



Digital Transformation in Telenor

Barclays CTO Conference 21 March 2019

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Agenda

1. Telenor purpose and strategy
2. Digital transformation
3. Transformation progress



During this 40 minute presentation...

51,000,000 voice minutes,
7,000,000 SMS, and
328 TB mobile data

...will be consumed by our **174** million subscribers.
58% of the traffic delivered through our Telenor Hybrid Cloud
and accessed through our **104,000** physical sites.



Telenor Group is an international provider of tele, data and media communication services



8 markets worldwide



164 years of history



174 million subscribers



110 billions NOK in revenues
(11.5 billions EUR)



Scandinavia

- No of Subscribers (Subs): 7.4m
- Data Traffic: 0.8 (million TB/year)
- % Cloud Traffic: -
- No of Sites: 30,048
- No of Technical Data Centers (DCs): 6
- No of Applications (Apps): 1,278
- No of Standardized (Std.) APIs: 2

Emerging Asia

- No of Subs: 133.4m
- Data Traffic: 1.0
- % Cloud Traffic: 49%
- No of Sites: 38,532
- No of DCs: 17
- No of Apps: 264
- No of Std. APIs: 22

Developed Asia

- No of Subs: 32.9m
- Data Traffic: 2.5
- % Cloud Traffic: 76%
- No of Sites: 35,779
- No of DCs: 11
- No of Apps: 223
- No of Std. APIs: 44



Our purpose:

Connecting you to
what matters most.
Empowering societies



Four Key Beliefs



Internet access is our foundation



Personalisation drives customer engagement and value capture



Efficient operations enable growth and sustainable competitiveness



Digital positions can still be taken in selected markets



Mindset shift to transform to Digital Technology



Mindset shift to transform to Digital Technology

Empower the Customer

Technology

Digital

API First

Personalize

Data Lake for
1st party data

Trust

Privacy & Security
by Design

Empower

Cloud First



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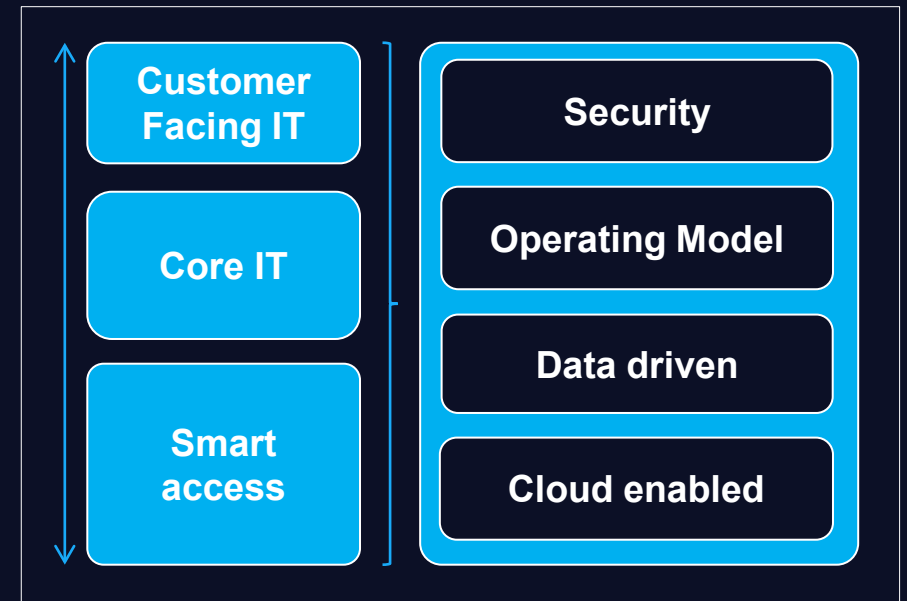
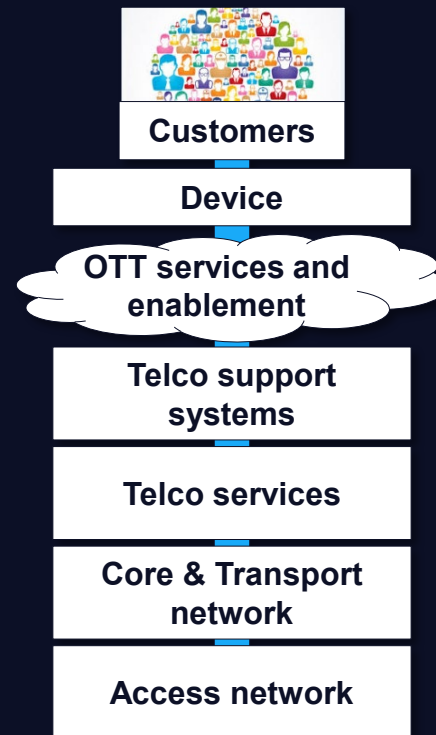
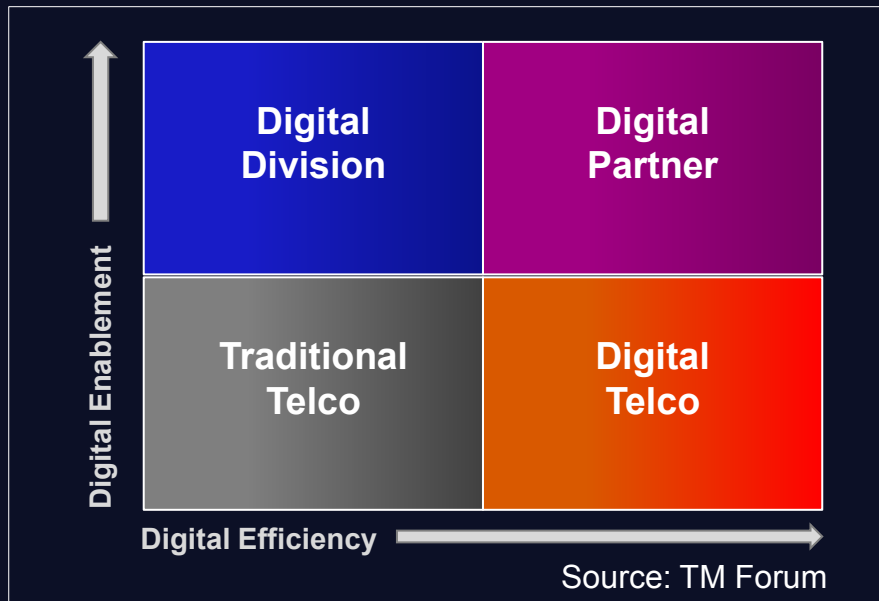
Privacy & Security by Design

