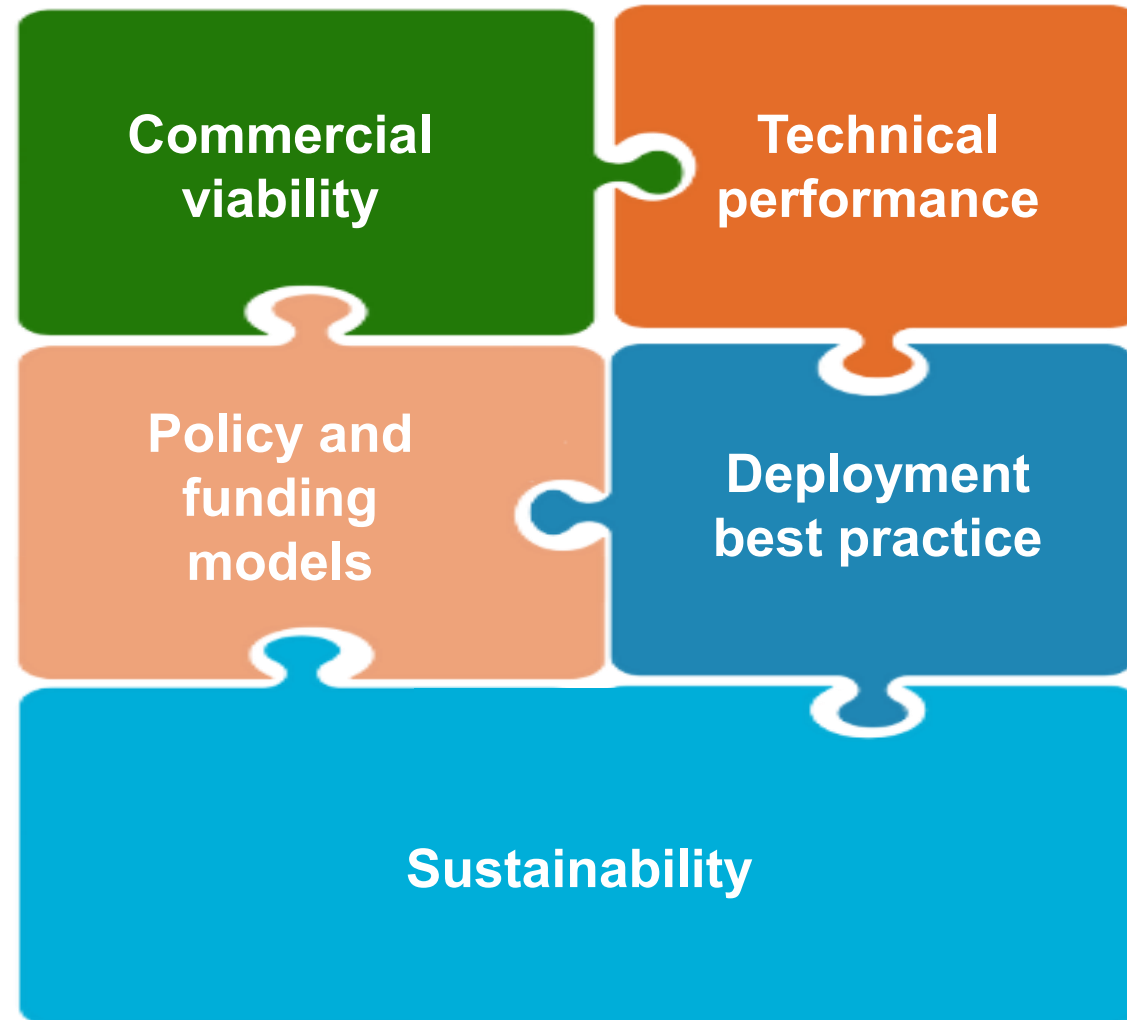




Approaches to sharing and caring for a sustainable future

Julie Bradford, Head of techno-economic analysis at Real Wireless
CWTEC – 6G Anarchy in the UK – 9th July 2025

