



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





UPSTREAM OIL&GAS

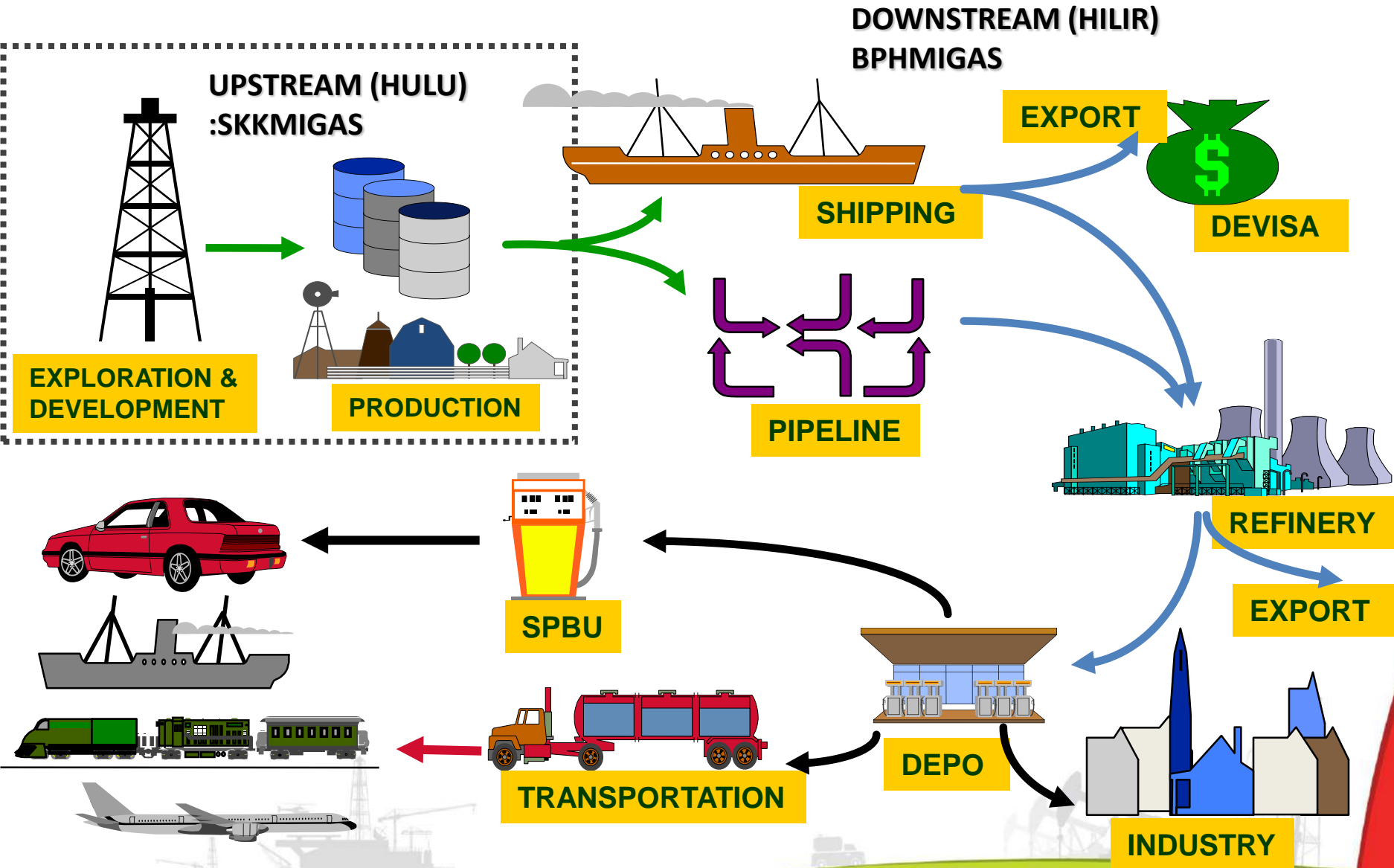
WORLD CHANGE FAST

TECHNOLOGY TREND

SHAPING YOUR FUTURE

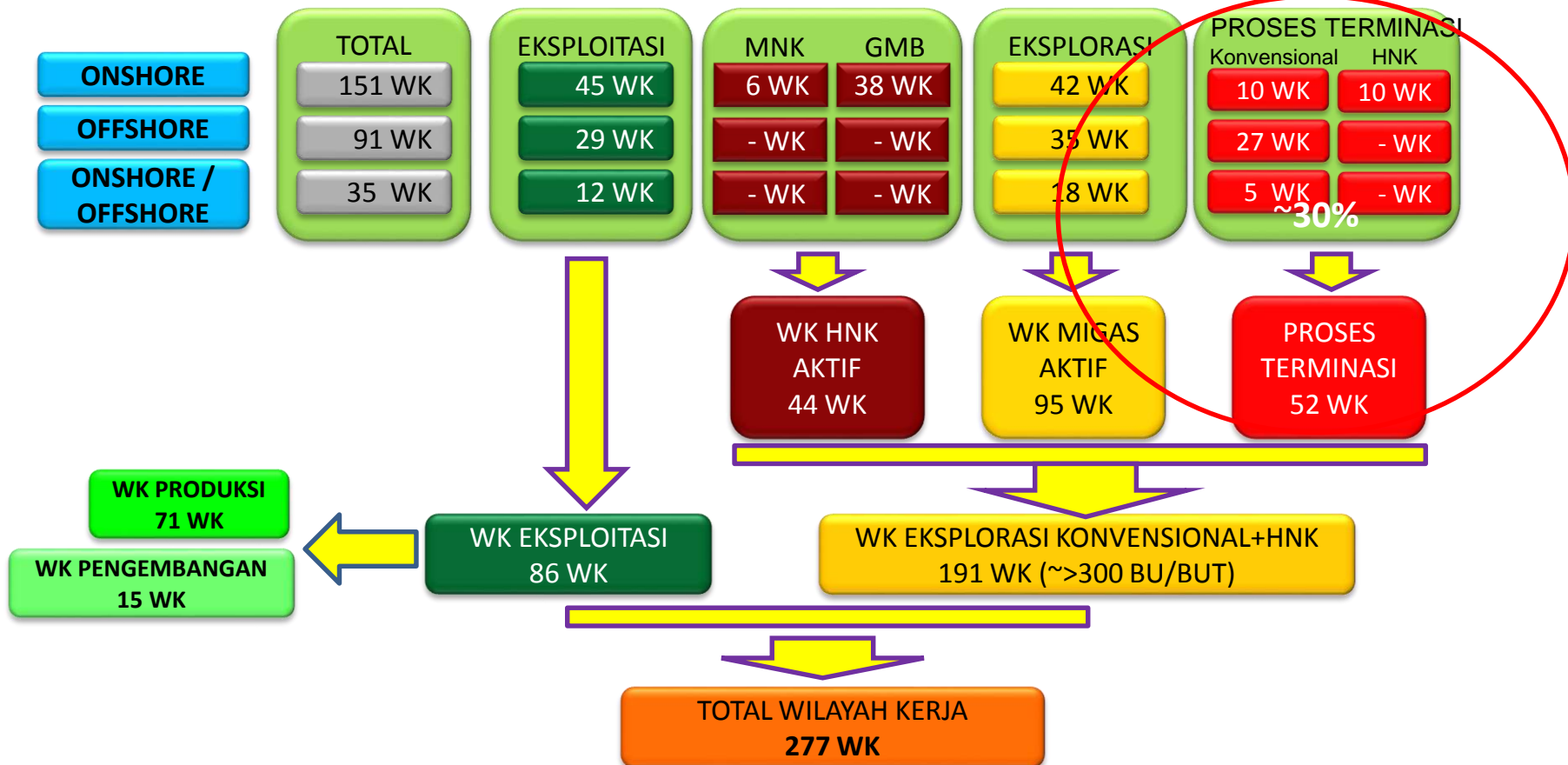


OIL & GAS INDUSTRY



Jumlah Wilayah Kerja Migas Konvensional & Non Konvensional

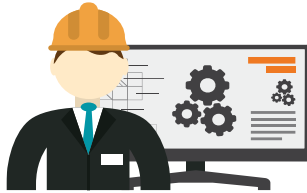
Status 1 Agustus 2017



Keterangan 1 Januari 2017 - Sekarang:

- 3 WK disetujui terminasinya: East Sepanjang, Cakalang dan Terumbu
- 21 WK Eksplorasi yang menjadi Proses Terminasi:
 - * 13 WK Konvensional : Bukit, 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
- 1 WK Eksplorasi menjadi WK Eksploitasi: Pasir

