



SCF: Our value, differentiation & work

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Outline



- Mission
- Evolving Mobile Eco-System
- SCF Value
- 2020 Work Areas & Work Items
- Differentiation/Complementarity
- Collaborations
- Call to Action
- Work Area Descriptions

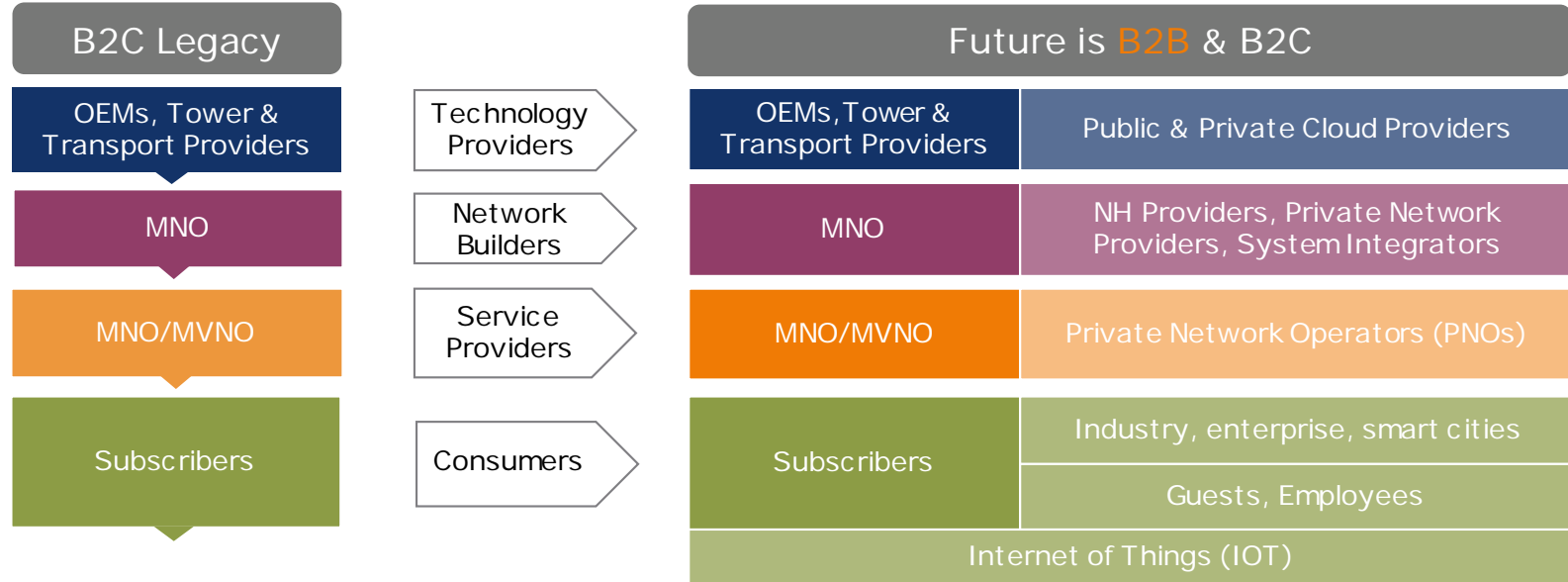
SCF mission



SCF is committed to **accelerating small cell deployments and driving network densification worldwide** by

