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TO PROTECT AND ENHANCE ORGANIZATION VALUE IN DISRUPTING TECHNOLOGY ERA

Dr.-Ing Budi Ibrahim
IIA Indonesia

Professional Auditor Forum (PAF)

Jakarta, Desember 2017

SATUAN KERJA KHUSUS
PELAKSANA KEGIATAN USAHA
HULU MINYAK DAN GAS BUMI

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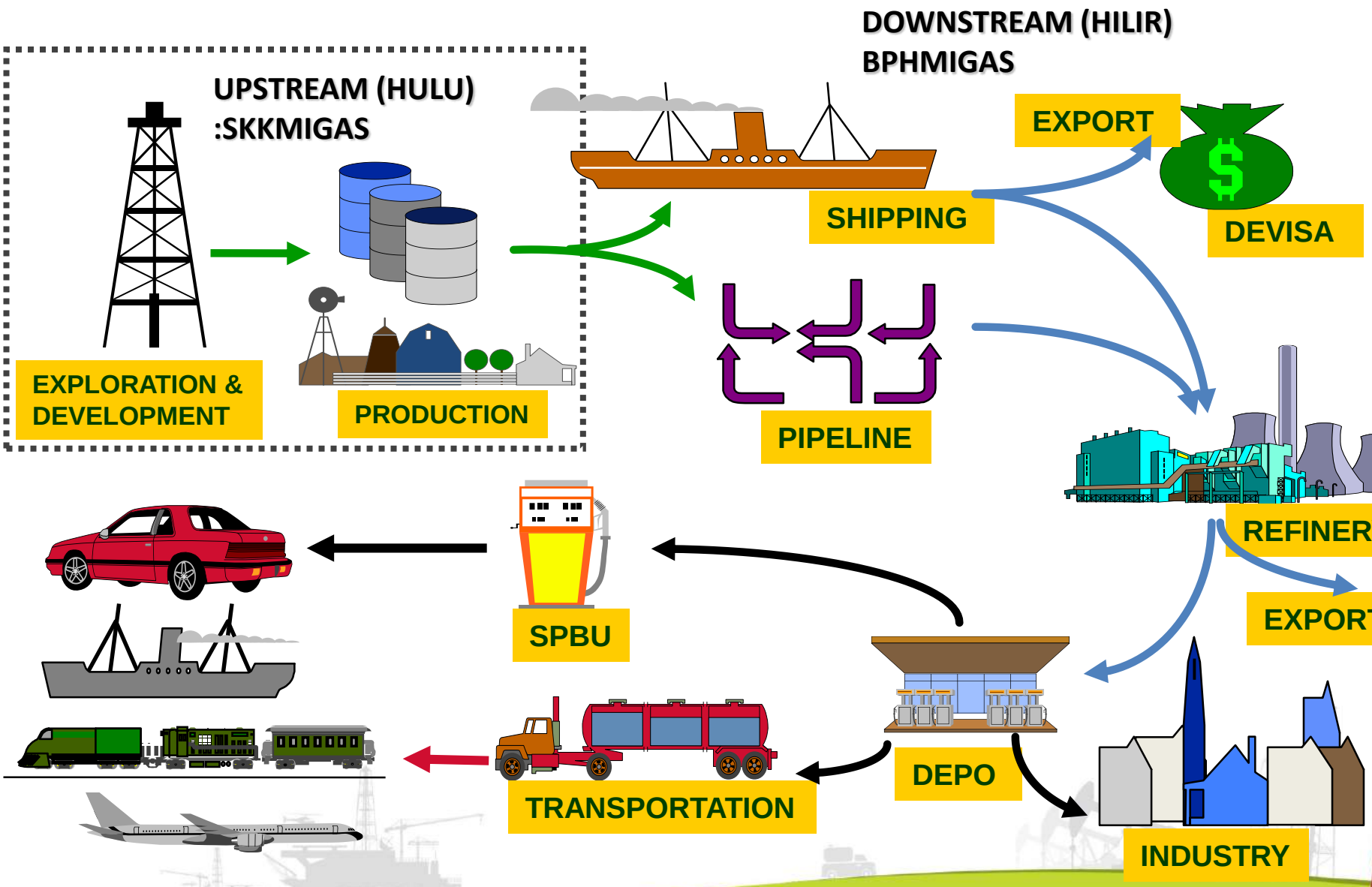
UPSTREAM OIL&GAS

