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## 5G Rationale

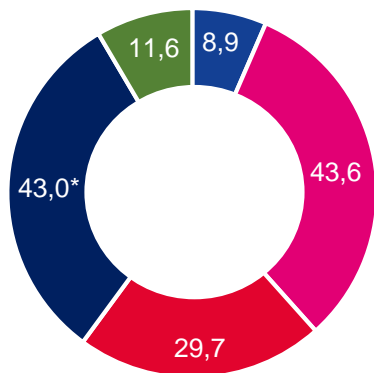
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These assessments and statements may be subject to changes and/or uncertain general conditions which, in the majority of cases, are difficult to predict and are beyond the control of 1&1 Drillisch AG.

In the event of changes in these general conditions, 1&1 Drillisch AG does not assume any obligation to publish the information on which these assessments and statements are based or to publish any revisions of this information

- German mobile market
- Spectrum auction 2019
- Evolution of the business model of 1&1 Drillisch
- Our assets for a 5G network build
- Our roadmap

Total subscribers in million



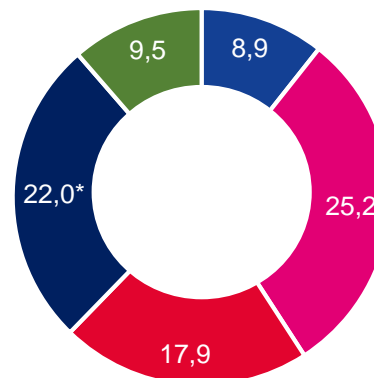
MNO:

MBA MVNO:

MSP:

- 1&1 DRI
- DTE
- VOD
- TEF D
- FNT

Postpaid subscribers in million



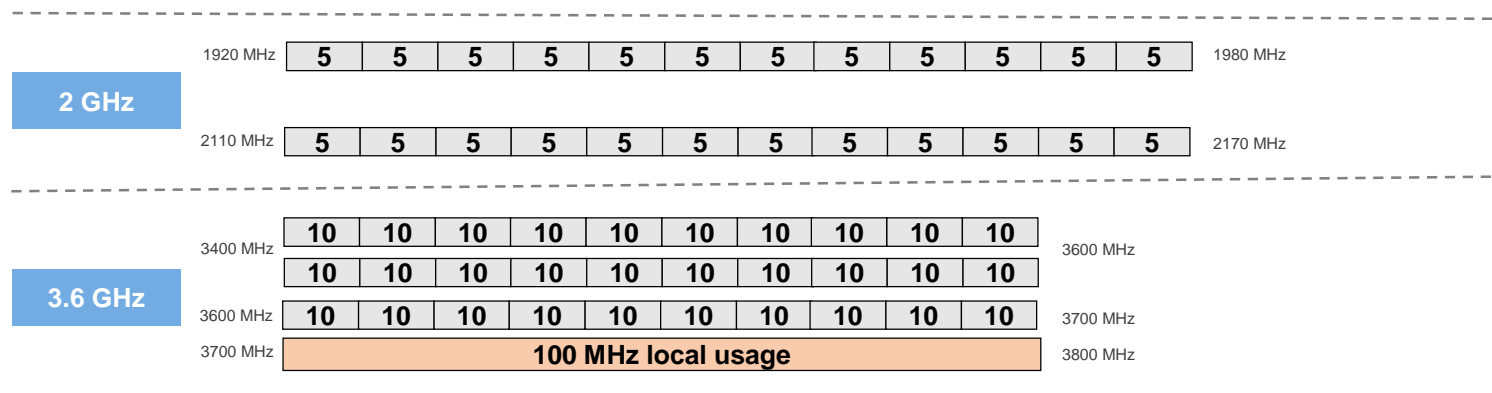
## Allocation of current frequencies

	700 MHz FDD	800MHz FDD	900 MHz FDD	1.5 GHz SDL	1.8 GHz FDD		2.1 GHz FDD		2.1 GHz TDD	2.6 GHz FDD	2.6 GHz TDD
Available spectrum	2x30	2x30	2x35	1x40	2x25	2x50	2x40	2x20	1x34	2x70	1x50
Duration	2033	2025	2033	2033	2025	2033	2020	2025	2025	2025	2025
Telekom	2x10	2x10	2x15	1x20	2x15	2x15	2x10	-	1x5	2x20	1x5
Vodafone	2x10	2x10	2x10	1x20		2x25	2x10	2x5	1x5	2x20	1x25
Telefónica	2x10	2x10	2x10	-	2x10	2x10	2x20	2x15	1x24	2x30	1x20