Figuring out the 6G puzzle



Technical performance – the traditional start point

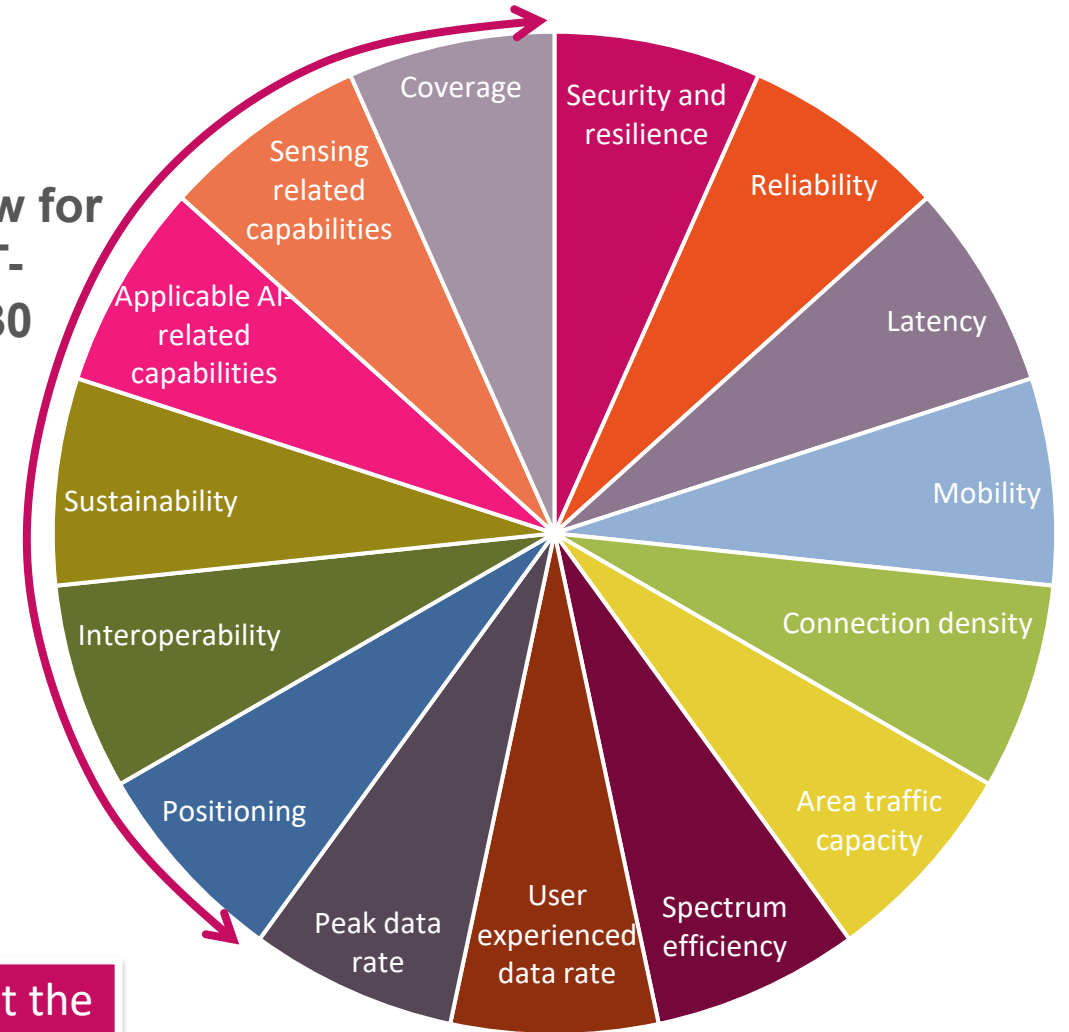
“The **motivation** for the development of IMT-2030 is to continue to build an inclusive information society towards contributing to support the United Nations Sustainable Development Goals (SDGs)” – ITU-R M.2160-0

Goals for IMT-2030 from ITU-R:

- Inclusivity
- Ubiquitous connectivity
- Sustainability
- Innovation
- Enhanced security and resilience
- Standardization and interoperability
- Interworking

Challenge of setting detailed targets on capabilities whilst delivering against the vision of the original goals