WORLD CHANGE FAST

TECHNOLOGY TREND

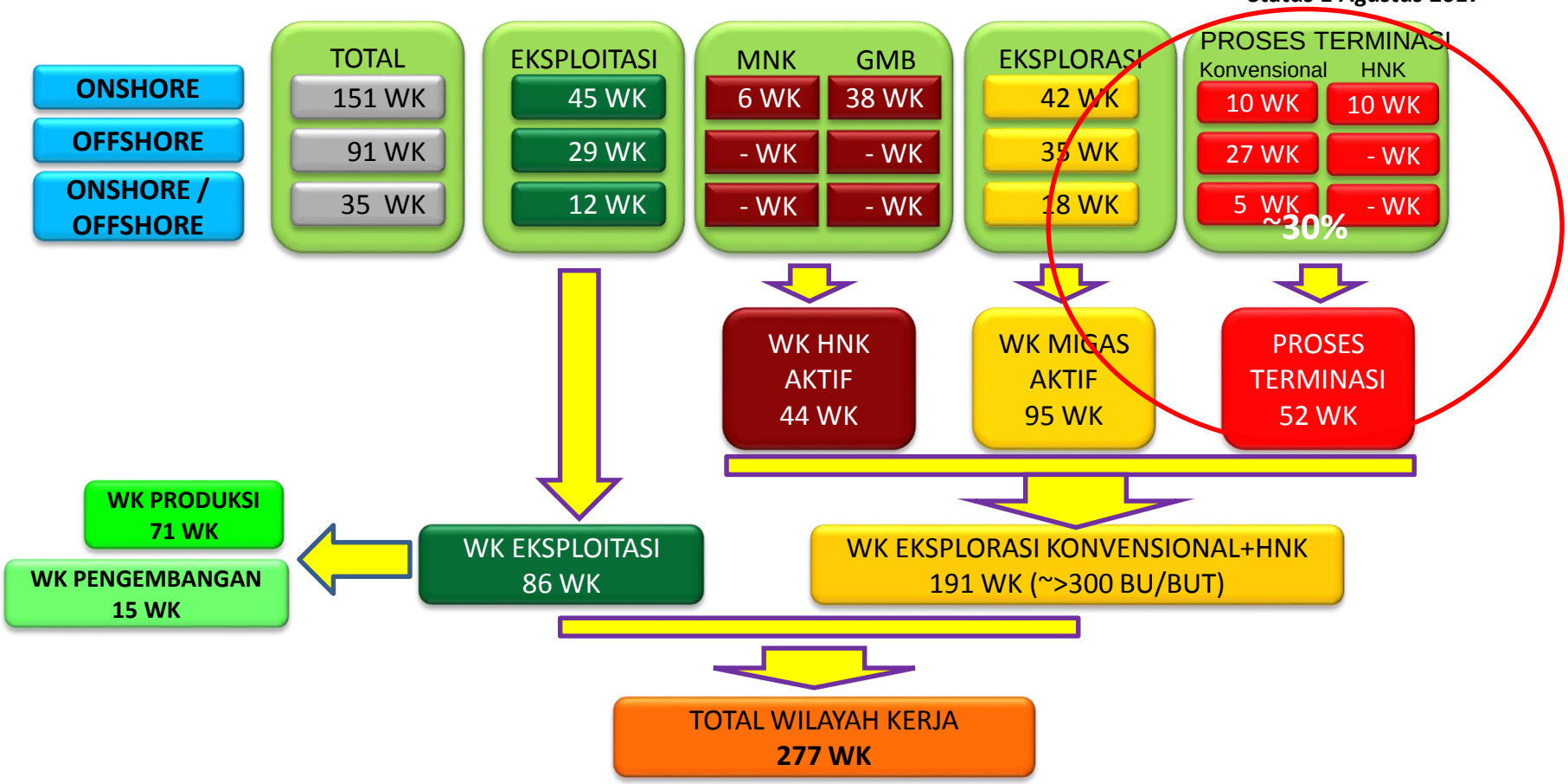
SHAPING YOUR FUTURE

OIL & GAS INDUSTRY



Jumlah Wilayah Kerja Migas
Konvensional & Non Konvensional

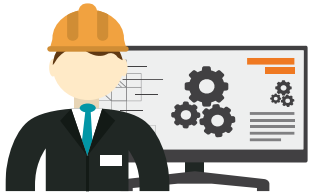
Status 1 Agustus 2017



Keterangan 1 Januari 2017 - Sekarang:

1. 3 WK disetujui terminasinya: East Sepanjang, Cakalang dan Terumbu
2. 21 WK Eksplorasi yang menjadi Proses Terminasi:
   * 13 WK Konvensional : Bukat, Batu Gajah, Puri, Kutai, North Kangean, Ujung Kulon, Gurita, Cendrawasih, Air Komering, Bukit Batu, Seinangka Senipah, East Sokang, Kuningan,
   * 8 WK Non Konvensional : GMB Barito Banjar I, GMB Barito Banjar II, GMB Muara Enim III, GMB Kutai Timur, GMB Kutai Barat, GMB Melak Mendung III, GME Suban I, dan GMB Suban II
3. 1 WK Eksplorasi menjadi WK Eksploitasi: Pasir

KARAKTERISTIK INDUSTRI HULU MIGAS



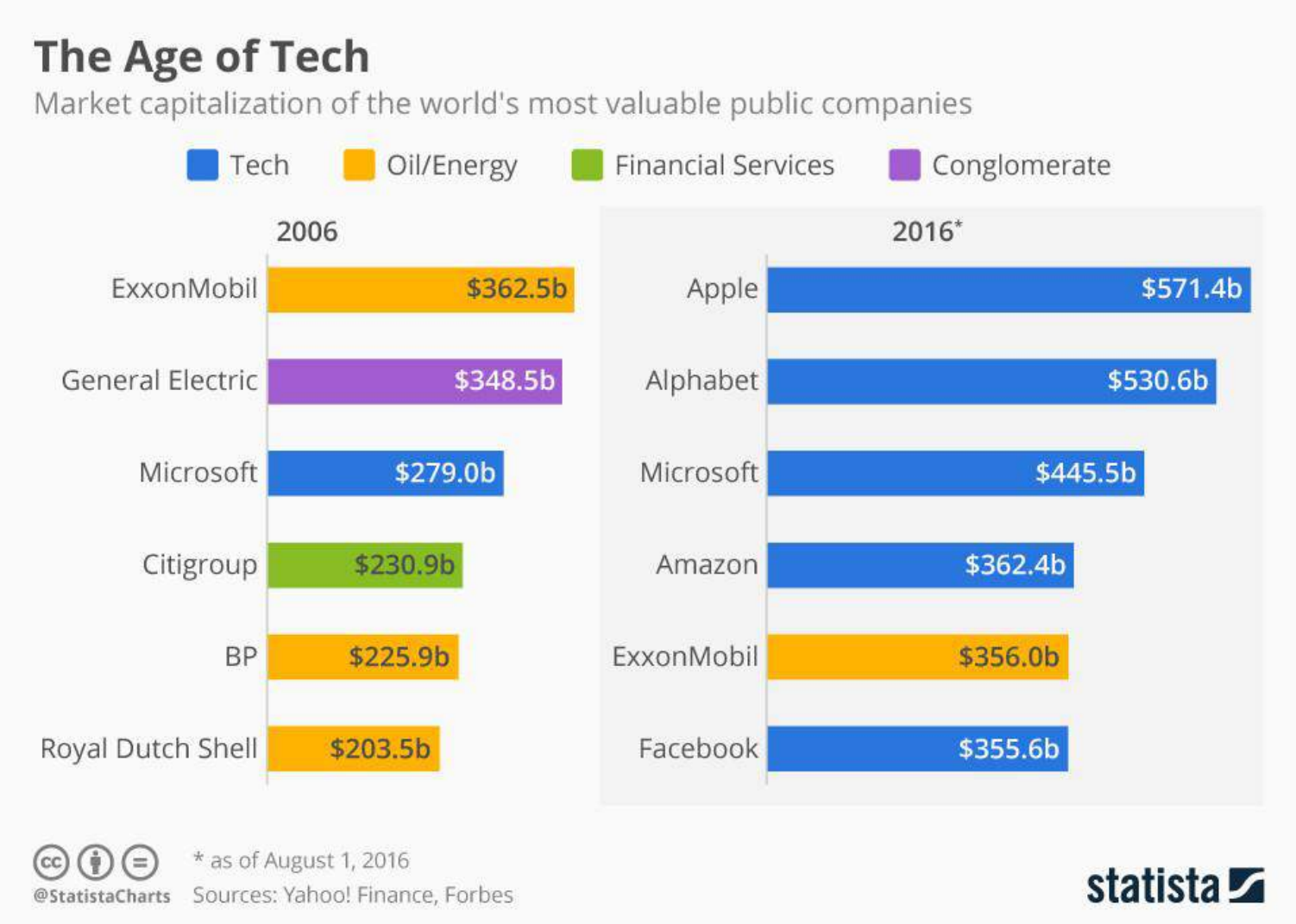
Teknologi canggih

Modal Besar

Risiko Tinggi

Profesionalisme Tinggi

The Age of Technology



O&G Industry-Digitalization

- O&G Industry-Digitalization could unlock up to $2.5 trillion of industry and societal value. Societal benefits include reduced missions and $170 billion in cost savings for customers. (Source: World Economic Forum)

