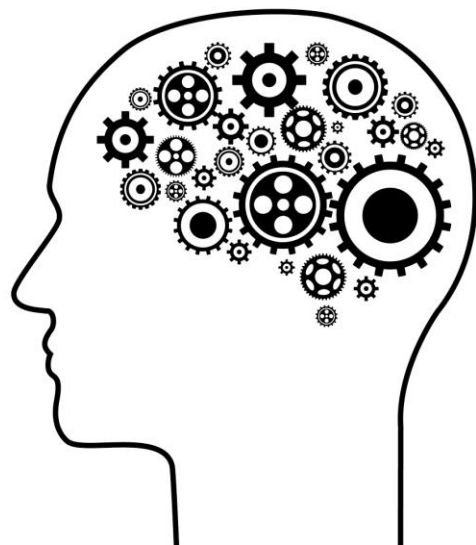
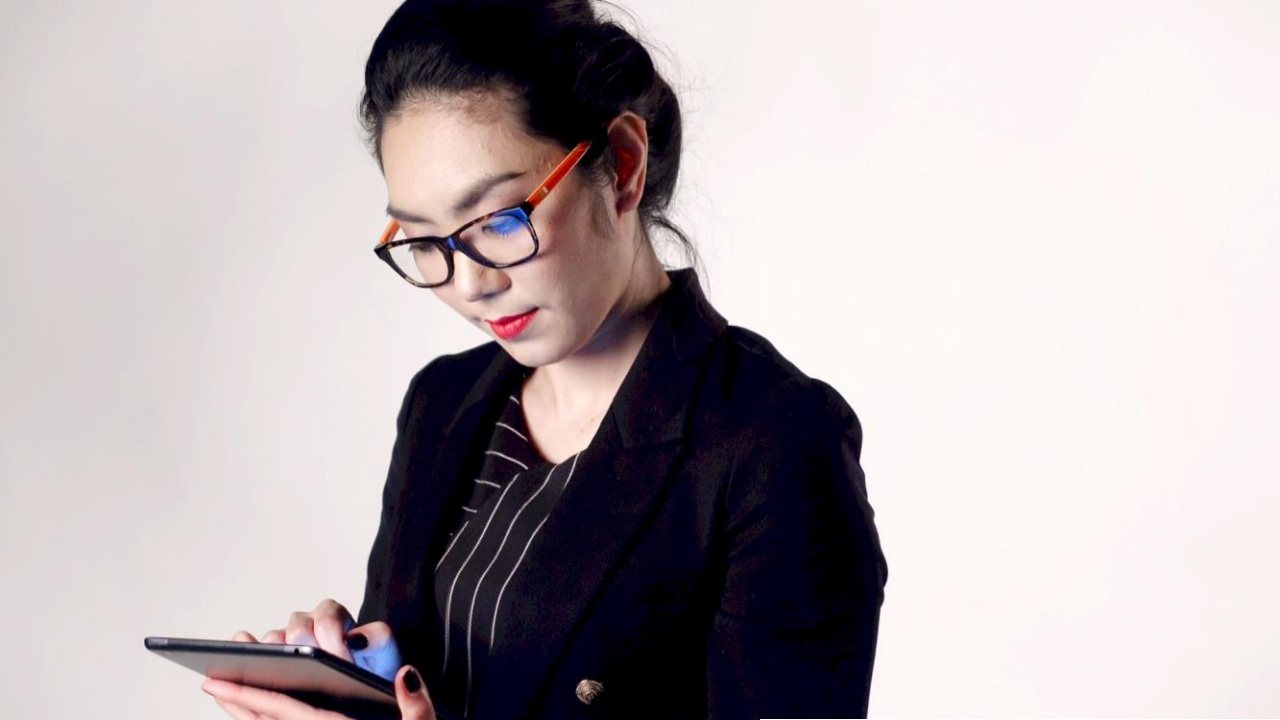


