ITU-T SG-13 Workshop
Update on ITU-R Working Party 5D Activities on IMT-2020
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Version 2 7-15-18

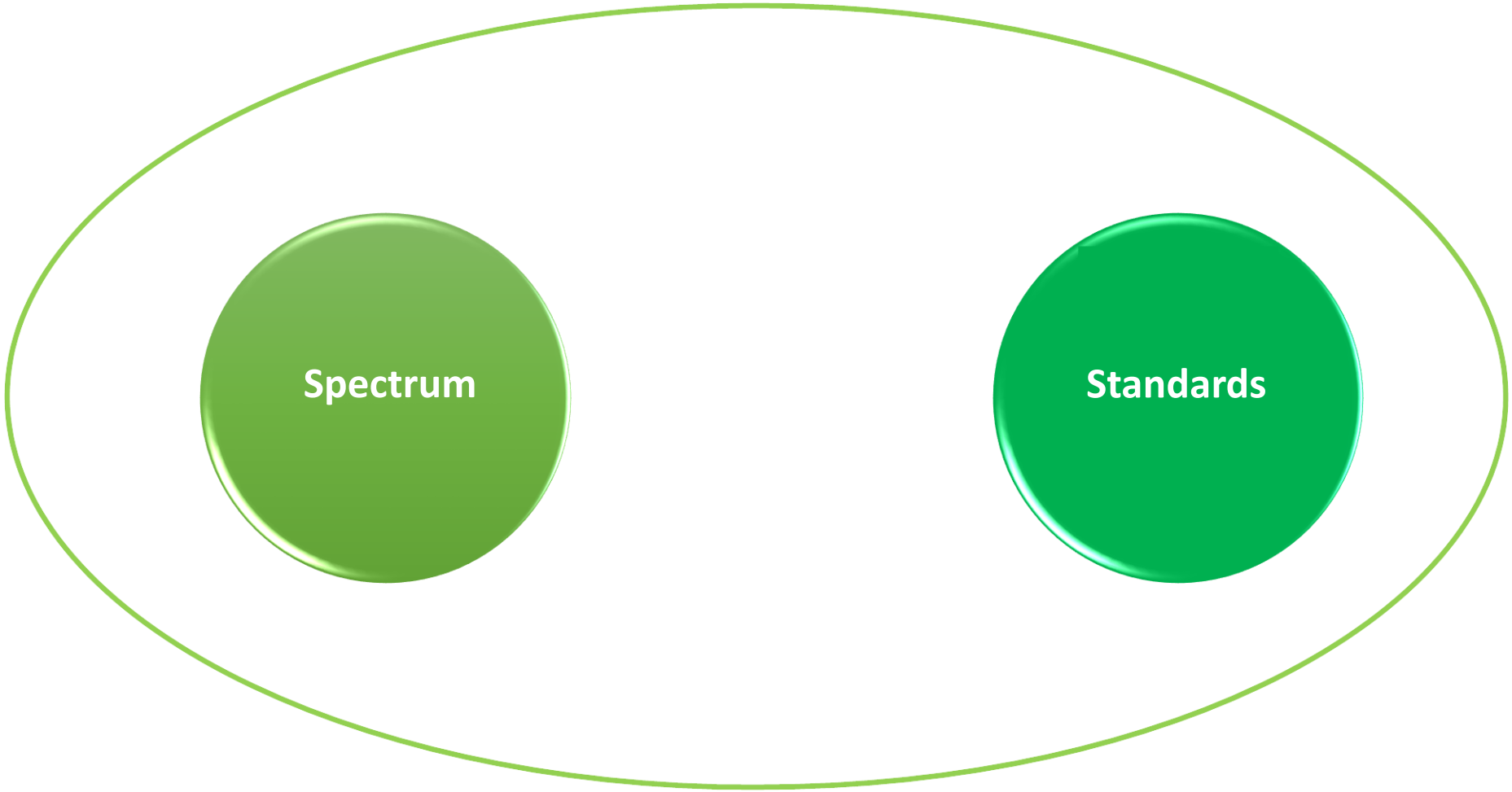
ITU-R IMT-2020
Key Items & Overall Timing

