



gaskita
Juaranya Gas Ngalir Terus

by **PGN**



PLN

Konferensi Auditor Internal **GOVERNANCE 5.0** Redefining Board Oversight and Internal Audit in a Digital-First Era



Konferensi Auditor Internal 2026

Strengthening Governance Through Synergy :
The Three Lines Model in A Digital Era

0 9 J U L I 2 0 2 6

The Alana Hotel & Convention Center, Yogyakarta

Agenda

- 01 Digital Transformation and The Emerging Risk Landscape
- 02 Ethical Governance as the Foundation of Digital Trust
- 03 Emerging AI Risk Cases: What Happens When Governance Fails
- 04 Reimagining the Third Line Model in Digital Era

Preface

“Memperkuat Tata Kelola di Era Digital melalui Sinergi, Etika, dan Budaya Integritas”

Perkembangan *digital transformation* menuntut organisasi untuk beradaptasi secara cepat dan inovatif, sekaligus memastikan bahwa pemanfaatan teknologi dilakukan secara bertanggung jawab, transparan, dan akuntabel.

Pemanfaatan *big data*, *artificial intelligence*, *digital platforms*, dan *process automation* memberikan peluang strategis bagi organisasi, namun juga menghadirkan risiko baru, seperti perlindungan data pribadi, *algorithmic bias*, transparansi pengambilan keputusan otomatis, serta potensi penyalahgunaan teknologi.

Dalam konteks tersebut, penguatan *ethical governance* dan budaya integritas menjadi semakin penting. Tata kelola tidak hanya berorientasi pada kepatuhan terhadap regulasi, tetapi juga pada upaya menjaga kepercayaan *stakeholders* melalui pengambilan keputusan yang adil, transparan, dan selaras dengan nilai organisasi.

Melalui sesi ini, pembahasan akan difokuskan pada:

- Perubahan lanskap risiko dan ekspektasi tata kelola di era digital.
- Peran Three Lines Model dalam memperkuat sinergi *governance*, *risk management*, *compliance*, dan internal audit.
- Strategi penguatan *ethical governance* dan budaya integritas secara berkelanjutan.
- Penguatan kepercayaan *stakeholders* melalui tata kelola yang adaptif dan bertanggung jawab.

Deni Hendra Permana

Senior Vice President

Group Head Internal Audit 4 - IT Audit

Bank Mandiri



Agenda 01

Digital Transformation and the Emerging Risk Landscape

01. Digital Transformation and the Emerging Risk Landscape

AI as Digital Transformation Technologies Enabler

"Digital transformation mengubah **cara organisasi beroperasi**, mengambil keputusan, dan melayani **stakeholders** melalui berbagai teknologi"

Digital Transformation Technology



Artificial Intelligence (AI)

Enables intelligent automation, personalization, prediction, decision-making, and generative AI



Mobile Technology

Enables app-based services and mobile experiences



Automation / RPA

Automates, repetitive, rule-based tasks



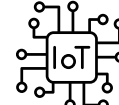
Digitization

Turns paper-based information into digital data



Cloud Computing

Scalable, flexible cost-efficient IT



Internet of Things (IoT)

Connects devices and generates real-time data



Blockchain

Provides secure, transparent transaction records



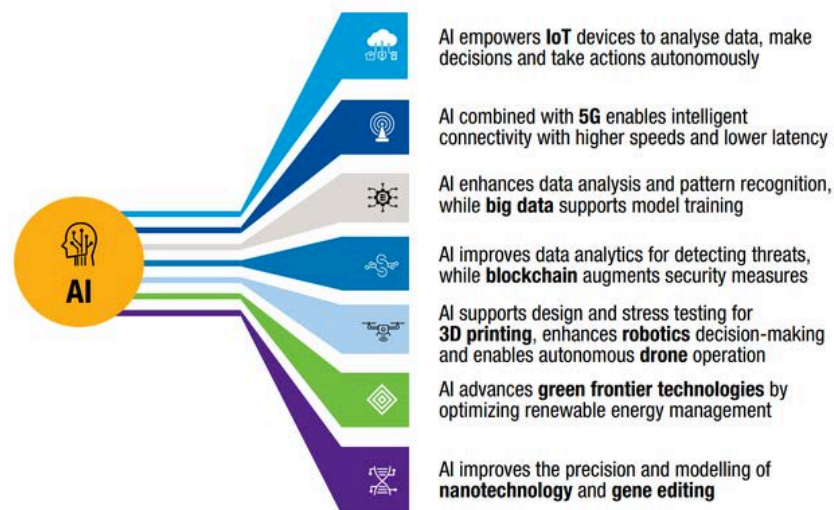
Digital Ecosystem

Connects partners through APIs and platforms

Source: Digital Transformation Technologies (IBM, 2024)