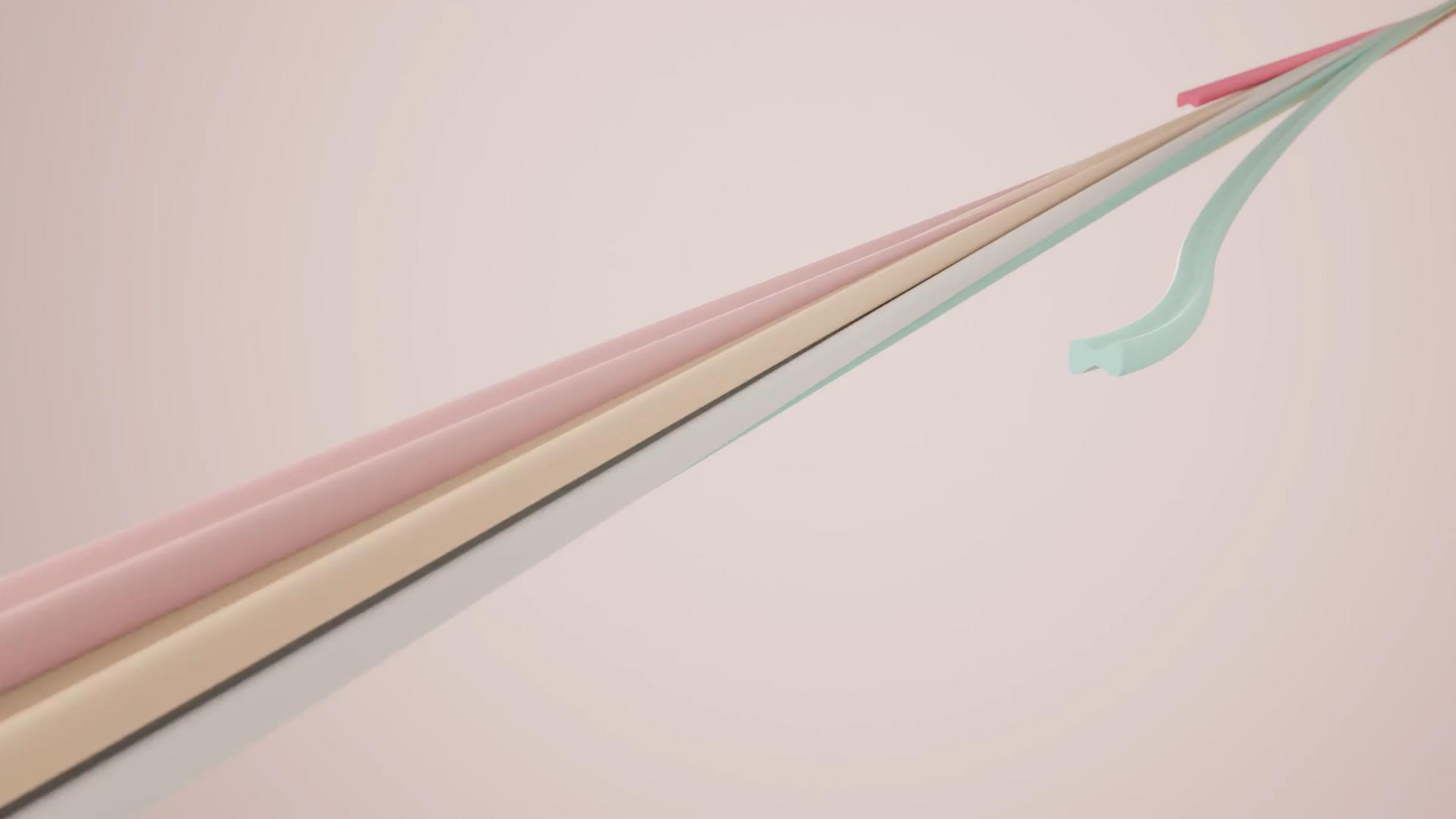


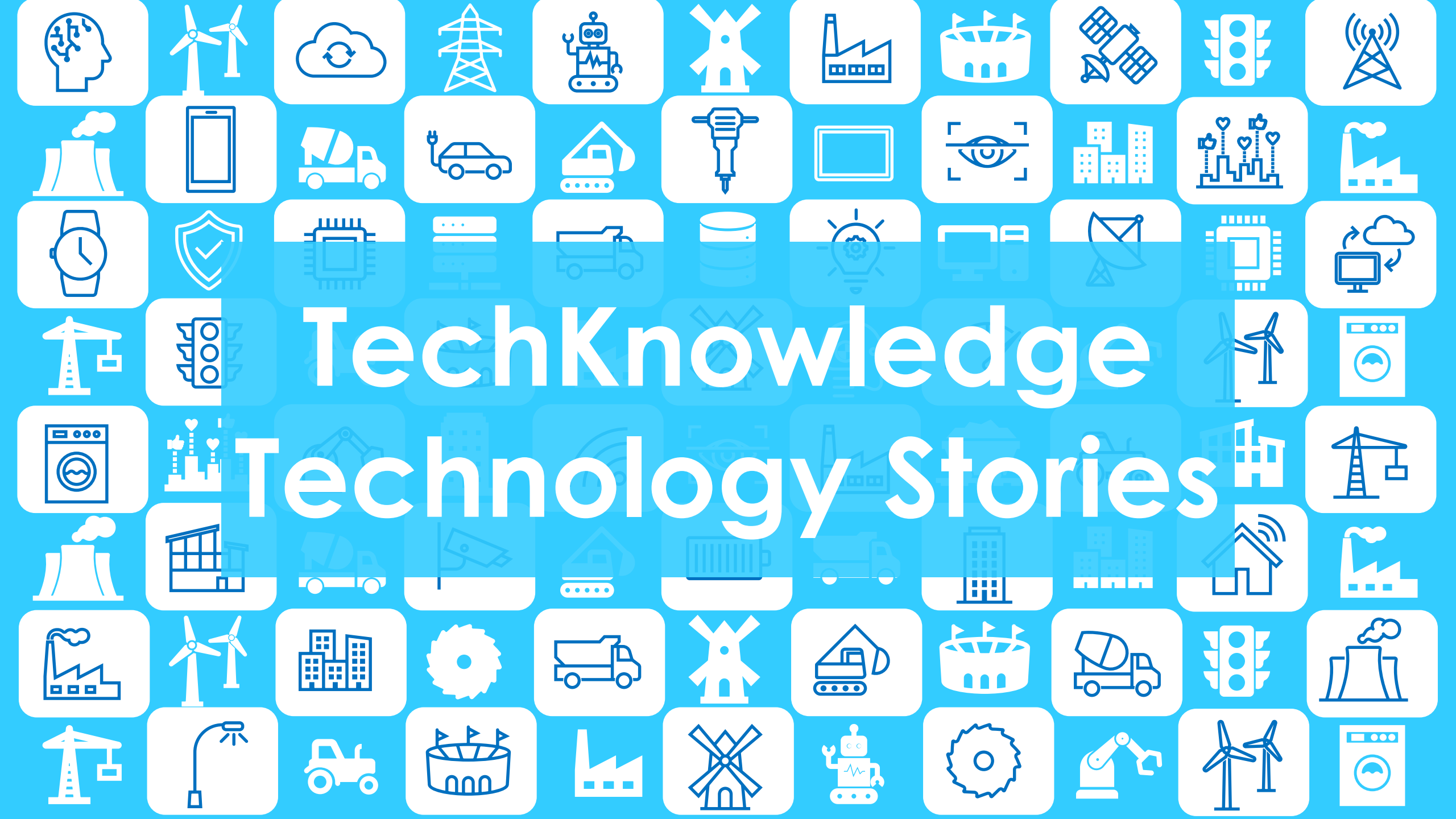
1916

2016







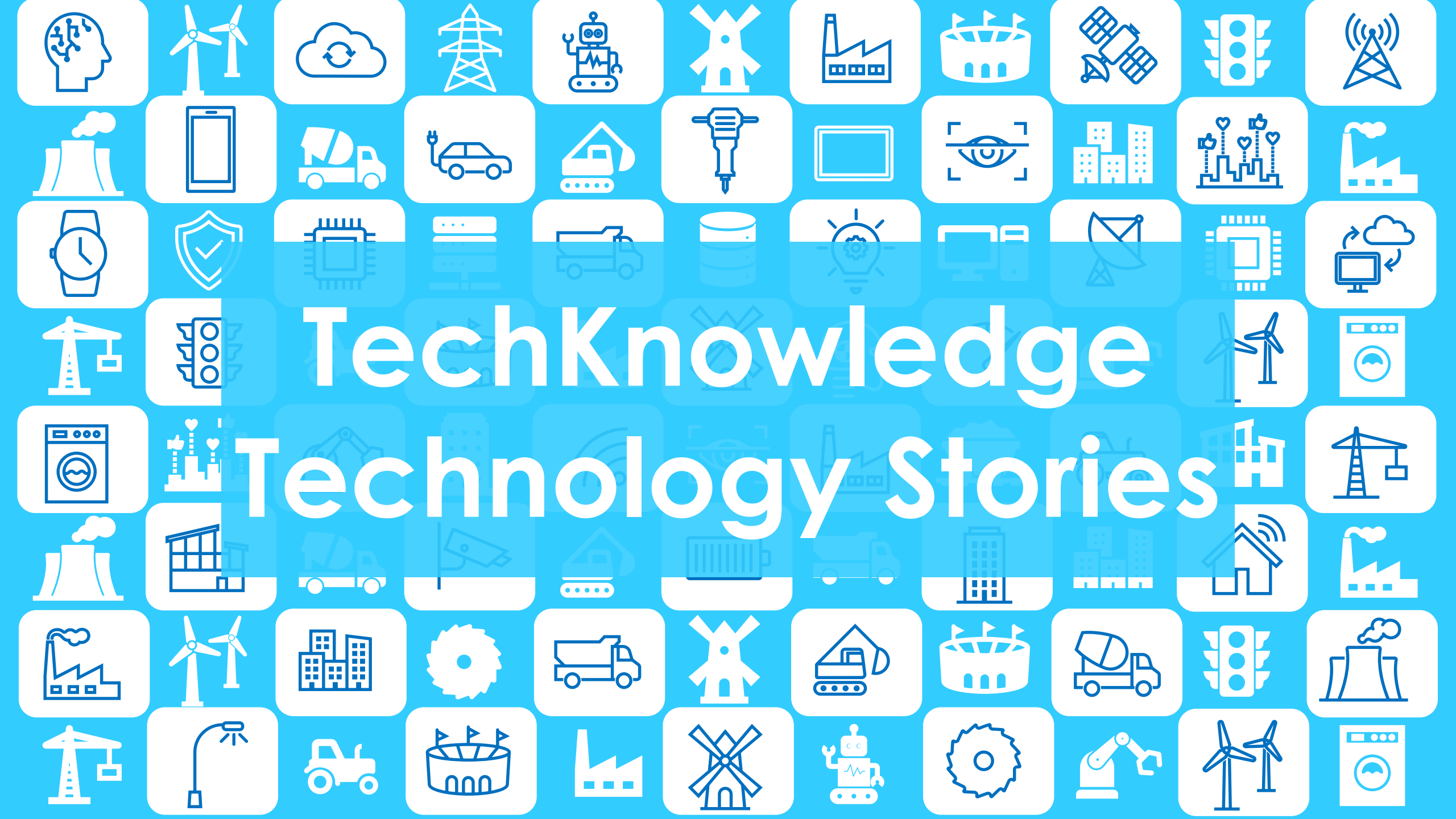


TechKnowledge

Technology Stories

Series 1

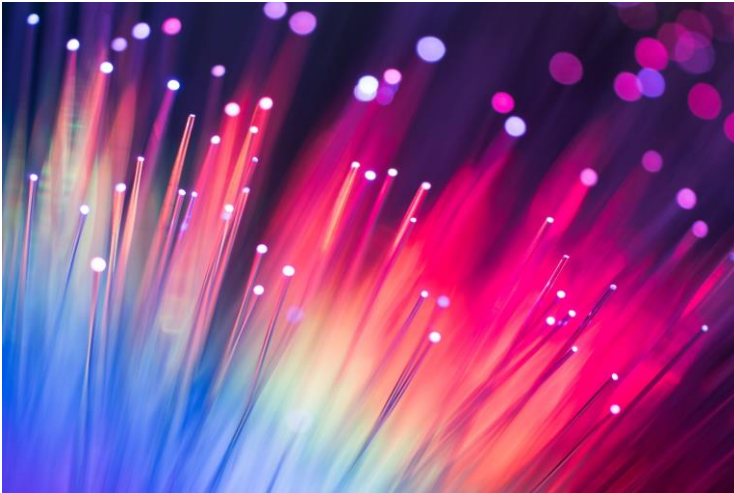
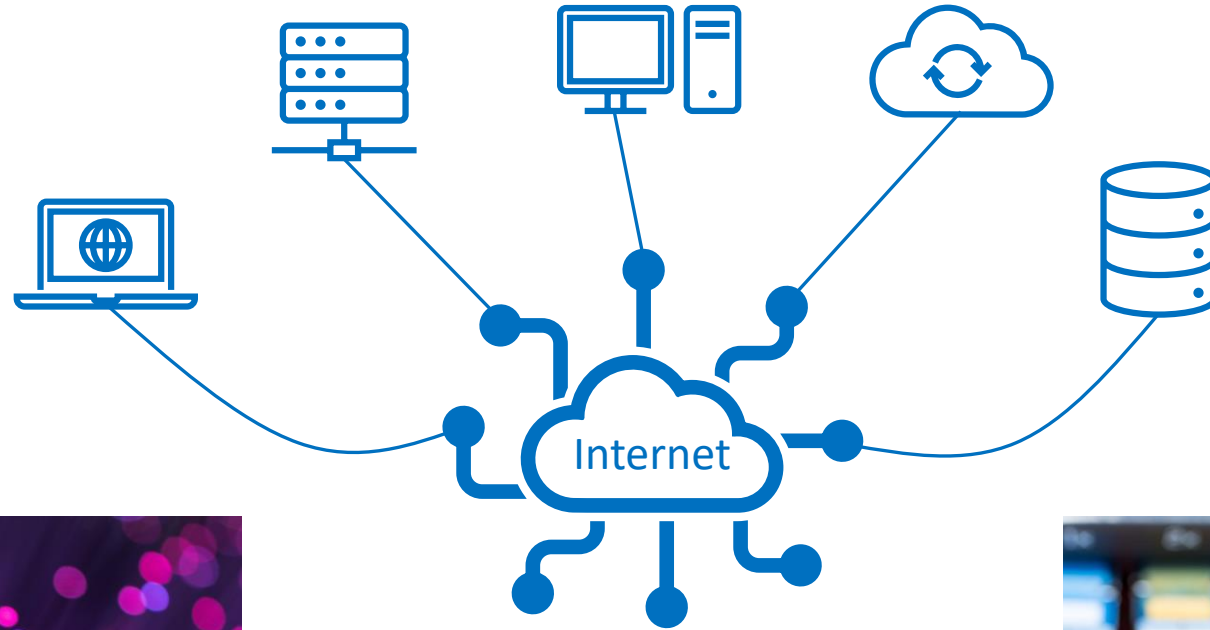
Part 2: Connecting Everything Everywhere...