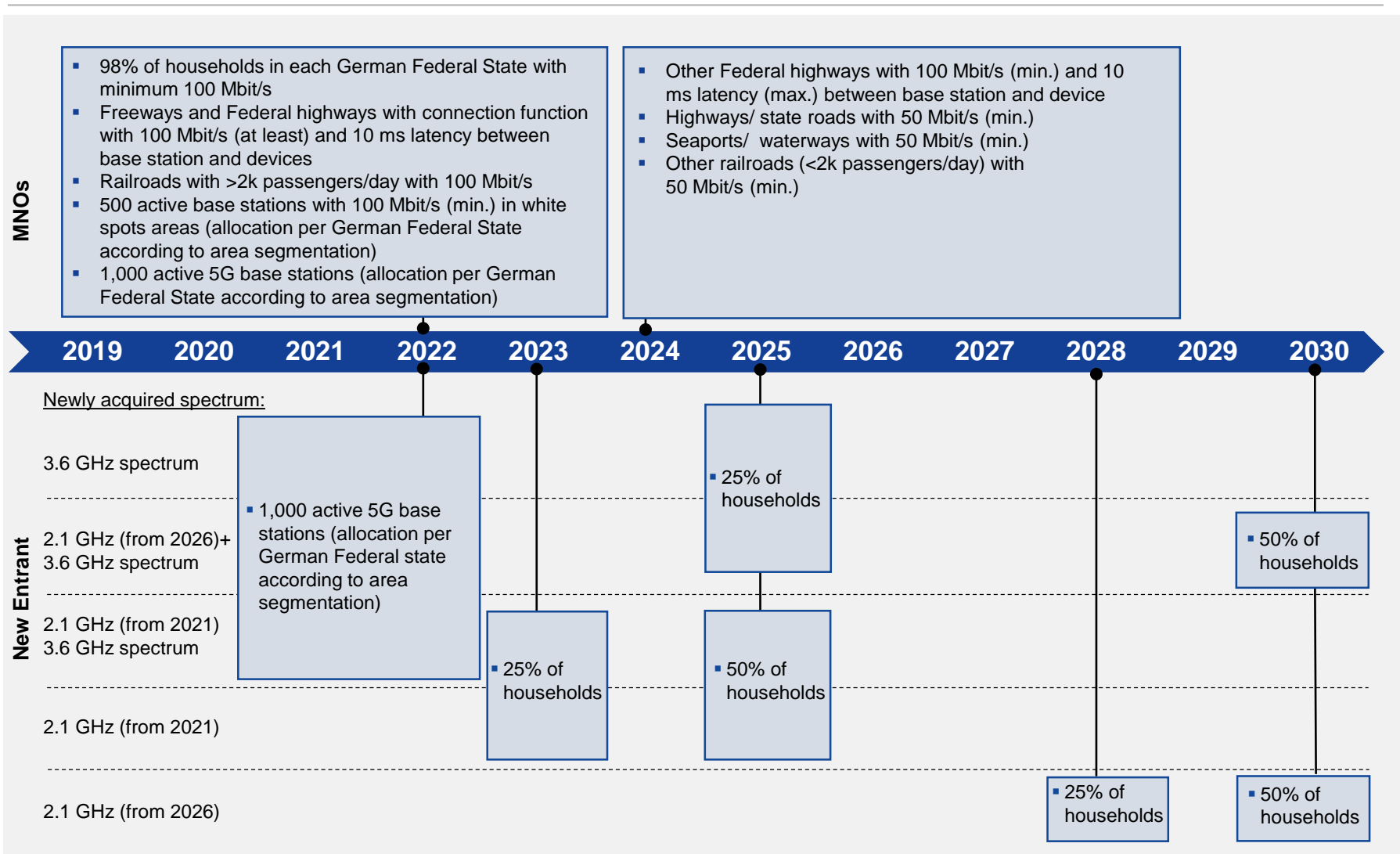
\* incl. customers at partners (Freenet, 1&1 Drillisch etc.), as of 30.09.2018