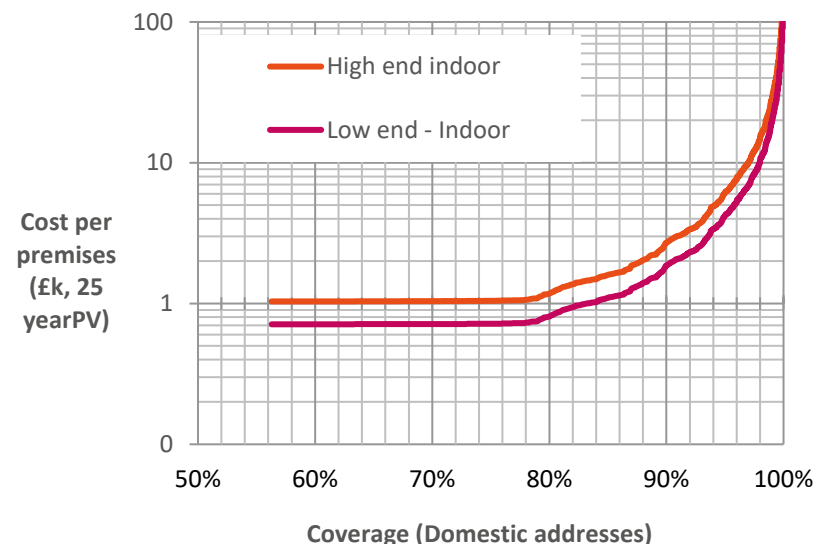
New for
IMT-
2030



Capabilities for IMT-2030
realwireless.

Commercial viability – the traditional stumbling block

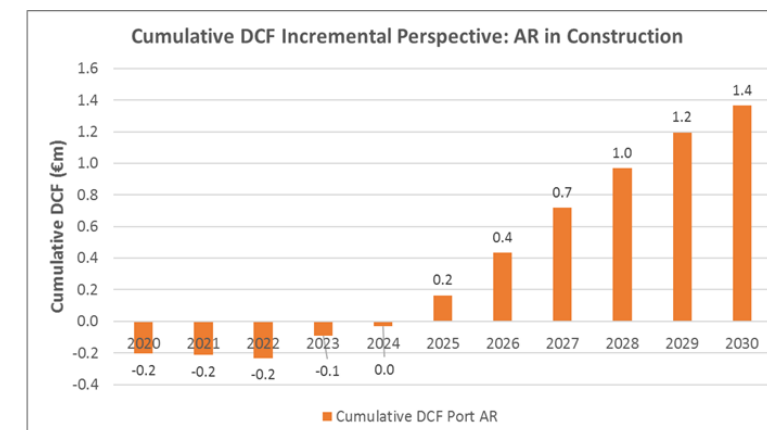
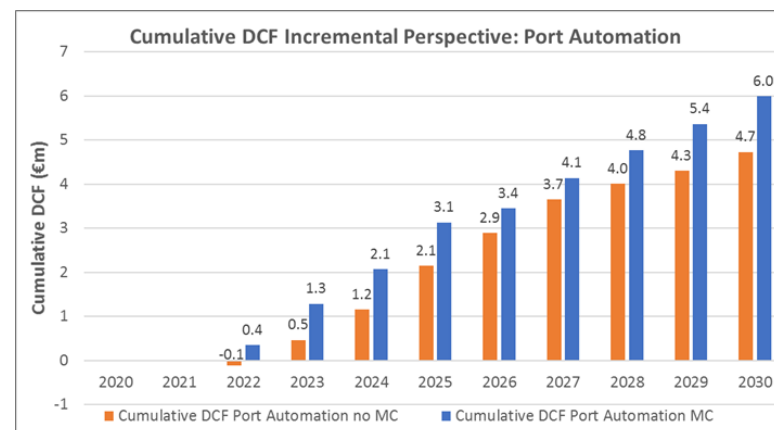
Illustration of high cost of rural connectivity



Cost per additional premise served, **Wales study region, 2Mbps, 5MHz, normal power (64dBm/10MHz), indoor coverage target**
 From Real Wireless analysis supporting Ofcom considerations of cost of coverage obligation at 800MHz in January 2012

- Above is an old result (LTE in 2012) but with a very relevant message still as we think about inclusivity and ubiquitous coverage goals
- Where are cost and operational efficiencies in the IMT-2030 targets?