Oil and gas: value at stake for industry and wider society (by digital theme)

	Potential Business Impact ($ billion)	Potential Societal Impact ($ billion)	Total Value at Stake ($ billion)	Emission Reduction (million tonnes CO_2e)	Net Impact on Jobs (1000s)
Digital Asset Life Cycle Management	745	110	855	370	(114)
Circular Collaborative Ecosystem	30	0.5	31	2	-
Beyond the Barrel	100	27	126	12	21
Energizing New Energies	70	500	570	900	35
Cumulative Total	945	637	1582	1284	(57)

O&G Industry-Digitalization

Industry profiles: Oil and gas

Key survey insights

Expert insights

Oil and gas companies in the GCC have in general neglected the digitalization imperative, instead focusing their attention on growing production. As a result, they have fallen behind other industries in the region, as well as rival energy companies elsewhere in the world.

There have been exceptions, however. One example of a digitalization initiative is by RasGas, a supplier of liquefied natural gas (LNG), based in Qatar. RasGas has started the "effective integration" of big data and advanced analytics in the cloud, in the belief that this will support process optimization across its operations.

In general, certain factors have hindered progress. IT teams within the industry are often weak. Investment in innovative technologies has been inhibited by the fact that oil companies maintain critical and highly confidential data of national security importance.

Regional oil and gas companies are now focusing on cutting costs. This development could either increase, or detract from, digitalization initiatives. On the one hand, companies could use such initiatives to bolster efficiencies. However, it could also lead to underinvestment in critical IT infrastructure.


Expert insights

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https://www.strategyand.pwc.com/reports/preparing-digital-era

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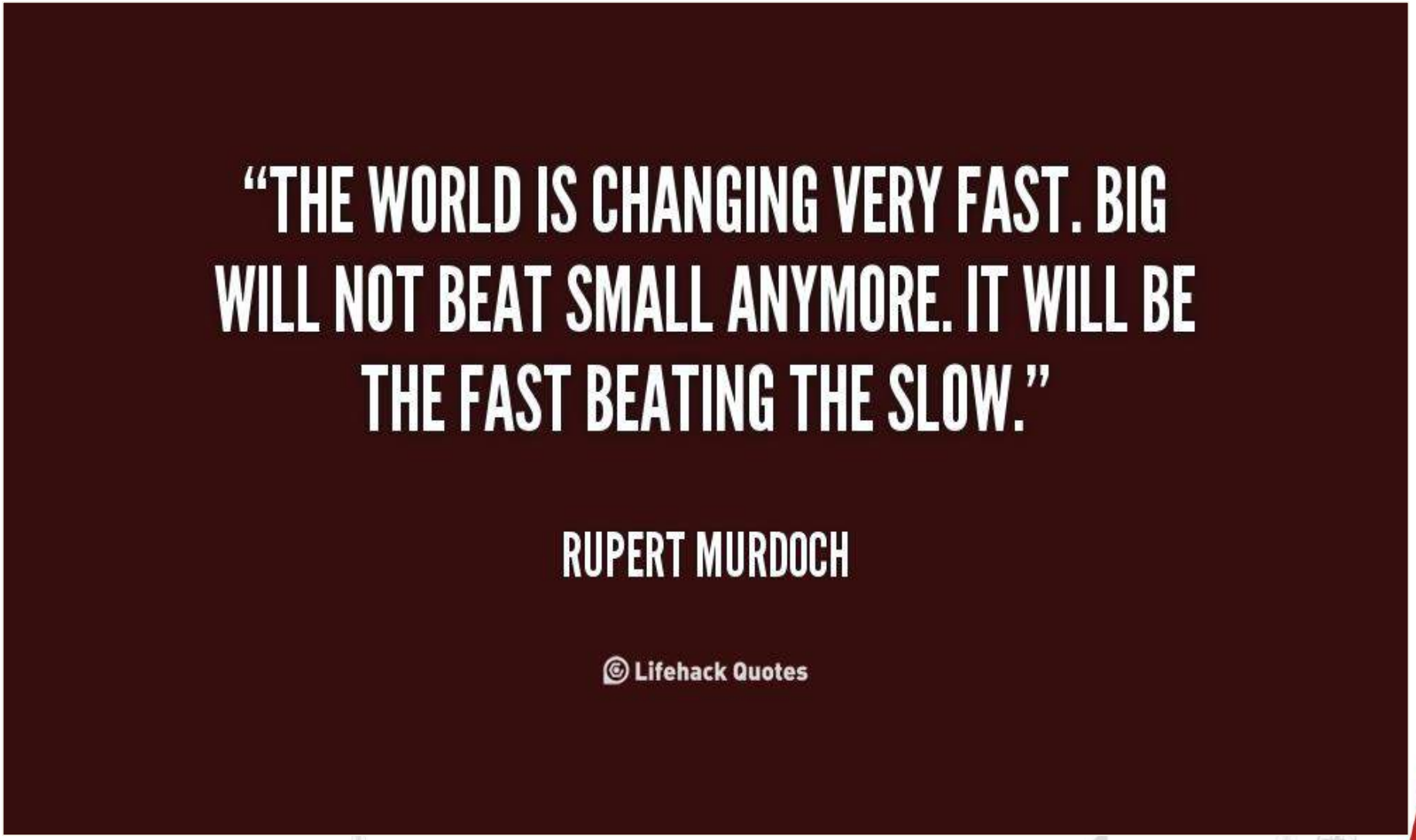
WORLD CHANGE FAST