Two Key & Interrelated Focus Areas for IMT-2020 & 5G Success

- ITU WRC Process
- Mobile spectrum allocations and IMT identifications
- ITU membership, ITU-R Study Groups, Regional Groups, International organisations
- Member States driven

- ITU-R Study Group 5 Process
- IMT-2020 Vision, overall requirements, radio interface specifications
- ITU membership, other standard making bodies
- Industry driven
- Reports & Recommendations approved by Member States

Both require global collaboration



Both need to be globally harmonized

IMT-2020 radio interface standardization process

- Development plan
- Market/services view
- Technology/ research kick off
- Vision - IMT for 2020
- Name
- Process optimization

- Technical performance requirements
- Evaluation criteria
- Invitation for proposals
- Sharing study parameters (IMT-2020)
- Sharing studies in preparation for WRC-19

- Technical proposals
- Evaluation Groups
- Methodology
- Consensus building

- Spectrum/band arrangements
- Decision & radio framework
- Detailed IMT-2020 radio specifications
- Future enhancement/ update plan & process

IMT-2020 spectrum allocation process

- < 6 GHz Spectrum view
- ITU-R Study Group activities/studies
- Spectrum/band arrangements (post WRC-15)

- CPM Report (IMT- WRC-19)
- Sharing study reports
- Spectrum/band arrangements (WRC-19)