Illustration of different payback periods and risk profile for 5G industrial services



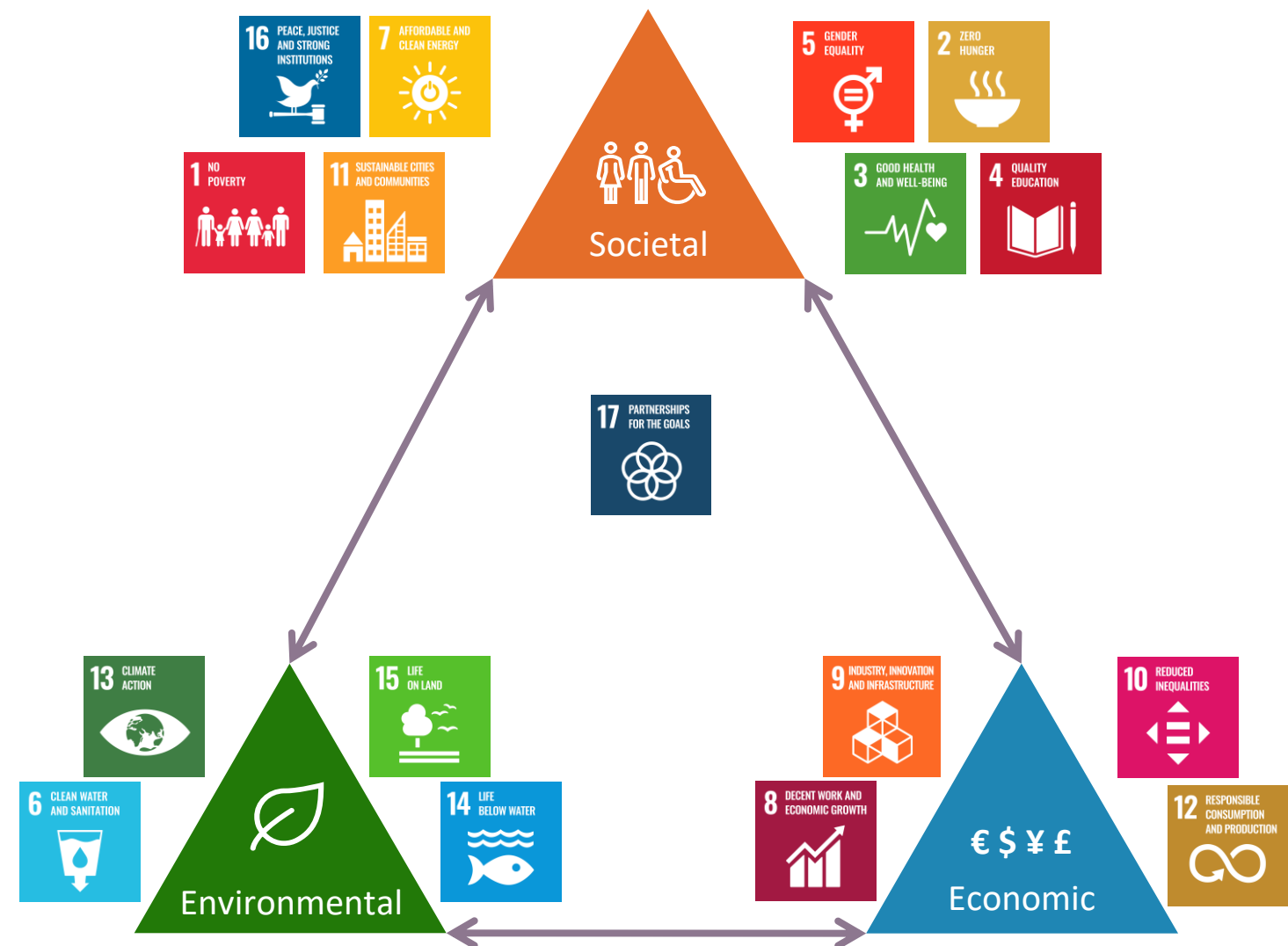
Discounted cashflow comparison for introducing two new industrial user targeted services in Hamburg port using 5G-slicing