TECHNOLOGY TREND

SHAPING YOUR FUTURE


"THE WORLD IS CHANGING VERY FAST. BIG WILL NOT BEAT SMALL ANYMORE. IT WILL BE THE FAST BEATING THE SLOW."
RUPERT MURDOCH
© Lifehack Quotes

WORLD CHANGES FAST

AND GETTING MORE COMPLEX EACH SECOND

TIME
FASTER TIME TO MARKET

TECHNOLOGY
INNOVATION SPEED VS LEARNING SPEED
DRIVING FORCE AT DIGITAL AGE (4.0)

RESEARCH
CUSTOMER REQUIREMENTS VS TECHNOLOGY PUSH

PRODUCTS
SHORTER LIFE CIRCLE, INCREASING DEMAND ON NEW PRODUCTS

INFORMATION
FLOOD/FAKE/HOAXES
MASTERING OR "GOOGLE"

LEARNING PROCESS
EXPEDITING &/OR SHARING

LEADERS CHALLENGES

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2018 Technology Trends

Gartner Top 10 Strategic Technology Trends 2018

9 Mega Technology Trends © Bernard Marr, 2018

1. The increasing datafication of our lives
2. The Internet of Things (IoT)
3. Exponential growth in computing power
4. The incredible rise of artificial intelligence (AI)
5. The unstoppable freight train that is automation
6. 3D Printing and Cloud Manufacturing
7. New Interaction with technology
8. Blockchains
9. Digital Platforms

WHAT'S NEXT?