2012-2015 | 2016-2017 | 2018-2019 | 2019-2020

Setting the stage for the future: vision, spectrum, and technology views

Defining the technology Allocate the spectrum

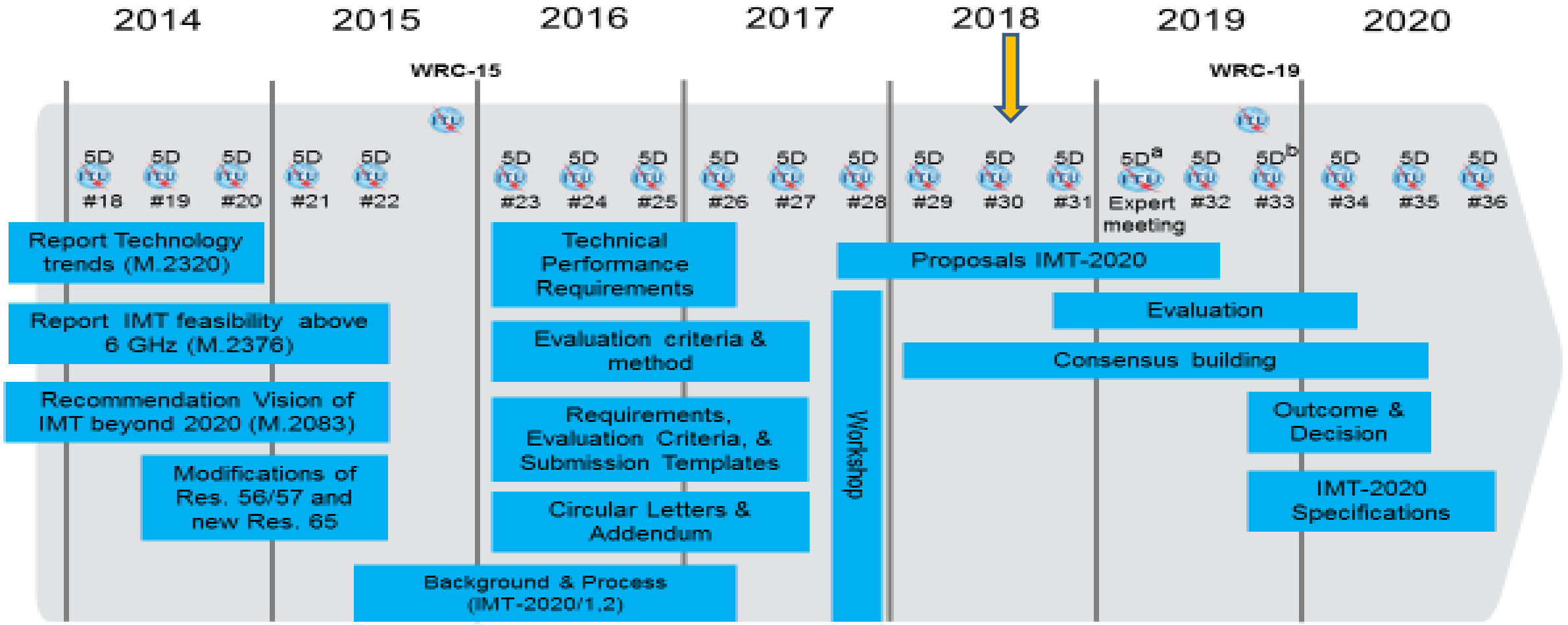
IMT-2020 Technology

Comparison of IMT Technology Developments in ITU-R

ITEM	IMT-2000	IMT-Advanced	IMT-2020
VISION	**M.687 & M.816**	**M.1645**	**M.2083**
Year	1992	2003	2015
Pages	***29***	***24***	***19***
REQUIREMENTS	**M.1034**	**M.2134**	**M.2410**
Year	1997	2008	2017
Pages	***28***	***8***	***9***
SUBMISSION	**8/LCCE/47 + Add**	**M.2133**	**M.2411**
Year	1998	2008	2017
Pages	***10***	***29***	***28***
EVALUATION	**M.1225**	**M.2135**	**M.2412**
Year	1997	2009	2017
Pages	***61***	***70***	***137***
SPECIFICATIONS	***M.1457-0***	***M.2012-0***	***M.[IMT-2020.SPECS]***
Year	2000	2012	Anticipated published 2020
Current Version	*M.1457-13*	*M.2012-3*	-
Year	2017	Published early 2018	

S. M. Blust V8 7-11-18

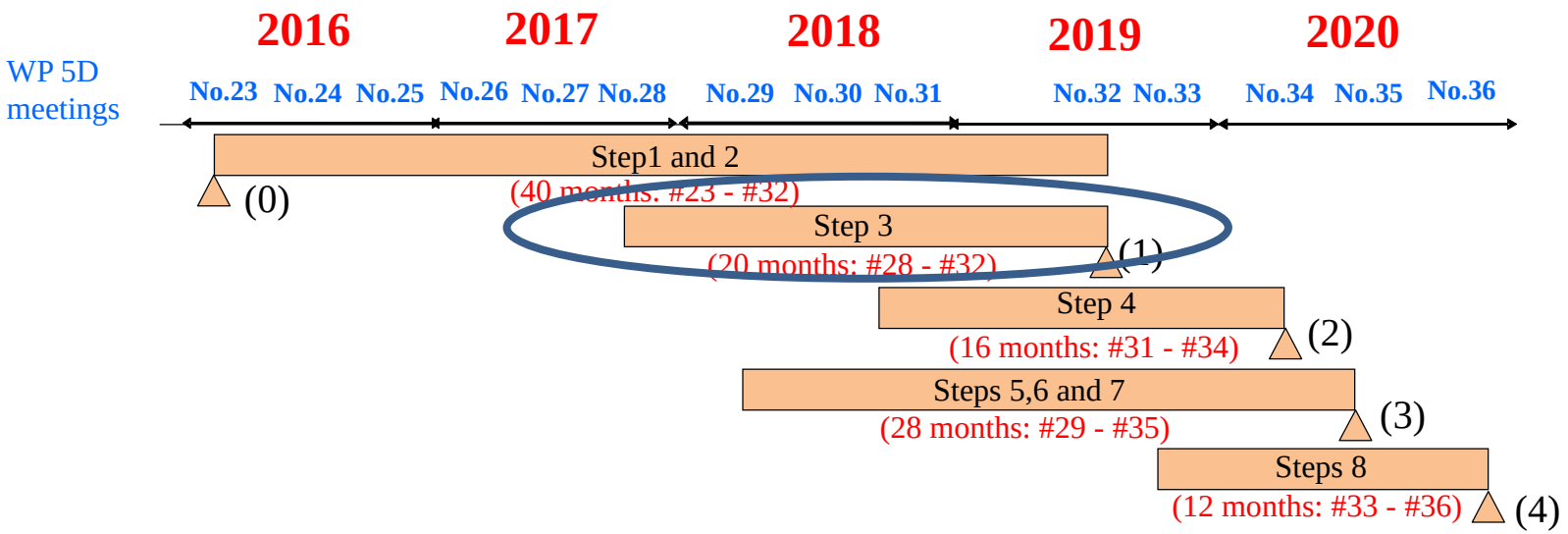
DETAILED TIMELINE & PROCESS FOR IMT-2020 IN ITU-R



