other country

Government direct investments into R&D projects – circa $91 billion p.a.

Changing the culture from risk averse to risk taking entrepreneurship

Supporting innovative smart-ups through accelerators

Education given significant importance

Recommendations for policy makers

1 • Create a policy framework and master plan addressing Digital (Inc. IoT) that fosters digital infrastructure roll-out, sharing, usage and innovation - with investment certainty / incentives for large scale infrastructure roll-out (Inc. 5G and Broadband) – making laws and regulations future looking!

2 • Consider spectrum requirements to support the digital infrastructure.

3 • Promote and support a broad, vibrant ecosystem for Digital (IoT), including support for tech start-ups, incubators as well as adoption by SMEs.

4 • Promote the use of data for better decision making – mandate sharing of Government data (Open Data) and other data, subject to privacy safeguards.

5 • Promote standards that facilitate interoperability across the IoT ecosystem.

6 • Trust and confidence in the IoT are fundamental and must be designed into the IoT from the outset. Government focus on privacy, cyber security and rights and ownership of personal data.

7 • Re-think education and skills training for the digital world – reduce the digital divide.

Thank you

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