TechKnowledge

Technology Stories

Wired Connectivity



Earth Submarine Fiber Optic Cable Network

Network Stylized for Clarity—Actual Physical Routes Not Shown



Created with rayrender (www.rayrender.net)

Data: github.com/telegeography/www.submarinecablemap.com

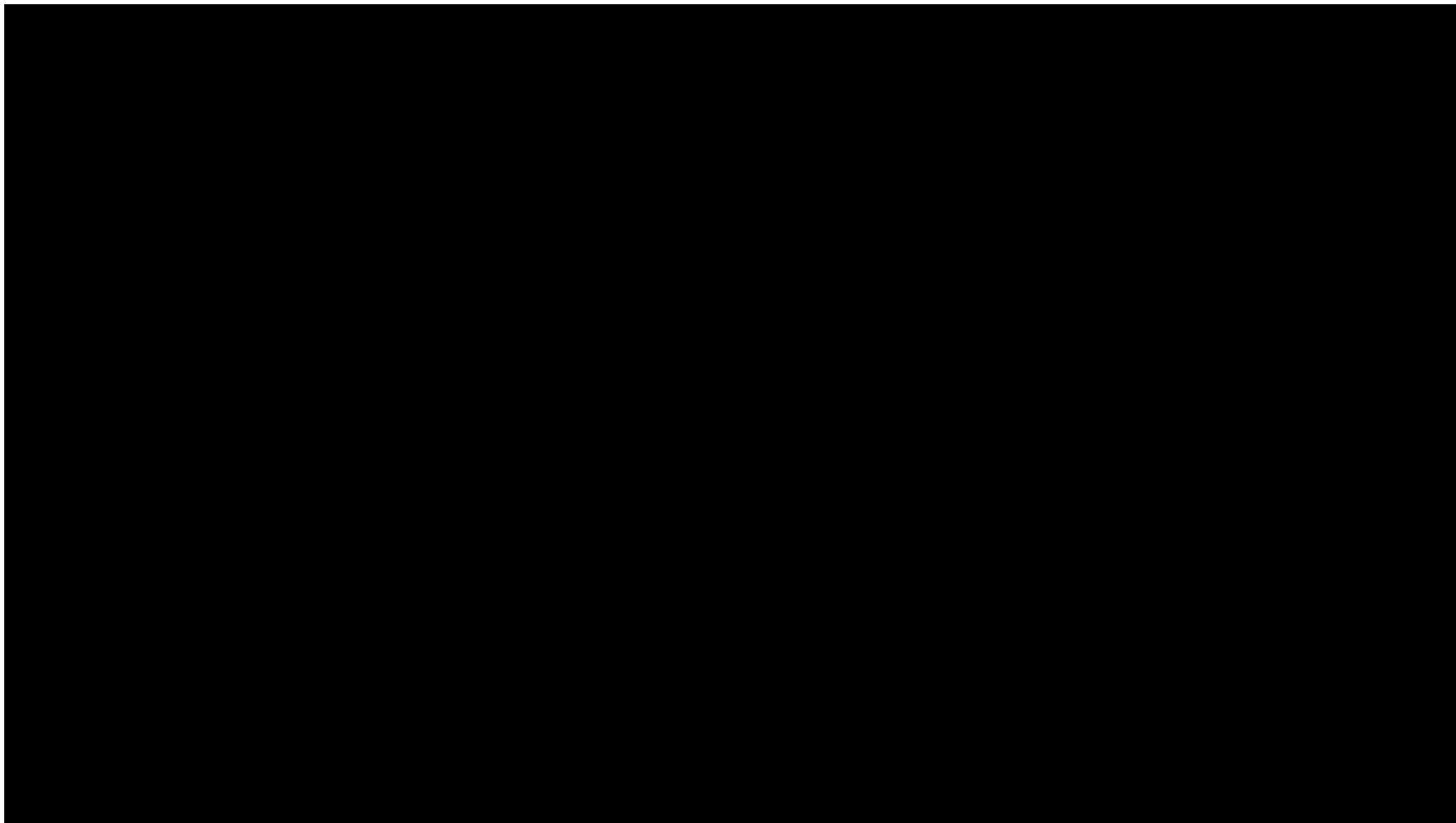
Twitter: [@tylermorganwall](https://twitter.com/tylermorganwall)



5G
3G4G

Wireless Connectivity

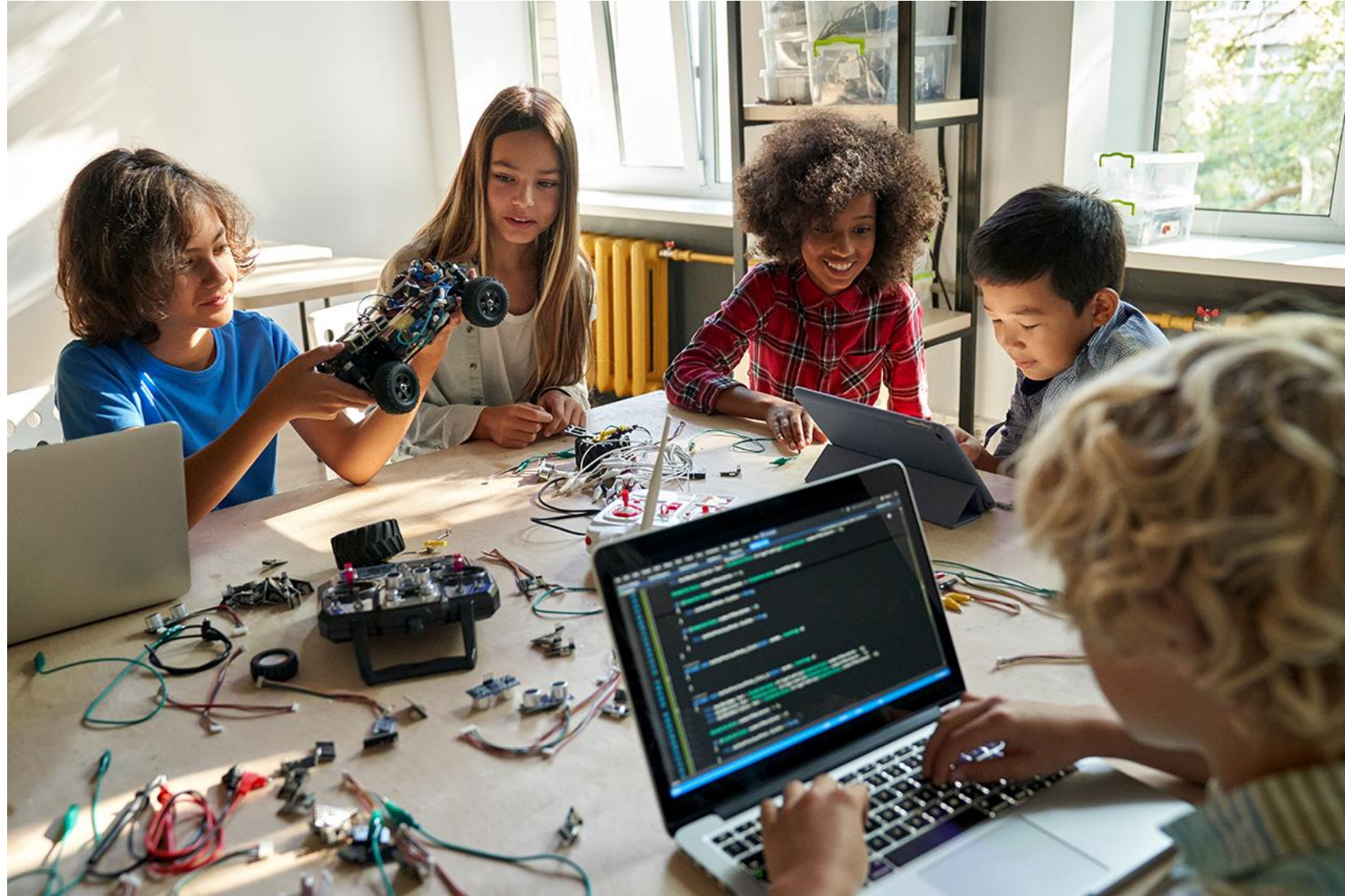
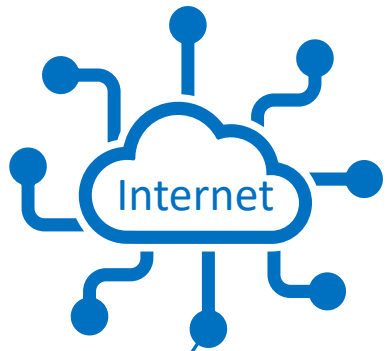