(a) – if needed focus meeting towards WRC-19 (non-Technology), (b) – focus meeting on Evaluation (Technology)

Note: While not expected to change, details may be adjusted if warranted.

DOCUMENT IMT-2020/2 FIGURE 1
Schedule for the development of IMT-2020 radio interface Recommendations



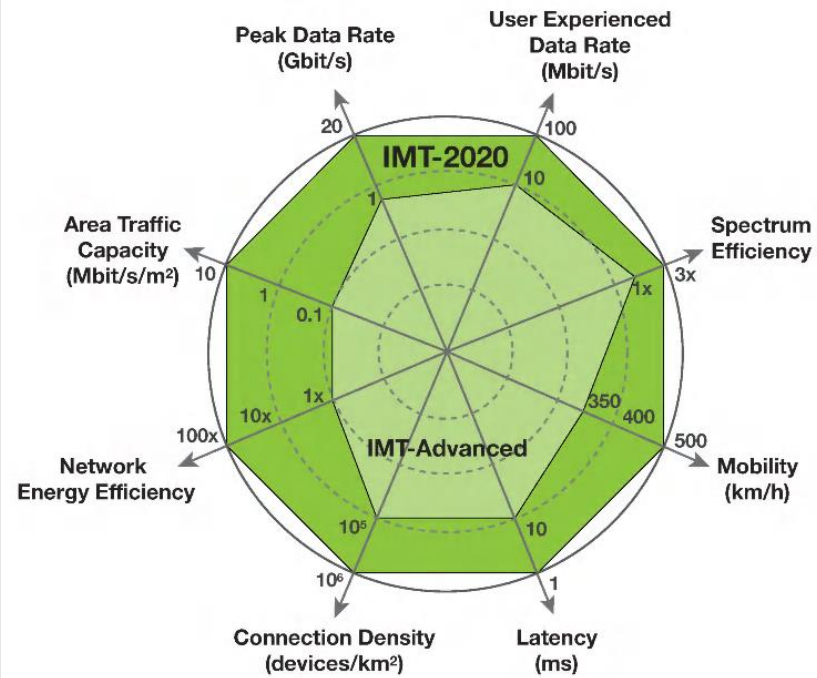
Steps in radio interface development process:

Step 1: Issuance of the circular letter
Step 2: Development of candidate RITs and SRITs
Step 3: Submission/Reception of the RIT and SRIT proposals and acknowledgement of receipt
Step 4: Evaluation of candidate RITs and SRITs by Independent Evaluation Groups
Step 5: Review and coordination of outside evaluation activities
Step 6: Review to assess compliance with minimum requirements
Step 7: Consideration of evaluation results, consensus building and decision
Step 8: Development of radio interface Recommendation(s)