- We are already excellently positioned today
- Approx. 4.5 million DSL customers
  - Increasingly on Layer-2, based on the 1&1 Versatel fiber network
- Approx. 9 million Mobile customers
  - Vodafone MVNO
  - TEF D MBA MVNO – remedy taker
  - TEF D MVNO – former 1&1/E-Plus contract
- We have now the opportunity to expand our proven business model
- 5G investment, however, must be appropriate for our business case to be positive

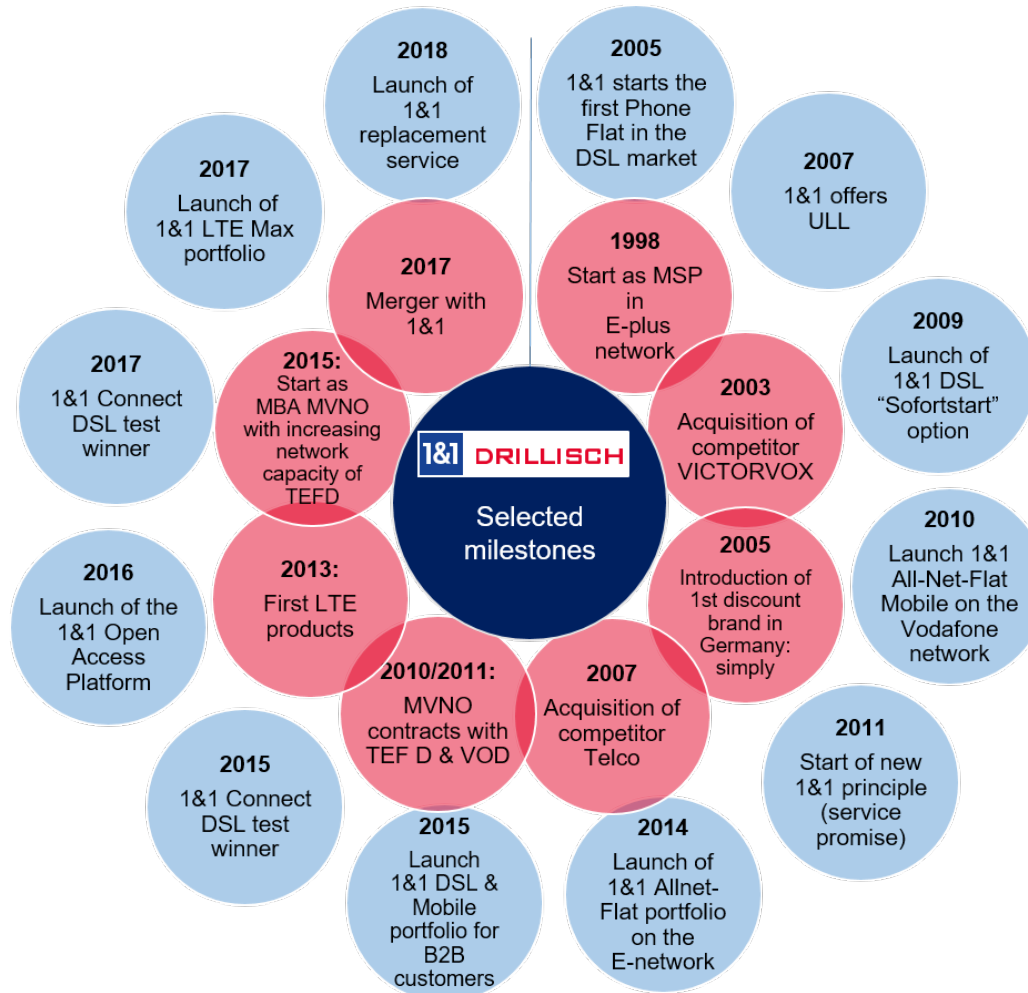
- Available spectrum in the upcoming auction (usage right until 2040)