IMPACT ON SOCIAL INTERACTIONS AND BEHAVIOUR

SCAM

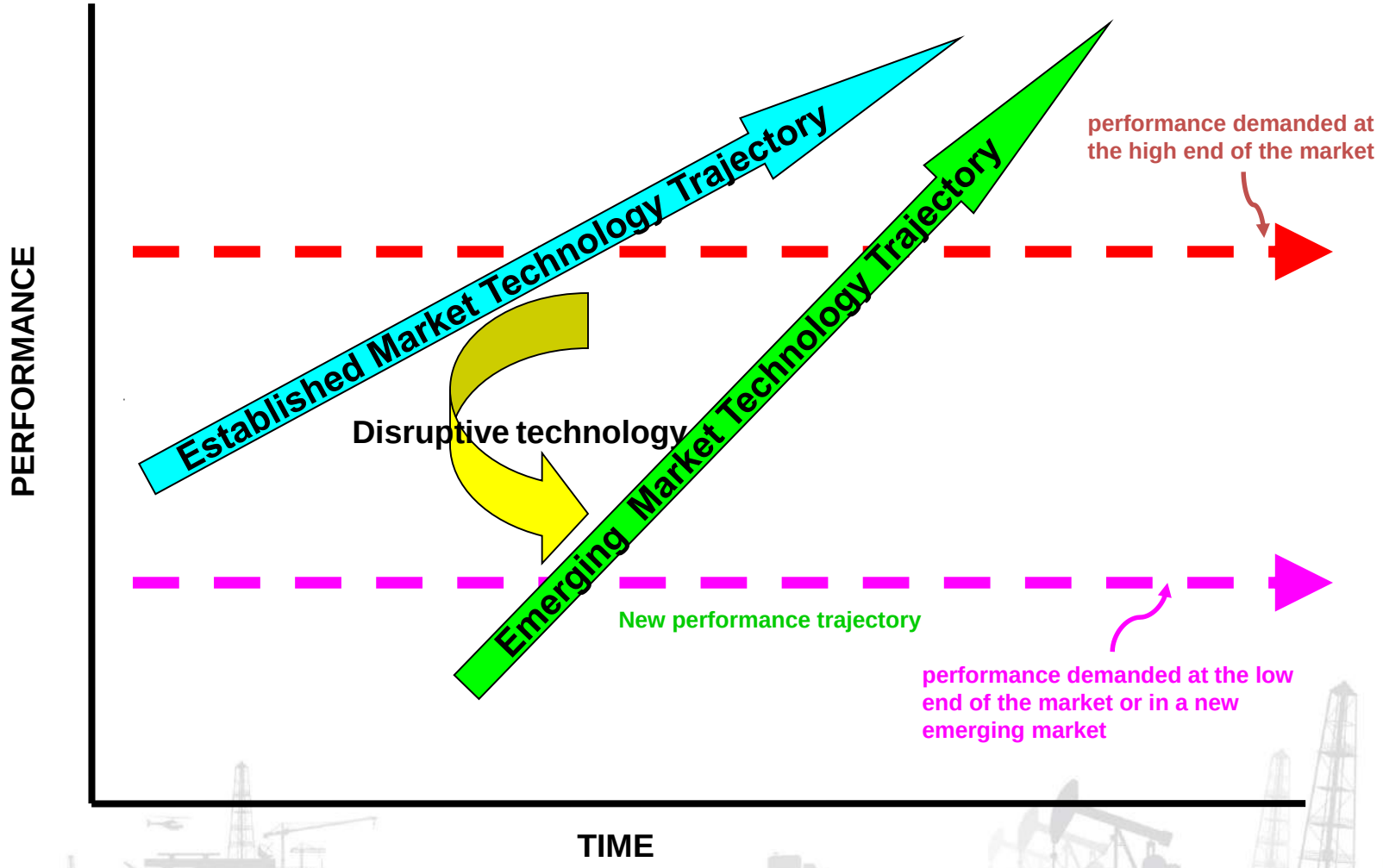
CYBER BULLY

CYBER CRIME

HOAX NEWS

VIRUSES

Disruptive Technology

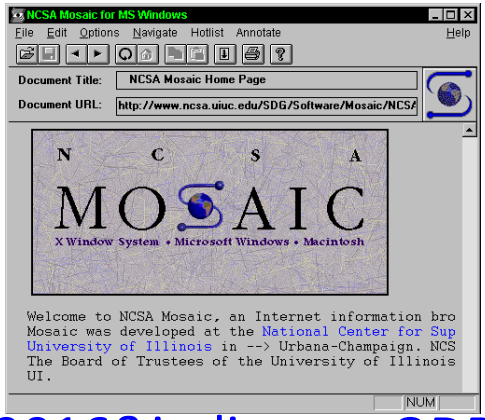


The Internet

- History of Internet

ARPANET adopted TCP/IP on January 1, 1983, and from there researchers began to assemble the "network of networks" that became the modern Internet. The online world then took on a more recognizable form in 1990, when computer scientist Tim Berners-Lee invented the World Wide Web.

  - E-Mail
  - FTP, Ghoper, WWW
  - …..

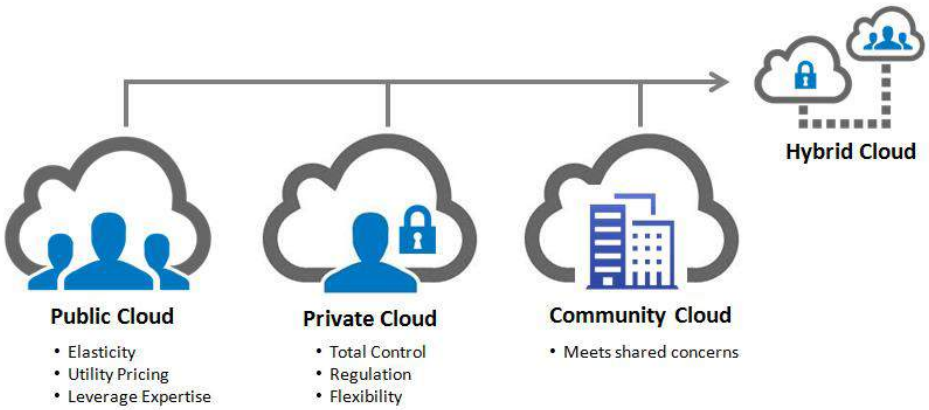


- "Ultimate game changer"
- Webindex http://thewebindex.org/
- http://opendatabarometer.org/?_year=2016&indicator=ODB
- Audit?

