

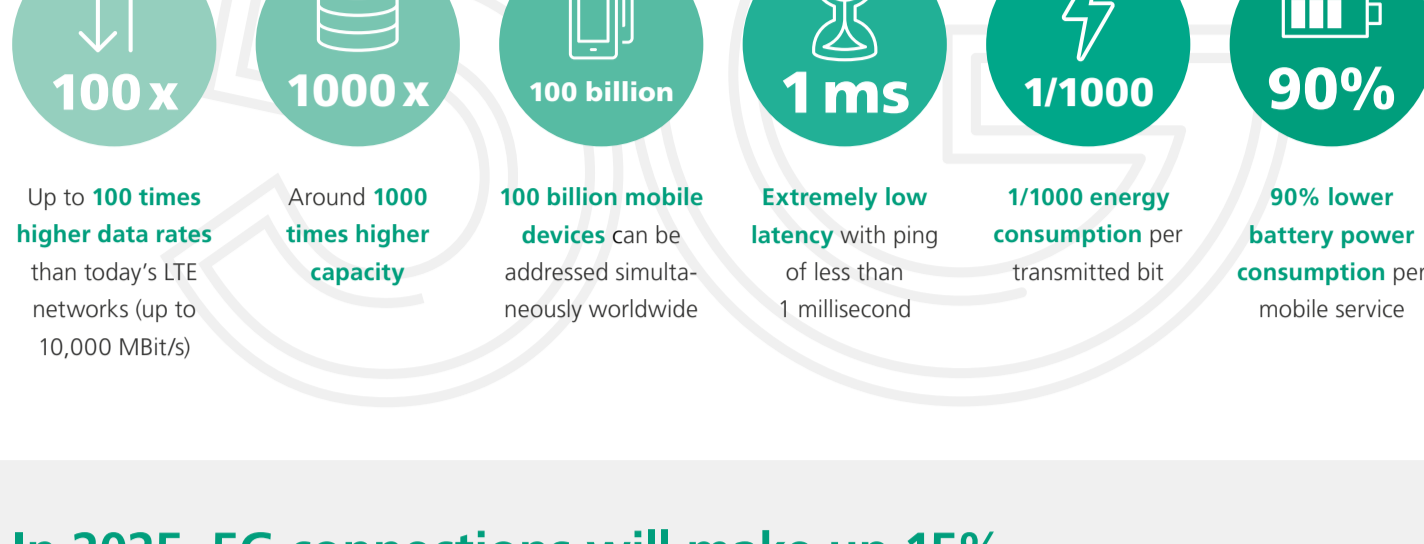
Prepare for 5G now

5G will offer new business opportunities with truly converged networks that require enhanced security systems.

As 5G technology is set to provide virtually ubiquitous, ultra-high bandwidth with no latency, opportunities for connectivity between individual users and connected objects are going to open up a whole new range of applications. It is up to the first movers to take the lead with high value and safe services. G+D will pave the path with trusted connectivity and end-to-end security for 5G.