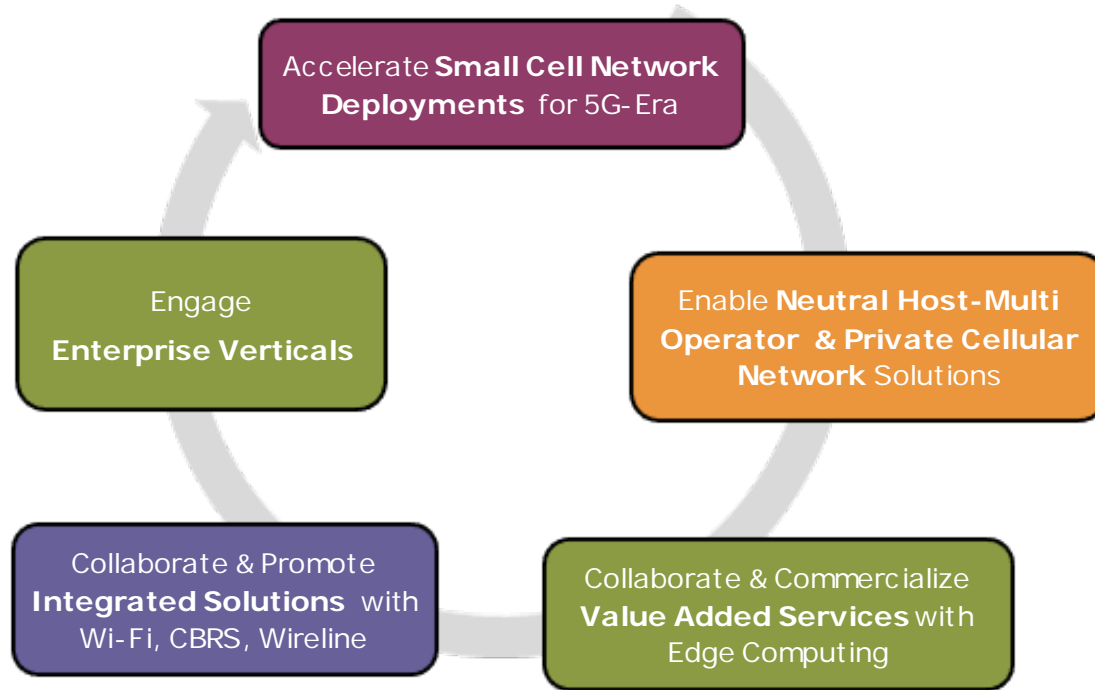
- removing commercial & technical barriers,
- working with regulators and municipalities, enterprises &
- forging new business cases.

Evolution of the mobile ecosystem



New Players, New Business Relationships & New Opportunities

SCF: Value proposition



Enterprise Engagement

**Enterprise
Advisory
Council**

AECOM

AEG

ATM

CAMDEN

CBRE

ExxonMobil

GM



JHM HOTELS
Keeping Our Promises



**KAISER
PERMANENTE**

MARRIOTT

wework



[[SCF215](#)] EAC's requirements and SCF's action plan to address them

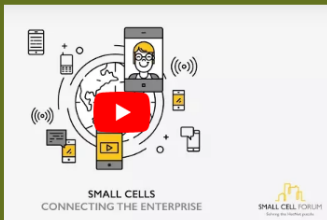
SCF engages enterprise through our advisory council and has reached out to hospitality, healthcare and commercial property verticals

Hospitality



Microsite and collateral:

<https://www.smallcellforum.org/enterprise/connecting-hospitality/>



**Watch the
Video**

<https://youtu.be/c3BVIMMQEYY>

Healthcare



Targeted collateral

- Brochure [SCF205]
- Market analysis & Business case [SCF206]
- Ownership models [SCF210]
- Healthcare deployment stories
- <https://www.smallcellforum.org/enterprise/connecting-healthcare/>

