TELKOM’s Strategy and Innovation to Build Indonesia Digital Economy

The Way Forward for Digital Business Transformation
OUTLINE:

1. Digital Economy of Indonesia and Global Telco Trend /Challenges
2. TELKOM’s Transformation into a Digital Telco
3. TELKOM’s Innovation Model and New Way of Working
1. Digital Economy of Indonesia and Global Telco Trend/Challenges
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Indonesia is at an intermediate stage of digital readiness. .....

Country digital maturity

GDP (2018, USD Bn PPP)

Nascent
- Manual local engagement, low digital affordability
- Focus on mobile platforms with rapid adoption of app based services
- Seamless Omni-Channel experience with advanced personalisation
- Limited data infrastructure and connectivity concentrated in select areas
- Focus on scaling infrastructure - focus on connectivity & devices
- Advanced use of analytics, automation and skilled workforce
- Focus on infrastructure upgrades, innovation and security

Digital Readiness (2018)
- Intermediate
- Advanced

Source: GMSA: Achieving economic growth and fiscal stability in Chad, Better than cash alliance, Gartner – Verticals Forecast WW 2017Q1, Cisco – Digital Readiness Index, World Bank GDP
And Indonesia spends less on digital than its Global and Asian peers …..

Information and communications technology spending¹ (2018, USD)

<table>
<thead>
<tr>
<th>Country</th>
<th>Labor productivity (USD K)</th>
<th>As % GDP</th>
<th>Spending per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>152</td>
<td>5.8%</td>
<td>3.738</td>
</tr>
<tr>
<td>Global peers</td>
<td>76</td>
<td>4.6%</td>
<td>1.814</td>
</tr>
<tr>
<td>Asian peers</td>
<td>59</td>
<td>2.8%</td>
<td>317</td>
</tr>
<tr>
<td>Japan</td>
<td>30</td>
<td>1.9%</td>
<td>136</td>
</tr>
<tr>
<td>Malaysia</td>
<td>29</td>
<td>1.5%</td>
<td>151</td>
</tr>
<tr>
<td>Thailand</td>
<td>25</td>
<td>0.9%</td>
<td>36</td>
</tr>
<tr>
<td>China</td>
<td>19</td>
<td>2.0%</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: A.T. Kearney
But, Indonesia has a potential in digital economy …..

It is predicted that in 2025 Indonesia digital economy will achieve US$ 133 Bn and in 2030 becoming Top 10 digital economy.

**Geografis & Demografis**

- ± 271.3 Juta Populasi
- ± 17 Ribu Pulau
- 1.9Jt Km² Wilayah
- 514 Kota/Kabupaten
- 183.4jt Jiwa Usia Produktif

**Luas wilayah yang cukup luas dan tersebar, serta jumlah populasi produktif besar menyebabkan tidak meratanya pembangunan infrastruktur ICT yang dapat mendukung pengembangan ekonomi digital**

**Penetrasi Digital**

- 150 Juta Internet users
- 355.5 Juta Mobile Subscriptions
- 150 Juta Active Social Media Users
- 6th Peringkat Penetrasi Internet di ASEAN

**Relasi Penetrasi Digital dengan GDP di Indonesia dari waktu ke waktu**

**Pelaku Usaha**

- ± 58 Juta UMKM 14% Go Digital
- ± 4 Startups Unicorns
- ± 2156 Startups

**• Sebaran UMKM mayoritas berada di wilayah Pulau Jawa**

**• Jumlah unbanked people juga cukup besar, jumlah inklusi saat ini 59% dimana target pemerintah 75%**

*Source: WeAreSocial, Jan 2019; Katadata Finansial Inklusi, Sep 2019; Badan Pusat Statistik (BPS) 2018; Startup Ranking (2019); CNBC Jumlah UMKM 58 Juta; Impact of Internet Penetration for the Economic Growth of Indonesia (Imansyah, 2018)*
To meet its aspiration to be a global top 10 economy by 2030, Indonesia will need to significantly increase its competitiveness....