From Real Wireless business case analysis during 5G-MoNArch in June 2019

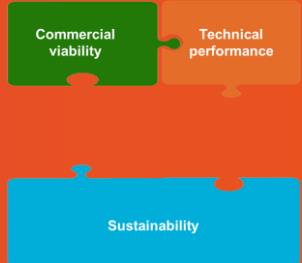
- 5G was designed to go beyond consumer services and unlock new industrial and business user revenue streams
- Benefits of new industry targeted 5G services were heavily promoted
- But business case and adoption challenges for many of these in practice

Sustainability – the “new” focus

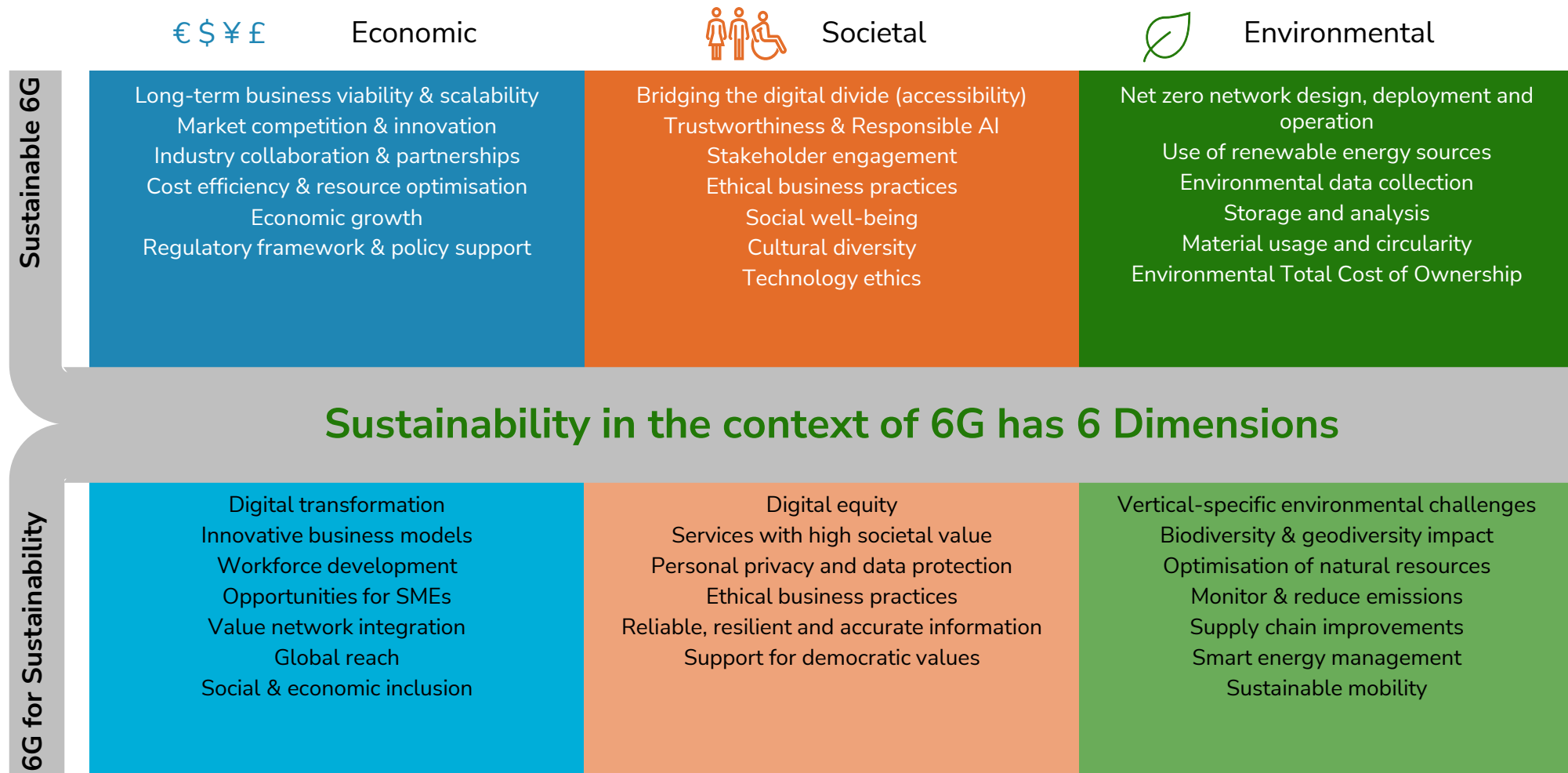
- UN Sustainable Development Goals (SDGs)
 - High level human and planetary goals
 - Adopted in 2015 setting 2030 targets
- Environmental SDGs and Net Zero getting a lot of attention
 - European Sustainability Reporting Standards (ESRS) under European Green Deal
 - Example of ESRS for MNOs - Telenor 2024 annual report
- But opportunity for 6G to affect other SDG areas too