KARAKTERISTIK INDUSTRI HULU MIGAS



Teknologi canggih



Modal Besar



Risiko Tinggi



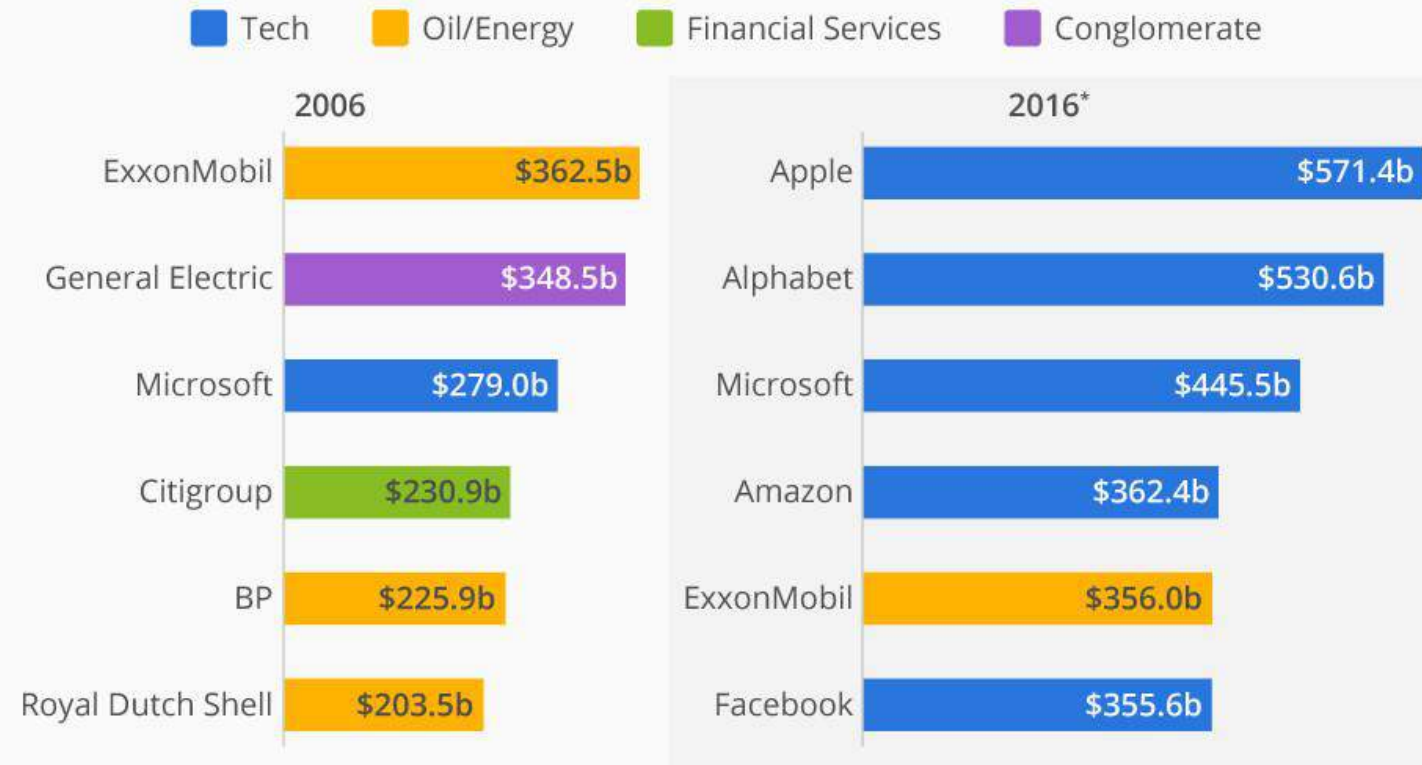
Profesionalisme Tinggi



The Age of Technology

The Age of Tech

Market capitalization of the world's most valuable public companies



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 ₂ e)	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)



Industry profiles: Oil and gas

Key survey insights

How Digital Transformation in Oil & Gas

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.



additional impacts such as increased economic activity and higher employment so that by 2025, consumer and business spending grows up to **1.5%** adding billions to the global economy

Learn More: Download "A New Reality for Oil & Gas"

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expert insights

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



UPSTREAM OIL&GAS



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





UPSTREAM OIL&GAS

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2018 Technology Trends

[Gartner Top 10 Strategic Technology Trends 2018](#)