Factors contributing to Indonesia’s GDP growth (Index: 2000 = 1)

- **GDP in 2000**: 1.0
- **Consumer Spending**: 6.1 (57% increase in competitiveness in the global market)
- **Government Expenditures**: 1.0
- **Investment**: 3.7 (35% increase in competitiveness in the global market)
- **Net Export**: -0.1 (-1% increase in competitiveness in the global market)

**Global GDP Ranking** (Nominal)

1. **US**
2. **China**
3. **Japan**
4. **Germany**
5. **Indonesia in 2030** (10th)
6. **Indonesia in 2018** (16th)

1. Based on nominal GDP value in USD
Source: World Bank, A.T. Kearney
Currently, Indonesia faces multiple challenges to compete in the global market

### Key Challenges of Indonesia’s Economy

#### Productivity / Cost Comparison

![Graph showing productivity and cost comparison](image)

- **Productivity**
  - Indonesia (2006-18): +46%
  - US: +58%

- **Cost**
  - Indonesia (2006-18): -10%
  - US: +10%

#### Countries by STEM Graduates

<table>
<thead>
<tr>
<th>Country</th>
<th>Graduates (Mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>4.70</td>
</tr>
<tr>
<td>India</td>
<td>2.60</td>
</tr>
<tr>
<td>US</td>
<td>0.57</td>
</tr>
<tr>
<td>Russia</td>
<td>0.56</td>
</tr>
<tr>
<td>Iran</td>
<td>0.34</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.21</td>
</tr>
</tbody>
</table>

#### ICT Spending

- **Spending as % GDP**
  - Indonesia: 3.738
  - China: 5.8%

- **Spending per capita**
  - Indonesia: 36
  - China: 1.814

### Note:

1. Data on number of annual graduates in Science technology and mathematics in 2016
Digitalization is the key to strengthen the nation

### Digitalization Potential – Indonesia’s Industry Challenges

<table>
<thead>
<tr>
<th>Sector</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>• Market access for &gt;40M farmers via ecommerce&lt;br&gt;• Yield improvement by IOT/AI</td>
</tr>
<tr>
<td>Logistics</td>
<td>Digital logistics / SCM to reduce x2 high logistics cost than Thailand</td>
</tr>
<tr>
<td>Transportation</td>
<td>Traffic control system to solve the notorious traffic issues</td>
</tr>
<tr>
<td>Healthcare</td>
<td>National medical record system to improve quality of medical service for all Indonesians</td>
</tr>
<tr>
<td>Finance</td>
<td>Financial services for 180M ‘Unbanked’ population</td>
</tr>
<tr>
<td>Government</td>
<td>e-government for more efficient services</td>
</tr>
<tr>
<td>Services</td>
<td>Crowdsourcing to create job opportunities for young generations</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Productivity improvement by digital to revive manufacturing sector in Indonesia</td>
</tr>
<tr>
<td>Construction</td>
<td>Productivity &amp; safety improvement by digital tech for infrastructure development</td>
</tr>
<tr>
<td>Media</td>
<td>Digital contents for better QOL (quality of life) for everyone</td>
</tr>
<tr>
<td>Retail</td>
<td>Market place to create new business for MSME to solve inequality issues</td>
</tr>
<tr>
<td>Education</td>
<td>High quality education access via internet to all the Indonesians</td>
</tr>
</tbody>
</table>

### Workers

- More Job Opportunities
- Better Efficiencies (Productivity)
- Better Services (Quality)
- Better Accessibilities to Service

### Digital Technologies

- AI / Big Data
- Cloud Computing
- IOT / M2M
- Blockchain
- Advanced Robotics
- Wearable
- Digital Connectivity (4/5G, FTTx, NFV/SDN, Satellite)

### Consumers

1. Micro and small-to-medium enterprises
Global Trend: Telco revenues have been growing slowly globally...

Overall, global telco market only grew by 0.3% since 2013...

...with mixed growth across regions – Europe and LATAM declining, while North America and Japan & Korea growing.

1. China incl. Hong Kong; 2. Rest of Asia (excl. China & HK, Japan, Korea and SE Asia), Australia and Oceania
Source: Capital IQ, Ovum, A.T. Kearney
Global Market:
Overall profitability margins are on the decline, except in North America

EBITDA Margin of Global Top 136 Telcos (%; 2013-18)