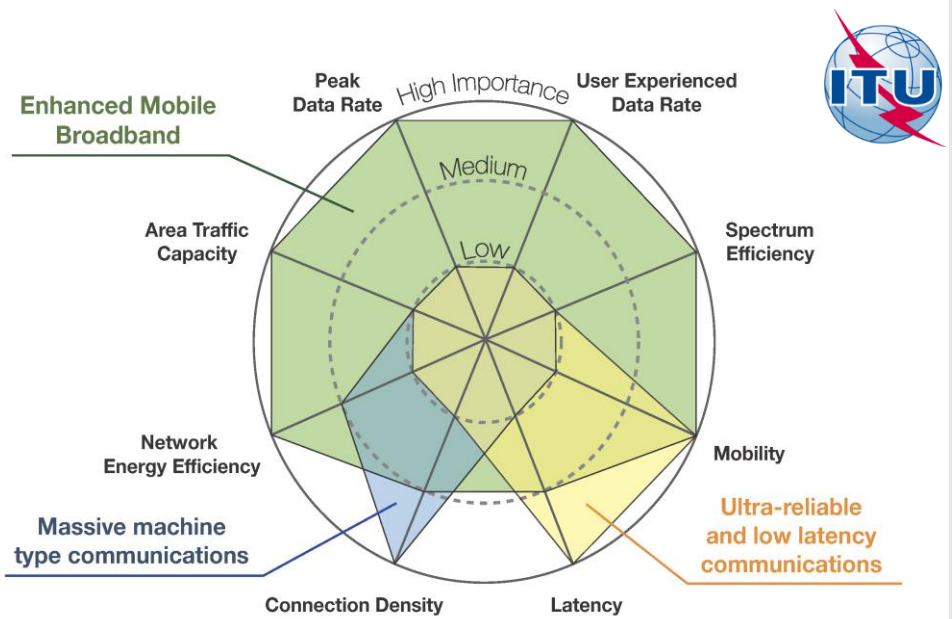
Critical milestones in radio interface development process:

(0): Issue an invitation to propose RITs	March 2016	(2): Cut off for evaluation report to ITU	February 2020
(1): ITU proposed cut off for submission of candidate RIT and SRIT proposals	July 2019	(3): WP 5D decides framework and key characteristics of IMT-2020 RIT and SRIT	June 2020
		(4): WP 5D completes development of radio interface specification Recommendations	October 2020

High Level 5G Capability Perspectives from the ITU-R IMT-2020 Vision Recommendation



Enhancement of key capabilities from IMT-Advanced to IMT-2020



The importance of key capabilities in different usage scenarios

The values in the figures above are targets for research and investigation for IMT-2020 and may be revised in the light of future studies. Further information is available in the IMT-2020 Vision Recommendation (Recommendation ITU-R M.2083)

KEY ITU-R IMT-2020 Documents

(Technology Submission Focus)

(*Source WP 5D)*

- Document IMT-2020/2 Rev1 – "Submission, evaluation process and consensus building for IMT-2020"
- Report ITU-R M.2410 – "Minimum requirements related to technical performance for IMT-2020 radio interface(s)"
- Report ITU-R M.2411– "Requirements, evaluation criteria and submission templates for the development of IMT-2020"
- Report ITU-R M.2412 – "Guidelines for evaluation of radio interface technologies for IMT-2020"

IMT-2020 'In-Progress' Candidate Radio Interface Technology "Initial Submissions" to WP 5D as of Meeting #30 June 2018

Click on Number to access document

Number	Title
[7]	Submission received for proposals of Candidate Radio Interface Technologies from "Proponent 'TSDSI' under Step 3 of the IMT-2020 Process
[6]	Submission received for proposals of Candidate Radio Interface Technologies from Proponent 'ETSI' under Step 3 of the IMT-2020 process
[5] (Rev.1)	Document "Submission received for proposals of candidate radio interface technologies from proponent 'China' under Step 3 of the IMT-2020 process"
[4] (Rev.1)	Document "Submission received for proposals of candidate radio interface technologies from proponent 'Korea' under Step 3 of the IMT-2020 process"
[3] (Rev.1)	Document "Submission received for proposals of candidate radio interface technologies from proponent '3GPP' under Step 3 of the IMT-2020 process"