Speaking at UK Health Show, Q318

Commercial Property



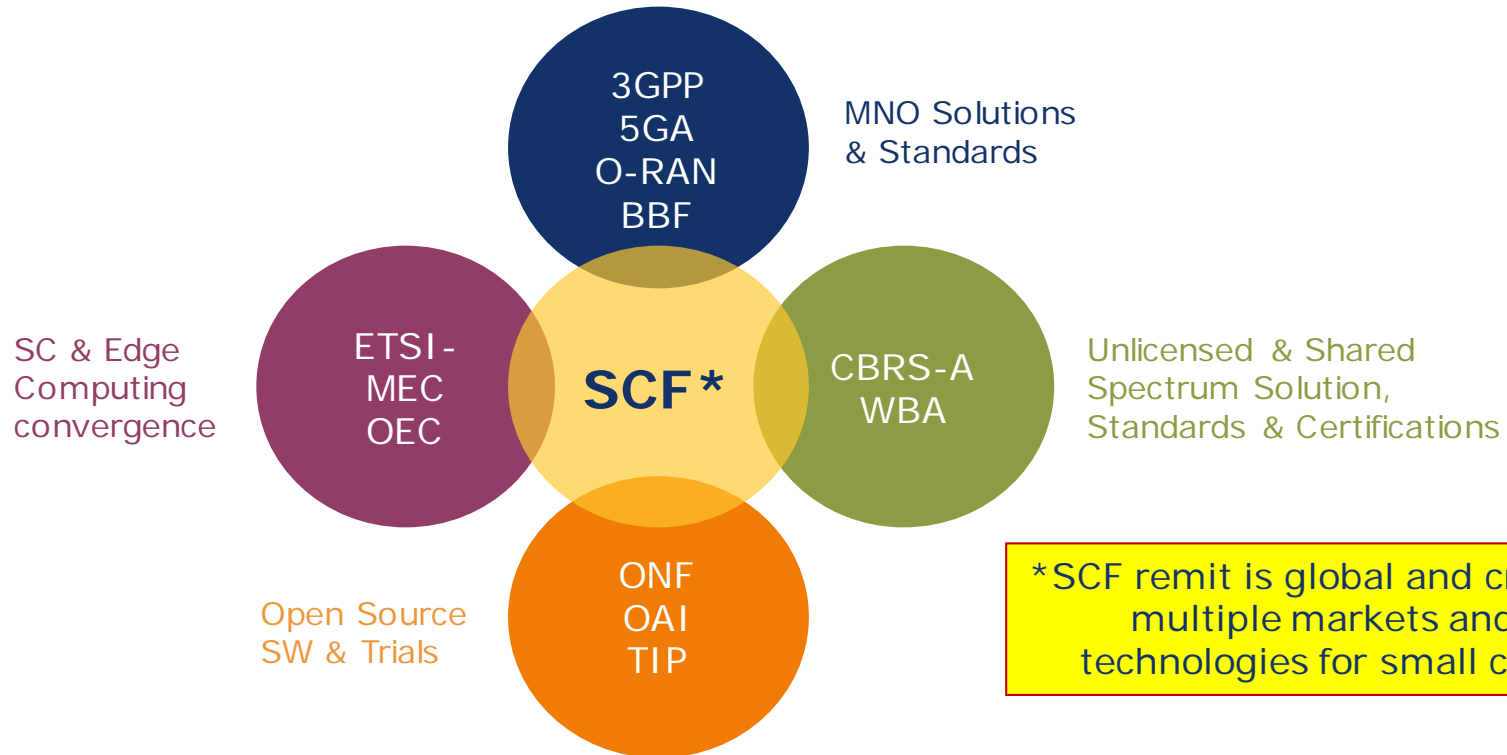
NEXT

[SCF214] "Making buildings small cell ready" outreach is attracting responses, incl. from RICS and TIA Smart building initiative