<table>
<thead>
<tr>
<th>Region</th>
<th>2013</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>32%</td>
<td>31%</td>
</tr>
<tr>
<td>Europe</td>
<td>31%</td>
<td>30%</td>
</tr>
<tr>
<td>China¹</td>
<td>31%</td>
<td>30%</td>
</tr>
<tr>
<td>Japan &amp; Korea</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>North America</td>
<td>34%</td>
<td>35%</td>
</tr>
<tr>
<td>Africa and Middle East</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>South East Asia</td>
<td>38%</td>
<td>36%</td>
</tr>
<tr>
<td>Rest of Asia Pacific²</td>
<td>32%</td>
<td>29%</td>
</tr>
<tr>
<td>LATAM</td>
<td>31%</td>
<td>28%</td>
</tr>
</tbody>
</table>

1. China incl. Hong Kong; 2. Rest of Asia (excl. China & HK, Japan, Korea and SE Asia), Australia and Oceania

Source: Capital IQ, Ovum, A.T. Kearney

Globally, overall profitability has declined…

… with exception of North America (other regions are seeing decline in profitability)
Global Market: Telco industry borders are disappearing – Telcos are facing competition against tech giants in digital businesses

### Telecoms / Digital Industry Dynamics

**Legacy**
- Voice / SMS

**Broadband**
- ADSL / Fiber
- 3G / 4G

**Digital Services**
- Media
- Digital Contents
- Other Digital Services
- Cloud

**OTT & ICT**
- Google
- Amazon
- Netflix
- Facebook
- Microsoft
- Alibaba
- Tencent

**Top 10 Telcos**

1. AT&T
2. Verizon
3. China Mobile
4. SoftBank
5. Sprint
6. Telekom Indonesia
7. Telstra
8. Singtel
9. Rogers
10. NTT

**FAMGA/BAT**

- Google
- Apple
- Facebook
- Amazon

**Telco-related Innovation**
- Google: Launched Google Fi
- Apple: Released Apple Sim
- Facebook: Initiated Telecom Infra Project
- Amazon: Developing Project Kuiper

**R&D spending**

- **Top 10 Telcos**
  - 2000: 4
  - 2018: 3
  - Decrease: 22%

- **FAMGA/BAT**
  - 2000: 4
  - 2018: 58
  - Increase: 14x

1. Top 10 telcos based on revenue size, 2. Not all telco and FAMGA / BAT R&D figures were disclosed – telco only represents China Telecom, Deutsche Telekom, NTT, and Telefonica, while FAMGA / BAT only represents Amazon, Apple, and Microsoft, 3. FAMGA / BAT = Facebook, Apple, Microsoft, Google, Amazon, Baidu, Alibaba, and Tencent

Source: Capital IQ, A.T. Kearney
In Digital Business companies are required to act and respond faster than they ever have before…

<table>
<thead>
<tr>
<th>What is the biggest difference between working in a digital environment vs. a traditional one?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pace of business:</strong></td>
</tr>
<tr>
<td>Speed, rate of change</td>
</tr>
<tr>
<td><strong>Culture and mindset:</strong></td>
</tr>
<tr>
<td>Creativity, learning, risk-taking, collaboration</td>
</tr>
<tr>
<td><strong>Flexible, distributed workplace:</strong></td>
</tr>
<tr>
<td>Collaboration, decision-making, transparency</td>
</tr>
<tr>
<td><strong>Productivity:</strong></td>
</tr>
<tr>
<td>Streamlined processes, continuous improvement</td>
</tr>
<tr>
<td><strong>Improved access to use of tools:</strong></td>
</tr>
<tr>
<td>Greater data availability, technology performance</td>
</tr>
<tr>
<td><strong>Connectivity:</strong></td>
</tr>
<tr>
<td>Remote working, always on</td>
</tr>
<tr>
<td><strong>Other / no difference</strong></td>
</tr>
</tbody>
</table>

Source: MIT Sloan Management Review & Deloitte Insights’ “Coming of Age Digitally”
THE NEW GRAND CHALLENGE IN DIGITAL ERA:
Innovation in Digital continues to accelerate ...

- **Perfect quality** at nearly zero cost,
- Delivered almost instantaneously
- In the age of big data, we can measure the world in ways we never could before

- Computers **get better faster** than anything else ever
- A child’s “Play station” today is more powerful than a military “Super” computer 1996
- Exponential trends take us by surprise

- The **stagnation view** is that ideas get used up
- the reality is that each innovation creates building blocks for even more innovations
- Built Innovation (apps) on top off...

