SUBJECT # DECT: From 3G to 5G

DATE 17.09.2018: PT1 Meeting Dublin

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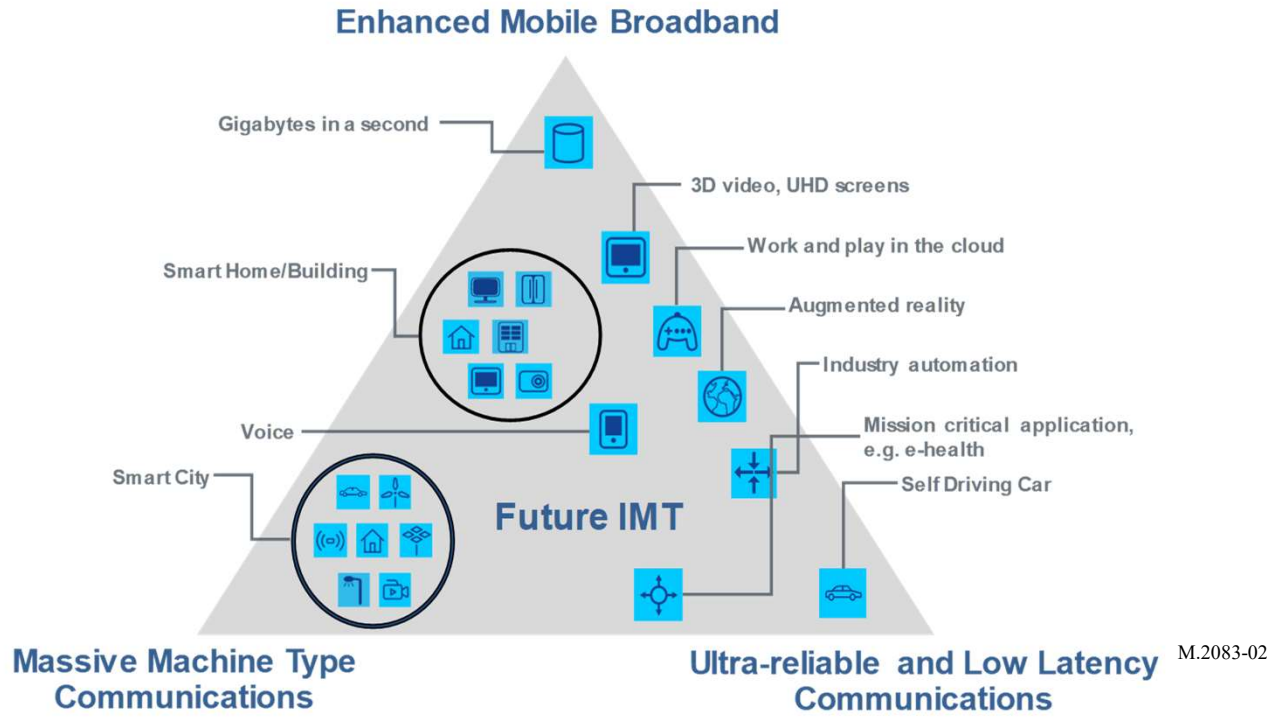
Agenda

- 5G Vision
- Background: Why DECT-5G(open,engage, evolve)
- Evolution 3G to 5G
- Why DECT-5G makes sense
- ITU calendar
- Milestones: (RIT, SRIT), Interworking
- Proponent technology:
  - URLLC, MMTC
  - Applications /Verticals
  - Reasons/requirements (WP)
  - USPs
- openD
- Summary:

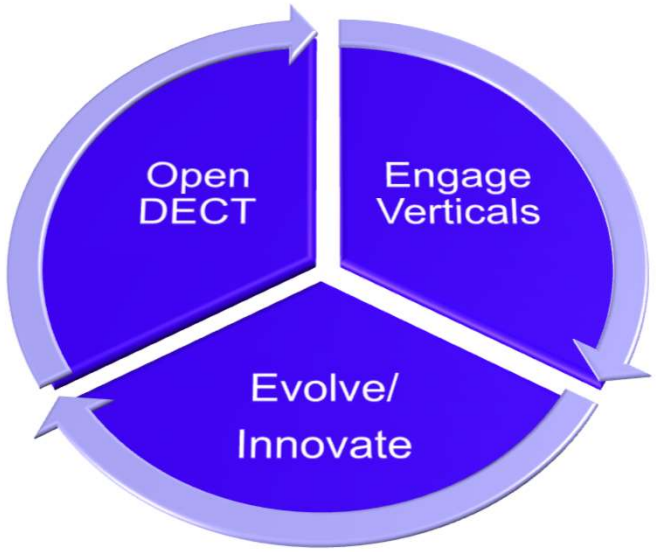
The 5G vision

5G usage scenarios from the ITU-R IMT-2020 Vision Recommendation



- 5G scope requires diverse solutions to diverse requirements
- ITU-R technologies should be complementary for a successful rollout
- 5G business case has to add up
- DECT-5G Focus: Voice, Smart Home, URLLC, mMTC

DECT: Open, Engage, Evolve



To move from 3G to 5G

- Open DECT (openD)
- Engage industry verticals (Industry, Healthcare...)
- Evolve and Innovate the technology (DECT-5G*)