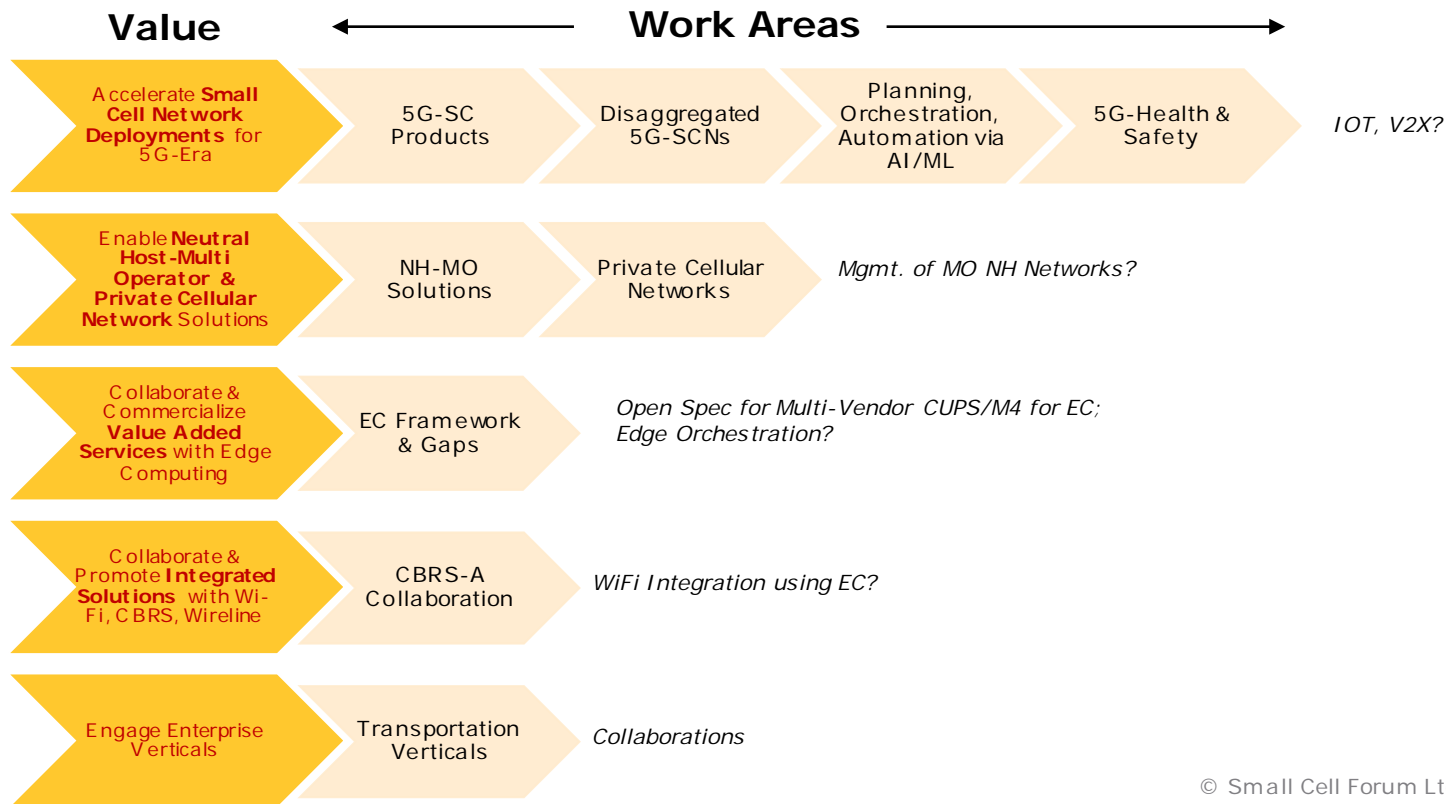
UK property workshop 2H18

SCF & other Forums:

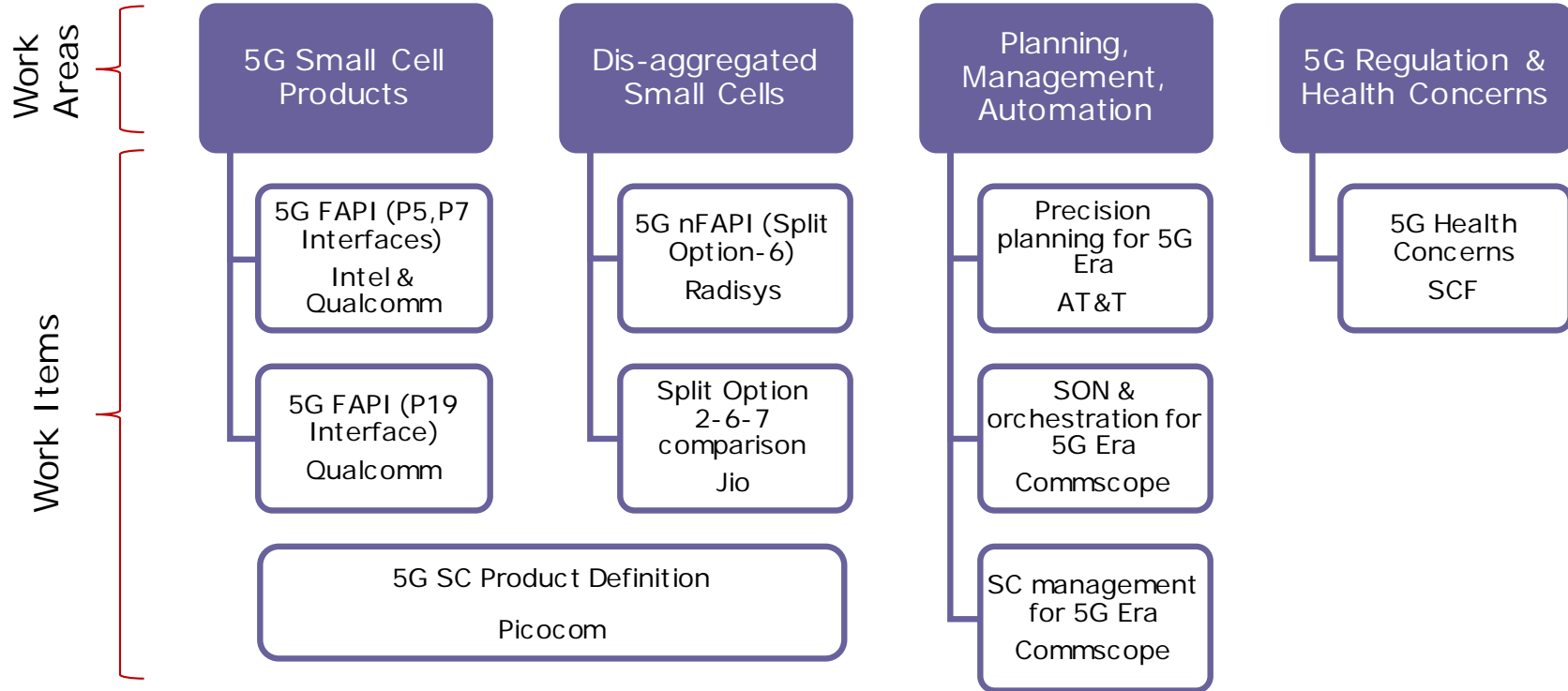
Differentiation – Complementarity



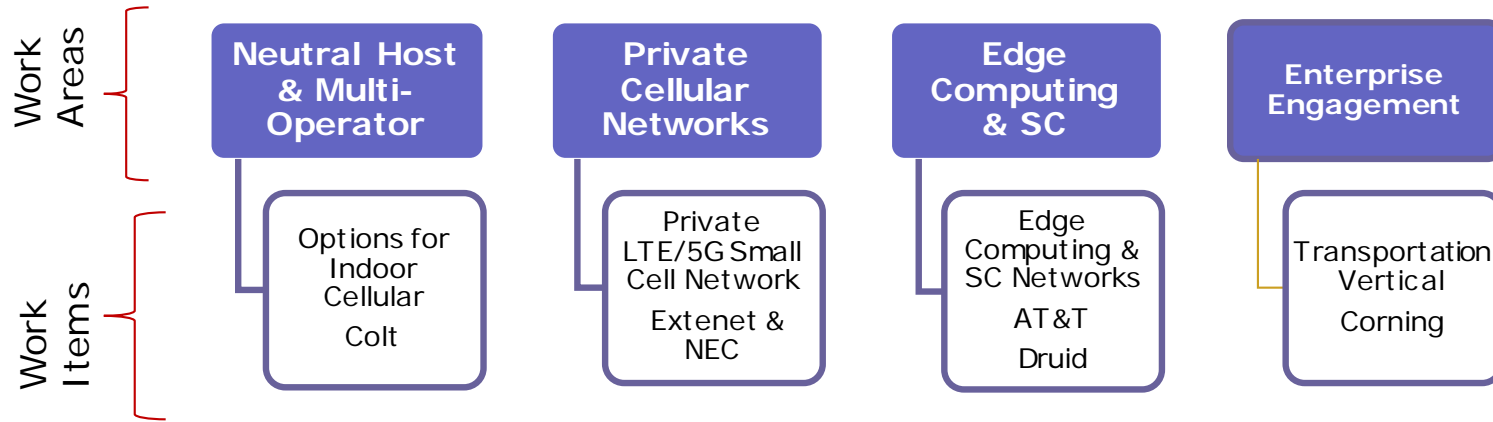
SCF Values → 2020 Work Areas



Work Areas → Work items & leads (1/2)



Work Areas → Work items & leads (2/2)