AI as Key Transformation Driver

Figure I.11
AI augments other frontier technologies



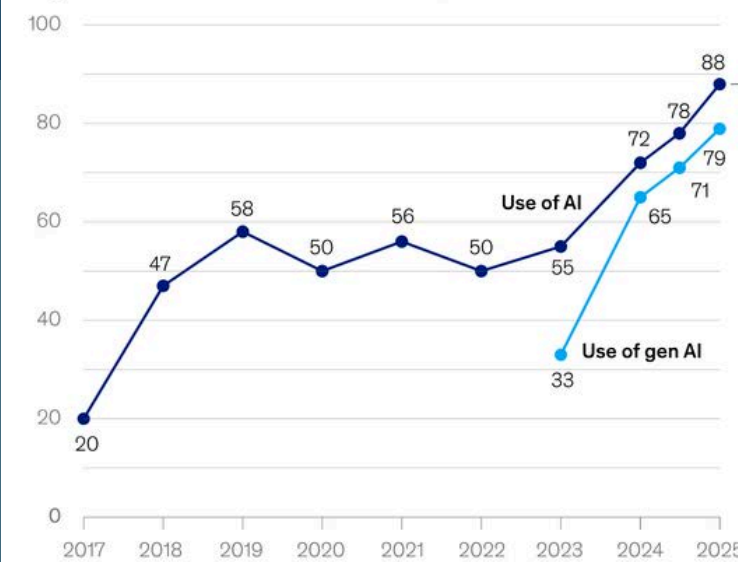
Source: Technology and Innovation Report (UNCTAD, 2025)

"Artificial Intelligence telah menjadi bagian dari kehidupan sehari-hari dan berperan sebagai *general-purpose technology* yang memperkuat dampak dari berbagai teknologi transformasi digital."

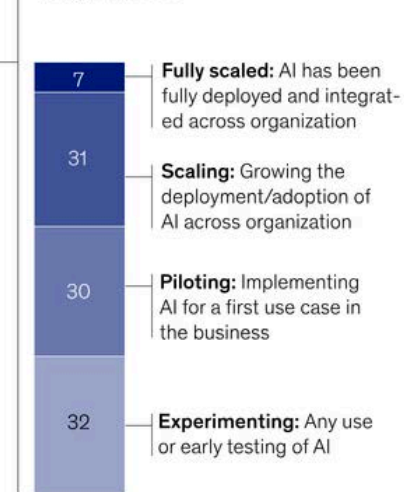
The Rising Adoption of Artificial Intelligence (AI)