*DECT-5G: DECT Forum name for DECT & ULE in the 5G mobile standard

Current Status: DECT Industry Evolution

DECT : Cordless Voice

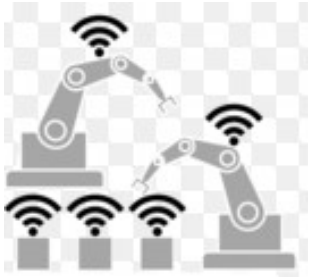
CAT-iq: Integration IP

DECT:Security Certification

ULE: Smart, Battery powered, connectionless

DECT Evolution: URLLC

DECT-5G

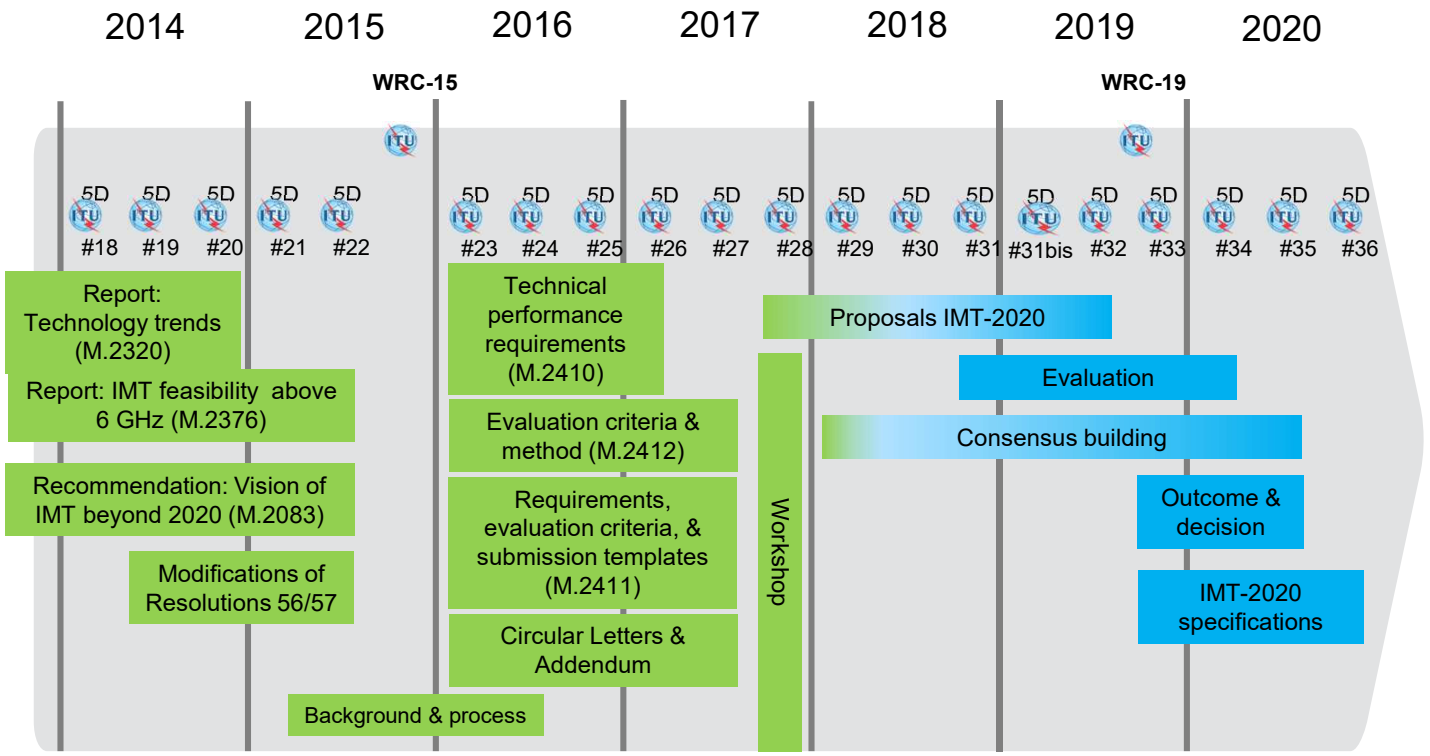


From 3G… to 5G

DECT-5G makes sense

- IMT-2020 Proponent technology (RIT)
- Perfect complement to 3GPP mobile, for sustainable 5G deployment
- Seamless interface to 3GPP with interworking layer (proposal for integration of IMT family of standards)
- Proposal to form an SRIT with 3GPP by TC DECT members
- Economically sustainable 5G using existing infrastructure
- Eco-System of Manufacturers, Chip Makers, Operators and users
- ETSI Standard with > 25 companies driving
- Global representation
- Open source development platform (openD)

WP 5D timeline for IMT-2020
Detailed specifications for the terrestrial radio interfaces



DECT-5G Milestones

October 2017: Presentation to ITU-R of DECT-5G as a proponent RIT

June 2018: Presentation to ITU-R of DECT-5G system overview (RIT)

August 2018: Presentation of Liaison statement: TC DECT to 3GPP

September 2018: DECT-5G White Paper published

October 2018 ITU-R 5D#31:

- Submission of DECT-5G update including simulation results

October 2018 : Start of evaluation process

2018 onwards: Consensus building:

- Members, Standards bodies(ETSI, ITU-R)
- Regulators: CEPT countries
- European Commission
- Trade organisations
- Government Ministries

July 2019: Deadline for submission Proponent technologies at ITU-R

Oct 2019: Outcome/Decision

Evolve and Innovate : DECT-5G White Paper

- DECT Forum‘s 5G White Paper: The Industry narrative
  - A vision for products and services from 2020 onwards, positioning DECT in new markets
  - The technical requirements of members applications to create the contours of DECT-2020
  - Building a 5G technology for real world applications
  - The White paper is our reference point to excite and engage new vertical industries, trade organizations, government bodies, members and potential members
  - Drill down to each of the key vertical industries addressable by DECT 5G

DECT-5G : IMT-2020 Proponent

- DECT-5G (DECT-2020) is an offical IMT-2020 proponent technology
- DECT-5G Focus:
  - Voice, Smart Home, URLLC, mMTC
- Vertical Markets:
  - Smart Home, Industrial, Healthcare, PMSE, Audio
- Horizontal Markets:
  - Voice, Low power

- Typical requirements:
  - Low latency (1ms)
  - Reliability 1-10^6
  - Superior Range
  - Low Power- battery life >5 years
  - Security (AES, 128 Bit encryption, Authentication)
  - Leverage existing infrastruture
  - Backward compatibility

Vertical: Industrie 4.0

Mobile Robotics

Factory Automation

Localization

Control

Logistics

Vertical : Industrial

Industry 4.0 Goal:

- Increase the flexibility, versatility, productivity and resource efficiency

Requirements

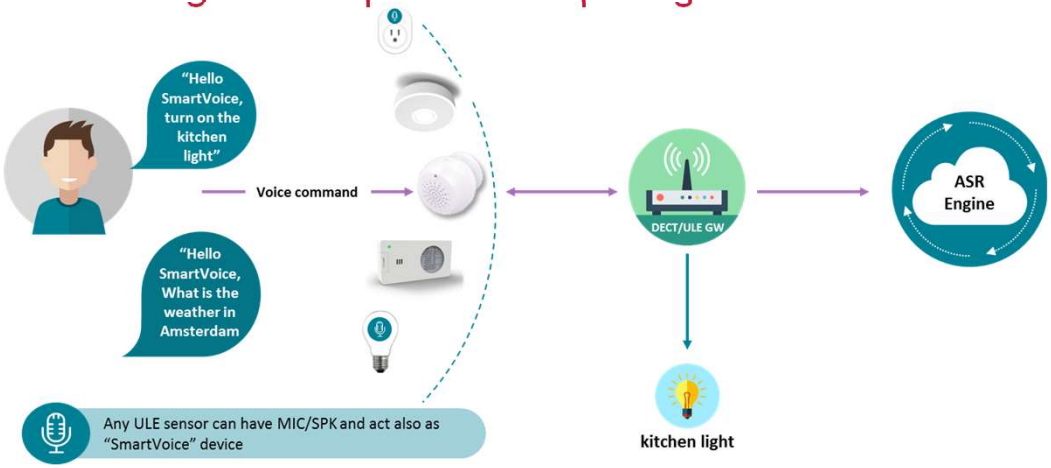
- Industrial grade wireless:
  - Latency (1 ms),
  - Reliability 1-10^6 , dependency
  - Support QOS
  - Seamless mobility
  - Security: confidentiality, authenticity, data integrity

- Exclusive access to spectrum,
  - Remove concerns about licensing, security, cost, liability
  - Global spectrum availability
- Cost:
  - IPR, Silicon, System, Infrastructure and licensing

- Making DECT a very compelling choice

Target Verticals: Voice activated

The age of ubiquitous computing : Voice enabled !



- ✓ Embed voice in any IoT device /sensor
- ✓ DECT&ULE provide HD Voice for ASR engines at low power for always on mode
- ✓ DECT-5G: AI on the edge of the network in the GW and in the sensors/devices to improve Load Balance, Latency, QoS, Security and Interference

DECT&ULE: The Voice of IoT

Simply Secure Connectivity

Vertical: Voice

- Adresses many different vertical markets
  - Smart Home
  - Building Automation
  - Healthcare
  - Audio
  - Security
  - Industrial
- Possible use case:
  - Battery powered Voice activated sensors that double up as telephones, speakers, intercom, broadcast
- Requirements:
  - link reliability,
  - long range
  - audio quality on battery operated devices.
  - quality of service
  - Bit rate
  - Numbers of channels (number of portable parts)
  - Full band quality 20-20000Hz (multi-room, Multi speaker)

