

5G DIALOG - CONNECTED MANUFACTURING

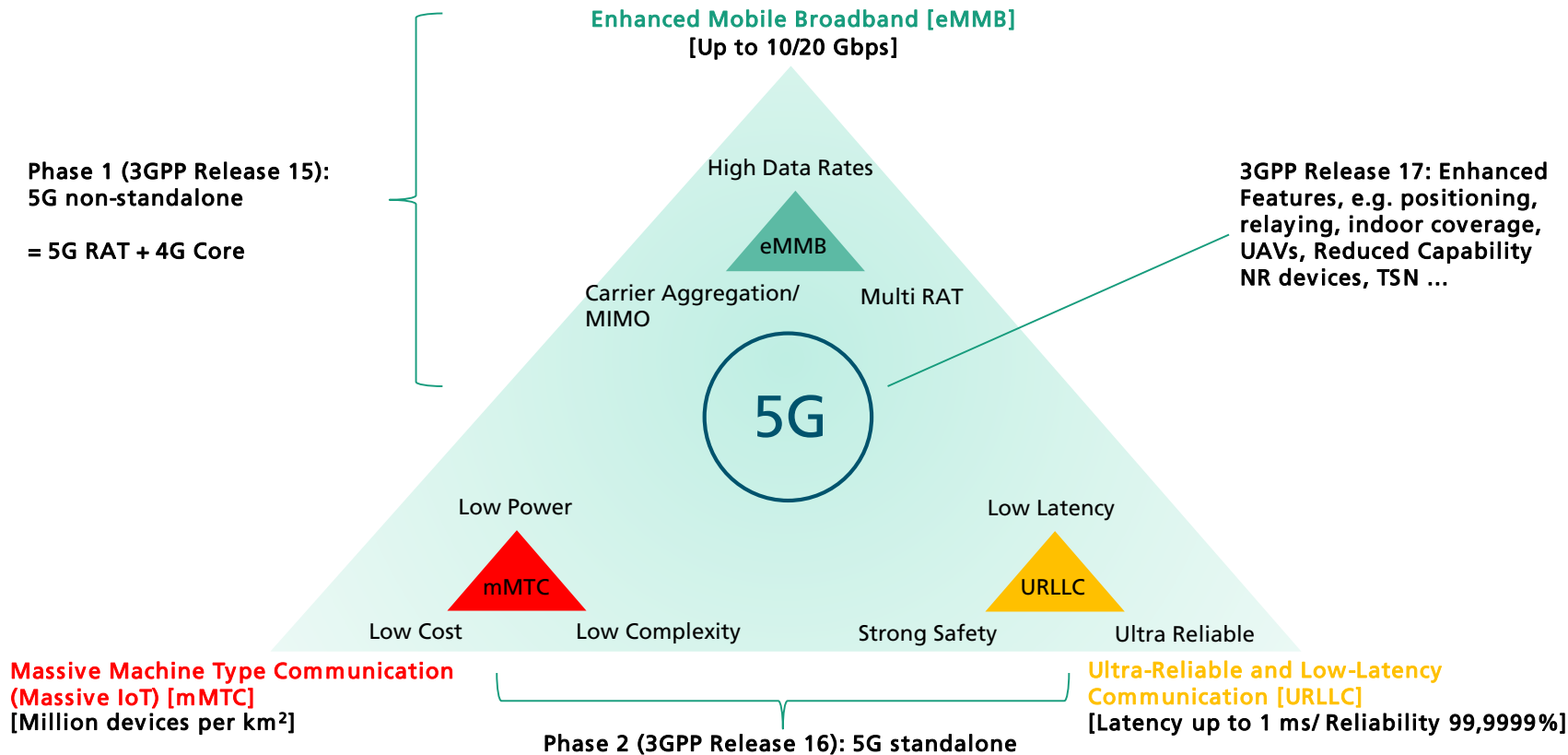
5G BAVARIA TESTBED FOR INDUSTRY 4.0 + LIVE VIEW OPEN RAN CAMPUS NETWORK

NIK 5G Dialog, 20.10.2021

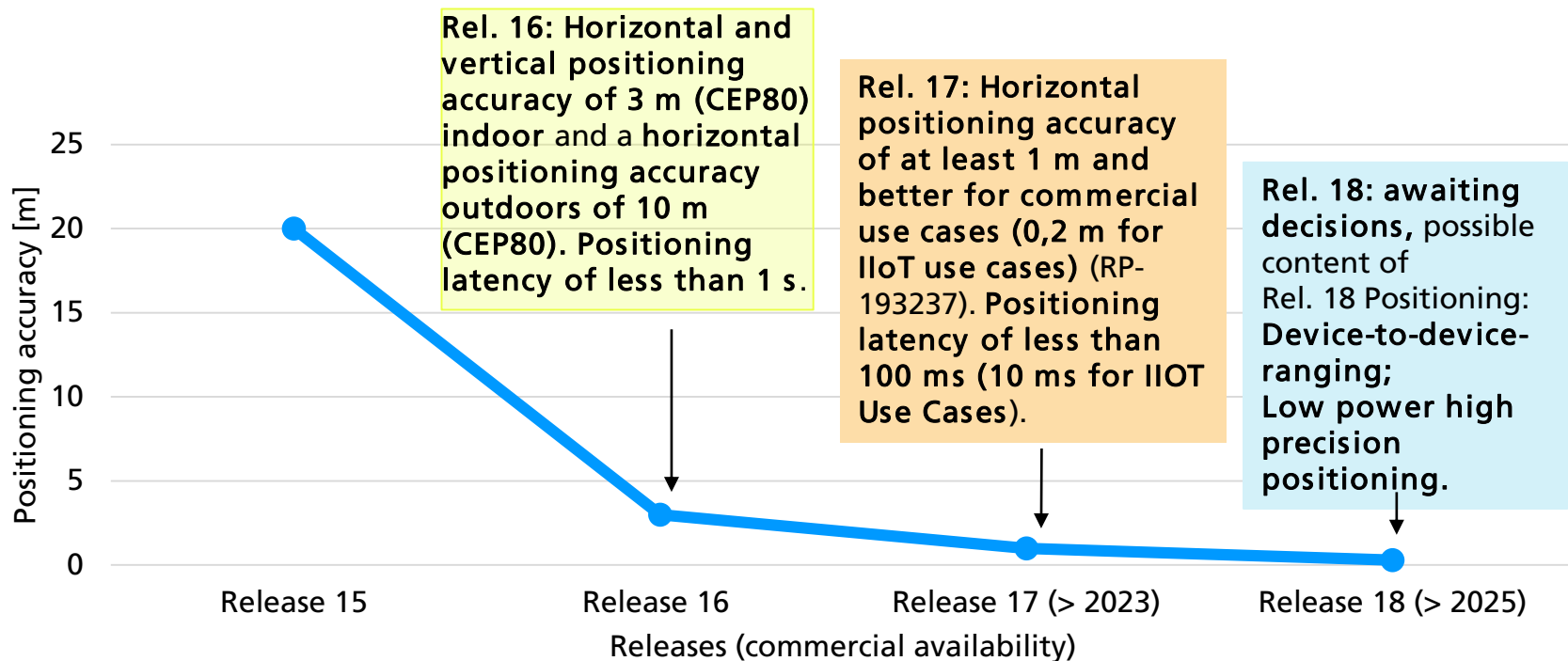
Karin Loidl, Ralph Dümmler



What's 5G? – Ongoing Development



What's 5G? Positioning and Communication united



What's 5G? Use Cases for Industry 4.0



Source: VDMA 5G User Guide (German Language)