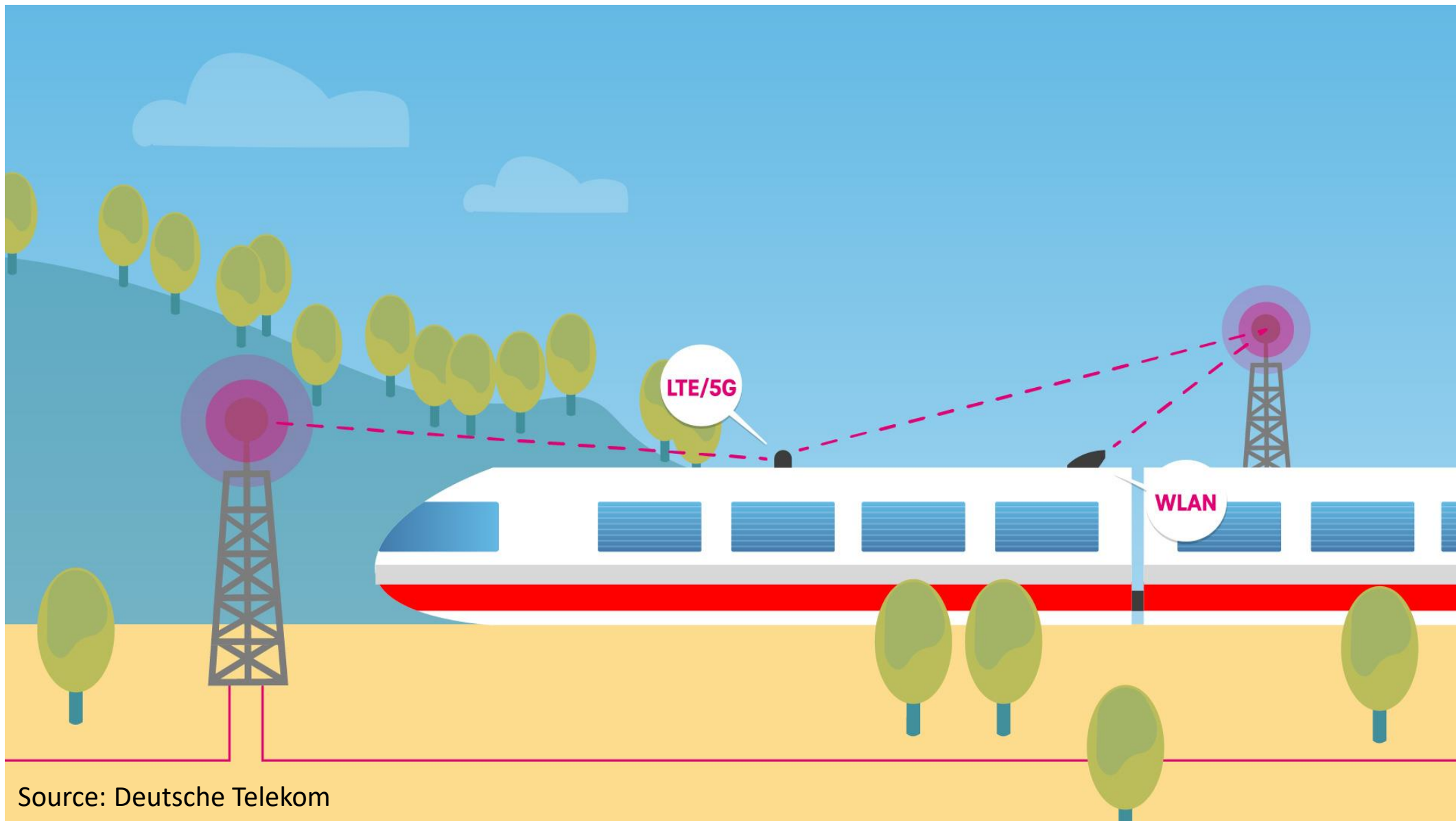
Source: Satellite Applications Catapult



Wi-Fi



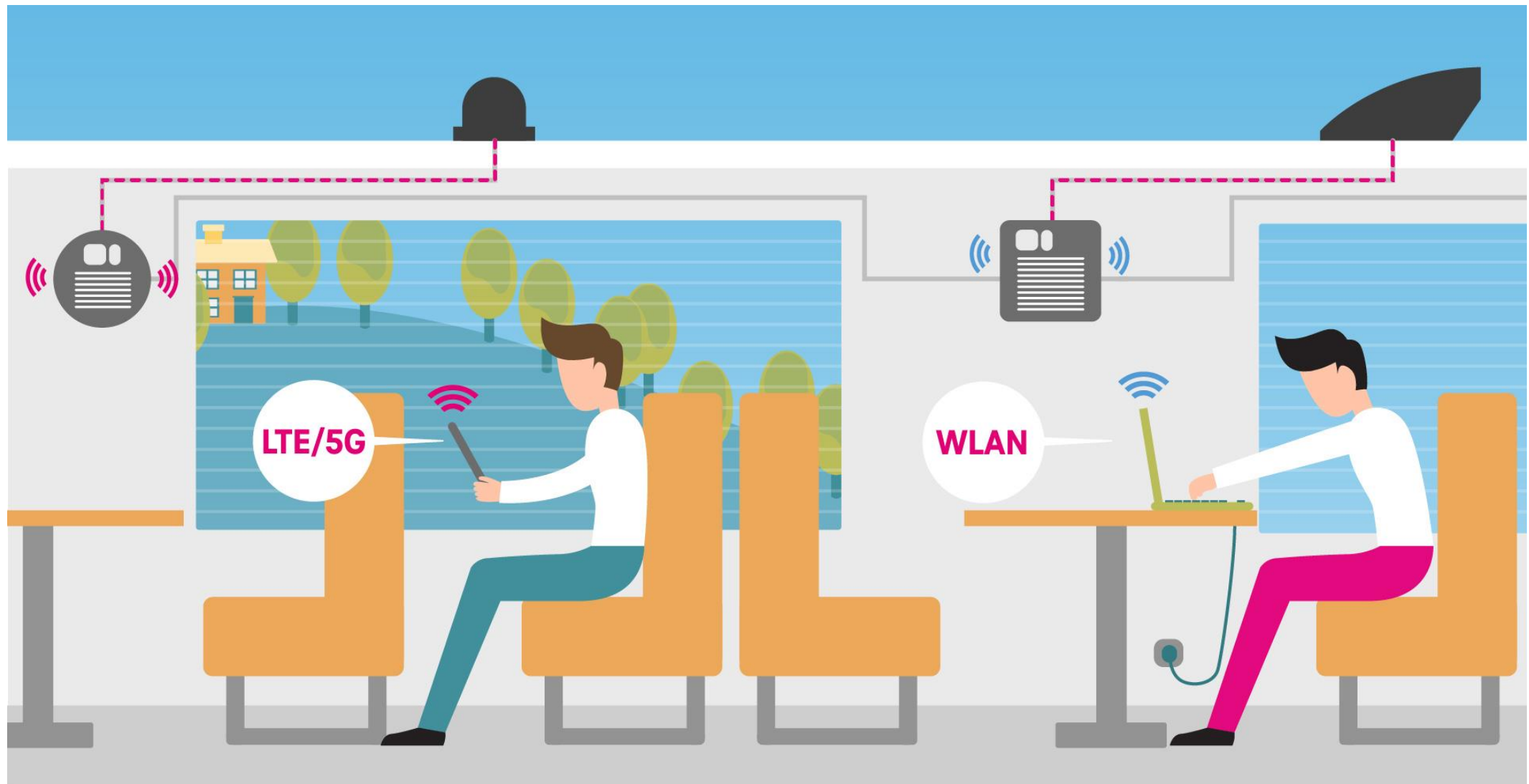




Source: Deutsche Telekom