9 Mega Technology Trends © Bernard Marr, 2018

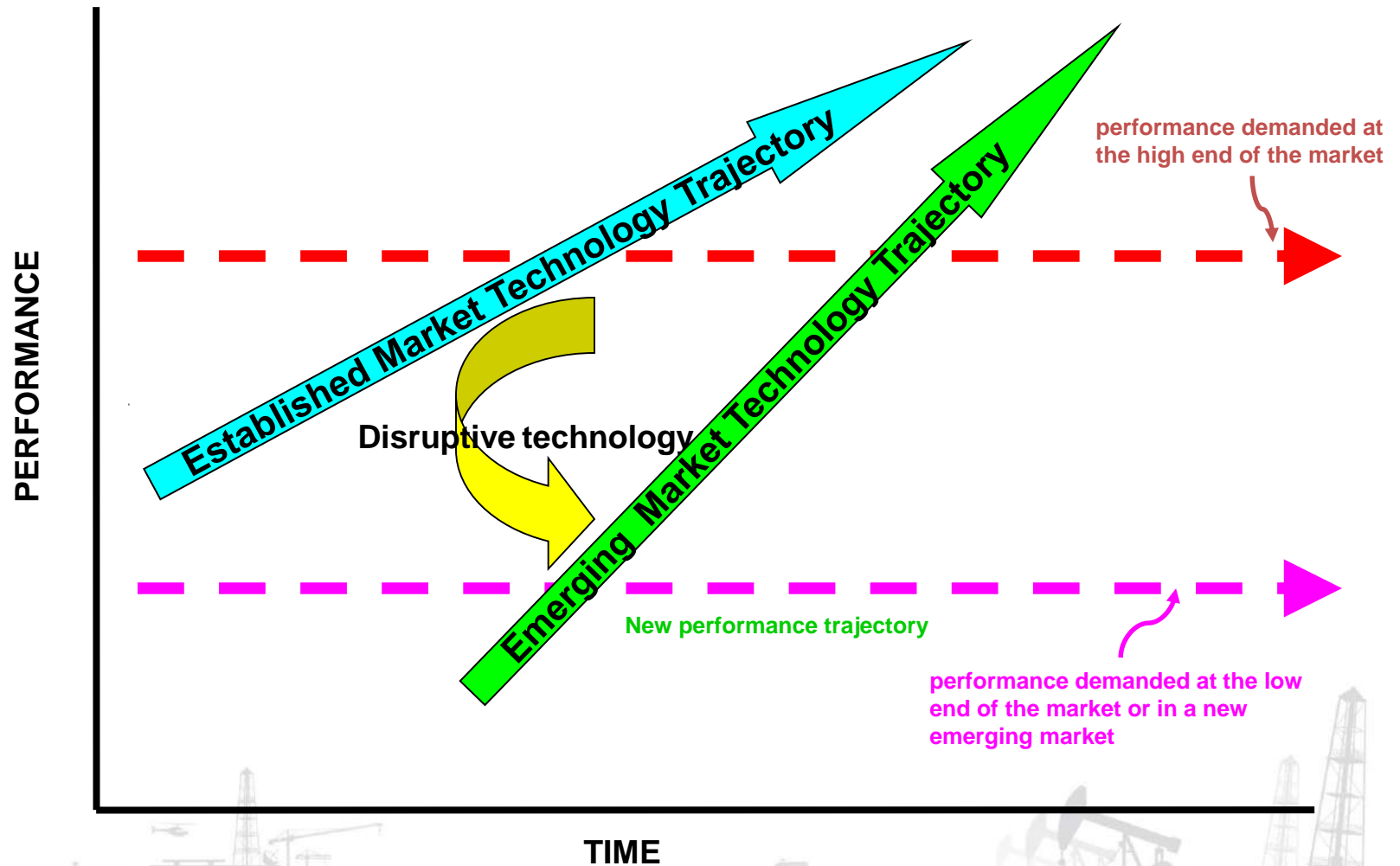
1. The increasing datafication of our lives
2. The Internet of Things (IoT)
3. Exponential growth in computing power
4. The incredible rise of artificial intelligence (AI)
5. The unstoppable freight train that is automation
6. 3D Printing and Cloud Manufacturing
7. New Interaction with technology
8.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

WHAT'S
NEXT?

IMPACT ON
SOCIAL
INTERACTIONS
AND
BEHAVIOUR



Disruptive Technology

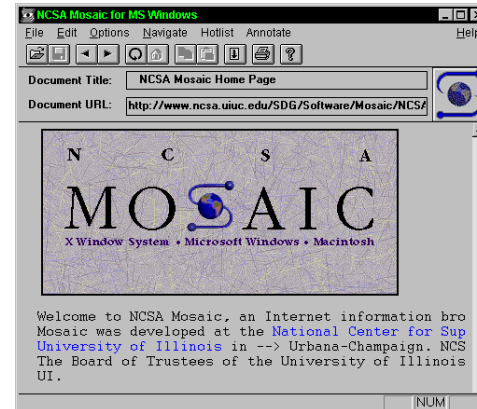


The Internet

- 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?