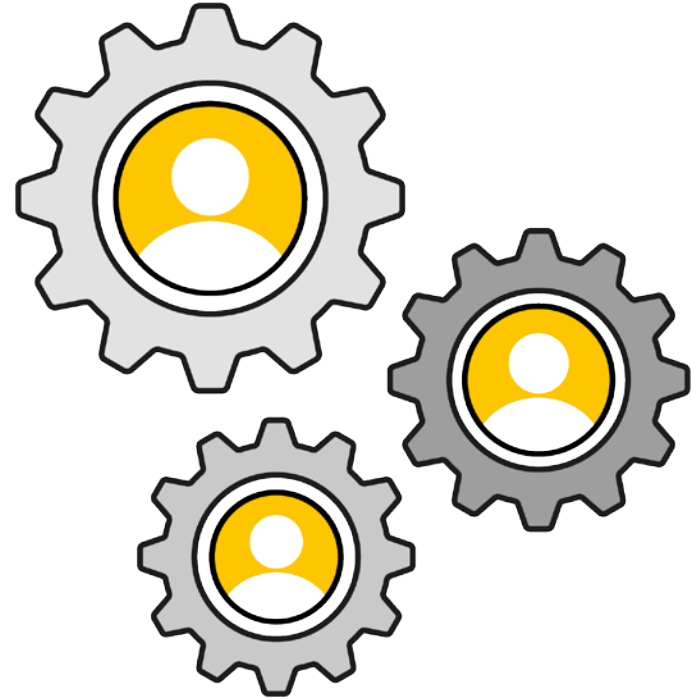
Collaboration activities (in progress)



5G Americas	Precision Planning for SCs (using AI/ML)
O-RAN	5G- (n)FAPI ETCONF/YANG Management of 5G- nFAPI SCNs
OAI	Open Source SW for 5G- (n)FAPI SCNs
TIP	POCs/Trials of 4G- (n)FAPI & 5G- (n)FAPI
CBRS-A	Small Cell Use Cases
3GPP	Open-CUPS for Edge Computing
ETSI-MEC / OEC	SC-WiFi Edge Service Integration
Enterprise/Industry Verticals	Enterprise Engagement for 5G-Era, Private Networks & Edge Computing

Working together

Join, engage &
accelerate the 5G Era!



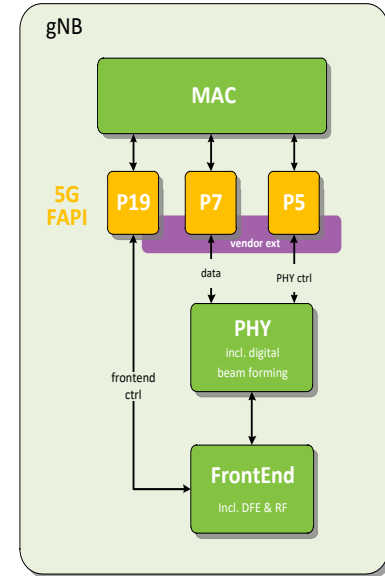


Work Area Descriptions

5G small cell products



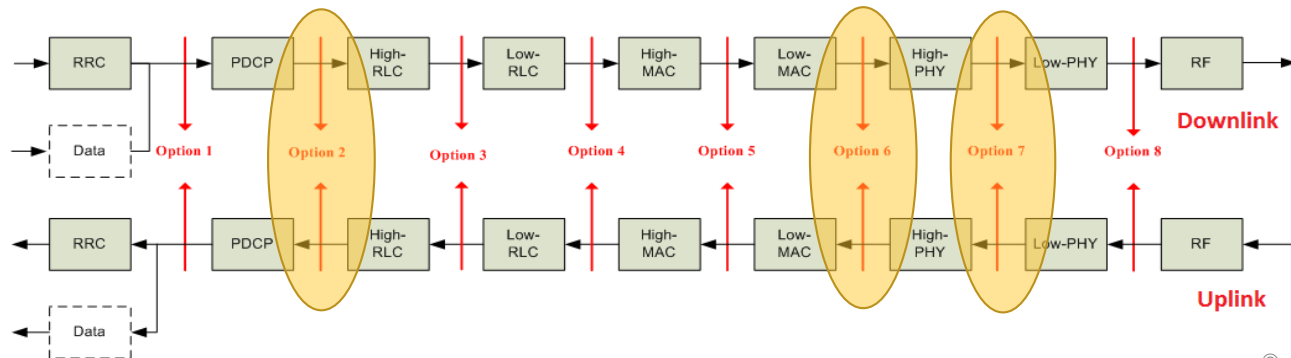
- **WI: 5G-FAPI specification:** 5G-FAPI is an open specification between the PHY & MAC layers in a 5G-gNB/5G-SC. Specifically, SCF is developing 3 specific interfaces (P4, P5, P7, P19).
- **WI: 5G small cell definition:** Develop a working definition of a 5G-SC based on operator requirements, taking into account eMBB, UR-LLC & mMTC support; Working definition to consider technical as well as physical parameters (such as antennas, bands, bandwidths, power levels, physical attributes etc.)