Evolution of communication standards

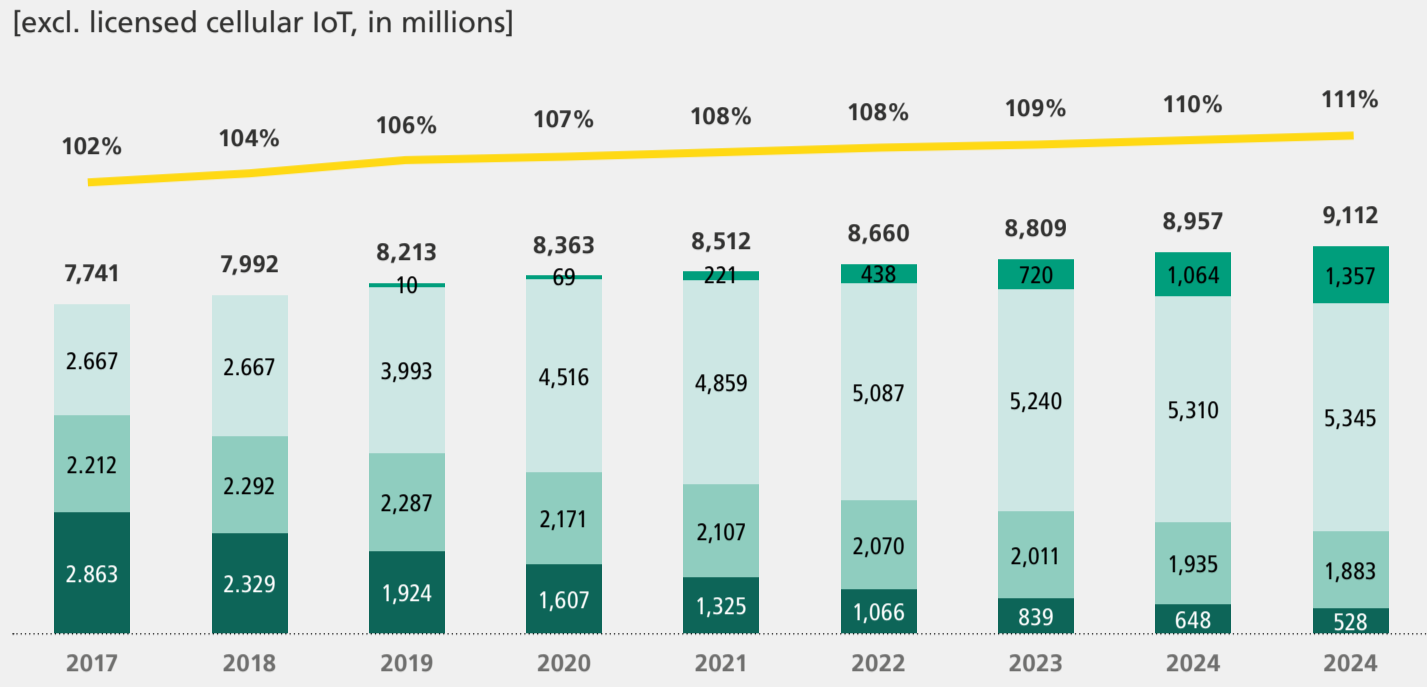
5G will replace/complement to a certain degree existing network technologies like 2G/3G/4G. Not only will this new technology be better, faster, and more reliable, it will also allow new use cases and can be seen as the basis for device-to-device communication in addition to smartphone communication.



In 2025, 5G connections will make up 15% of overall connections

The Internet has been predominantly accessed by consumers using PCs and mobile phones up to now. In the future, due to 5G technology, we will see an exponential rise in the number of connected devices in some industries.

Connections by technology generation and market penetration*
[excl. licensed cellular IoT, in millions]

