Introduction on Chinese Evaluation Group (ChEG)

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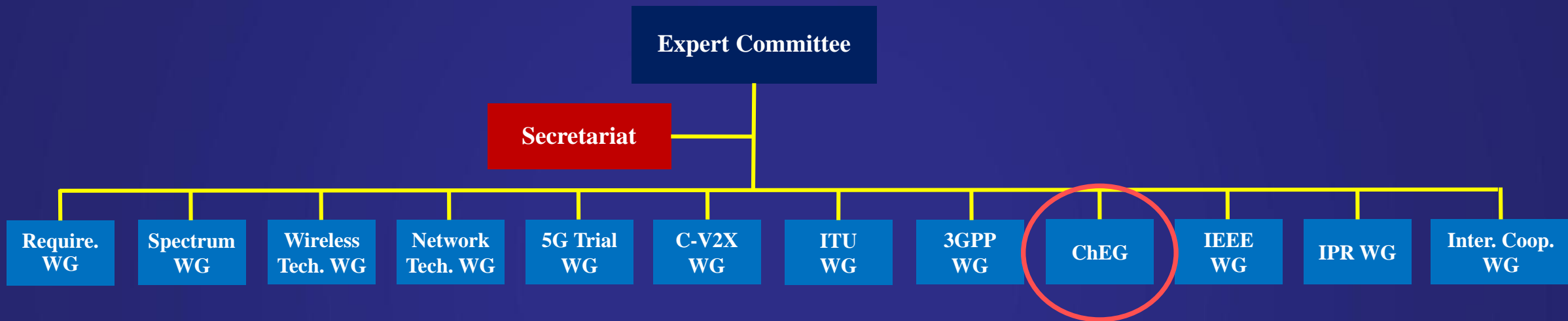
IMT-2020 Promotion Group

October 4, 2017

About ChEG

- ChEG is responsible for organizing and coordinating IMT technical evaluation tasks among Chinese participants

- During the period of IMT-Advanced and IMT-2000

  - ChEG participated in developing IMT related systems since 20 years ago, e.g. IMT-2000 evaluation in 1998 and OFDMA TDD WMAN evaluation in 2007

  - At the end of 2008, ChEG registered as an independent evaluation group for evaluation of IMT-Advanced candidate submission. Following the guidelines of the ITU IMT-Advanced process, ChEG worked on evaluation of submissions in Doc. IMT-ADV/6, 8, 9 (eg.,"3GPP technology" and "IEEE technology")

- During the period of IMT-2020

  - ChEG is organized under the structure of IMT-2020 (5G) Promotion Group

  - Registered as IMT-2020 independent evaluation group around April 2017

ChEG in the structure of IMT-2020 (5G) Promotion Group

Expert Committee

Secretariat

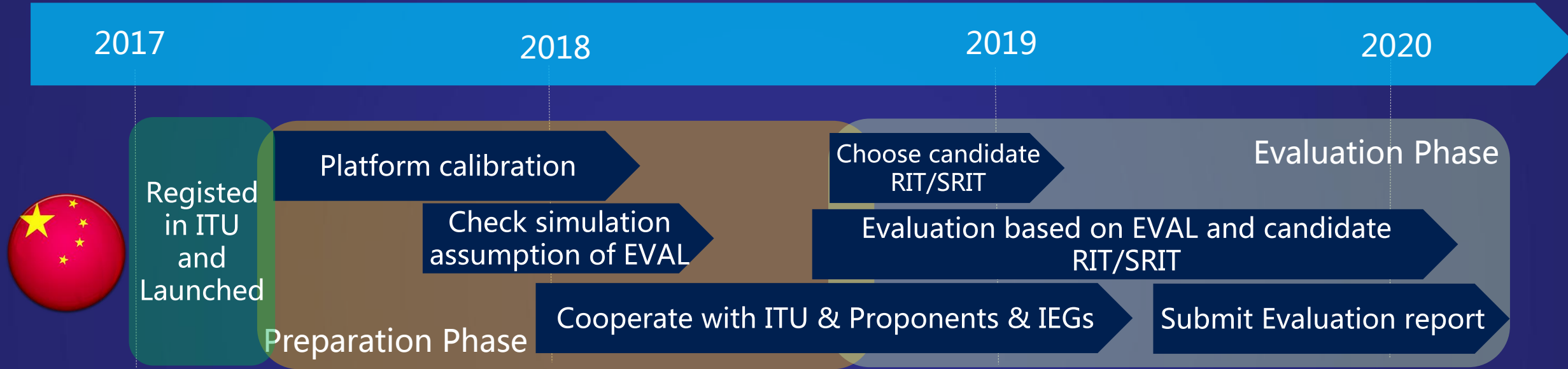| Require. WG | Spectrum WG | Wireless Tech. WG | Network Tech. WG | 5G Trial WG | C-V2X WG | ITU WG | 3GPP WG | ChEG | IEEE WG | IPR WG | Inter. Coop. WG |