IMT
Spectrum

Usage Scenarios of IMT for 2020 and Beyond

High traffic capacity, high peak data rate, high user data rate

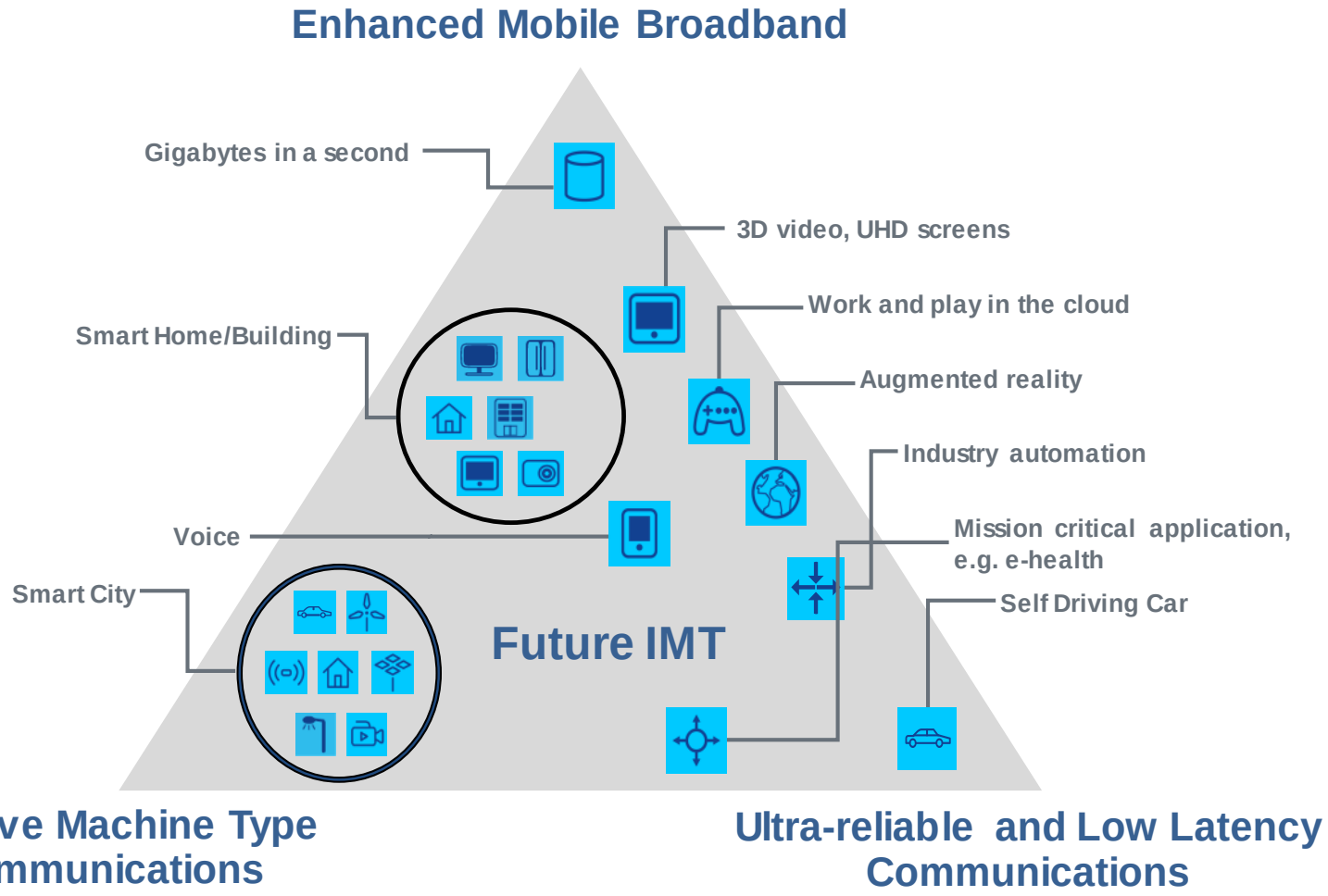
Above 24 GHz (WRC-19)