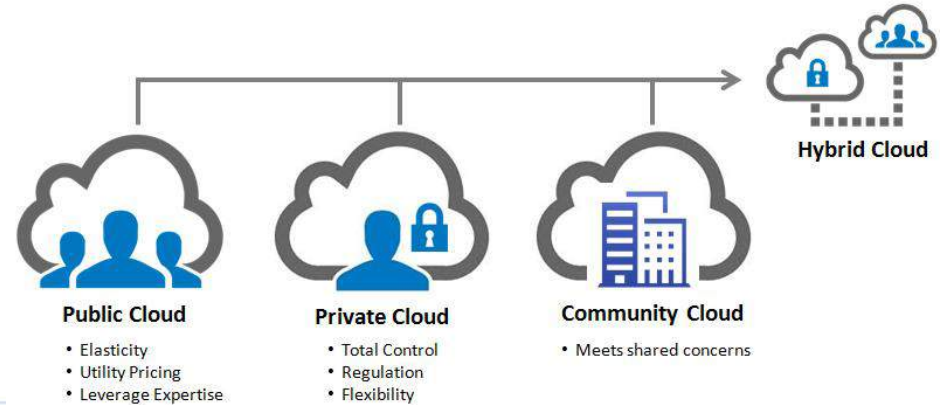


The Cloud






- History of Internet Cloud

Salesforce.com in 1999

- Audit?



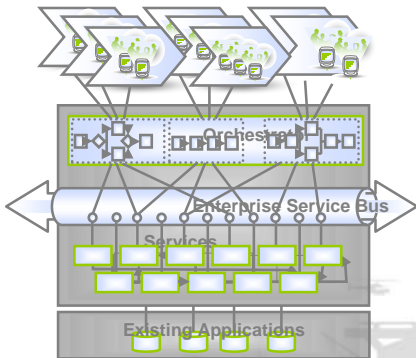
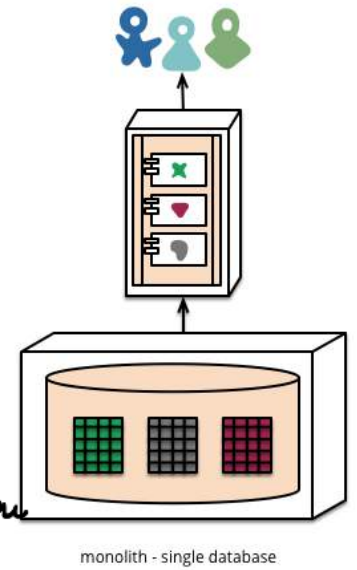
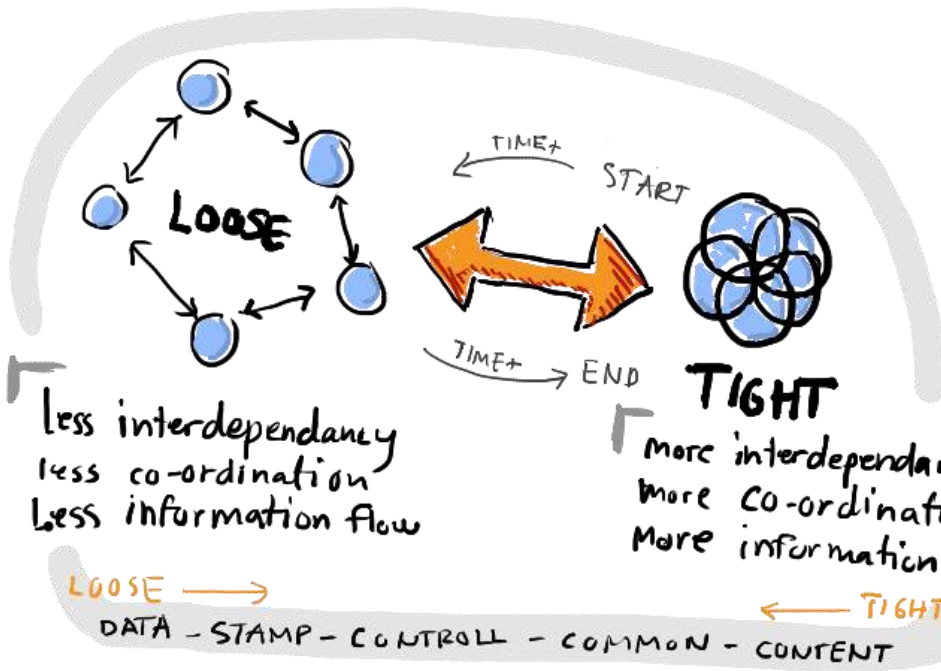
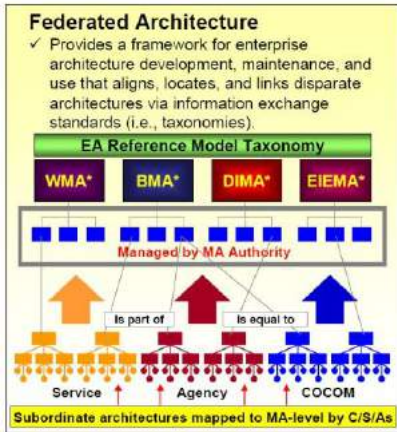
SaaS Software as a Service					
	BPM	CRM	DMS	Social Portal	Web Office

PaaS Platform as a Service					
	Application Builder	Mashup Studio	Process Designer	Report Editor	Application Engines

IaaS Infrastructure as a Service					
	Cloud Appliance	Cloud Controller	Elastic Compute	Elastic Storage	Elastic Database

Architectures

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



BLOCKCHAIN

THE FIVE KEY COMPONENTS OF A BLOCKCHAIN

A blockchain generally has the following five components:

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...)