Major participants of ChEG:

Responsibilities & Mission in IMT-2020 evaluation

- Organize and coordinate among Chinese participants on IMT-2020 evaluation activities
  - ➢ Produce system level and link level simulation platform, and link to system interface
  - ➢ Regular schedule on technical discussion and evaluation calibration
  - ➢ Establish ChEG common views
- Communicate and cooperate with proponents and other independent evaluation groups
  - ➢ Simulation calibration, views exchange, further coordination activities, etc.
- Participate in ITU independent evaluation activity
  - ➢ ITU-R related activities
 - ➢ Develop and submit final evaluation report to ITU

ChEG work plan on ITU independent evaluation activity

2017   2018   2019   2020

Registed in ITU and Launched

Platform calibration

Check simulation assumption of EVAL

Preparation Phase

Choose candidate RIT/SRIT

Evaluation based on EVAL and candidate RIT/SRIT

Cooperate with ITU & Proponents & IEGs

Evaluation Phase

Submit Evaluation report

Approaches to evaluation on candidate RIT/SRIT by ChEG:

- Preparation Phase(2017-2018): evaluation preparation, such as channel model calibration, system and link level simulation platform calibration, preliminary selection on simulation assumptions

- Evaluation Phase(2018-2020): targeting at fulfilling step 4 of Process for IMT-2020. A final report will be accomplished based on selected candidate RIT/SRIT

- Cooperation with ITU & Proponents & other IEGs is important

Work Procedure of ChEG
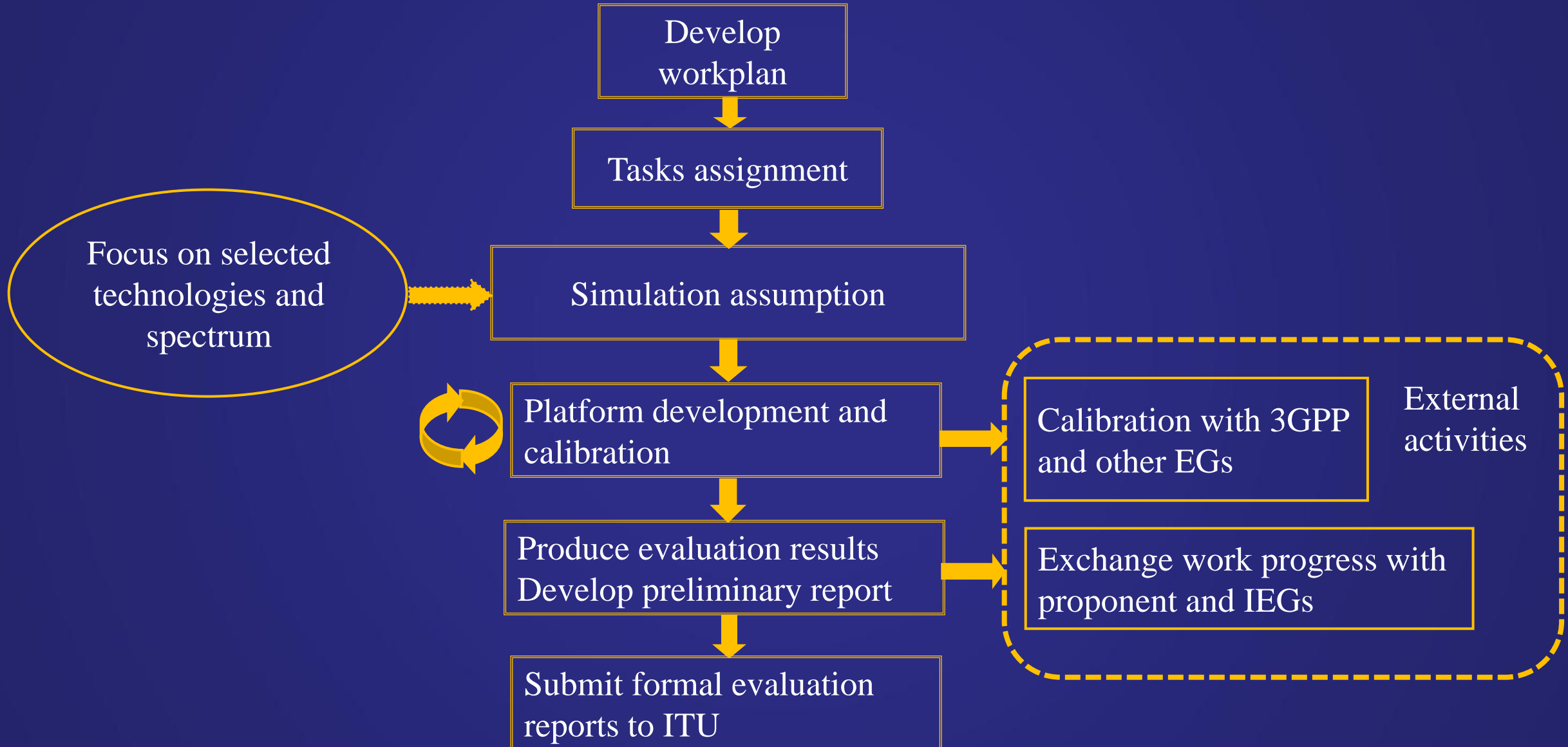
Some observations on report ITU-R [IMT-2020.EVAL] (1)