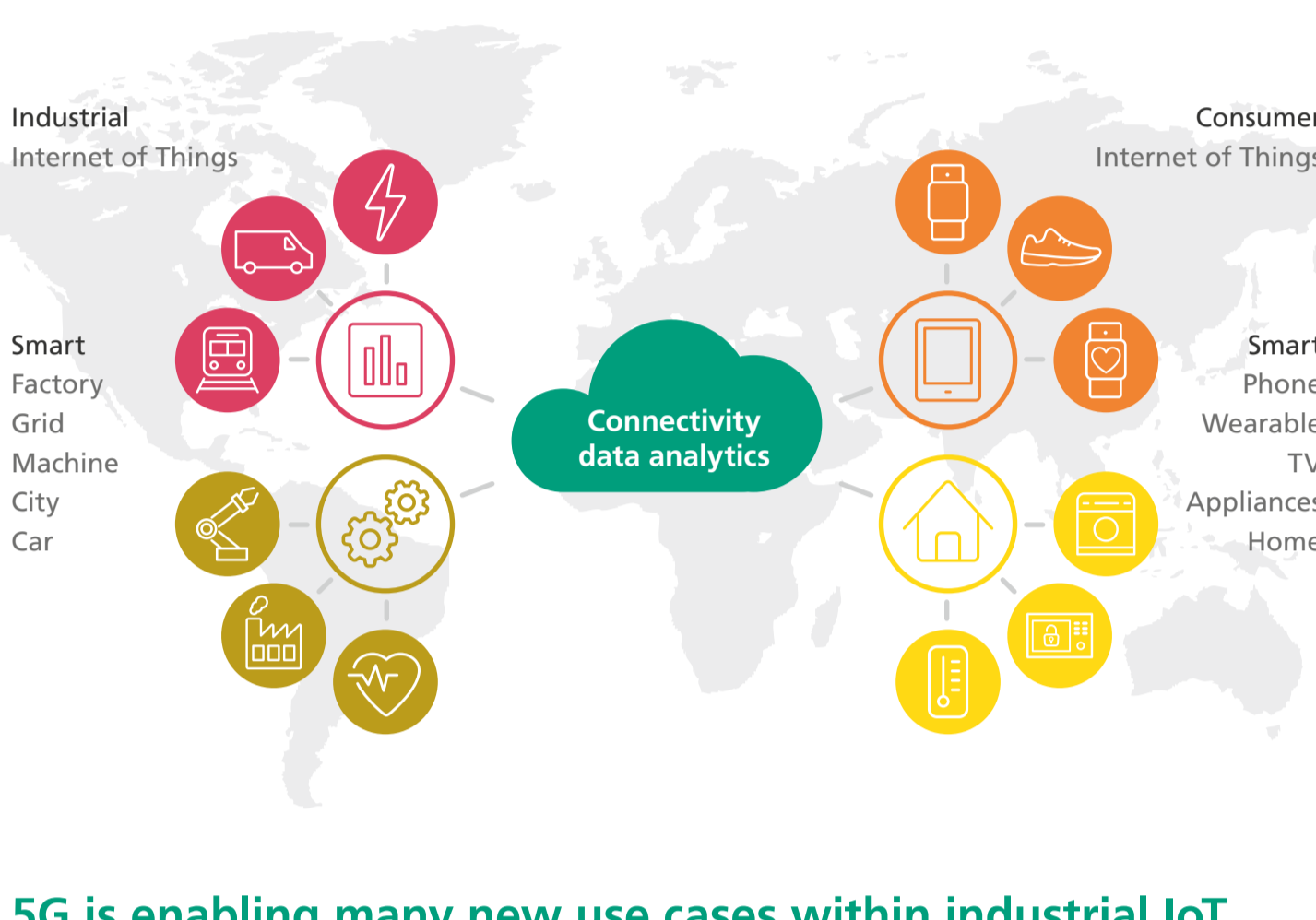


Source: GSMA Global Mobile Trends, September 2018

* Connections at the end of Q4 in each year

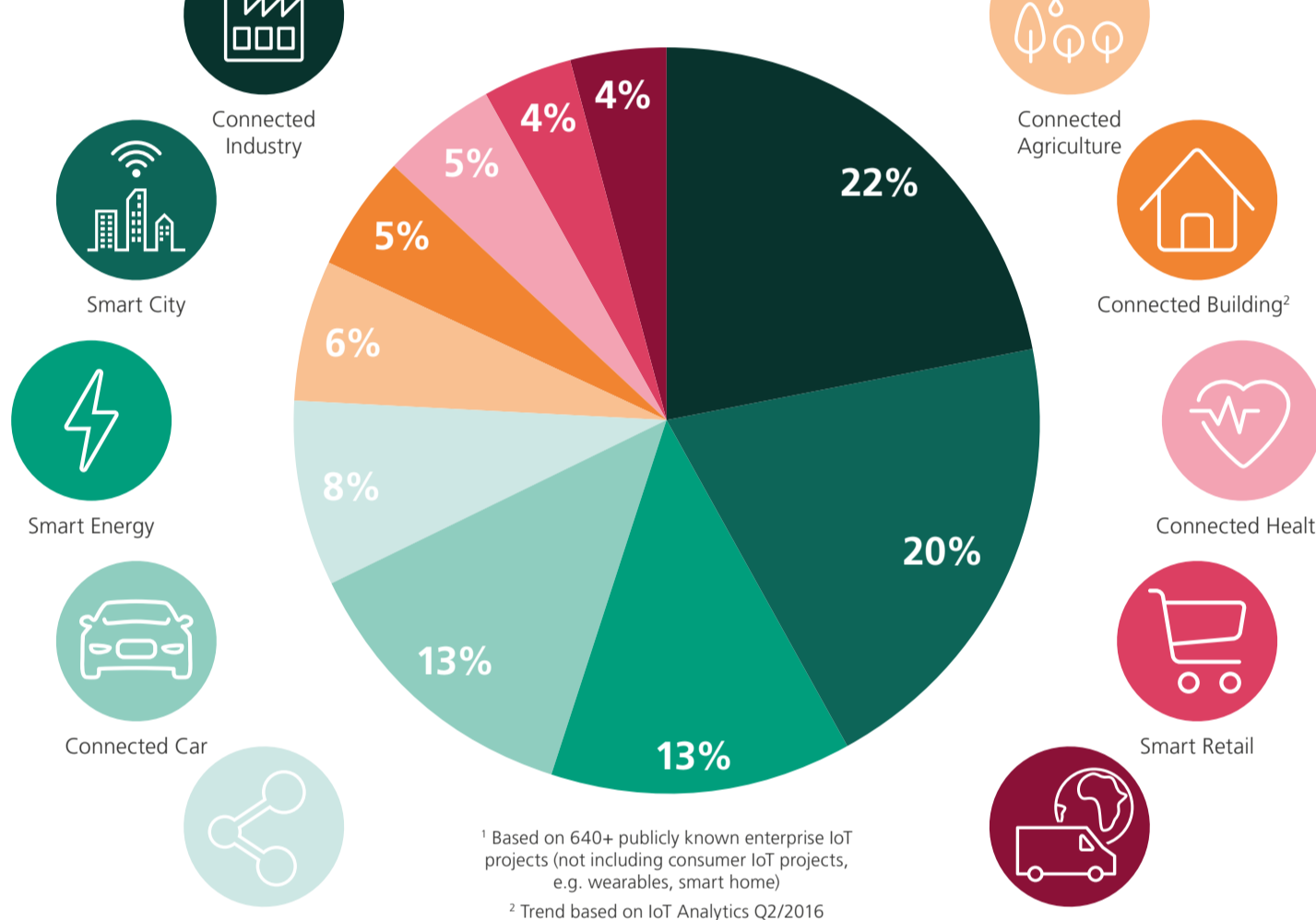
Consumer vs industrial IoT use cases

As connectivity will become ubiquitous with 5G, the trend towards creating more and more IoT use cases is unstoppable. Consumer as well as industrial applications will become part of our daily lives.