The Cloud

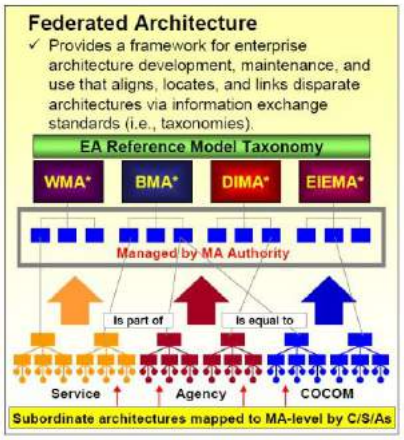
- History of Internet Cloud

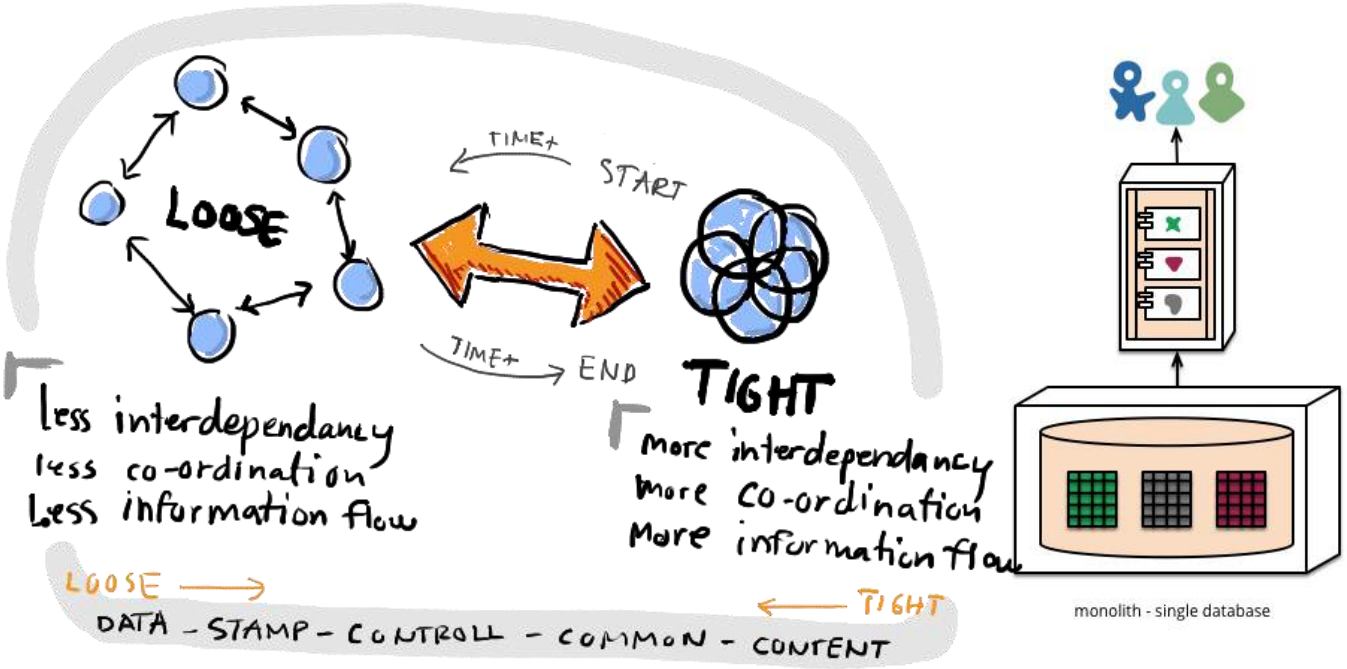
  Salesforce.com in 1999
- Audit?

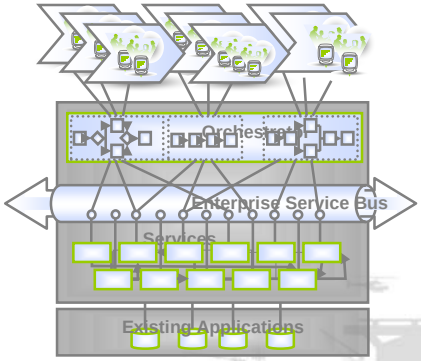


Architectures

- Tightly Integrated 1990's vs Loosely Coupled >2000's
- [Audit?]