The self-driving car is a current example of a whole lot of different technologies—
digital mapping, GPS, machine learning, developments in laser and infrared sensor technology—coming together to create something truly innovative.
1. Digital Economy of Indonesia and Global Telco Trend/Challenges

2. TELKOM’s Transformation into a Digital Telco

3. TELKOM’s Innovation Model and New Way of Working
Telkom Group has redefined its purpose, vision and mission to contribute to the national aspirations in their digital transformation.

Telkom’s New Purpose, Vision and Missions

**Purpose**
Mewujudkan bangsa yang lebih sejahtera dan berdaya saing serta memberikan nilai tambah yang terbaik bagi para pemangku kepentingan

**Vision**
Menjadi digital telco pilihan utama untuk memajukan masyarakat

**Mission 1**
Mempercepat pembangunan infrastruktur dan platform digital cerdas yang berkelanjutan, ekonomis, dan dapat diakses oleh seluruh masyarakat

**Mission 2**
Mengembangkan talenta digital unggulan yang membantu mendorong kemampuan digital dan tingkat adopsi digital bangsa

**Mission 3**
Mengorkestrasi ekosistem digital untuk memberikan pengalaman digital pelanggan terbaik
To transform into a Digital Telco, TELKOM has 3 Main Initiatives
Digitization, Digitalization and New Ways of Working

1. DIGITIZATION Transforming into a digitised enterprise
   - Digitize operations (e.g. process automation)
   - Transform back-end functions
   - Digital Touch Point Customer Interface

2. DIGITALIZATION : Building a digital business
   - DIGITAL CONNECTIVITY
     - Provide Data Connection
     - Connectivity related:
       - Oligopoly (short-tail) - regulated
       - Stable cashflow
       - High capex
       - Monetize from end-users
       - Digital platform will be built on top
   - DIGITAL PLATFORM
     - Provide Platform to Enable Businesses on Top
     - Mid-tail - limited winners
     - Stable cashflow, once user base established
     - Mid-low capex
     - Monetization may not come from end-users
     - Digital services will evolve on top
   - DIGITAL SERVICES
     - Services on Digital Platform or Independent Services
     - Long tail - limited winners
     - Volatile cashflow
     - Low capex (but high marketing cost)
     - Monetize from end-users
     - Scaled digital service can become platform

3. New Ways of Working
   - People
     - Building Talent and Leadership for Digital Future
   - Culture
     - Building Digital and Innovation Culture
   - Organization
     - Creating Agile/Flexible Organization

Digital Transformation for TELKOM Indonesia

- Improve FCF
  - Increase efficiency:
  - Modernize network & IT
  - Increase EV (CX Impact)

- Improve ROI
  - Protect value share on connectivity services
  - Capture new revenue streams
**TELKOM’s PORTFOLIO/BUSINESS DOMAIN DIRECTION**

Telkom Group will focus on leveraging its core strengths in Connectivity to expand into Digital Platforms and select Digital Services.

<table>
<thead>
<tr>
<th>Definition:</th>
<th>DIGITAL CONNECTIVITY</th>
<th>DIGITAL PLATFORM</th>
<th>DIGITAL SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provide Data Connection</strong></td>
<td><strong>Provide Platform to Enable Businesses on Top</strong></td>
<td><strong>Services on Digital Platform or Independent Services</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Business / Technology Examples:</strong></td>
<td><strong>Connectivity related</strong></td>
<td><strong>Enterprise Digital Services</strong></td>
<td><strong>Consumer Digital Services</strong></td>
</tr>
<tr>
<td><strong>Business Nature:</strong></td>
<td>Oligopoly (short-tail) – regulated</td>
<td>Mid-tail – limited winners</td>
<td>Long tail – limited winners</td>
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<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telco's Core Competency Level:</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale: Connectivity continues to be cash cow for Telkom</td>
<td></td>
<td>Digital platform business is natural extension for telcos</td>
</tr>
<tr>
<td>Very different business nature from connectivity business</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rationale:**

Connectivity continues to be cash cow for Telkom

Digital platform business is natural extension for telcos

Very different business nature from connectivity business
“Indonesian Maju” Vision lays out 4 priorities for 2019-24 – where national digital platforms can help support

Indonesia Maju 2019-24

1. Human resource quality upgrade
   preparing brighter future for next-generation of Indonesians

2. Nationwide infrastructure development
   accelerating infrastructure development for economic progress

3. Economy transformation
   increasing Indonesia’s economic competitiveness

4. Government and bureaucracy reform
   increasing efficiency of government and reduce red tape

Not exhaustive

Advancing Indonesia Vision

4 Priorities

Human resource quality upgrade
Nationwide infrastructure development
Economy transformation
Government and bureaucracy reform