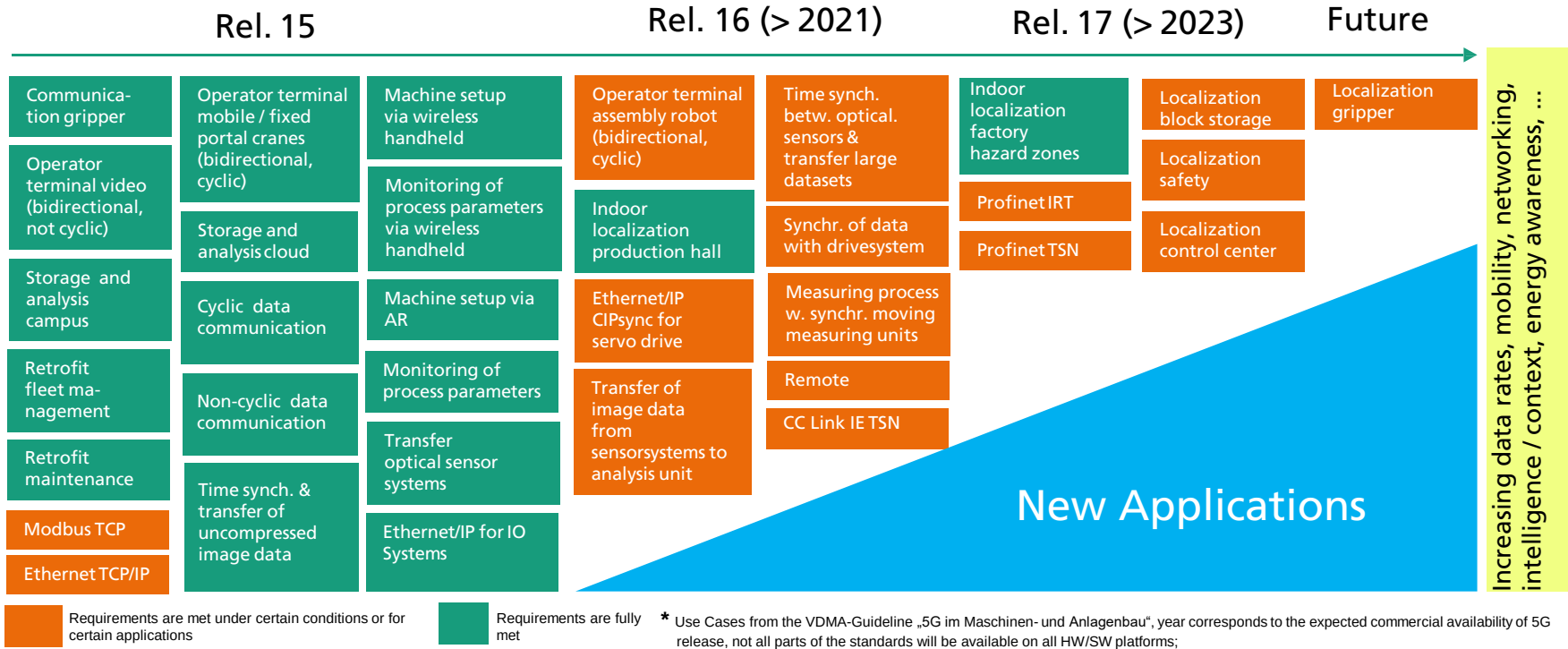
Leitfaden und Use Cases <https://www.vdma.org/viewer/-/v2article/render/1307377>

Download Leitfaden https://www.vdma.org/documents/34570/1052572/Leitfaden_5G_im_Maschinen-%2520und%2520Anlagenbau_1589871426748.pdf/d3fac4bd-efc4-e9c0-a2c6-bbad33728574?t=1602338345183