Empower

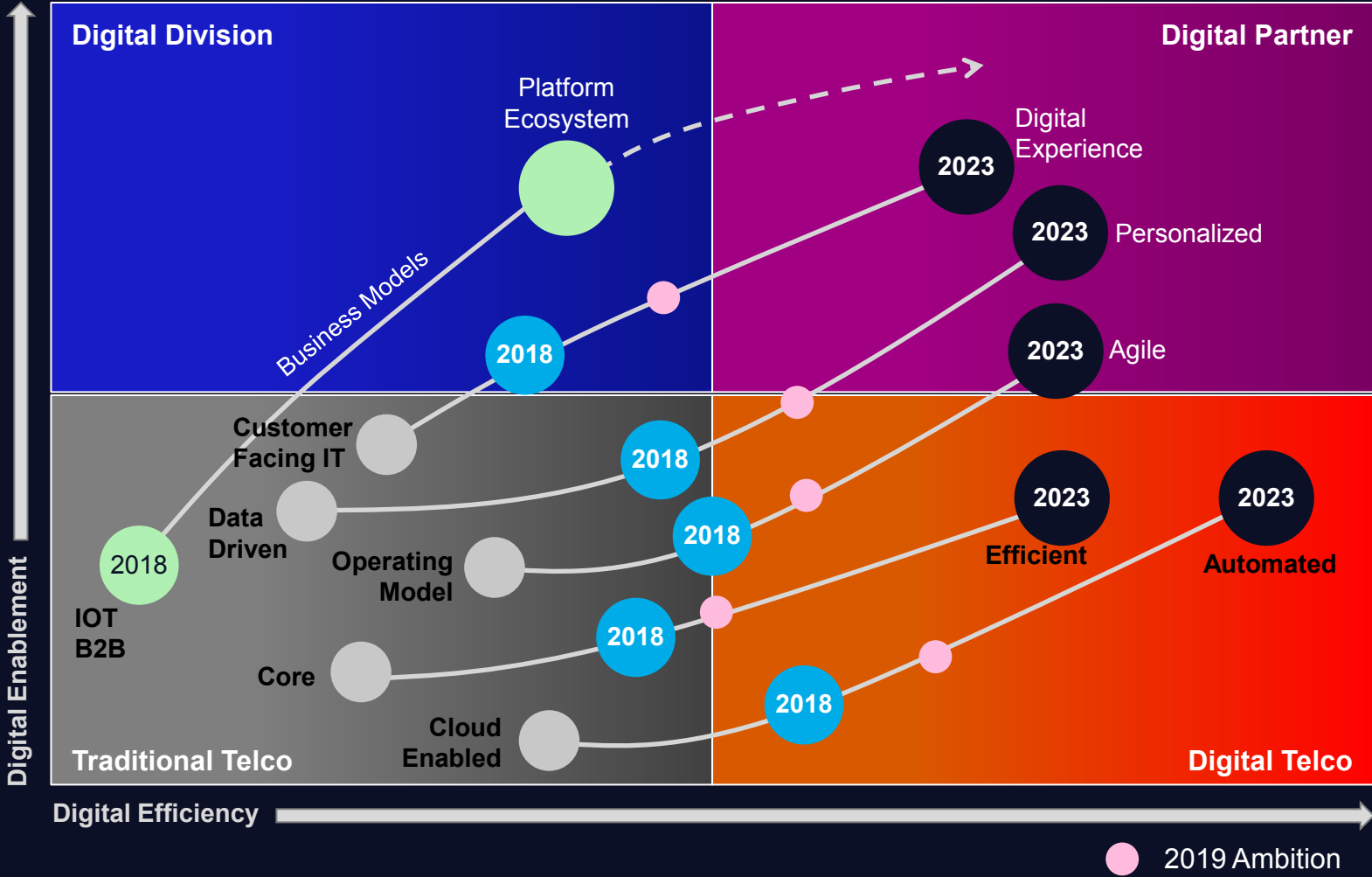
Cloud First



7 technology focus areas tracked across the value chain



We evolve from traditional to digital



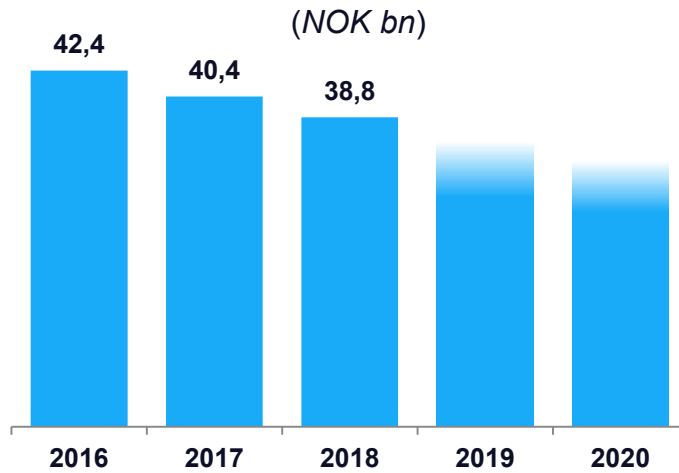
2017 - 2020 Technology Journey

	Y2017	Y2018	Y2019	Y2020
Spectrum on 4G & 5G	62%	71%	77%	80%
Cloud infrastructure	Journey started	58% of mobile core & 5% IT applications	88% of mobile core & 25% IT applications	90% of mobile core & 80% IT applications
Global APIs	40	68	150	250
Global operating model	45%	55%	73%	100%