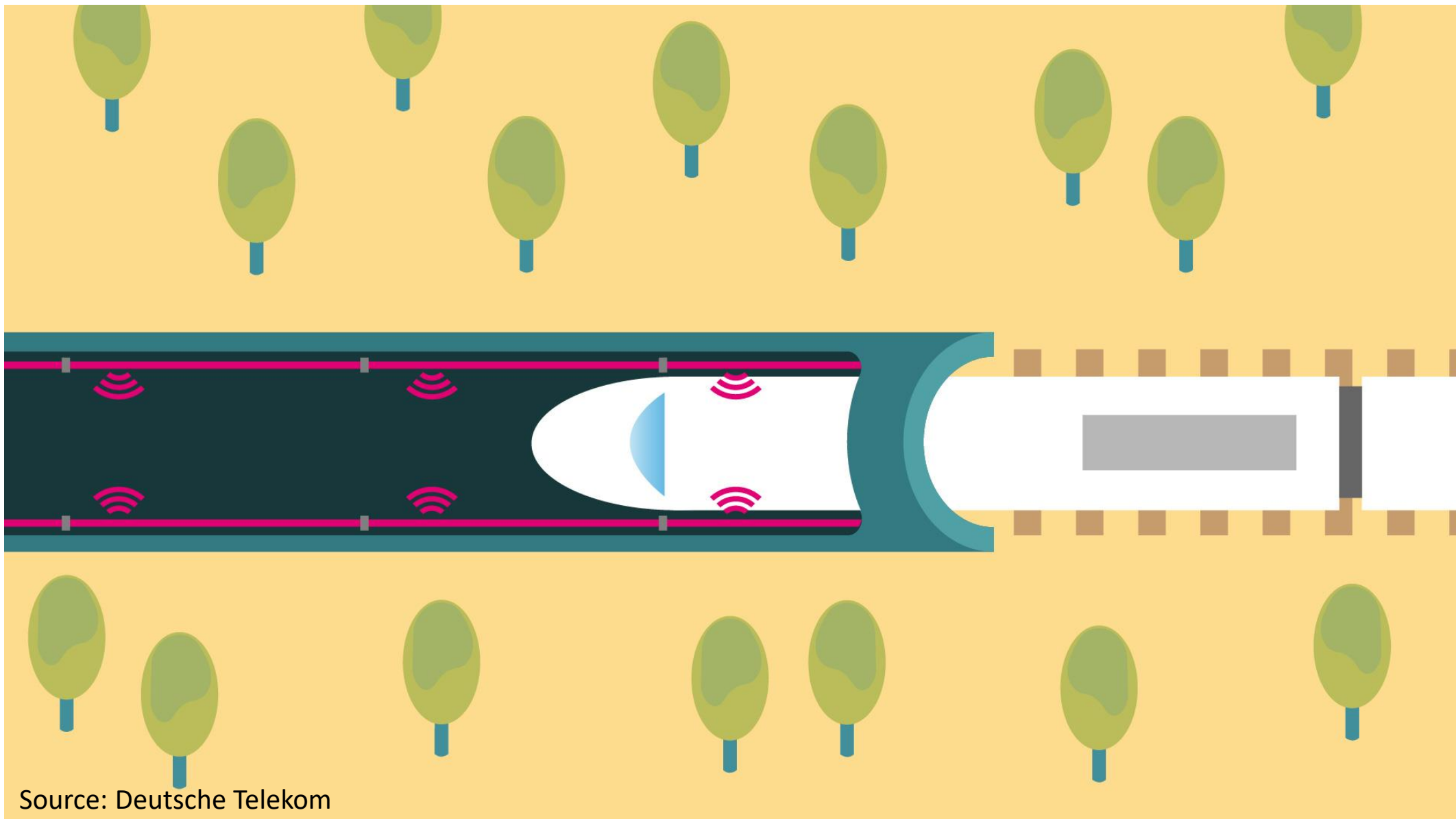
5G
3G4G



Source: Deutsche Telekom



5G
3G4G

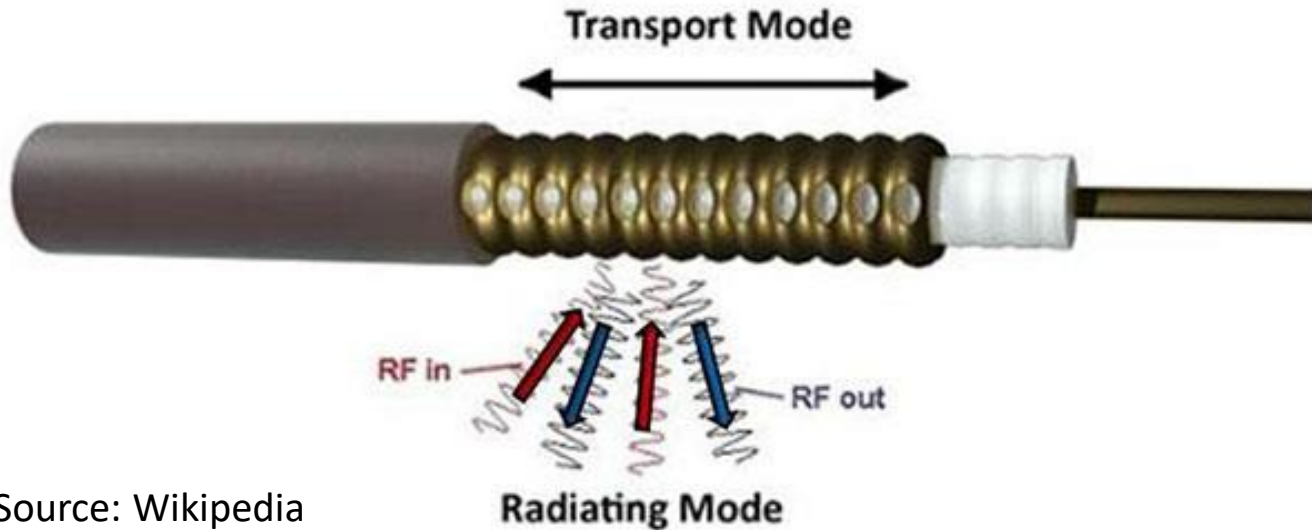
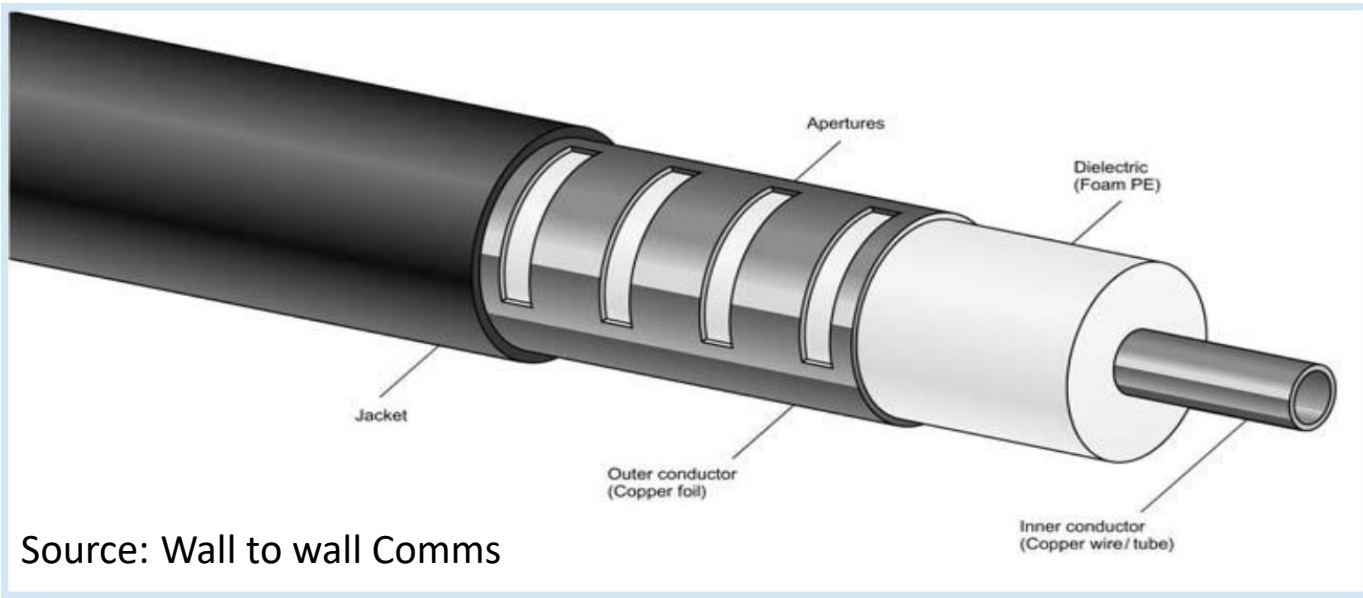