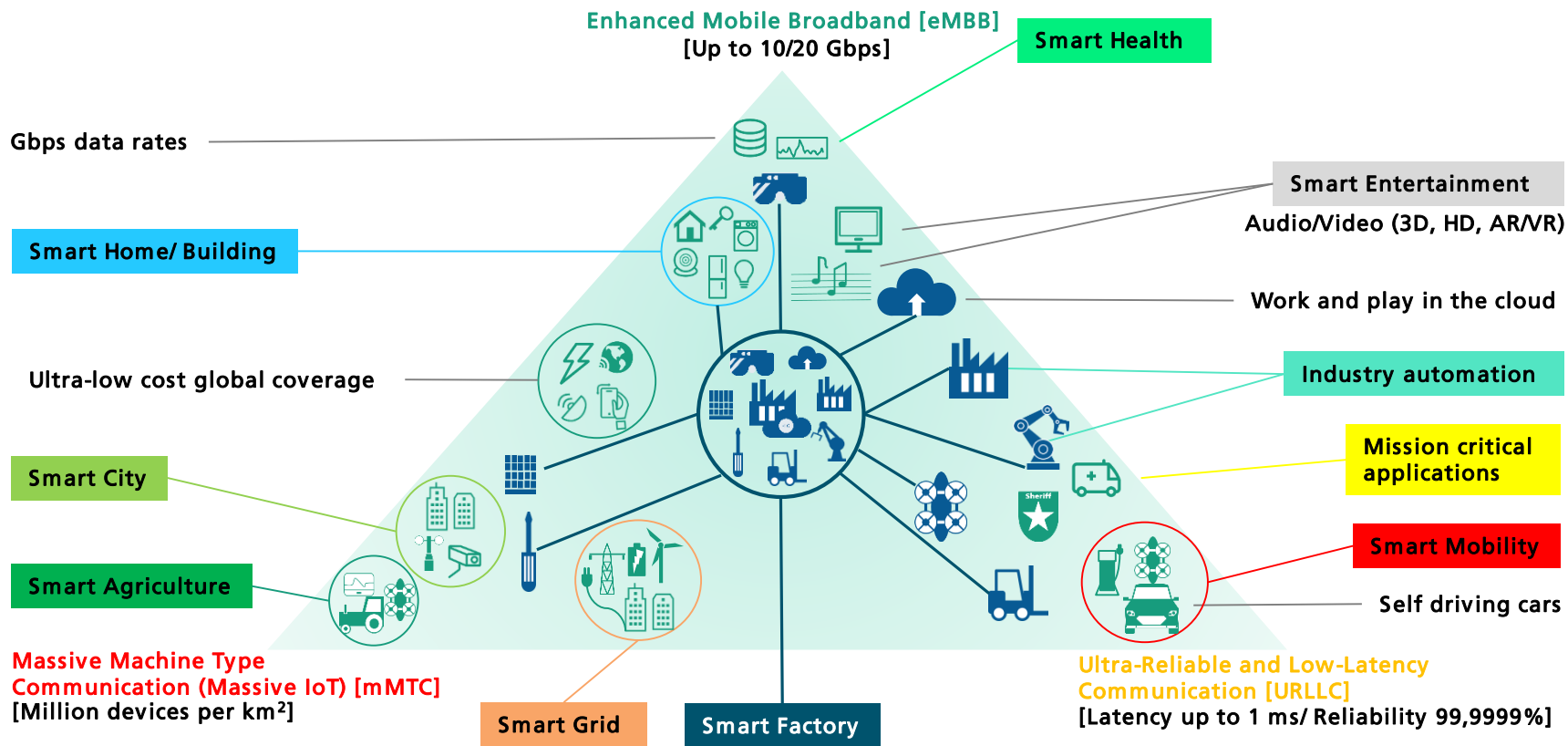
Download Use Cases <https://vdma.org/viewer/-/v2article/render/1293841>

What's 5G? Selected 5G-Applications (1Q 2020)

Study for the Association of German Mechanical and Plant Engineering*



Let get 5G started



Further Dates

- Join the next 5G DIALOG
 - 01.12.2021
Deep Dive 5G Positioning and 5G Communication
- Meet us at upcoming fairs
 - 23. - 25.11.2021: SPS Drives
Nuremberg, Germany, Hall 05 Booth 110
 - 28.02. - 03.03.2022: Mobile World Congress
Barcelona, Spain
 - 25. - 29.04.2022: Hannover Messe
Hannover, Germany



Visit the 5G Bavaria Testbed Industry 4.0:
Contact us anytime under
5G-positioning@iis.fraunhofer.de

Thanks for your attention!