Monthly active users Telenor mobile apps	11.1 million	17.1 million	22 million	30 million



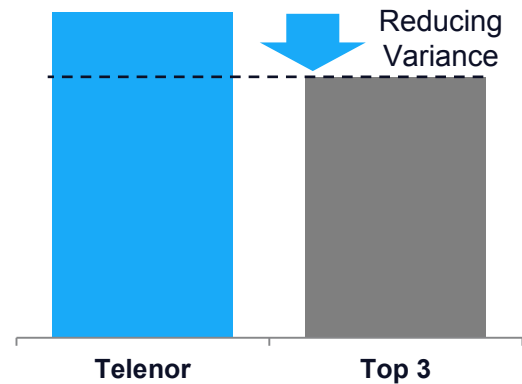
Improve efficiency and enable growth

Strong Opex performance



- > Delivered net opex reductions of NOK 1.2 bn in 2018.
- > Maintaining ambitions of 1-3% yearly reductions for 2019 and 2020.

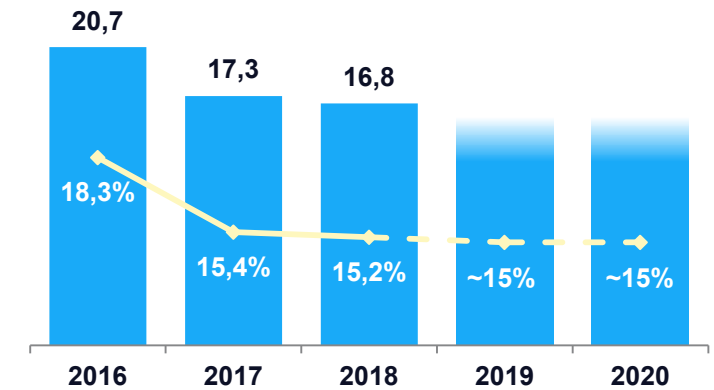
Opex gap vs benchmark



- > Variance reduced with *estimated* 40% since 2016.
- > Close the gap focus by shifting source of cost savings to structural improvements.