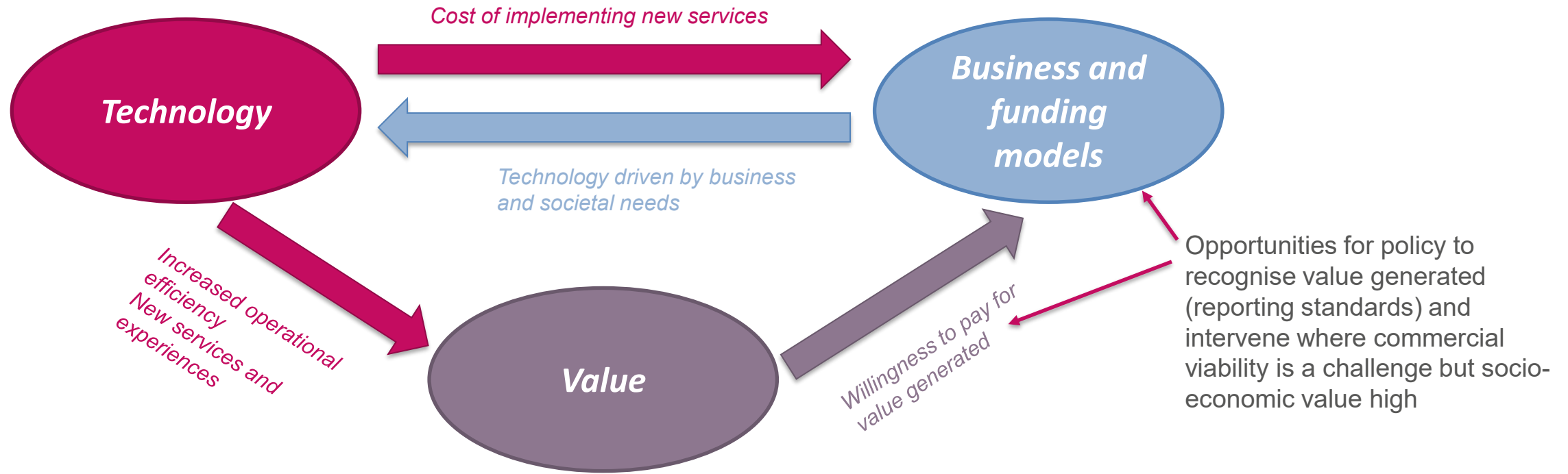
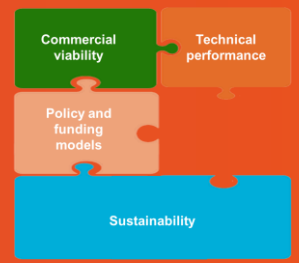
Further details of the UN SDGs shown here are available at <https://www.un.org/sustainabledevelopment>. Note: The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States



Sustainability and 6G across all of its dimensions



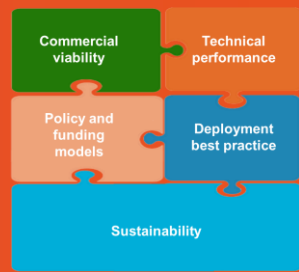
Policy and funding models - bridging the “willingness to pay” gap



- “Key Value” term being developed in European projects
- Has been discussed in 3GPP SA1 and transitioned to “Sustainability analysis”
- Some 3GPP SA1 use cases include a sustainability analysis but not mandatory



Deployment best practice – delivering services in the most sustainable way in real scenarios