Disaggregated small cells



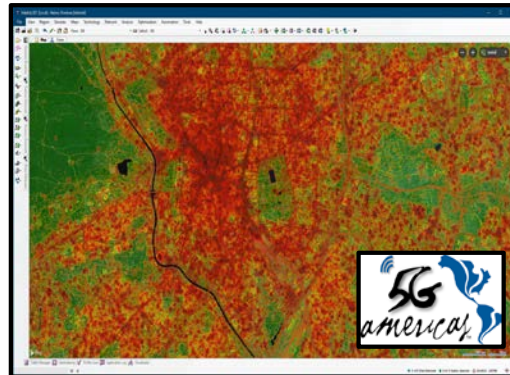
- **WI: 5G-nFAPI (Option 6) Specification:** Referred to as “Split Option-6” in the 3GPP Split RAN Architecture terminology, extends the above interfaces for a networked operation. This work is being done in collaboration with O-RAN & OAI
- **WI: Split Option 2-6-7 Comparison:** 3GPP, SCF & ORAN are developing specifications for disaggregated small cell architectures based on Split Options 2-6-7. However, the market is not yet clear on the suitability of different split options for different deployment scenarios. This WI intends to shed light and clarity on this topic, from technical and business considerations.



Planning, management, automation



- **WI : SON & Orchestration Roadmap for the 5G-Era:** Documents the current trends and identifies gaps and enhancements needed by the industry.
- **WI : Precision Planning for the 5G-Era:** Application of AI/ML in Planning of Small Cell siting (Joint with 5GAmericas);
- **WI : SC Management for the 5G-Era:** NETCONF/YANG Management of Split Option-6 (5G-nFAPI) SCNs (with O-RAN); SC Management for the 5G-NR Small Cells



5G regulation & health concerns



- **WI: 5G SC Health Concerns:** SCF aims to support the industry in countering negative press by collating and drawing attention to well-founded research by national and international health organisations, to which our members and audiences can refer.

Opponents consider 5G small cell installations to be at best an eye sore and at worst a serious health risk

5G, the fifth generation of wireless technology, will give consumers access to more information faster and make businesses more efficient, and will create an unprecedented level of connectivity around the world. However, 5G also requires high-band spectrum, which penetrates poorly and has weak coverage area, resulting in the need for small antenna systems, or small cell systems, to be deployed in large numbers and in close proximity to one another.

According to a 2018 report from the CTIA, the number of deployed small cells is predicted to increase from 86,000 in 2018 to more than 800,000 by 2026.

While these frequently placed small cell towers are necessary for 5G deployment, they are being met with hesitation — and in some cases, outright disdain — by residents and tribal and environmental groups who at best, consider the towers an eye sore and at worst, a serious health risk.

All across the U.S., from California to Colorado to New York, concerns are pouring in. In fact, despite not having yet received a single proposal to deploy small cell 5G wireless towers within town limits, the Mill Valley, CA city council voted unanimously to block deployments of 5G towers in the city's residential areas by activating an urgency ordinance. Mill Valley officials cited an increase in cancer risks and other health

But the announcements are unlikely to end the debate. Worriers can point to a few studies and the decision by the World Health Organization's International Agency for Research on Cancer to classify cellular radio waves as a possible carcinogen back in 2011. And countries like Belgium and Switzerland have delayed 5G networks over health concerns. On the other side, research from the American Cancer Society and the National Institutes of Health, among others, have concluded there are no risks. And so round it goes. The WHO has a vast, new study underway that, perhaps, will offer a more definitive result. For a truly deep dive, check out the page maintained by the National Cancer Institute on cell phones and cancer research.