Capex and capex/sales ambition

(excluding licenses & spectrum, NOK bn)



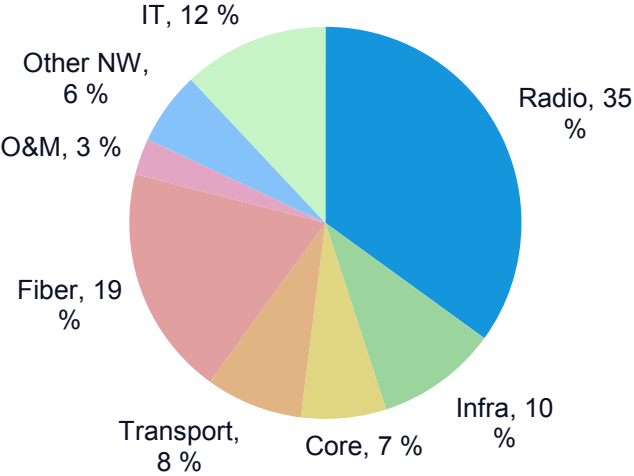
- > Continue scrutinizing capex spend to ensure efficiency and right prioritizations.
- > Maximize spectrum assets.
- > No legacy investments.



Technology plays a significant role on spending

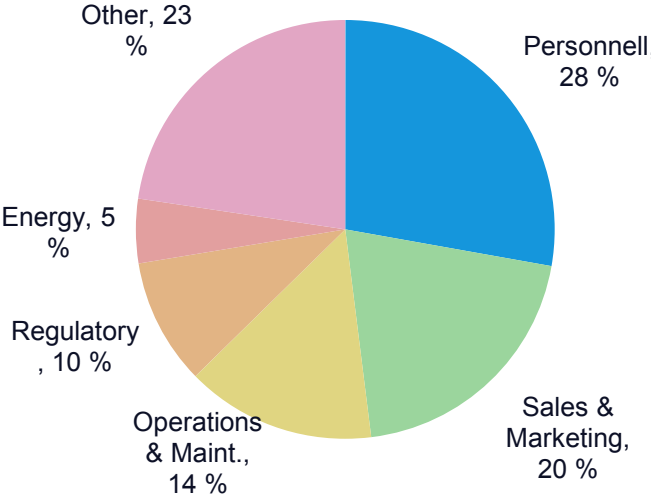
Capex split 2018

(NOK 16.8 bn)



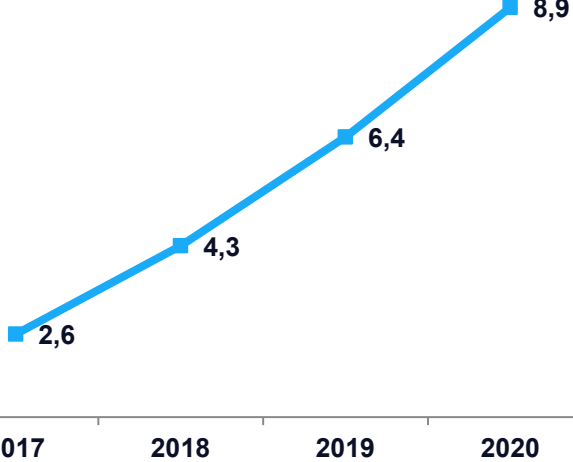
Opex split 2018

(NOK 38.8 bn)



Mobile data growth estimates

(million TB per year)



- > 2/3^{rds} of technology cost base in access layer
- > Continued focus on efficiency and quality in access layer

- > Annual sum of Telenor's markets.
- > Significant year-over-year growth in Developed Asia and Telenor Myanmar.



Deep-dive in 4 of 7 technology focus areas



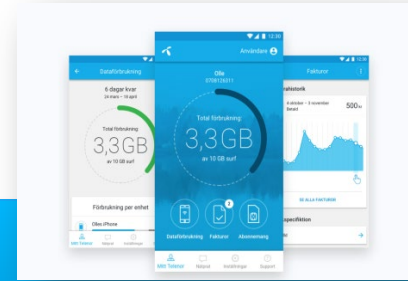
SMART ACCESS

Best quality & most cost efficient



CLOUD

Front-runner, automate & converge



CUSTOMER FACING IT

Faster, simpler & easy to use



OPERATING MODEL

Reduce costs & enhance capabilities



Making Access Smart improving customer experience and overall efficiency while enabling new business growth options