5G is enabling many new use cases within industrial IoT

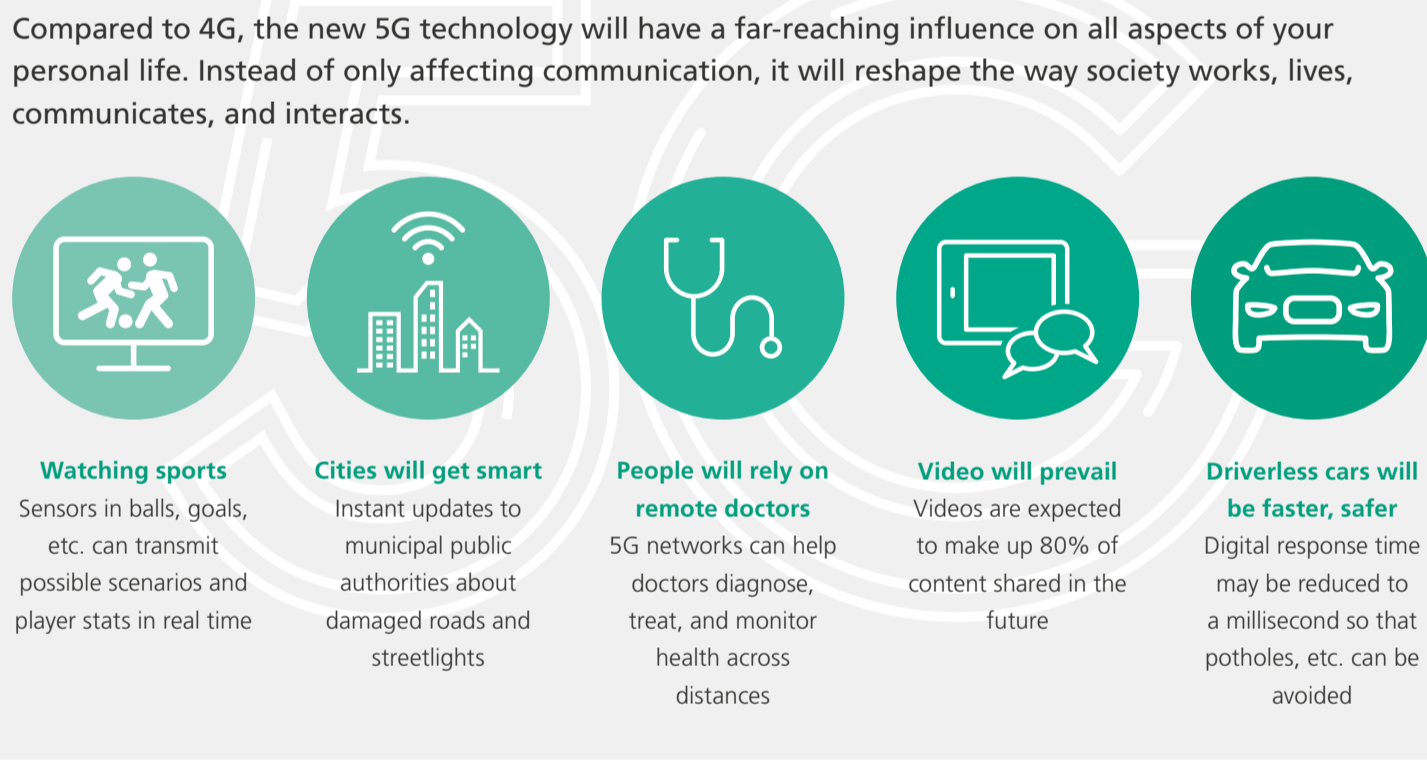
The following projects are publicly announced (Q3/2016).



Source: IoT Analytics 2019 global overview of 640 enterprise IoT use cases (August 2016)

Five examples how 5G will change your life

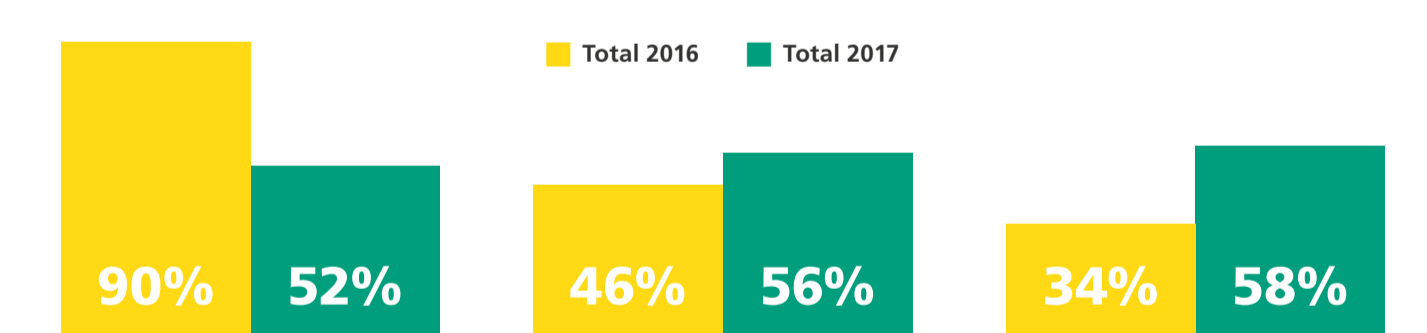
Compared to 4G, the new 5G technology will have a far-reaching influence on all aspects of your personal life. Instead of only affecting communication, it will reshape the way society works, lives, communicates, and interacts.