Fraunhofer Institute for Integrated Circuits

<https://www.iis.fraunhofer.de/en/ff/kom/mobile-kom/5g-bavaria/5G-testbed-industry.html>



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LET'S GET 5G STARTED @ INDUSTRY

5G BAVARIA INITIATIVE AND THE 5G BAVARIA TESTBED INDUSTRY 4.0

NIK 5G Dialog, 20.10.2021

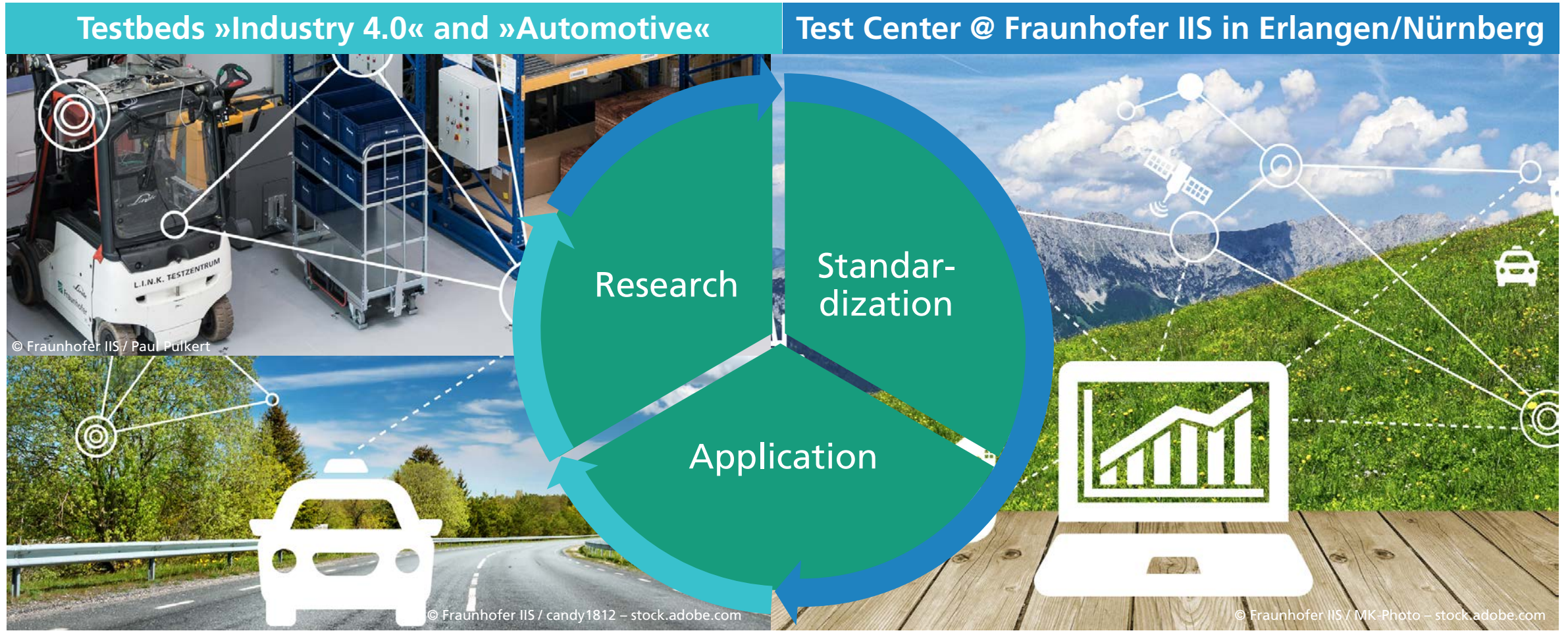
Bernhard Niemann, Thomas von der Grün



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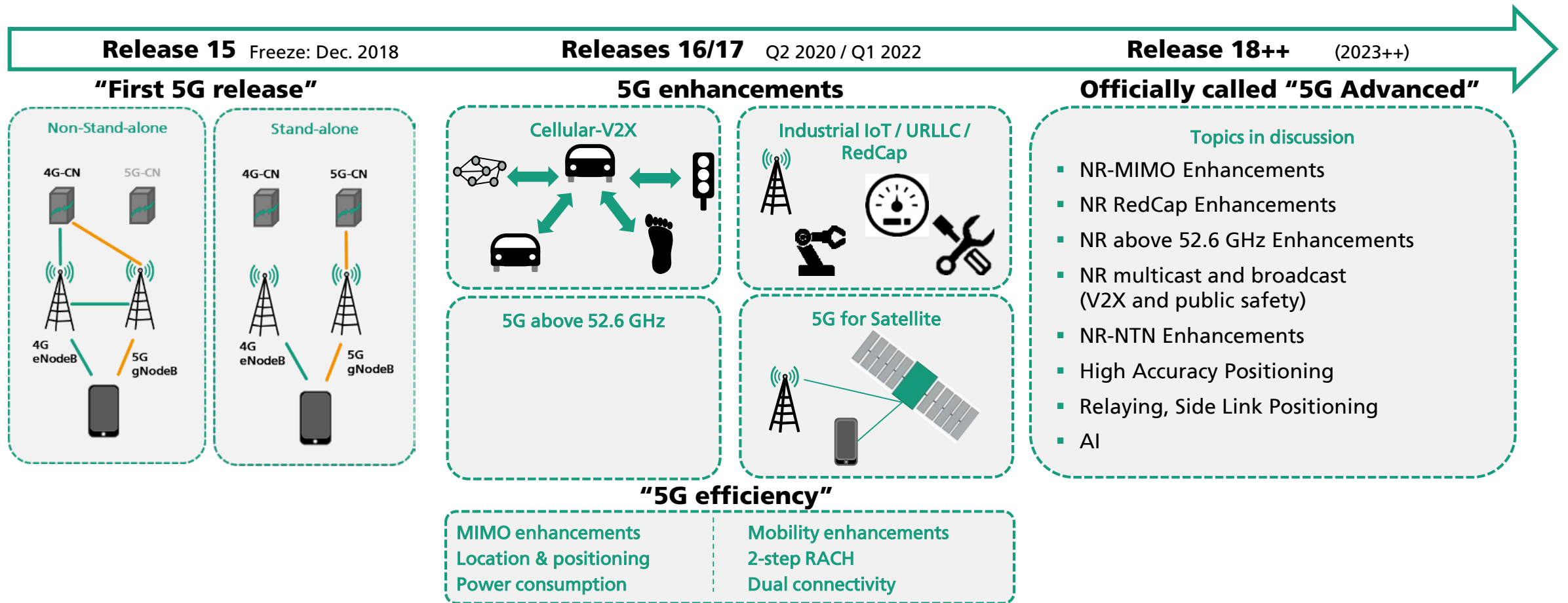
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From Research to Deployment