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

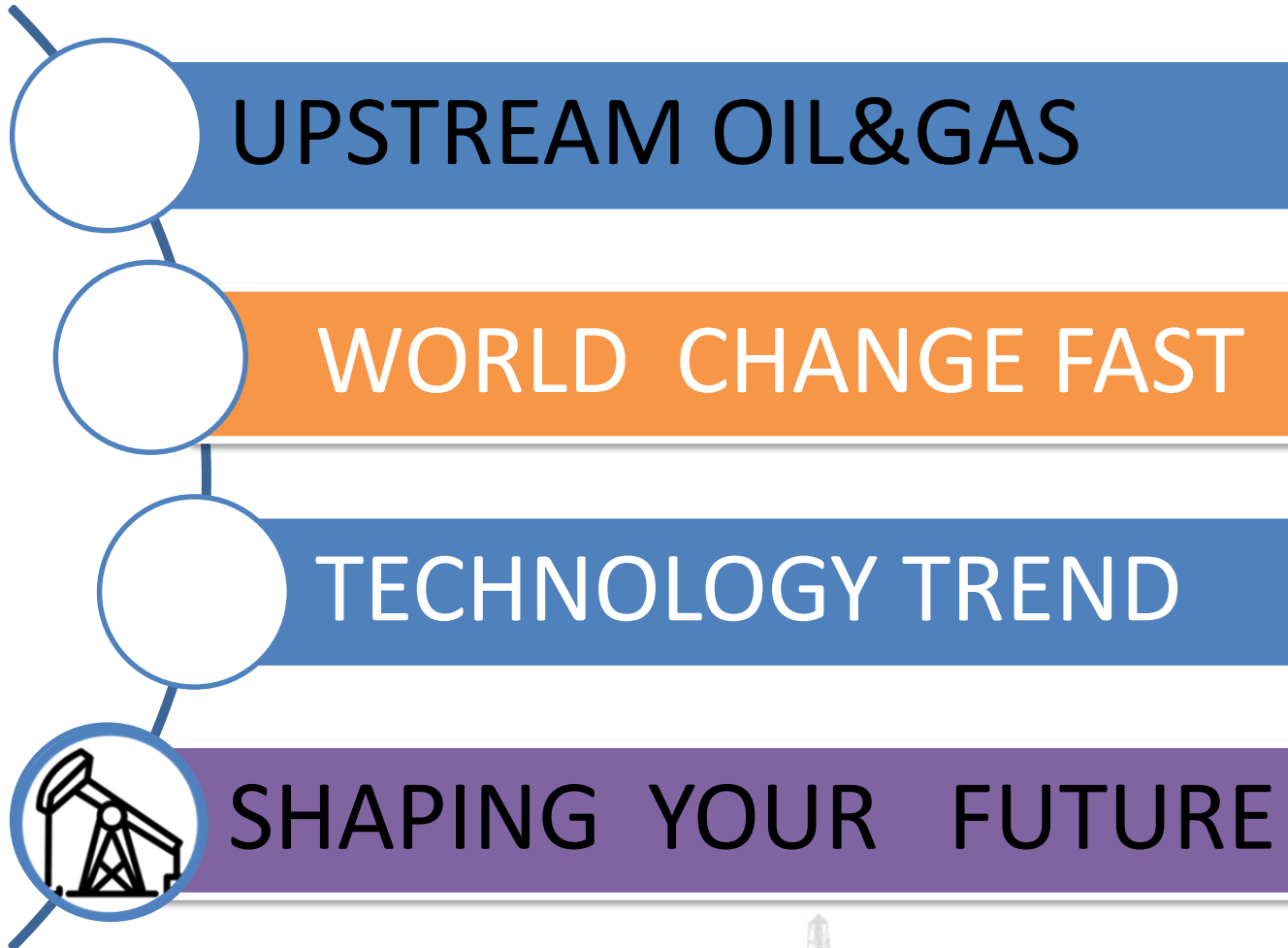
List of transactions bundled together in cryptographically linked 'blocks'



VALIDITY RULES

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





What skills will an Auditor in the Future Need



SHAPING YOUR FUTURE (Organization)

ORGANIZATION
LEADERS
TEAM

BUT IT
WILL BE
DIFFERENT!