Use of AI by respondents' organizations, % of respondents

Organizations that use AI in at least 1 business function¹



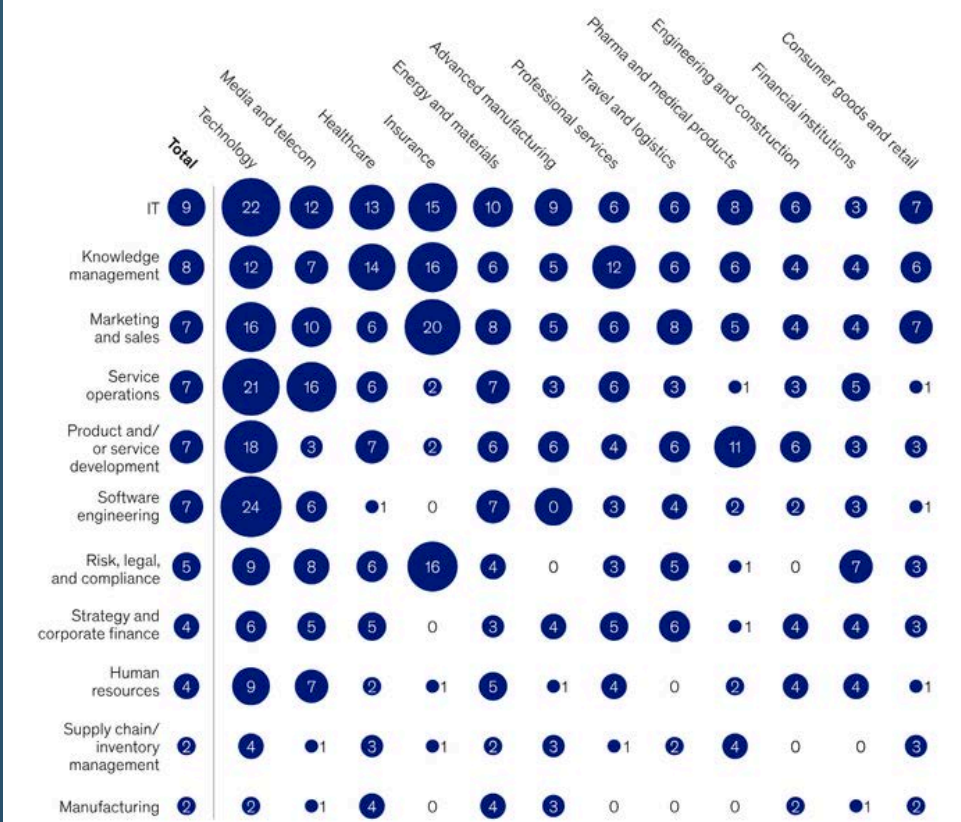
Phase of AI use among organizations using AI in 2025



"Organisasi semakin mengadopsi AI di berbagai *business function*, dengan tingkat penggunaan tertinggi pada industri teknologi, media, telekomunikasi, dan kesehatan."

Source: The State of AI in 2025 (McKinsey, 2025)

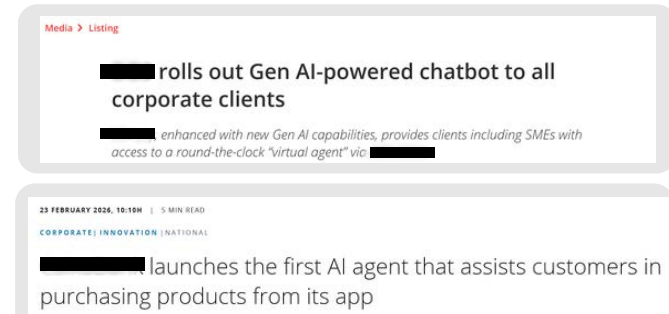
AI agent use that has reached the scaling phase,¹ by industry and business function, % of respondents



AI Uses Cases in Financial Services & Insurance Industry

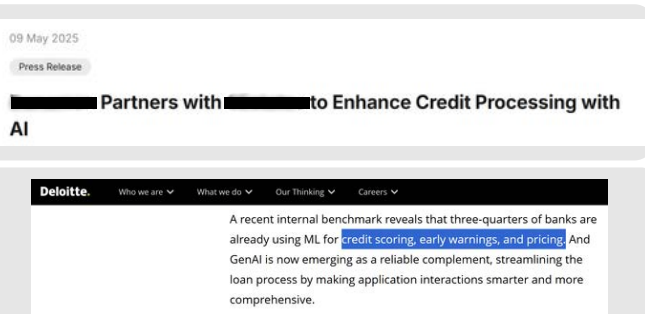
Customer Experience

AI chatbots, virtual assistants, personalized offers, and customer segmentation



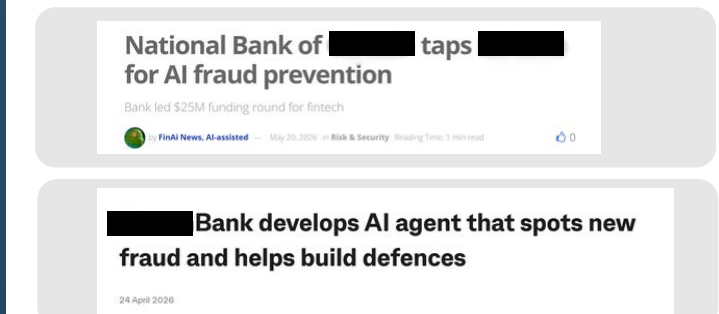
Credit & Risk Decisioning

Credit scoring, early warning systems, portfolio monitoring, and risk analytics



Fraud & Financial Crime Detection

Fraud detection, AML monitoring, transaction anomaly detection, and suspicious alerts