Modernizing end-to-end – future-ready network solutions

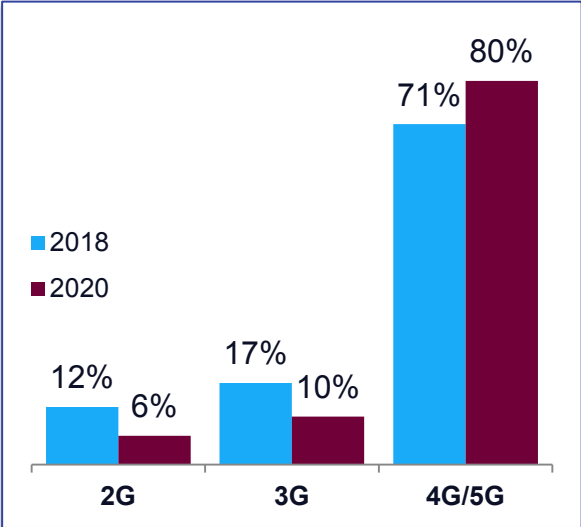


SMART ACCESS

Best quality & most cost efficient

- Replacing copper with fibre and fixed wireless solutions.
- Accelerating fibre roll-out and preparing for 5G
- Decommissioning copper network within 4 years
- Roadmap for copper decommissioning mid-2019

Modernizing fixed access



Faster spectrum refarming & tech agnostic deployment



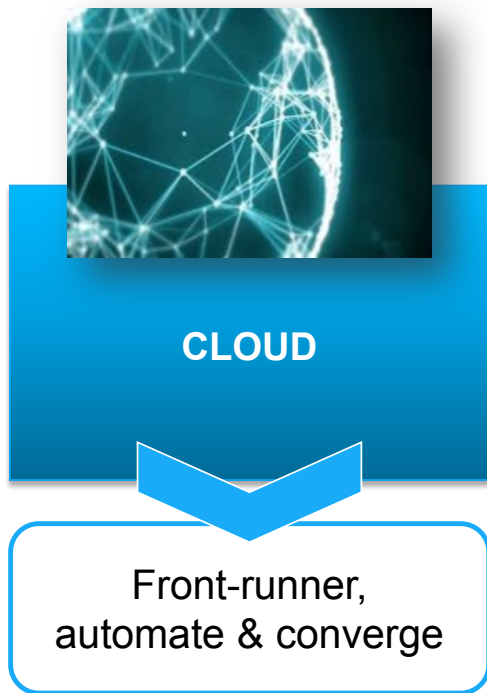
- Pilots in Norway & Denmark
- 5G-VINNI research project
- Collaboration with Telefonica
- Overall technical readiness & business models /products

5G readiness – pilots and technical solutions

Maximize spectrum assets - No legacy investment



Telenor Hybrid Cloud, among leading telcos in implementation



- ✓ **Converged** IT & Network common private cloud platform across all of Telenor
- ✓ Hybrid Cloud addresses flexible & agile use of private and public cloud components
- ✓ End-2018: **more than 58%** of mobile data traffic on cloud platform and **more than 100 mill. subscriber** data
- ✓ **Security uplift** across cloud/data center implementations
- ✓ **Vendor agnostic** platform architecture
- ✓ Telenor among **first telcos** to implement mobile core on public cloud