The way forward for MNOs

MNOs are concentrating more on industrial IoT.

The way MNOs view the potential this new technology has to offer has changed in recent years. Business users and specialized industry segments have become more prominent, most likely because of the higher potential margin.

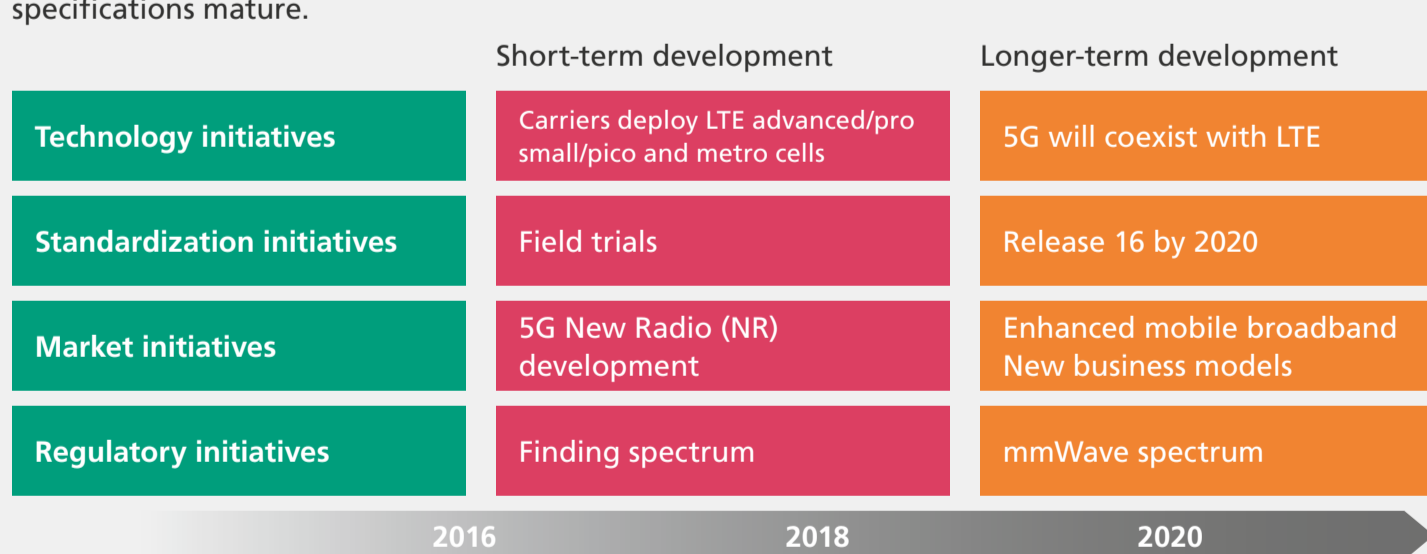


While more than half of 2017 respondents remain focused on consumer needs, there is a shift to business users and specialized industry segments.

Data: Total MNO respondents 2016 (50) | Total MNO respondents 2017 (50)