KEYWORDS

Cities Are Saying No to 5G, Citing Health, Aesthetics—and FCC Bullying

Those hawked specious safety concerns about the new technology have found common cause with some of America's most powerful mayors

Is 5G technology bad for our health?

By Sarah Herington-Morris PhD | Published Friday 23 August 2019

First checked by Genua O'Sullivan

As 5G wireless technology is slowly making its way across the globe, many government agencies and organizations advise that there is no reason to be alarmed about the effects of radiofrequency waves on our health. But some experts strongly disagree.

The term 5G refers to the fifth generation of mobile technology. With promises of faster browsing, streaming, and download speeds, as well as better connectivity, 5G may seem like a natural evolution for our increasingly tech-reliant society.



Why do some people believe that 5G technology may harm our health?

But beyond allowing us to stream the latest movies, 5G has been designed to increase capacity and reduce latency, which is the time that it takes for devices to communicate with each other.

For integrated applications, such as robotics, self-driving cars, and medical devices, these changes will play a big part in how quickly we adopt technology into our everyday lives.

The majority of 5G technology will be the use of higher-frequency bandwidths, right across the radiofrequency spectrum.

Neutral hosting for multi-operators



- **WI : Options for Indoor Cellular Networks:** Addressing barriers to growth including helping MNOs understand their options of partnering with infrastructure deployers as well as raising market awareness of the different commercial and technical options for indoor cellular.



Small office / single floor

Low 10s users
1-3 small cells
connect directly to internet
Low cost to retrofit



2-5 storey building

Low 100s users
Enterprise small cell network
Small cells + controller(s)
+ LAN cabling & routing/cabling



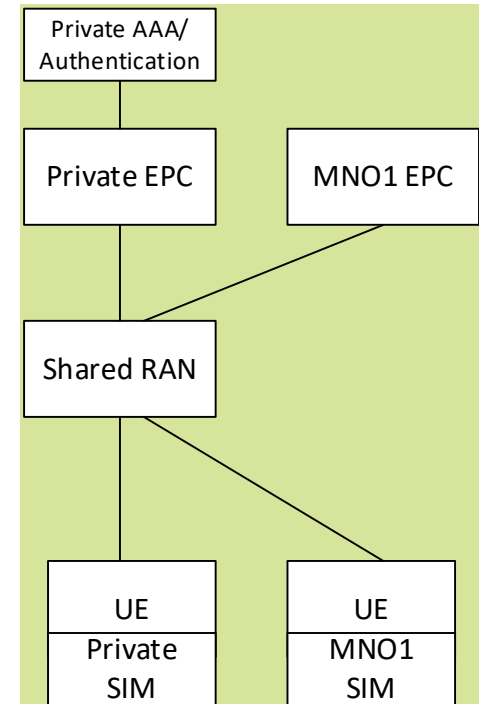
Larger buildings

High 100s users
Enterprise small cell network
Small cells + multiple controllers
+ LAN cabling & routing/cabling

Private cellular networks for Enterprise/Industry/Smart Cities



- **WI : Private LTE/5G small cell Networks:** Private LTE/5G networks are attracting much attention, due to their need for Enterprise, Industry and Smart City applications. Such networks may be strictly for private users or for a mix of private and public (i.e. MNO) users.
- This WI focusses on the business case and technical considerations of building, deploying and operating such networks. Particular focus is given to the spectrum aspects, including licensed, unlicensed (MulleFire) and shared (CBRS) spectrums. The white paper will address these challenges and opportunities in a global context, covering various regions of the world.



Edge computing & small cells



WI: Edge Computing & Small Cells:

Clarifying the lead commercial use cases & monetization for Edge compute for both MNO and private networks, and addressing gaps in standards for Edge computing based on 3GPP-CUPS architectures & Multi-Access Edge Computing.