# Spectrum auction 2019 – Coverage requirements



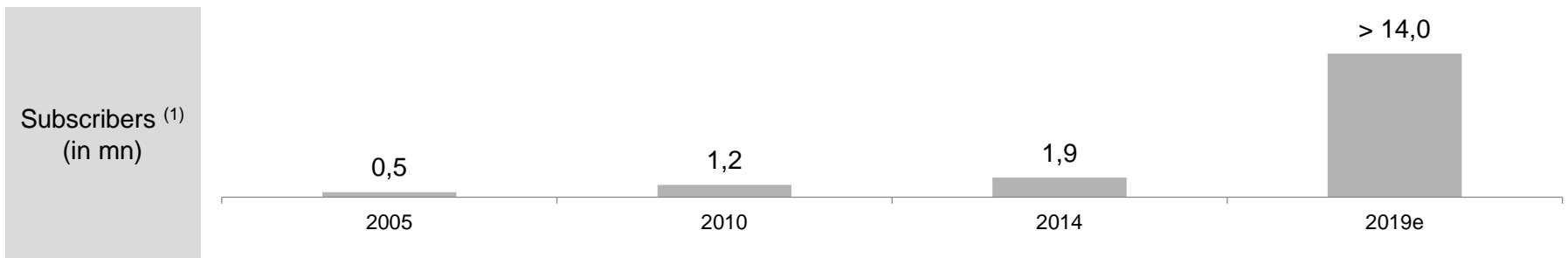
- 1&1 Drillisch has continuously developed its business model over more than two decades





# Successful development of the business model

	MSP Model	MVNO Model	MBA MVNO Model	MNO Model
Products	<ul style="list-style-type: none"> <li>1998–2005: Reseller of (MNO) mobile products</li> <li>2005–2010: First mover with the first discount rate plans on the German market</li> </ul>	<ul style="list-style-type: none"> <li>Marketing of own products based on standardised and unbundled advance services of the MNOs</li> <li>Combines the advantages of MSP (low CAPEX) MNO (high flexibility)</li> </ul>	<ul style="list-style-type: none"> <li>Long-term guaranteed access to all current and future technologies (incl. 5G)</li> <li>Access to high network capacity secured (independence over MNOs)</li> <li>Competitive advantage over all non-MNOs</li> </ul>	<ul style="list-style-type: none"> <li>Increase customer approach</li> <li>Economic independence</li> <li>Flexibility</li> <li>Growth opportunities</li> <li>All market segments</li> <li>Mobile</li> <li>Fixed-line substitute</li> </ul>



1&1 Drillisch has continuously evolved its business model and increased profitability and independence

(1) 2005 – 2014 Mobile postpaid subscribers Drillisch. 2019 mobile postpaid and fixed-line subscribers 1&1 Drillisch.

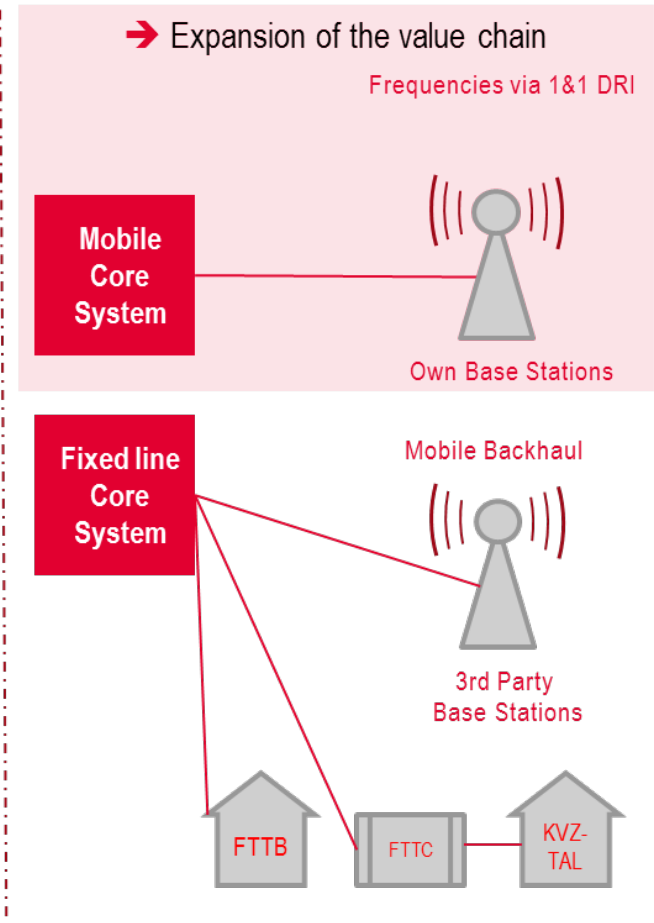
- In 2021 1&1 Drillisch expects to own approx. 16 million customer contracts (Mobile + DSL)
- Internalization of wholesale fees currently paid to service providers offers significant cost savings
- With 1&1 we have an excellent and nationwide known brand with a comprehensive product portfolio for high profile customers and SMBs
- Drillisch brands (smartmobil, cheap SIM cards and yourfone, cheap devices) address entry segment and discount segment
- Additionally: cooperation with 1&1 Versatel for B2B customers
- Sales and service „engine“ is already efficiently running on high level
- 1&1 Versatel runs one of the largest fiber networks in Germany, which can be used as 5G backhaul
- We are in discussions with potential partners, which have developed attractive network concepts and are offering network build-out and maintenance as full-service
- Interests rate are at an all-time low