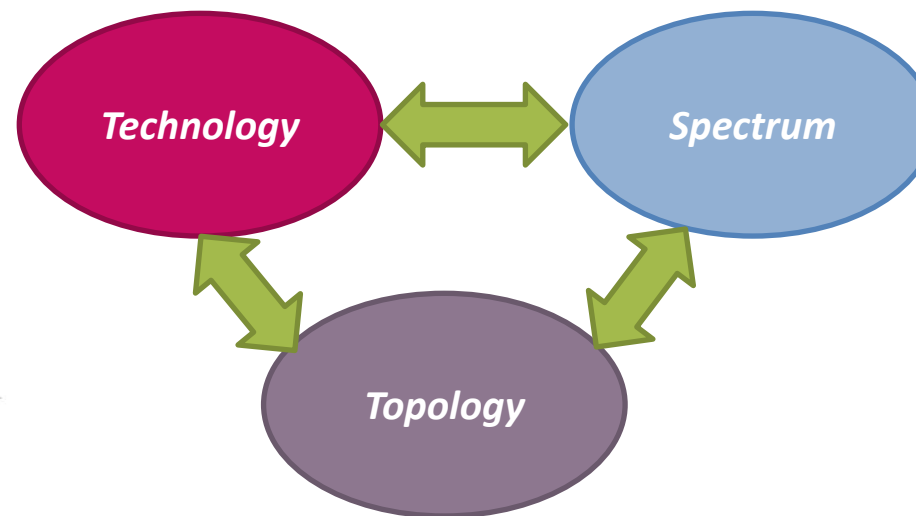
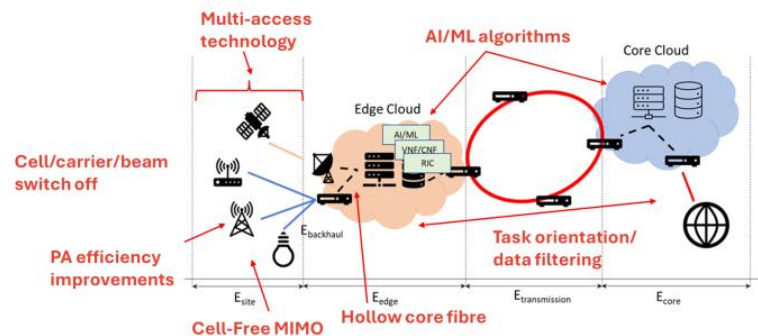


Improvements already possible

- 1&1 led deployment at Dortmund stadium
- Single rack for 1&1 (using O-RAN) vs 16 racks for other MNOs
- 2.5kW vs 35kW