Bridging coverage, capacity, mobility, data rate, spectrum efficiency

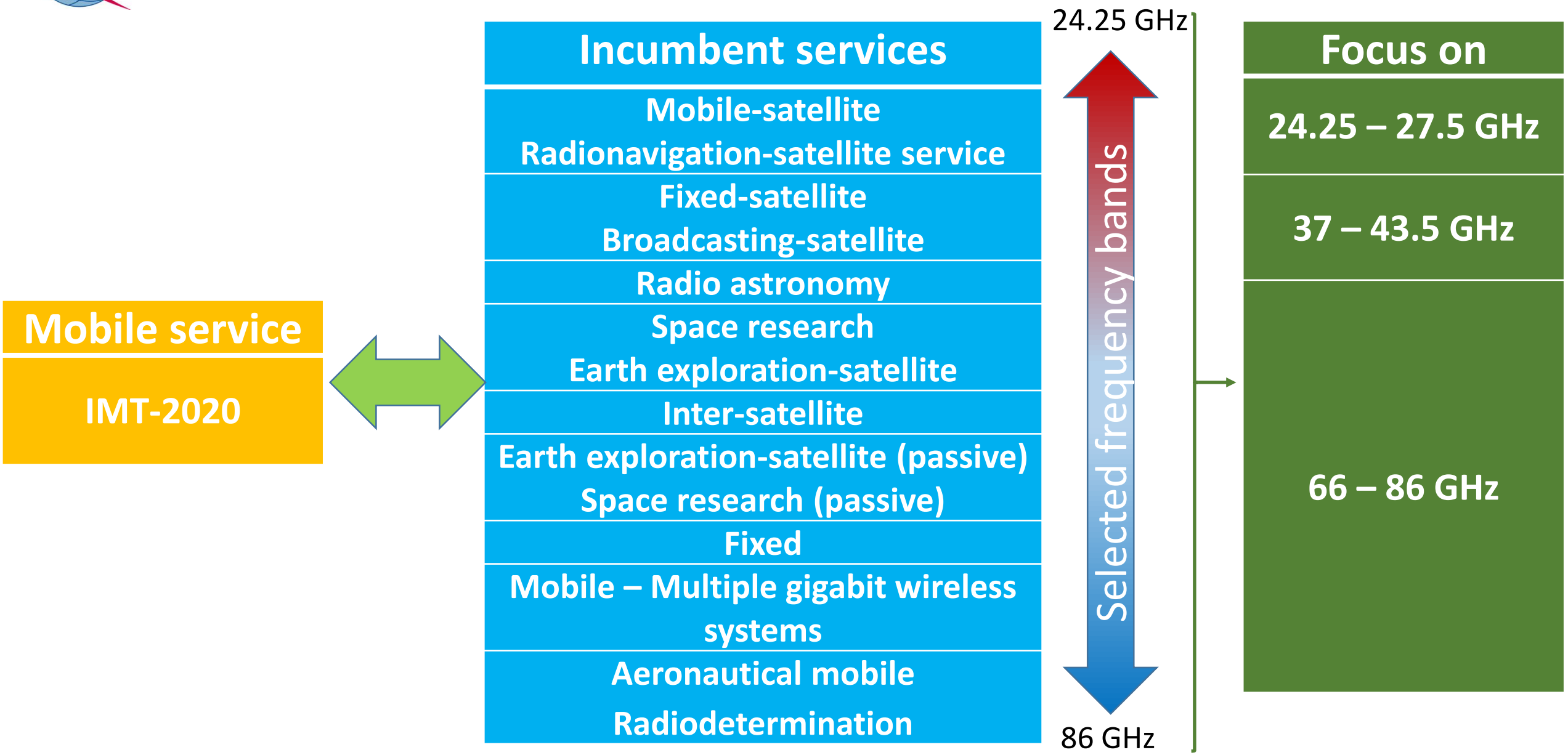
1 GHz to 6 GHz

Coverage, mobility, connection density, improved data rate, spectrum efficiency

Below 1 GHz



WRC-19 AI 1.13 sharing & compatibility studies



Conclusions

- Global collaboration and joint effort leads to success for IMT-2020 and 5G.
- ITU-R and industry partnerships remain strong and well aligned for IMT-2020 and 5G.
- Engagement by Administrations is high - both on spectrum and technology
- ITU-R IMT-2020 vision continues as the global target in support of 5G.
- Initial IMT-2020 candidate radio interface technology submissions already being received – final submissions due July 2019.
- The Evaluation process is ready to start - advance activities already underway by independent evaluation groups.
- ITU-R IMT-2020 radio interface technology specifications Recommendation on track for year-end 2020 release.
- Planned early 5G deployments will expand to encompass the IMT-2020 vision as initial technology matures in capability and availability over next several years.
- ITU-R is well on schedule to implement all necessary procedures to identify the important future ‘mm wave’ spectrum (WRC-19) within the IMT overall spectrum portfolio.
- IMT-2020 and 5G requires spectrum both below and above 6 GHz to support a rich portfolio of use cases.

Thank You!