Ease of Living

Technology enablers

Storage (Data Center)
Dedicated storage of Big data sets
Servers allow for private databases to manage and automate access

Cloud Computing
Reduction of IT cost for small agencies through virtualization
Seamless data-sharing to increase collaboration across gvt. functions

Blockchain
Integrity for eGov Single Window
Enabling use of National ID for multi-purpose verification

Big Data / AI
RPA of administrative tasks increasing operational efficiency of civil servants

Development journey

Source: President Jokowi’s Inauguration Speech (October 20, 2019), A.T. Kearney
Telkom will aim to build national digital platforms by capturing digitization needs primarily for 5 key verticals

“Digital Platform play” for Telkom

Why digitize nation?

Labor productivity has not improved in the past decade – limited digitization (lowest ICT spend in ASEAN)

Telkom needs to lead the national digitization beyond connectivity and storage business
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TRANSIENT ADVANTAGE: Strategy in Uncertain Environment

In Digital Era, “Sustainable Competitive Growth” Strategy is not relevant anymore ……

... It has to be accompanied by continuous which is known as Transient Competitive Growth (Rita G McGrath, HBR 2013)

In digital, a company has to maximize short term opportunity (need speed and agility)

Innovation has to be a continue process so that second wave growth will be ready before the existing products declining, avoiding to loose competitive advantage

Transient advantage requires innovative people/talent to continue making revolution of the business (competitive advantage – Innovation – Organization change)
For digital innovation, we need to learn from small companies

Large firms, TELKOM, need to start “thinking small” to get out from legacy inertia

Innovation belongs to the small and nimble, right? That’s what GE, IBM, Coke, and others think. They’re launching “startups” inside their walls, seeking the elixir of creativity.
DIGITAL WAYS OF WORKING: TRIBES, SQUADS AND CHAPTER

Agile Management is the best approach due to rapidly changing environment. Tribes, Squads, and Chapters are part of agile management of the future workplace.

- Designing, development, testing, etc. are completed once in the Waterfall Model
- Definite requirements and changes not at all expected
- Team coordination/synchronization is very limited.

**WATERFALL**

**AGILE**

- Agile methodology: an iterative development approach
- The requirements are expected to change and evolve
- Small dedicated teams with a high degree of coordination and synchronization

**Tribe**
- Collection of squads within business area

**Squad**
- An independent group which the members are build from different chapter. Primary Home

**Chapter**
- A group or team members with the same capability. Secondary Home.

"Incubators for the mini startups"  “Basically a mini startup”  People who do similar work (design, testing)
TELKOM’S Digital Innovation Framework…

Innovation Led that is supported by passion based innovation from both internal and external founders/startups.

from Talent

- CSS/Digital Strategy
- Culture activation
- Talent mobility
- Community of practice

from internal

- structure & expertise based
- passion-based

Local and global Startup discovery

from external

-innovator
- start-up

empowered by technologies

ideation | incubation & acceleration | value generation

Tribes/Squads

Chapter

CFU

FU/CFU

AMOEBA

Yield

Eiciencies & Effectiveness

Gain

indigo creative nation

TDN

DI LO

MDI
“Digital Platform/Enabler & Digital Ecosystem Factory” are developed based on our new “Digital Ways of Working” (Tribes/Squads and Chapter)

**DIGITAL ECOSYSTEM FACTORY**

**Consumer Digital**
- (10 Tribes)
  1. TV/Video
  2. Music
  3. Gaming
  4. Travel
  5. eCommerce
  6. Digital Ads
  7. Digital Fin. Services
  8. Communication

**Industry/Vertical Ecosystem**
- (10 Tribes)
  1. DC & Cloud
  2. Big Data
  3. IoT
  4. UC&C
  5. Cyber Security

**Digital Platform/Enabler**
- National Digital Platform
  1. DC & Cloud
  2. Big Data
  3. IoT
  4. UC&C
  5. Cyber Security

**DEVELOPER**
**DESIGNER**
**DATA SCIENTIST**
**SERVICE ASSURANCE**
**AMOeba**
**INDIGO**
**SOFTWARE ARCHITECT**
**GROWTH HACKING**
**RESEARCH**
THANK YOU