Transparent/ Compliance



UNITED
AGAINST
CORRUPTION



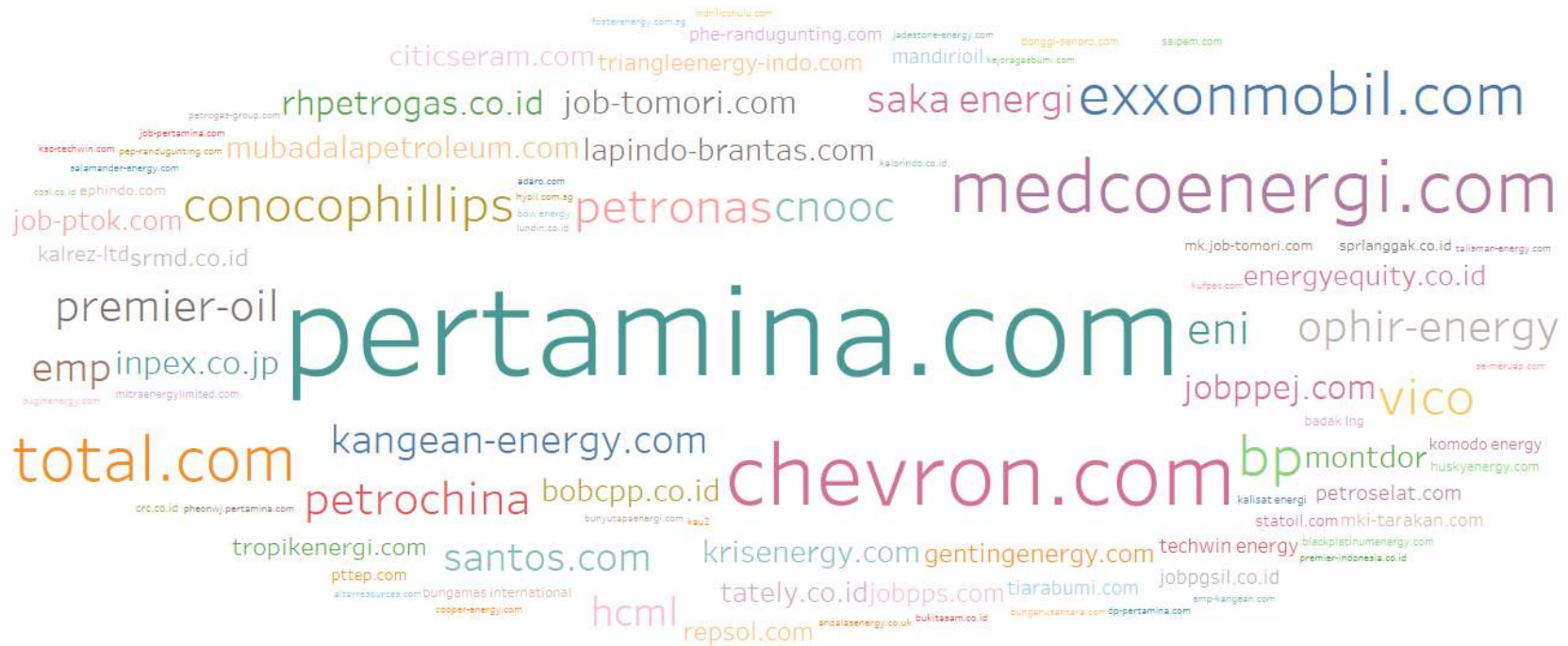
VALUES
(Better prepared)