"Bank dan *insurance company* paling banyak menggunakan AI untuk *fraud detection, credit & risk decisioning, dan customer experience*"

Source: Deloitte's 2025 EMEA Model Risk Management Survey

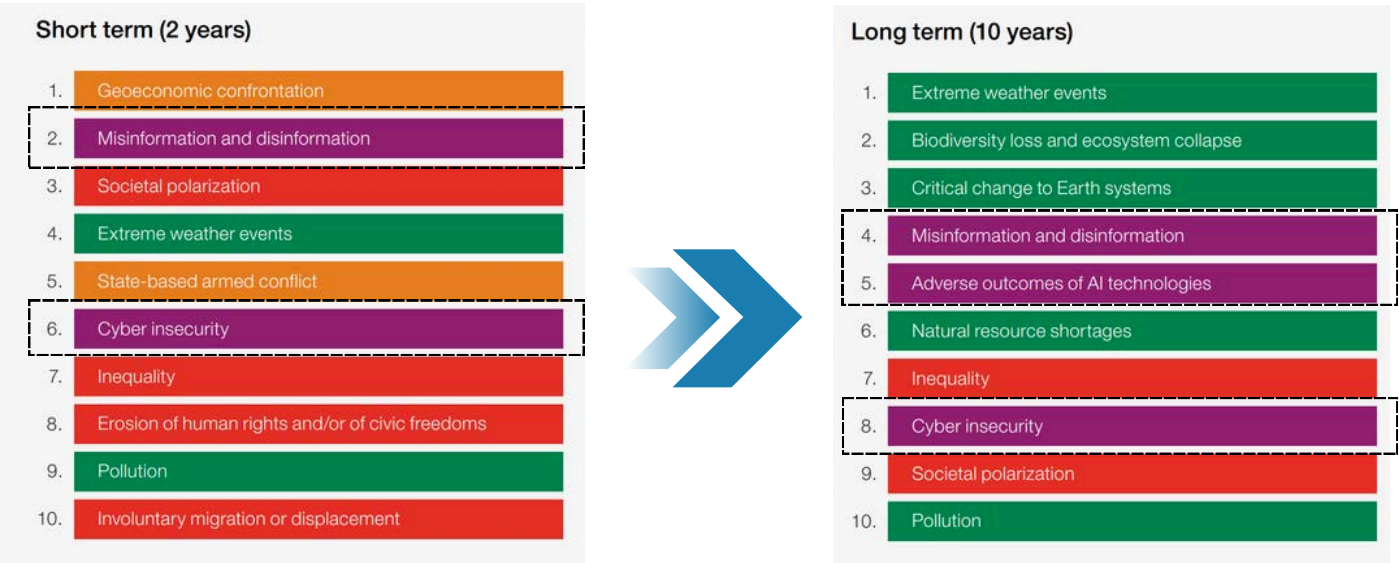
01. Digital Transformation and the Emerging Risk Landscape

Current Global Risk Landscape

Risk area	Average of the regions	Africa	Asia Pacific	Europe	Latin America	Middle East	North America
Cybersecurity	73%	62%	62%	82%	76%	72%	86%
Digital disruption (including AI)	48%	44%	39%	47%	54%	50%	53%
Business resilience	47%	49%	58%	39%	35%	58%	46%
Human capital	43%	35%	56%	48%	40%	38%	42%
Regulatory change	41%	34%	38%	45%	49%	28%	51%
Geopolitical/macroeconomic uncertainty	38%	27%	35%	45%	45%	29%	45%
Financial/liquidity	31%	43%	19%	27%	32%	38%	27%
Market changes/competition	31%	19%	49%	32%	24%	29%	34%
Governance/corporate reporting	24%	33%	23%	20%	16%	38%	15%
Organizational culture	24%	29%	21%	19%	28%	26%	20%
Supply chain (including third parties)	24%	17%	28%	29%	15%	23%	30%
Fraud	23%	43%	20%	16%	32%	19%	11%
Communications/reputation	19%	25%	19%	12%	19%	19%	18%
Climate change/environment	18%	24%	17%	23%	25%	13%	7%
Health/safety	10%	11%	11%	12%	6%	11%	8%
Mergers/acquisitions	5%	3%	6%	5%	5%	6%	7%