Source: Deutsche Telekom

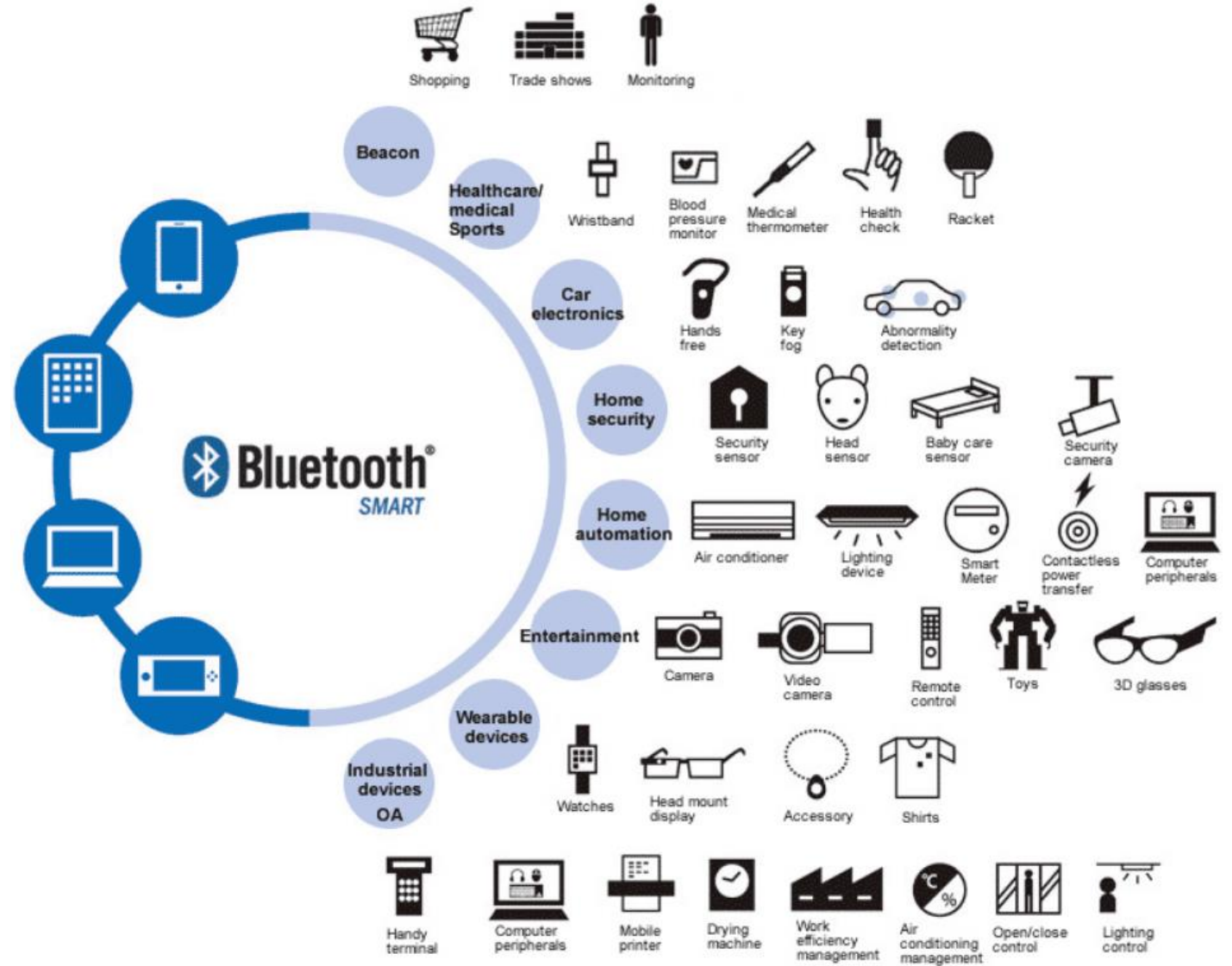


5G
3G4G

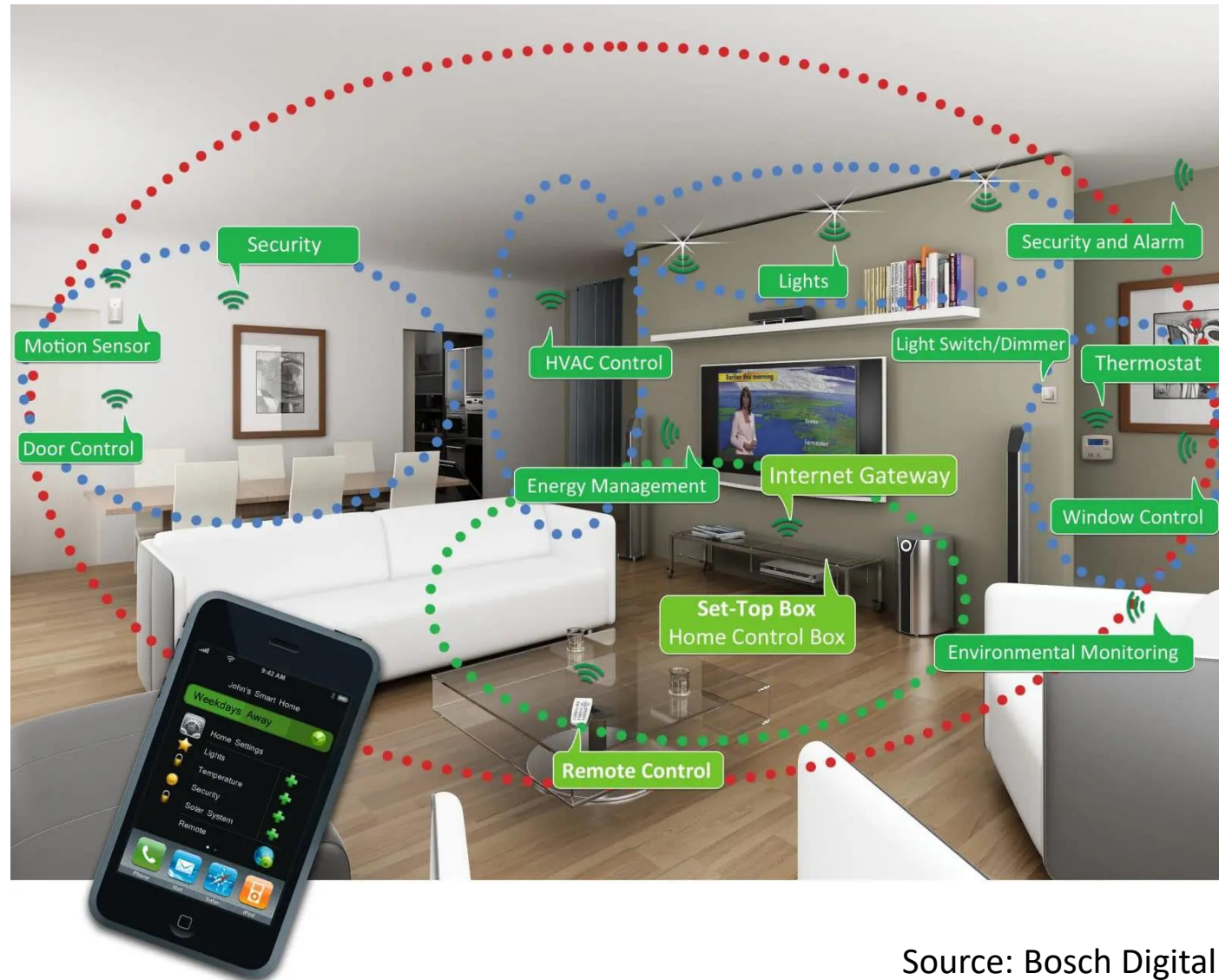
Leaky Feeder



Bluetooth

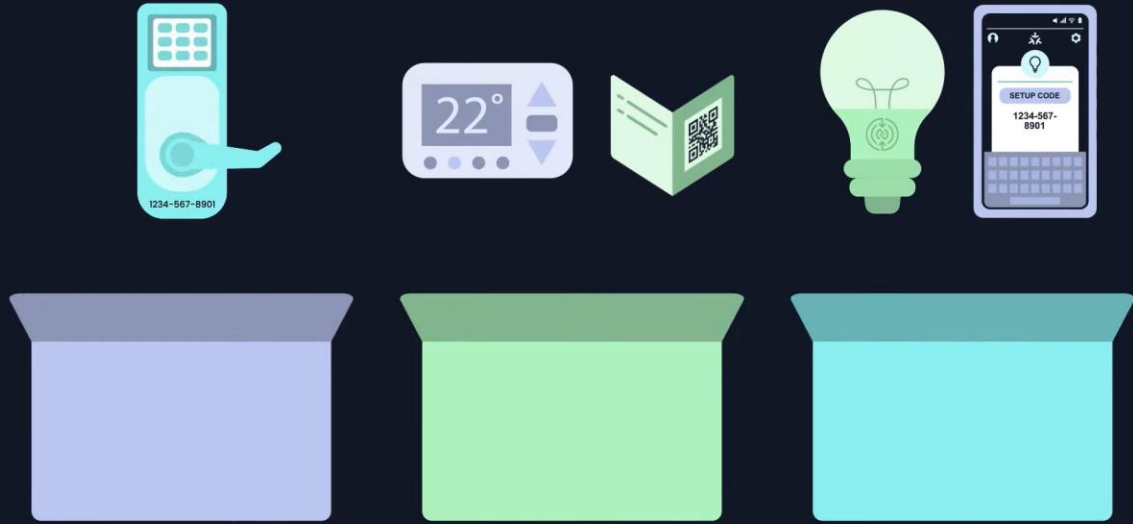


ZigBee

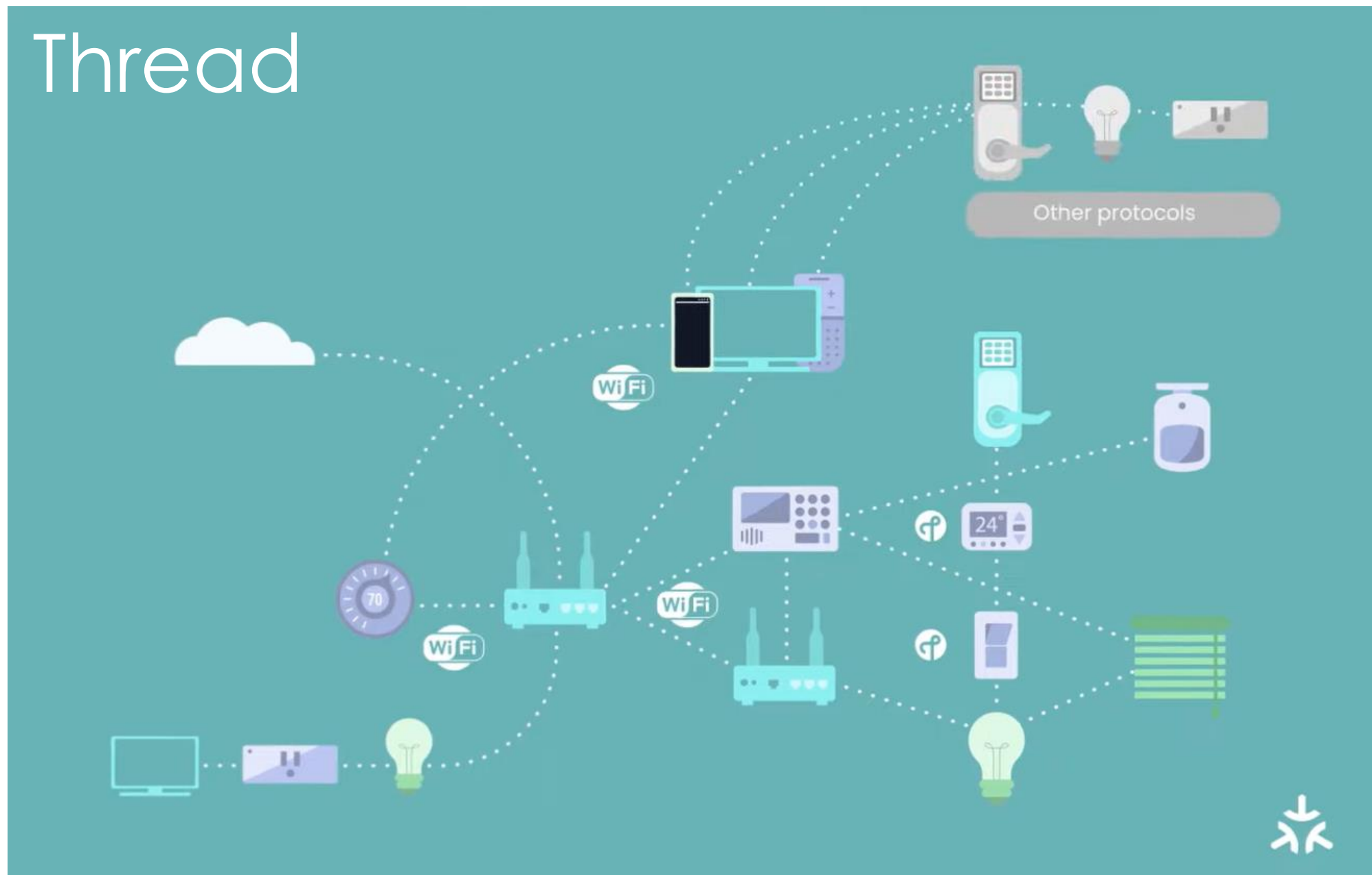


Source: Bosch Digital

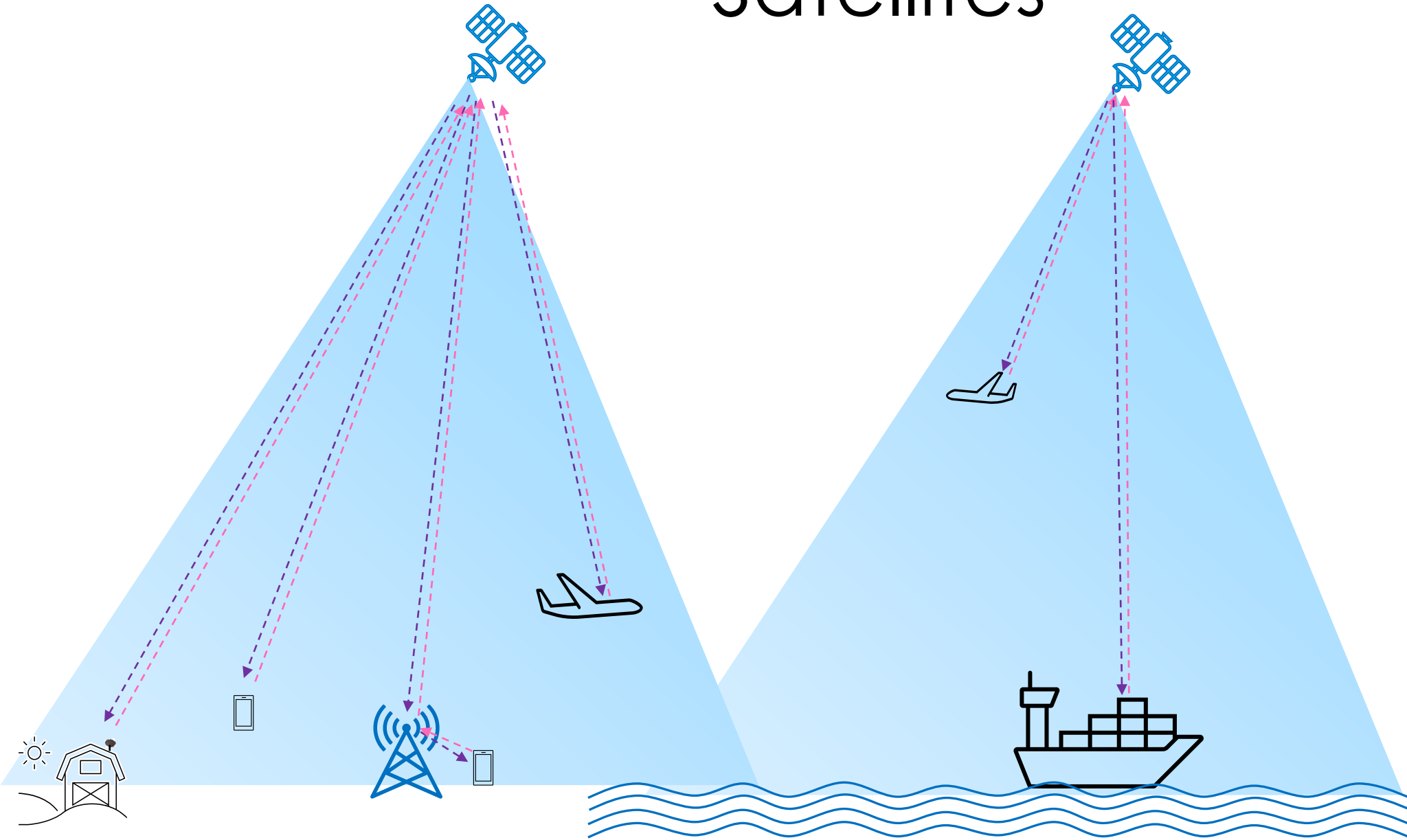
Matter



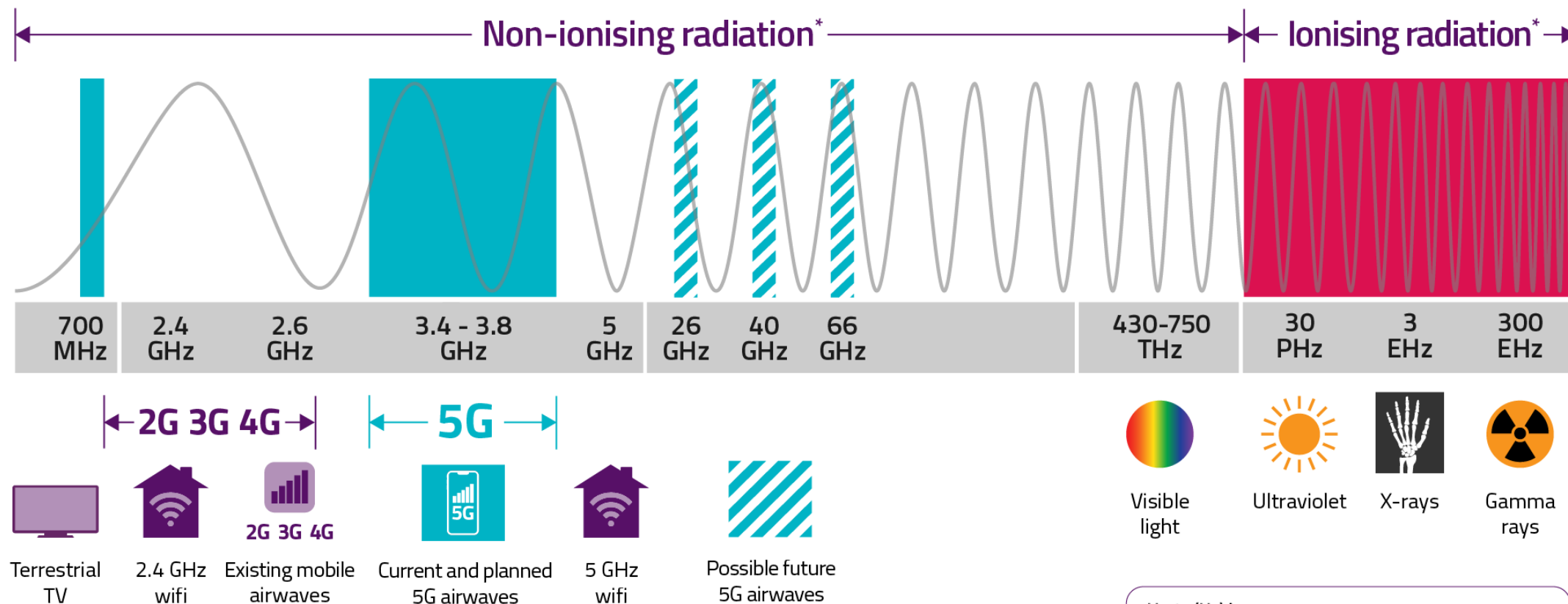
Thread



Satellites



The Electromagnetic Spectrum

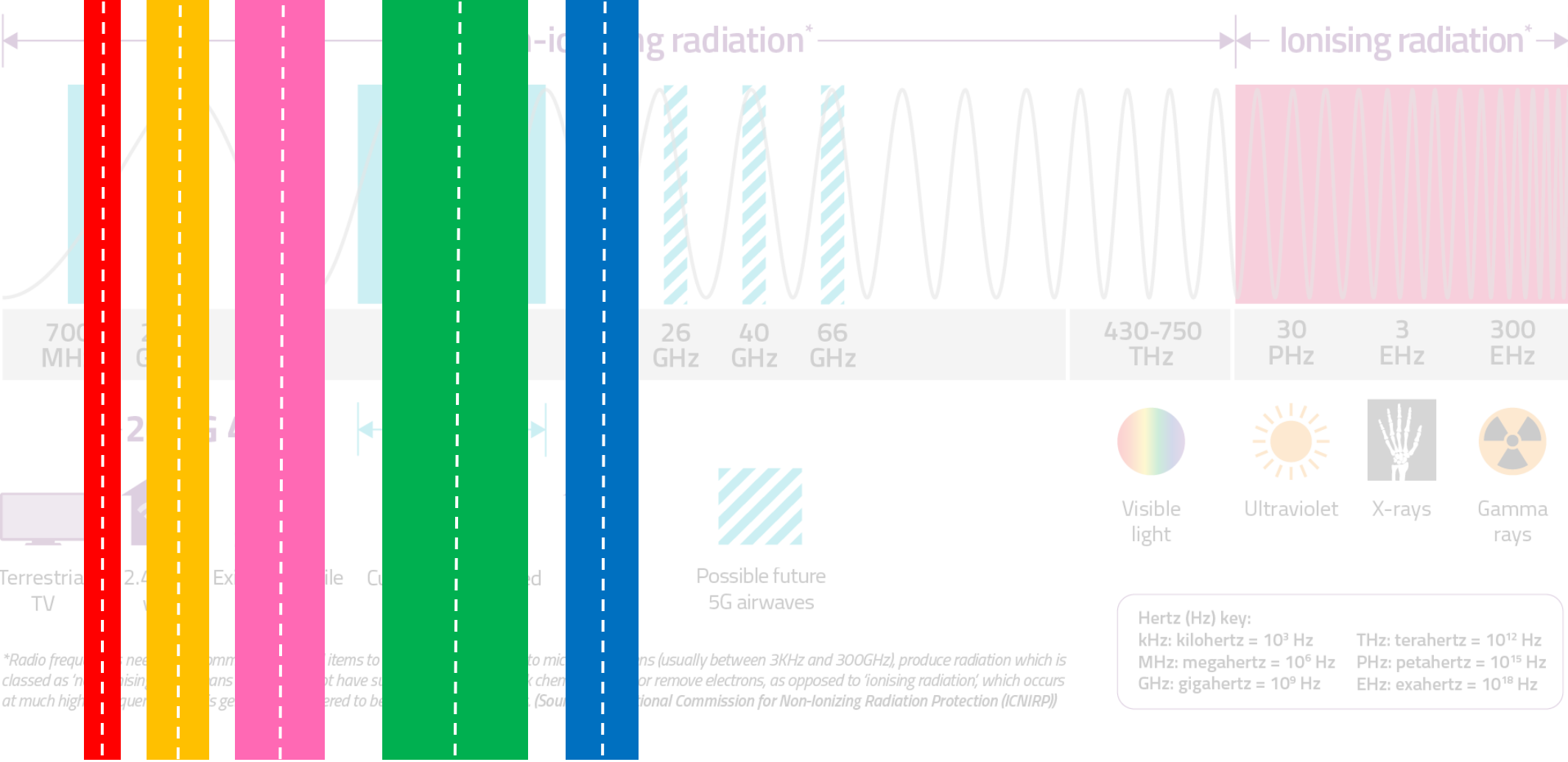


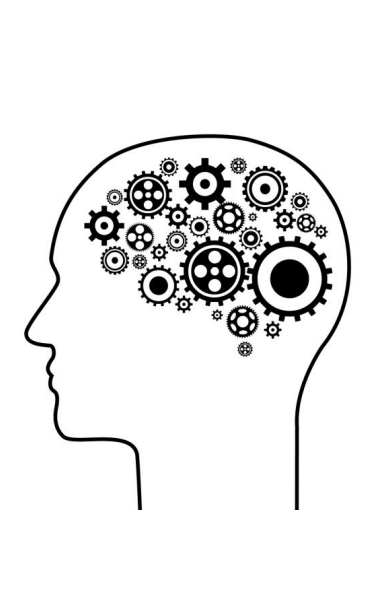
*Radio frequencies needed for common household items to work, from televisions to microwave ovens (usually between 3KHz and 300GHz), produce radiation which is classed as 'non-ionising'. This means that it does not have sufficient energy to break chemical bonds or remove electrons, as opposed to 'ionising radiation', which occurs at much higher frequencies and is generally considered to be hazardous to humans. (Source: International Commission for Non-Ionizing Radiation Protection (ICNIRP))

Hertz (Hz) key:
 kHz: kilohertz = 10^3 Hz
 MHz: megahertz = 10^6 Hz
 GHz: gigahertz = 10^9 Hz
 THz: terahertz = 10^{12} Hz
 PHz: petahertz = 10^{15} Hz
 EHz: exahertz = 10^{18} Hz



The Electromagnetic Spectrum