TERIMA KASIH



SKK Migas – KKKS 2017

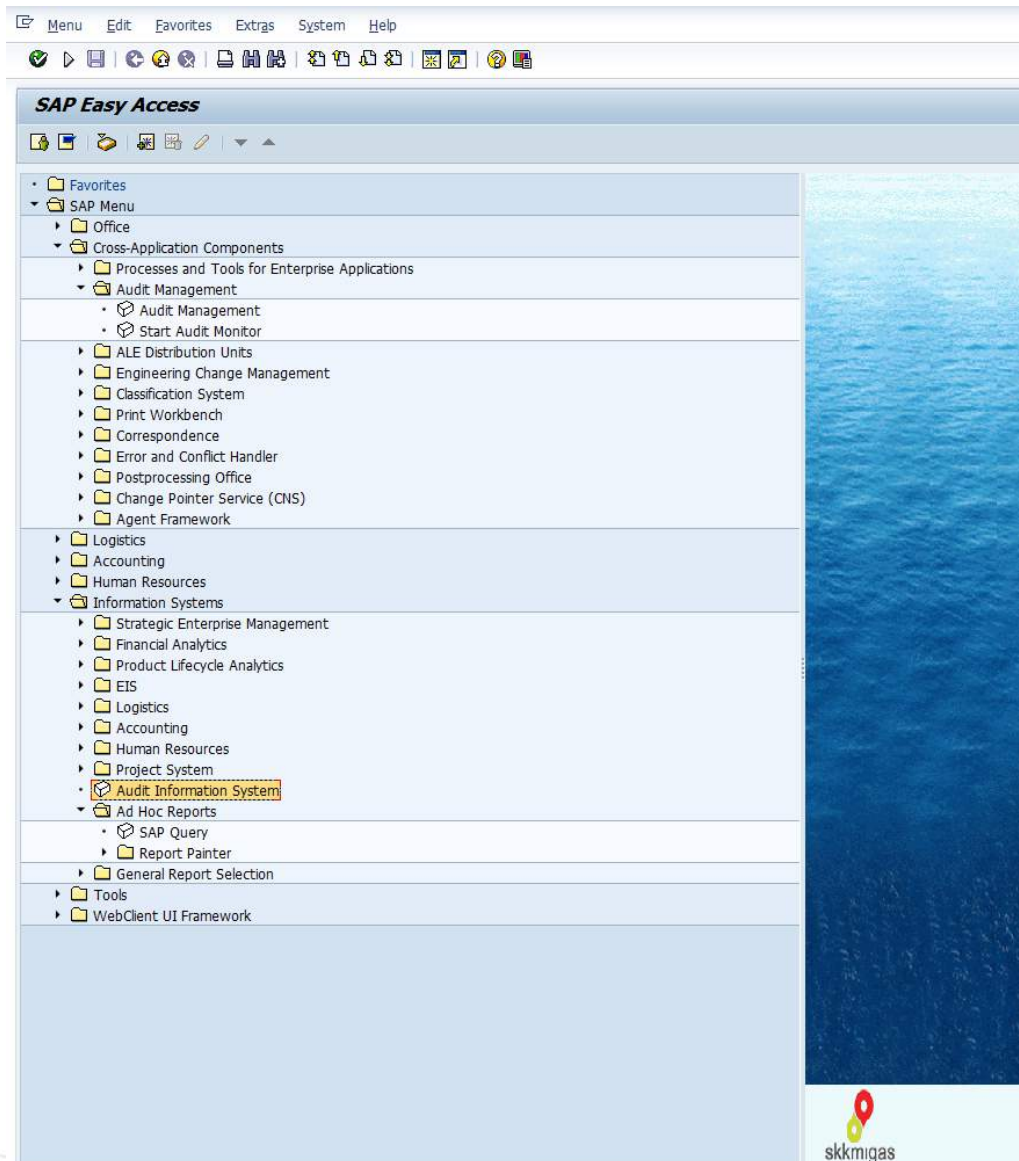
Bubble



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



The screenshot shows the SAP Easy Access menu interface. The menu is organized into several categories:

- Favorites
 - ▼ SAP Menu
 - ▶ Office
 - ▼ Cross-Application Components
 - ▶ Processes and Tools for Enterprise Applications
 - ▼ Audit Management
 - Audit Management
 - Start Audit Monitor
 - ▶ ALE Distribution Units
 - ▶ Engineering Change Management
 - ▶ Classification System
 - ▶ Print Workbench
 - ▶ Correspondence
 - ▶ Error and Conflict Handler
 - ▶ Postprocessing Office
 - ▶ Change Pointer Service (CNS)
 - ▶ Agent Framework
 - ▶ Logistics
 - ▶ Accounting
 - ▶ Human Resources
 - ▼ Information Systems
 - ▶ Strategic Enterprise Management
 - ▶ Financial Analytics
 - ▶ Product Lifecycle Analytics
 - ▶ EIS
 - ▶ Logistics
 - ▶ Accounting
 - ▶ Human Resources
 - ▶ Project System
 - **Audit Information System**
 - ▼ Ad Hoc Reports
 - SAP Query
 - ▶ Report Painter
 - ▶ General Report Selection
 - ▶ Tools
 - ▶ WebClient UI Framework

The 'Audit Information System' option is highlighted with a yellow box. The interface includes a standard SAP menu bar (Menu, Edit, Favorites, Extras, System, Help) and a toolbar with various icons. The background of the main content area is a blue water texture. The skkmigas logo is visible in the bottom right corner of the interface.