Key benefits identified *

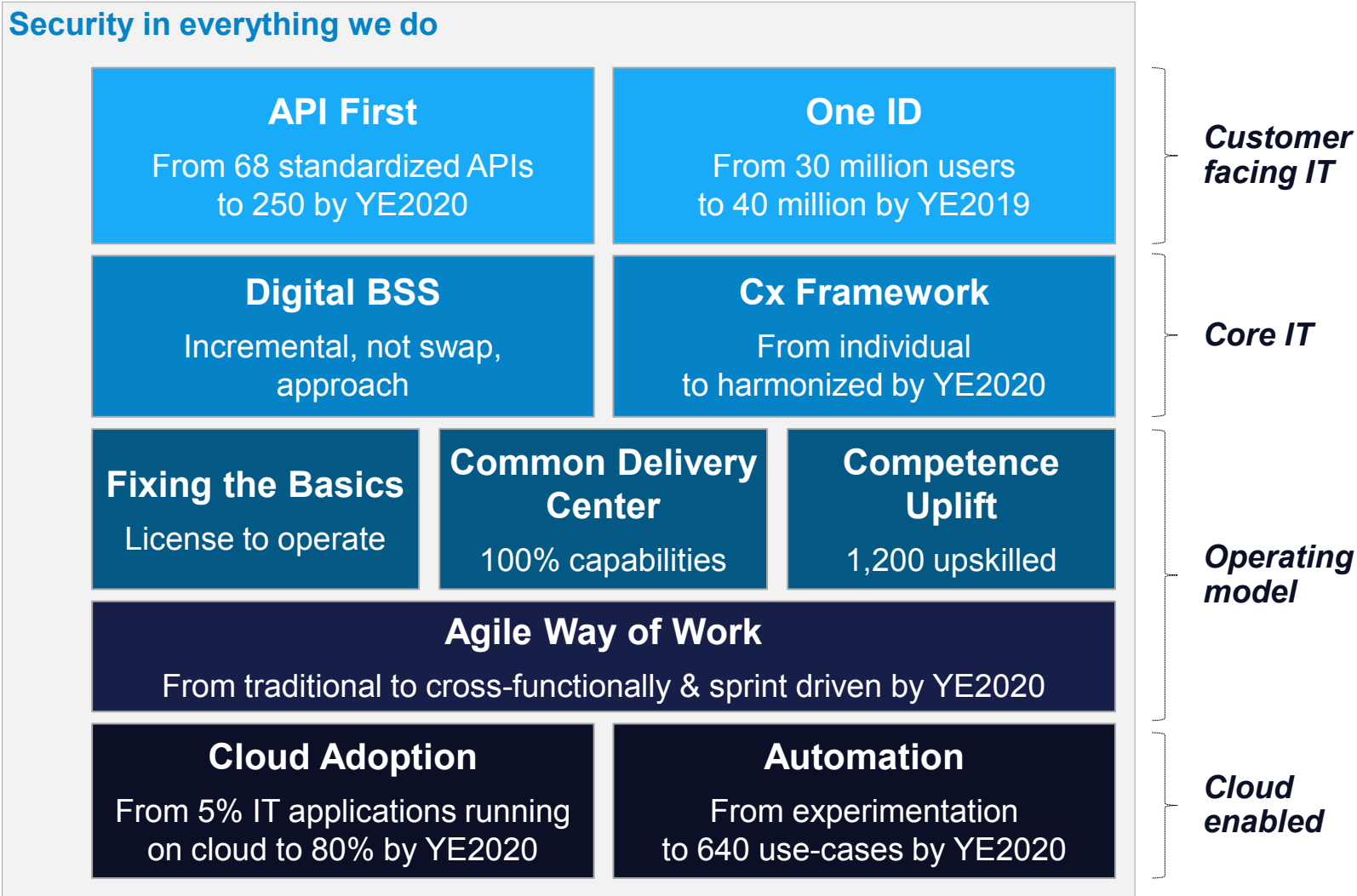
- 1 Telenor reduced network and associated operational costs by more than 40% long term
- 2 Telenor is seeing improvements in key operational areas such as time to deploy and service resilience
- 3 Telenor has created a network platform that is ready for future innovation and 5G



Simplifying and automating complete value chain to deliver efficient digital customer journeys



Security in everything we do



Increase flexibility in customer facing channels by continue **moving interactions** from physical to digital