# United Internet – Access value chain

- Subscription based business
- Low churn
- Low risk profile
- Strong cash flows



~ 9m Mobile customers  
~ 4.5m Fixed line customers



# Our assets for a 5G network build (cont'd)

- We address the entire German market

<p>B2B/Large corporates</p>		
<p>High profile customers</p>		
<p>Entry segment and discount brands</p>		

## 1) Independence from MNO and margin uplift

- Substitution of variable cost with own fixed-cost will allow better fixed cost leveraging and drive margin upside
- Business model becomes independent from wholesale access on MNO network

## 2) Better product differentiation

- Superior 5G technology - innovation premium drives ARPU uplift
- Access to higher bandwidths allowing to offer more differentiated products and tap additional customer groups

## 3) Multiple upsides from additional revenues streams

- Access to new customer groups (business/premium), fixed wireless access, own wholesale product, IoT (Internet of Things) etc.

## 4) Improved network quality

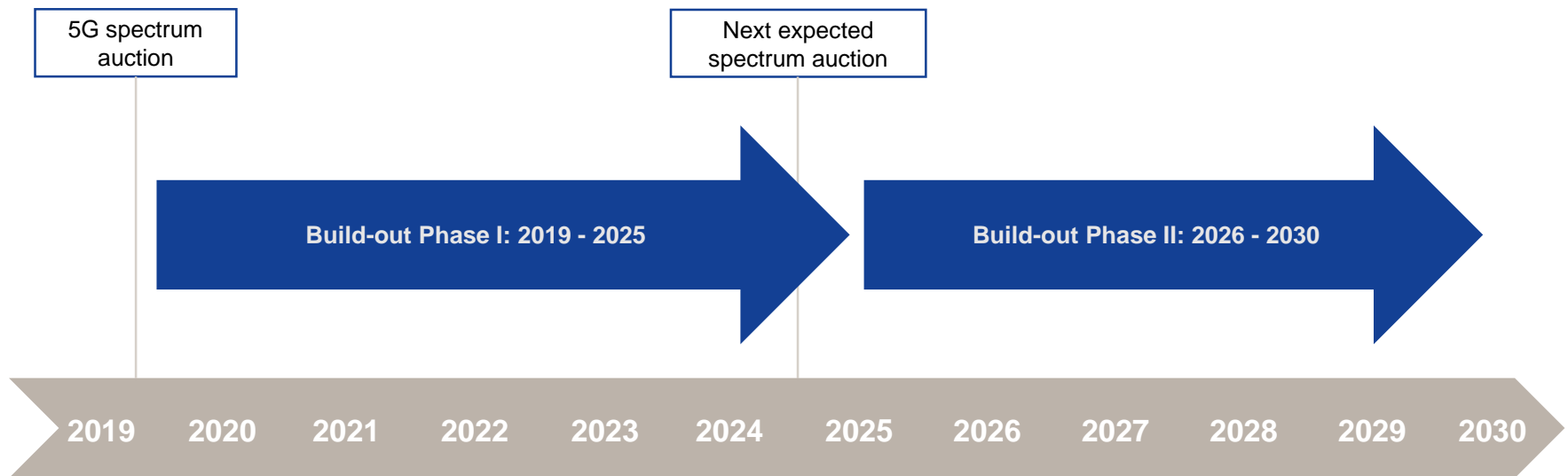
- Currently customer perception dependent on network quality of counter party under MBA MVNO
- Own network will allow “custom-made” network with superior quality at par supporting and matching 1&1 Drillisch brand proposition
- Ability to capture and accelerate own organic growth potential from strength of brand and customer service perception