BLOCKCHAIN

Data Encryption Standard (DES) cryptographic hash functions
- early 1970s

P2P(Peer-to-peer) file sharing became popular in 1999 with the introduction of Napster

Computer based ledger:
1972 SAP,
1980s (Lotus 123, TurboCash…)

THE FIVE KEY COMPONENTS OF A BLOCKCHAIN

A blockchain generally has the following five components:

CRYPTOGRAPHY
Use of a variety of cryptographic techniques including cryptographic one-way hash functions, Merkle trees and public key infrastructure (private-public key pairs)

P2P NETWORK
Network for peer discovery and data sharing in a peer-to-peer fashion

CONSENSUS MECHANISM
Algorithm that determines the ordering of transactions in an adversarial environment (i.e., assuming not every participant is honest)

LEDGER
List of transactions bundled together in cryptographically linked 'blocks'

VALIDITY RULES
Common set of rules of the network (i.e., what transactions are considered valid, how the ledger gets updated, etc.)

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SHAPING YOUR FUTURE

What skills will an Auditor in the Future Need

SHAPING YOUR FUTURE (Organization)

Transparent/ Compliance

BUT IT WILL BE DIFFERENT!

ORGANIZATION LEADERS TEAM

UNITED AGAINST CORRUPTION

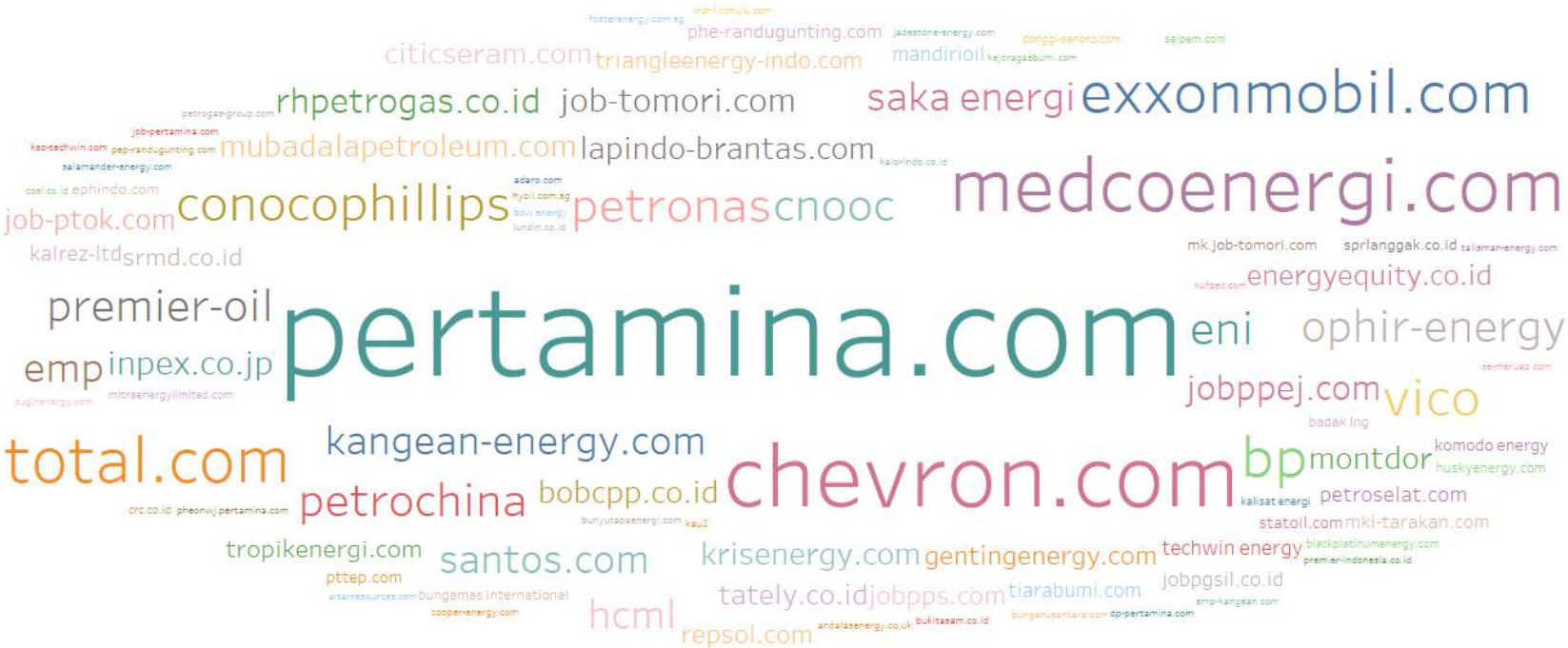
VALUES

(Better prepared)

TERIMA KASIH

SKK Migas – KKKS 2017

Bubble



Recipient (Domain) - Split 1 (group). Color shows details about Recipient (Domain) - Split 1 (group). Size shows sum of Number of Records. The data is filtered on Recipient (Domain) - Split 1, which keeps 132 of 3,892 members.

SAP-SKK Migas