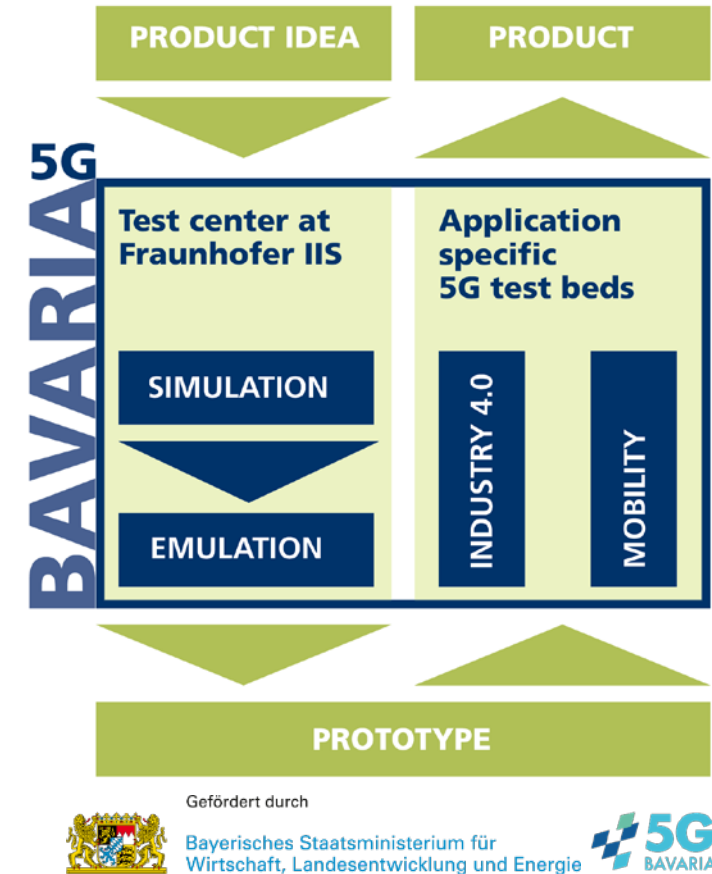
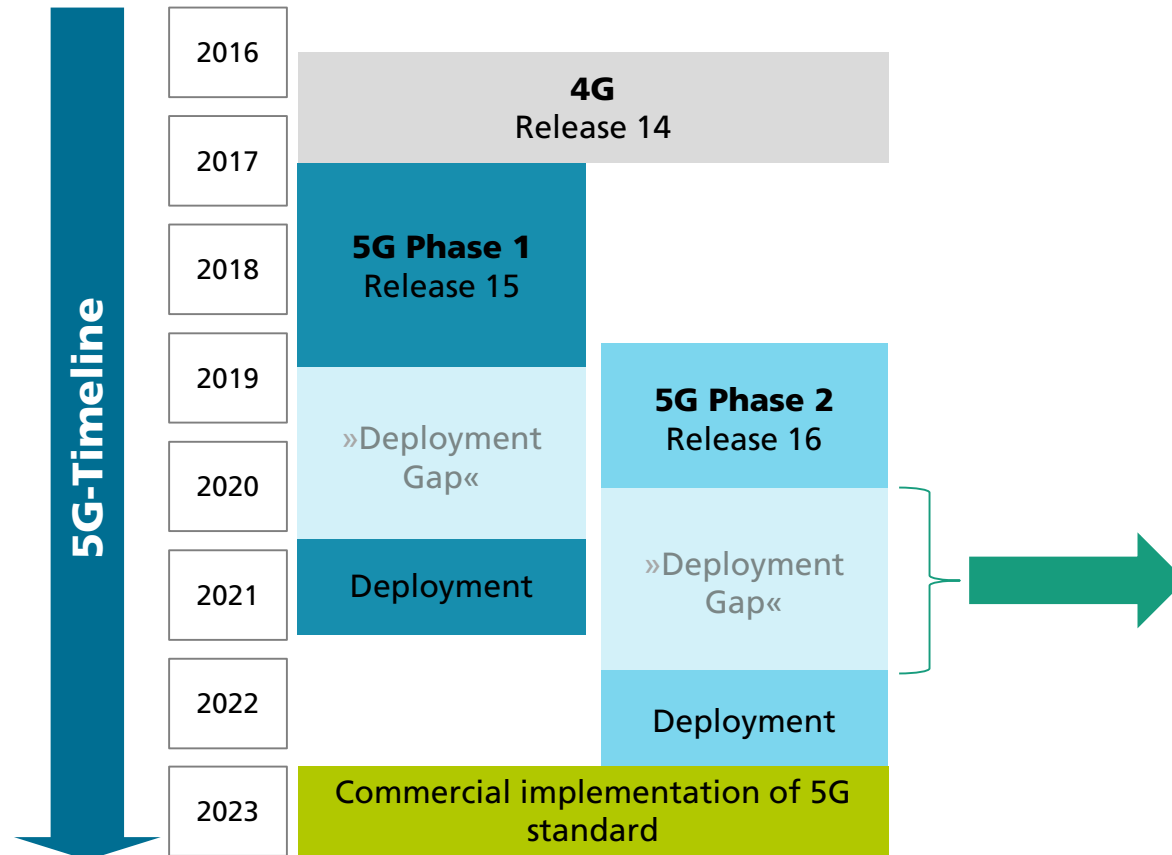
5G Roadmap