References and Further Reading

- The Earth's submarine fiber optic cable network, Tweet by Tyler Morgan-Wall ([link](#))
- Satellite Applications Catapult on YouTube: Satellite Applications and Intelligent Transport ([link](#))
- The 3G4G Blog: Wi-Fi 6 (a.k.a. 802.11ax) and other Wi-Fi enhancements ([link](#))
- Connectivity Technology Blog: Almost everything you need to know about Wi-Fi 7 (IEEE 802.11be) ([link](#))
- Operator Watch Blog: South Korea's Ministry promotes Wi-Fi 6, says WiFi is like 5G ([link](#))
- Wikipedia: Leaky feeder ([link](#))
- Wall to wall Comms: Leaky Feeder- The Ultimate Guide ([link](#))
- Connectivity Technology Blog: Deutsche Bahn and Deutsche Telekom plan seamless mobile network along all tracks ([link](#))
- Telecoms Infrastructure Blog: Bringing Connectivity to Underground Rail Network ([link](#))
- Connectivity Technology Blog: Deutsche Bahn to get Seamless Mobile Network Along all Tracks ([link](#))
- Bluetooth: Technology and Applications, CAICT presentation ([link](#))
- Bluetooth SIG resources ([link](#))
- Bosch Digital Blog - ZigBee: THE standard for smart home applications? ([link](#))