CUSTOMER FACING IT

Faster, simpler & easy to use

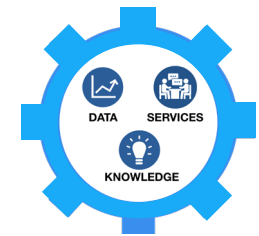
All markets on My Telenor app



Continued reduction of call center volumes



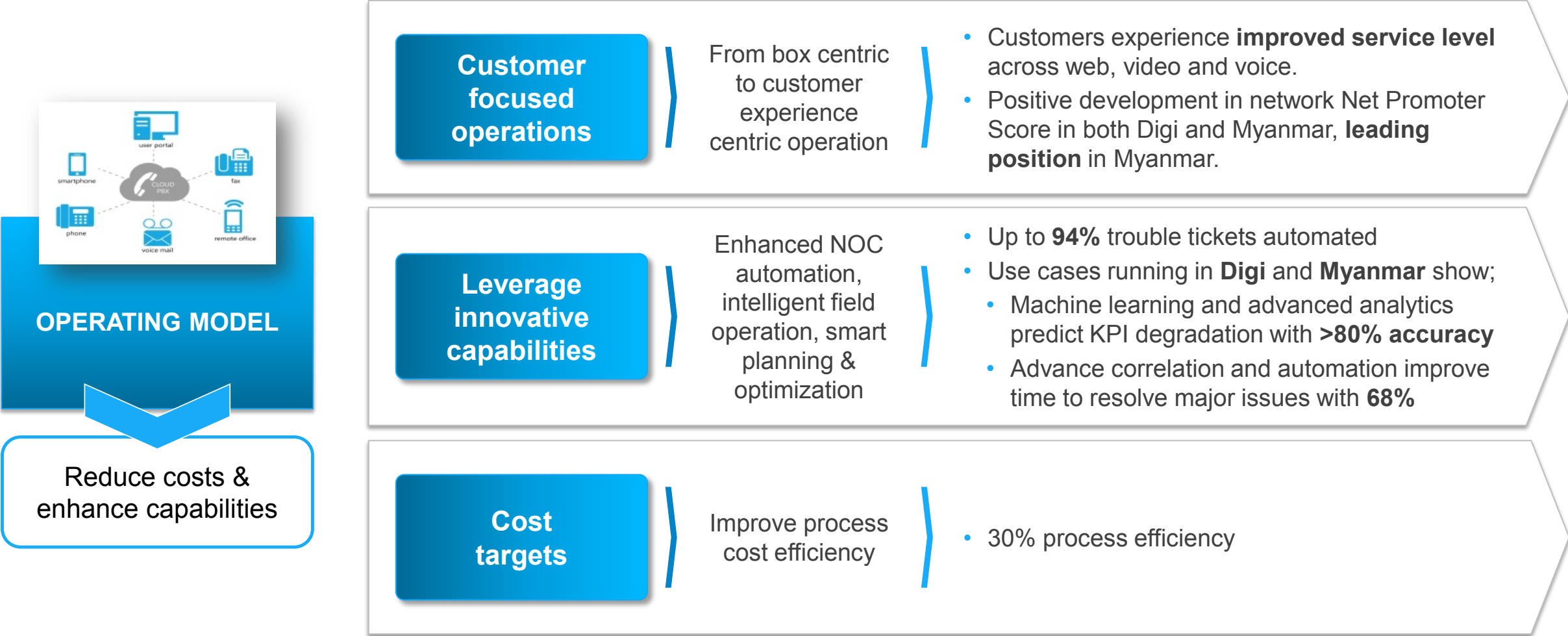
API gateway in all 8 markets



- **My Telenor** app monthly active users (MAU) increased from 10 million in 2017 to 23 million and growing
- MAU of other **digital products in Bangladesh, Pakistan & Myanmar** has increased to 24,3 millions
- **GP** sales continued to increase in 2018, **diligent tracking** of GP, TP and TML through power load
- 100% of Digi's dealers using **mobile sales app** on smartphone & tablet
- **Daily call center volumes** reduced with >20% across Telenor from 2017
- Telenor Norway realize **API monetization** through Telenor Fusion
- Telenor develops **IoT on 4G network** and make **efficient and automated IT and IoT platforms** commercially available for both our partners and our 12.6 million existing IoT subscribers, enabling revenue growth from **1,300 mNOK** in 2018



Common delivery centre evolves us from **system** focus to **customer** centric operation



Procurement is delivering significant value to Telenor

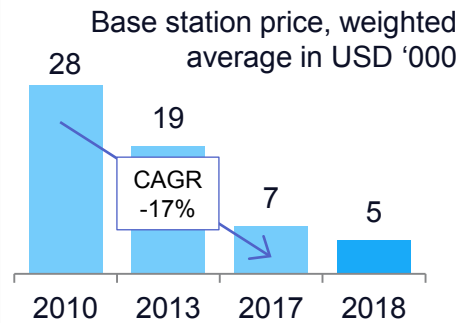


OPERATING MODEL

Reduce costs & enhance capabilities

TPC established 2017

(centralized procurement with Global Price Books)