A Glimpse into 3GPP 5G Standardization



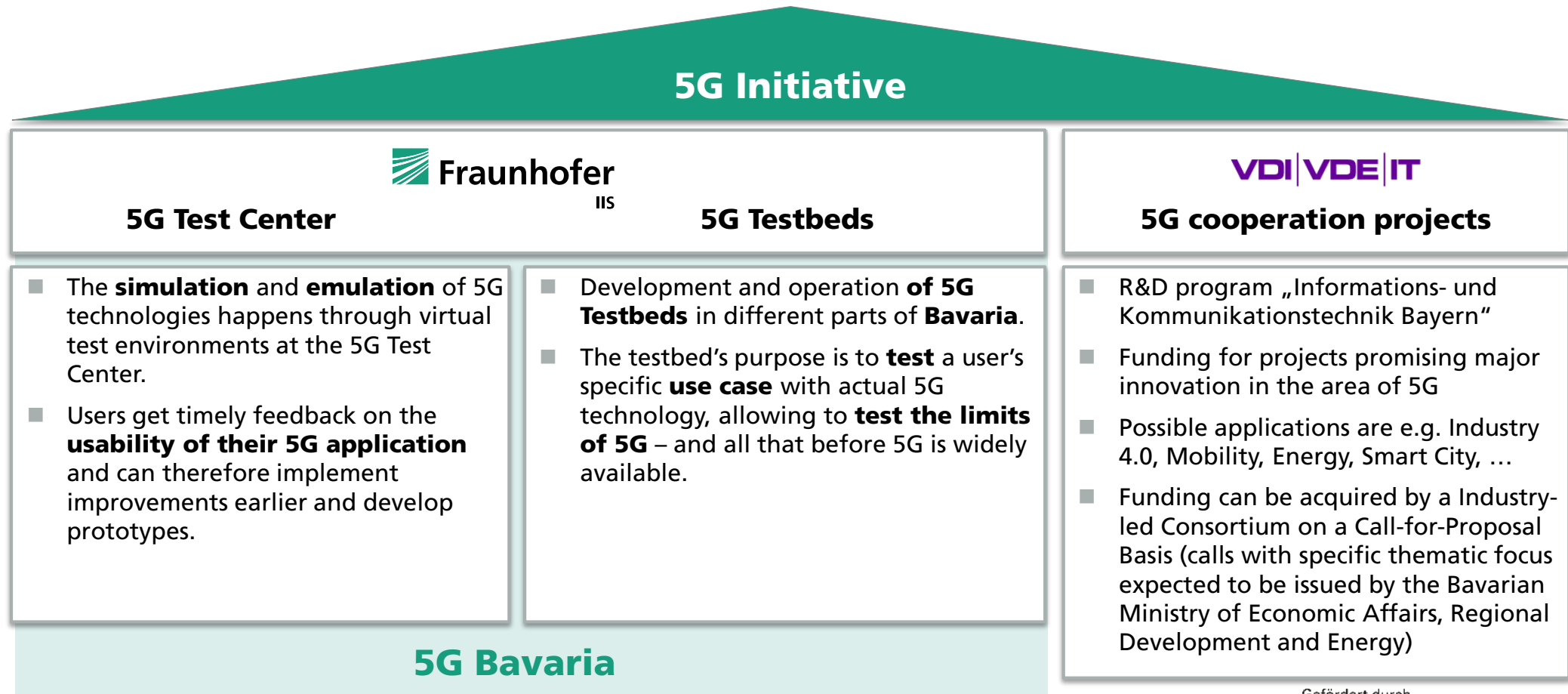
Hands-On 5G Experience

5G Bavaria – Bridging the Deployment Gap



5G Bavaria

Organizational Structure



Gefördert durch



Bayerisches Staatsministerium für
Wirtschaft, Landesentwicklung und Energie

Testbed Industry 4.0 – 5G and beyond

Two Sites, 22.000 sqm, FR1/FR2

Stand Alone Campus Network (5G NR, 5GCore)

Evolution up to 3GPP Release 17 and beyond

Communication and Positioning

Open RAN on COTS Hardware

Test License for n258 (26 GHz) and n257 (28 GHz)

Local Frequency Assignment for 100 MHz



Open Testbed



Production/Office/In-Outdoor Transition



Virtualization in Practice



Technology Evaluation in Applications



Machine Learning and Edge Cloud



Indoor and Outdoor Network Coverage

Testbed Industry 4.0 – Two Sites, 22.000 sqm, FR1/FR2

Industrial Indoor area:
8 panel/omni antennas and
2 mMIMO antennas for FR1
6 mMIMO antennas for FR2



Office building (3 floors):
20 panel/omni antennas for
FR1 on two floors



For technology assessment
state of the art communication
(e.g., WiFi 6) and positioning
(e.g., UWB) infrastructure
are available.

Outdoor area:
4 panel/MIMO antennas for FR1



Site 2 in Erlangen:
6 panel/omni antennas indoor
2 + 5 panel/MIMO antennas
outdoor



CONTACT

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