- Business Wire: The Zigbee Alliance Rebrands as Connectivity Standards Alliance ([link](#))
- Connectivity Technology Blog: 'Matter' and 'Thread' to Improve Smart Home Connectivity & Interoperability ([link](#))
- Connectivity Technology Blog: Li-Fi and Other Visible Light Communications (VLC) Standards ([link](#))
- The 3G4G Blog: 3GPP 5G Non-Terrestrial Networks (NTN) Standardization Update ([link](#))



Thank You

To learn more, visit:

3G4G Website – <https://www.3g4g.co.uk/>

3G4G Blog – <https://blog.3g4g.co.uk/>

Telecoms Infrastructure Blog – <https://www.telecomsinfrastructure.com/>

Operator Watch Blog – <https://www.operatorwatch.com/>

Connectivity Technology Blog – <https://www.connectivity.technology/>

Free 5G Training – <https://www.free5gtraining.com/>

Free 6G Training – <https://www.free6gtraining.com/>

Private Networks – <https://www.privatenetworks.technology/>

Follow us on Twitter: <https://twitter.com/3g4gUK>

Follow us on Facebook: <https://www.facebook.com/3g4gUK/>

Follow us on LinkedIn: <https://www.linkedin.com/company/3g4g>

Follow us on SlideShare: <https://www.slideshare.net/3G4GLtd>

Follow us on YouTube: <https://www.youtube.com/3G4G5G>

TechKnowledge

Technology Stories