Risiko terkait teknologi telah menjadi perhatian utama secara global, dengan **cybersecurity** menempati peringkat risiko tertinggi di berbagai wilayah sebesar **73%**. **Digital disruption, termasuk AI**, berada di peringkat kedua sebesar **48%**.

Source: 2026 Global Summary Risk in Focus Report (TheIIA, 2026)



“Dalam *outlook* dua tahun ke depan, **misinformation and disinformation** serta **cyber insecurity** masuk dalam **jajaran risiko global utama**. Dalam jangka panjang, **adverse outcomes of AI technology** menunjukkan **peningkatan paling tajam**, naik dari peringkat **#30** menjadi **#5**.”

Source: WEF Global Risks Perception Survey 2025 - 2026 (WEF, 2025)

01. Misinformation and Disinformation

Pharmaceutical giant [redacted] apologises after fake Twitter account says insulin is free as Elon Musk rolls back verification

By Brianna Morris-Grant and wires

“Deepfake” Sri Mulyani, Suara Menkeu Dipalsukan AI Sebut “Guru Beban Negara”

Oleh Frecky Tanni Wijaya
20 Apr 2025 11:59 WIB - Nasional

Video Buatan AI

Contoh: deepfake videos, fake executive instructions, synthetic media, fake news, and coordinated narrative attacks.

“**Misinformation and disinformation** dapat **merusak kepercayaan, memengaruhi pengambilan keputusan, serta memicu krisis reputasi** maupun **operasional**.”

02. Cyber Insecurity

ANTARA
Bank [redacted] ungkap hadapi 1 juta serangan siber per hari

Teknologi > Teknologi Informasi
Ransomware Lockbit 3.0 Klaim Lumpuhkan [redacted] dan Curi Data Pengguna

CNN Indonesia
Sabtu, 13 Mei 2023 09:58 WIB

Contoh: phishing, ransomware, account takeover, cloud/API breach, and third-party compromise.

“Ketergantungan yang semakin besar pada teknologi digital meningkatkan **eksposur** terhadap **cyberattack, data breach, ransomware, dan service disruption**.”

03. Adverse Outcomes of AI Technology

TECHNOLOGY
274 Ribu Kasus, Rp6 Triliun Kerugian: Deepfake Tekan Industri Keuangan RI

Oleh M. Ubaidillah
01 Mei 2026, 14:00 WIB

detikKalimantan > Hukum Dan Kriminal
Satgas PPKPT Sebut Ada 9 Korban Kasus Deepfake Mahasiswa [redacted]

Ocsya Ade CP - detikKalimantan
Senin, 18 Mei 2026 18:30 WIB

Contoh : algorithmic bias, hallucination, deepfake fraud, data leakage, model drift, and wrong automated decisions.

“Risiko muncul ketika AI bersifat **bias, tidak transparan**, atau digunakan **tanpa human oversight** yang memadai.”

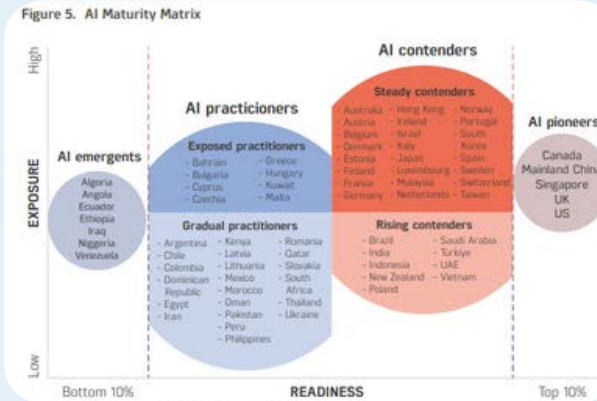
Agenda 02

Ethical Governance as the Foundation of Digital Trust

02. Ethical Governance as the Foundation of Digital Trust

From Digital Innovation to Digital Trust

Kesiapan Adopsi Artificial Intelligence di Indonesia



Source: BCG Center for Public Economics (BCG, 2024)