Plenty of emerging technologies that need evaluating

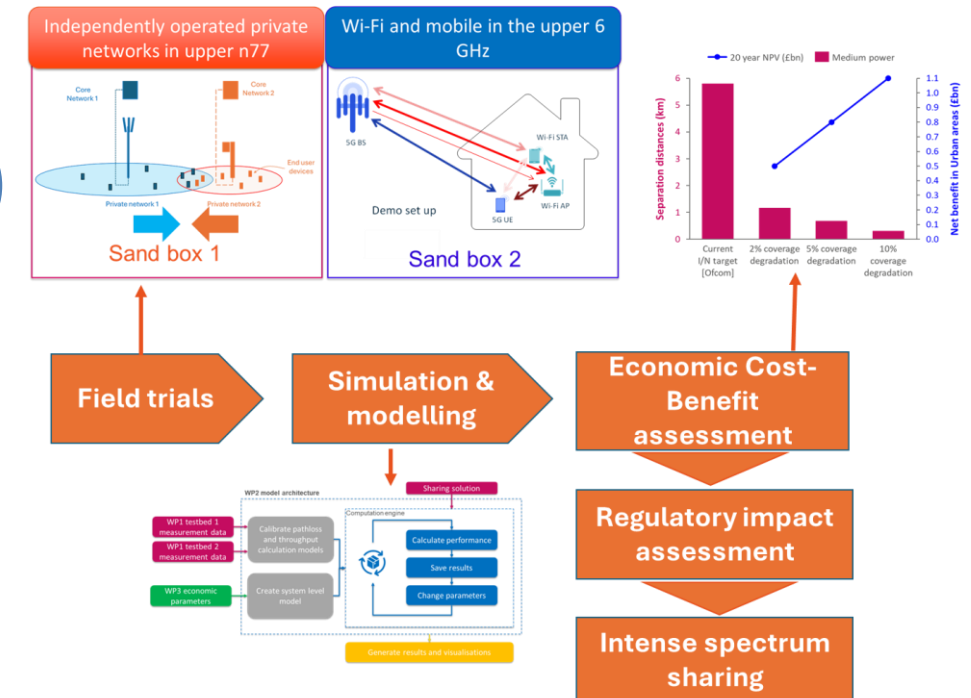


Shared infrastructure increasingly important

- Proved crucial to making progress on rural connectivity
- Increasingly important in high demand locations too
- UK strength in JOTS and neutral host industry
- Alignment and opportunities to share with other national infrastructure build programmes

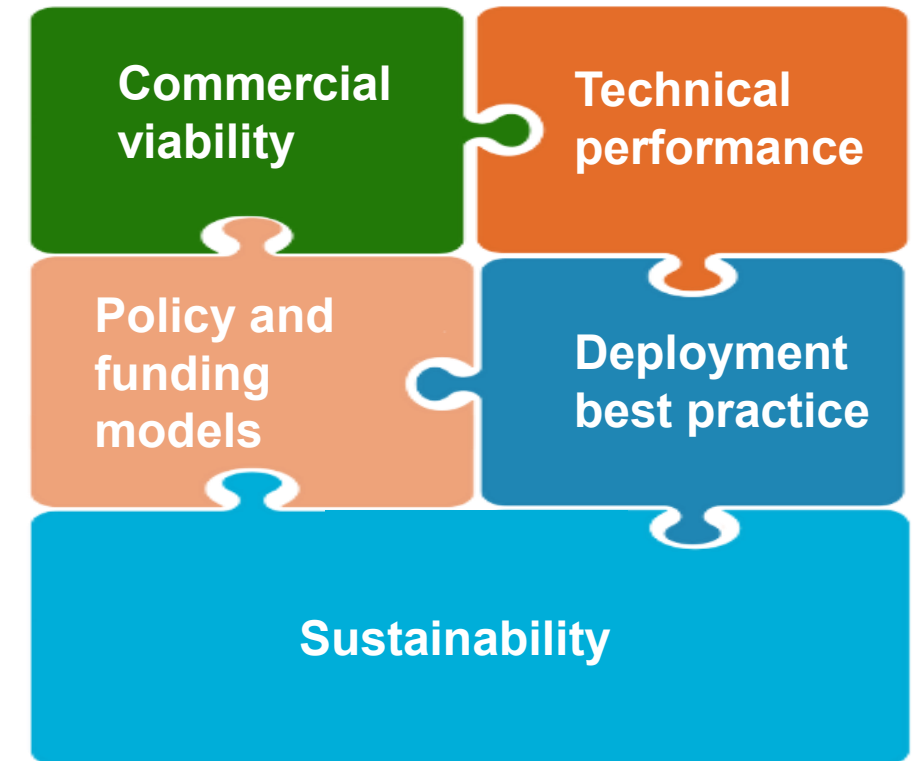
Ensuring spectrum options keep pace with deployment options

- “Network of networks” adding extra layers to spectrum decisions
- UK spectrum sandbox projects useful for field trialling spectrum sharing options and co-existence issues



Closing thoughts

- 1 Let's focus on fixing existing problems with 6G rather than creating new ones
- 2 Innovations that simplify deployment and operations will help commercial viability
- 3 Sustainability across all dimensions must be part of our 6G thinking
- 4 But also need to recognise that some “greater good” services will need careful policy and funding considerations if ever to be realised
- 5 Industry fora, beyond standards bodies, for sharing and aligning on deployment and operations best practice are key
- 6 Holistic evaluations of 6G at “design phase” needed that complement “usage phase” reporting and monitoring. Required to understand the trade-offs and identify realistic deployment cases and a UK strategy where 6G can really have an impact.



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Website domain:

<https://sustain-6g.eu/>



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