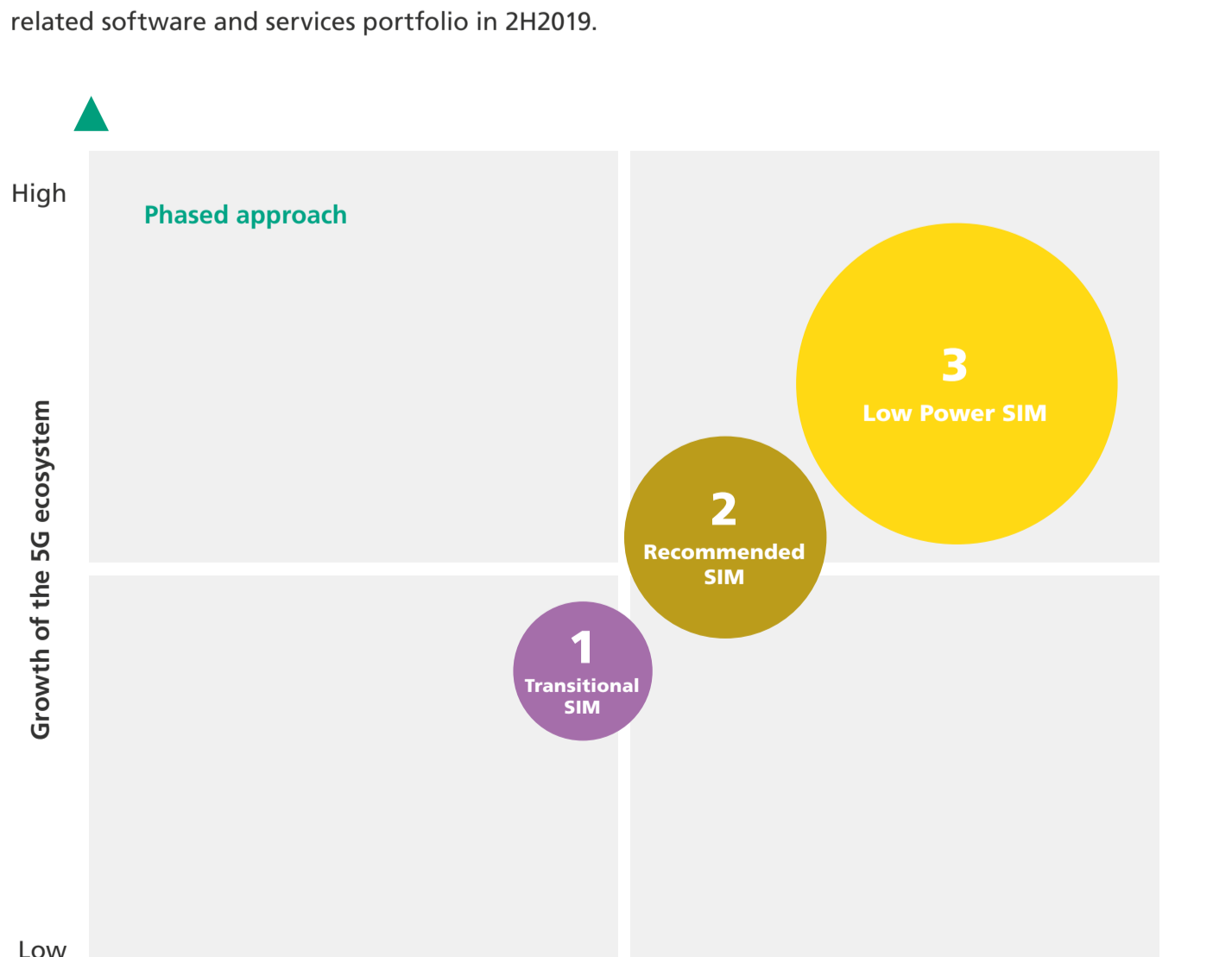
5G industry road map

5G development is an ongoing process with many steps in between. If you start now, you will have an edge, but be aware that you might have to change your installation over the course of time when specifications mature.



G+D Mobile Security's approach and road map

G+D Mobile Security already has the first 5G products available and continues to enhance its product portfolio in 2019 even further. We have started with dedicated 5G-enabled SIM cards and will have a related software and services portfolio in 2H2019.



Focus is first based on **growth**, then based on **cellular 5G stand-alone availability** and finally focus is based on **enhanced SIM security services**.

- 1** 5G USIM (supporting 4G networks and 5G networks)
- 2** Enabling first dedicated 5G features for stand-alone functionalities with updates on the OS (e.g.: Privacy Protection with SUCI)
- 3** Enhanced 5G USIM and OS: Supporting SIM-based end-to-end security services for both campus and public networks, also making available new secure element types like eUICC and xUICC