218
Live GFAs

127
Global suppliers

Global Category Mgmt. Capability

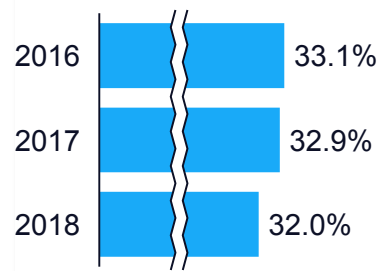


50%
Of spend managed by
TPC end 2018

75%
Ambition in 2020

Sustainable spend reduction

3rd party spend / revenue *



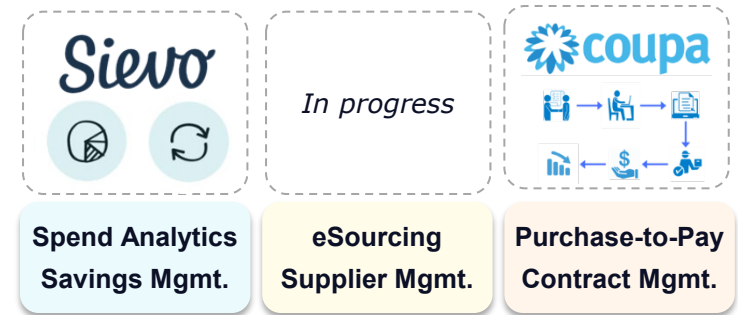
* spend excluding Device

15.2%
Capex/Sales
2018

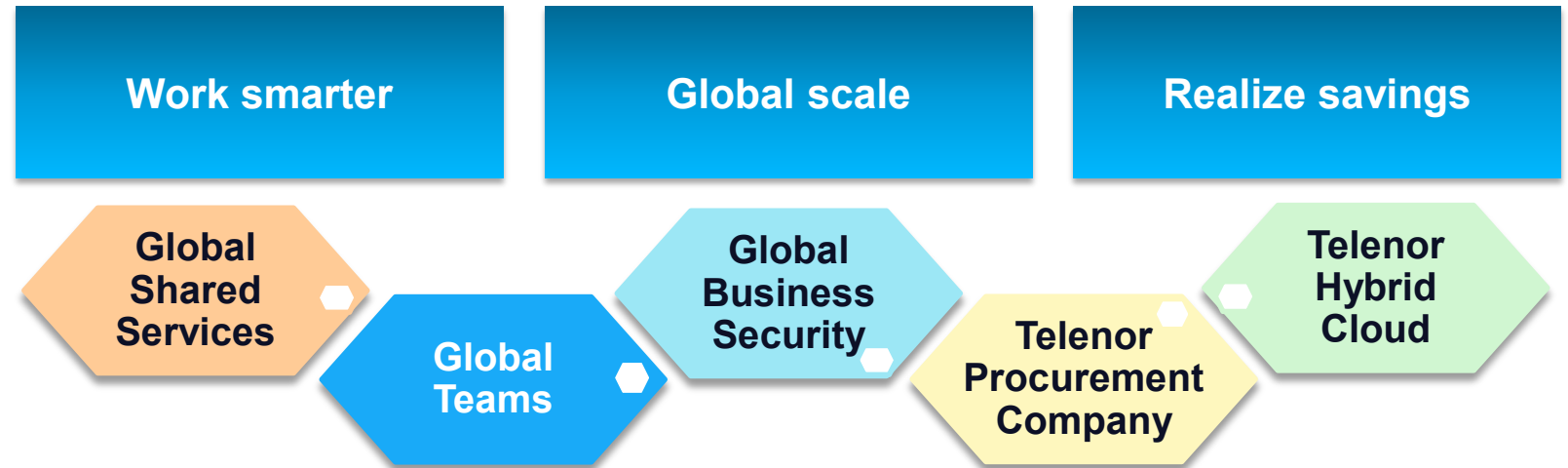
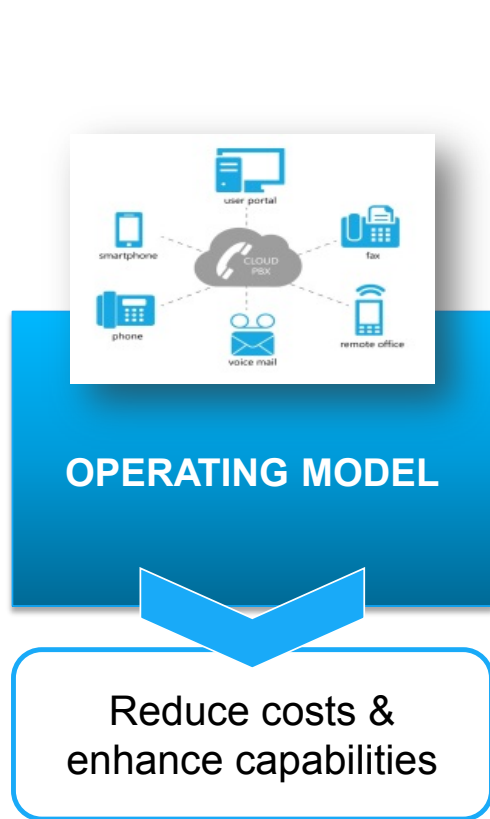
4 BNOK
Realized savings
2018

Digital Procurement

(enabling transformation)



Deliver **right capabilities** by changing our way of work focusing on customer and new technologies



- Established **18 Global Teams** consisting of BU and Group experts within technology, i.e. Global Architecture & Operations, that share best practices, manage capacity & demand realizing savings.
- Business driven **Demand Mgmt. teams** secure standard processes and business benefit realizations in domains, e.g. 2 BUs saved **12mNOK** demand across.
- **Smart investment** drive optimization & prioritization securing high return on investment.
- **Global Business Security** prevent unauthorized access to critical systems and strengthen the ability to detect and mitigate potential incidents and data theft for all BUs through global way of work.
- **Procurement is centralized** through Telenor Procurement Company including direct line of reporting from BUs' organizations, ensuring governance and delivering results.



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Modernizing Telenor



Growth



Simplification



Efficiency





Thank You