Introducing openD

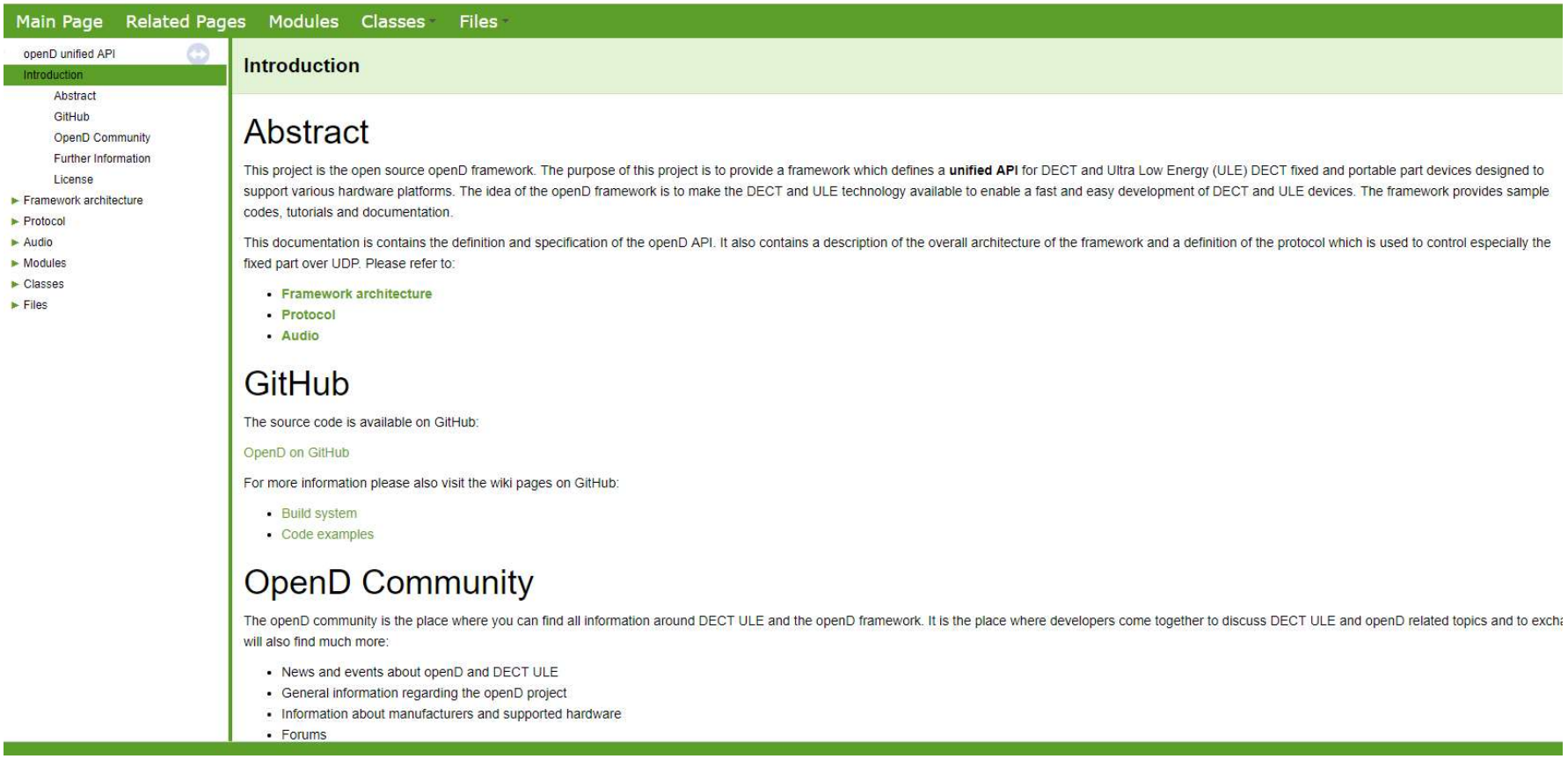
openD: The developer community helping to define DECT-5G

- ✓ openD is an API to unlock the uniqueness of DECT and ULE
- ✓ Puts the tools in place for wider adoption in other key industry verticals
- ✓ Unique combination of Voice (activation), Sensor, low power/latency
- ✓ Easy, Clever, Versatile, Secure, Reliable and interference free
- ✓ <u>Walks the Walk: Ref Designs to prove concept:</u>

Mission Critical Devices | Voice Activated Alarm | Automation

openD developer community

openD unified API 1.0.0-alpha.6



openD openly communicates every step of the development!.

Get on board

https://github.com/opend-connect/openD

Summary

IMT-2020

- 5G will change today‘s mobile landscape
- IMT technologies will interoperate to provide a seamless 5G experience
- IMT and ieee technologies should complement each other to deliver on 5G promise
- 5G success relies on creating sustainable business models to accurately engage new verticals

DECT-5G

- DECT-5G is a proponent IMT-2020 technology complementing other technologies
- DECT-5G will offer industries with special requirements a real 5G experience
- We look forward to the support of regulators, trade associations, ministries and standards bodies to make DECT-5G a success

Thank you for your time