## 5) Supporting terminal value upside

- Higher profits mid- to long-term

# Our roadmap for a potential network build-out

- 1<sup>st</sup> step:** Participation in the spectrum auction
- 2<sup>nd</sup> step:** Negotiate and agree National roaming
- 3<sup>rd</sup> step:** Network build-out phase 1
- 4<sup>th</sup> step:** Potential further participation in the next spectrum bid, expected for 2024/2025
- 5<sup>th</sup> step:** Network build-out phase 2

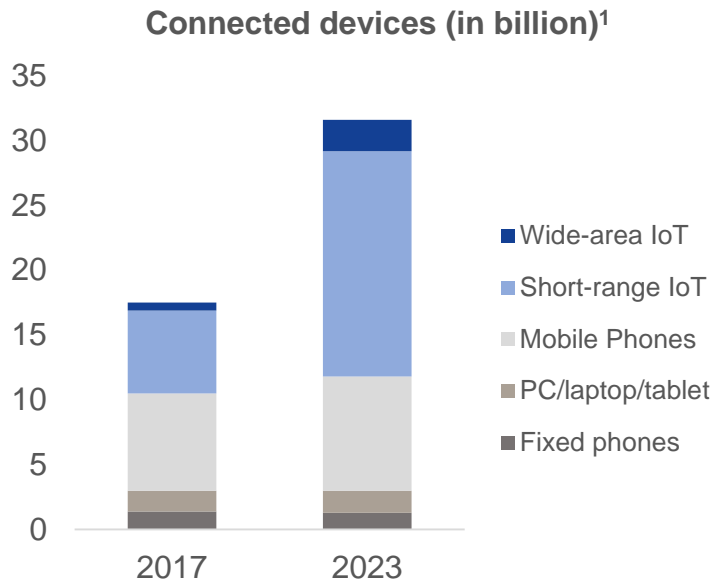


- 1&1 Drillisch will close a service contract with an infrastructure provider to plan, develop, build and run an up-to-date, powerful and innovative mobile network for the exclusive use of 1&1 Drillisch (no joint venture)
- Superior 5G performance with network start – less complexity and tailored network grid, as there is no legacy network which needs to be serviced
- Existing mobile backhaul connections via 1&1 Versatel and other partners (e.g. city carriers etc.)

- National Roaming is an essential prerequisite for the business case during the build-out phase
- MNOs have to negotiate National Roaming, based on the current spectrum auction framework
- BNetzA (Federal Network Agency) will act as a referee – additional non-discriminatory requirements for all MNOs
- MNO Remedy (incl. National Roaming) committed by TEF D in connection with the TEF/E-Plus merger



- Fixed wireless access
  - Additional FWA contracts from customers with no fixed-line connection or lower bandwidth connection (hybrid products/bonding)
  - Conversion of existing DSL customers from 2021 onwards
- Higher market share with increased distribution power
  - Better product differentiation – being in the driver seat for product innovation
  - Better network quality and higher bandwidth
  - Attraction of additional premium and business customers
- More-for-more from increased product value – moving from 4G to 5G products; impact from additional ARPU will phase-out over time, as 5G will become standard
- Push of 5G devices
- Additional wholesale revenues: potential to offer wholesale access to service providers and city carriers



- IoT will deliver additional upside potential via increasing penetration of non-communication devices (i.e. smart metering, smart household appliances)
- 1.8 billion IoT devices with cellular connections by 2023 – Wide-area IoT growing by 26% CAGR
- Assuming higher customer participation in increasing use cases with incremental revenues
- IoT revenues in Germany are expected to already double between 2018 and 2020<sup>2</sup>

1) Source: Ericsson Mobility Report November 2017

2) TechNavio/Deloitte, „Prognose zum Umsatz mit dem Internet der Dinge (IoT) in Deutschland“, 2016

It's already good today –  
and it can just get better