Requirement	Usage scenario	Sub-items	Evaluation method	Test environment
Technical performance requirement	eMBB	Peak data rate	Analysis	All in eMBB
		Peak spectral efficiency	Analysis	All in eMBB
		User experienced data rate	• For single layer: analysis • For multi-layer: system-level simulation	Dense urban – eMBB
		5th percentile user spectral efficiency	System-level simulation	Indoor Hotspot – eMBB Dense Urban – eMBB Rural – eMBB
		Average spectral efficiency	System-level simulation	Indoor Hotspot – eMBB Dense Urban – eMBB Rural – eMBB
		Area traffic capacity	Analysis	Indoor Hotspot - eMBB
		Energy efficiency	Inspection	All in eMBB
		Mobility	System-level simulation + Link-level simulation	Indoor Hotspot – eMBB Dense Urban – eMBB Rural – eMBB
	eMBB, URLLC	User plane latency	Analysis	All in eMBB and URLLC
		Control plane latency	Analysis	All in eMBB and URLLC
		Mobility interruption time	Analysis	All in eMBB and URLLC
	URLLC	Reliability	System-level simulation + Link-level simulation	Urban macro – URLLC
	mMTC	Connection density	Opt 1: full-buffer system-level simulation + Link-level simulation Opt 2: non-full buffer system-level simulation	Urban macro – mMTC
	General	Bandwidth and Scalability	Inspection	All

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Some observations on report ITU-R [IMT-2020.EVAL] (2)

Usage	Test env.	Evaluation configuration	Spectral efficiency	User experienced data rate	Mobility	Connection density	Reliability
eMBB	Indoor Hotspot – eMBB	Config. A: 4GHz	Simulation		Simulation		
		Config. B: 30GHz	Simulation		Simulation		
		Config. C: 70GHz	Simulation		Simulation		
	Dense Urban – eMBB	Config. A: 4GHz/Macro layer	Simulation		Simulation		
		Config. B: 30GHz/Macro layer	Simulation		Simulation		
		Config. C: Multi-layer		Simulation			
	Rural - eMBB	Config. A: 700MHz/1732m	Simulation		Simulation		
		Config. B: 4GHz/1732m	Simulation		Simulation		
		Config. C: 700MHz/6000m	Simulation				
mMTC	Urban macro - mMTC	Config. A: 500m/700MHz				Simulation	
		Config. B: 1732m/700MHz				Simulation	
URLLC	Urban macro – URLLC	Config. A: 4GHz					Simulation
		Config. B: 700MHz					Simulation

Conclusion

- ChEG will actively participate in IMT-2020 evaluation work

- Communications with ITU-R WP5D, candidate technology proponents and other IEGs are important

- Evaluation will be focused on some selected configurations and scenarios based upon deployment interest