Indonesia dikategorikan sebagai **Rising Contenders** yaitu negara-negara dengan **eksposur AI yang masih rendah** tetapi memiliki **komitmen untuk meningkatkan adopsi AI**

Kebijakan Tata Kelola Artificial Intelligence di Indonesia

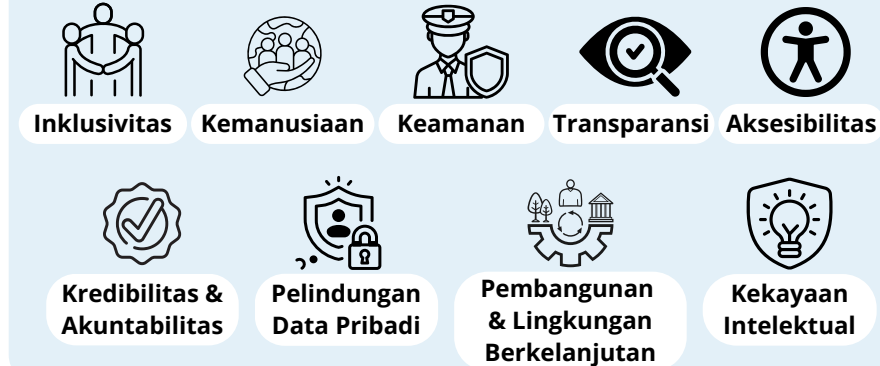
Strategi Nasional Kecerdasan Artifisial Indonesia

Fokus utama:

1. Berorientasi pada **kemaslahatan umat manusia**,
2. Bernafaskan **nilai-nilai Pancasila**
3. **Andal, aman** dan **terbuka**, dapat **dipertanggungjawabkan**,
4. **Sinergitas** antara pemangku kepentingan
5. Penerapan asas-asas **UU No. 11 Tahun 2019**

SE Menkominfo tentang Etika Kecerdasan Artifisial

Kecerdasan Artifisial harus memenuhi nilai-nilai:



Panduan Kode Etik AI dan Terpercaya di Industri Fintech

Prinsip Dasar Pedoman Perilaku AI:

1. Berasaskan **Pancasila**
2. **Bermanfaat**
3. **Wajar** dan **Akuntabel**
4. **Transparan** dan **Dapat Dijelaskan**
5. **Ketangguhan** dan **Keamanan**

Source: OJK, 2023

AI Ethical Governance Principles

OJK Basic Principles of Responsible and Trustworthy Artificial Intelligence

Prinsip 1. Reliability

- Reliability
- Explainability
- Security & Resilience

Prinsip 2. Accountability

- Accountability
- Transparency
- Data Privacy

Prinsip 3. Human Oversight

- Human Oversight
- Inclusivity
- Ethics & Fairness



Source: Prinsip Nilai Kecerdasan Artifisial (OJK, 2025)

European Commission's Ethics Guidelines for Trustworthy AI

4 Principles of Foundation of Trustworthy AI

Prinsip 1. Respect for Human Autonomy

AI harus **menjaga kendali manusia** atas keputusan, tidak memanipulasi, dan memberdayakan kemampuan kognitif manusia.

Prinsip 2. Prevention of Harm

AI harus **mencegah dampak buruk**, melindungi **martabat** dan **keselamatan manusia**, serta **aman** dari penyalahgunaan.

Prinsip 3. Keadilan (Fairness)

AI harus digunakan secara **adil, bebas bias** diskriminatif, dan **tidak merugikan** individu.

Prinsip 4. Explicability

AI harus **transparan**, dapat **dijelaskan**, **dipertanggungjawabkan**, dan **dapat diaudit** sesuai dampaknya.

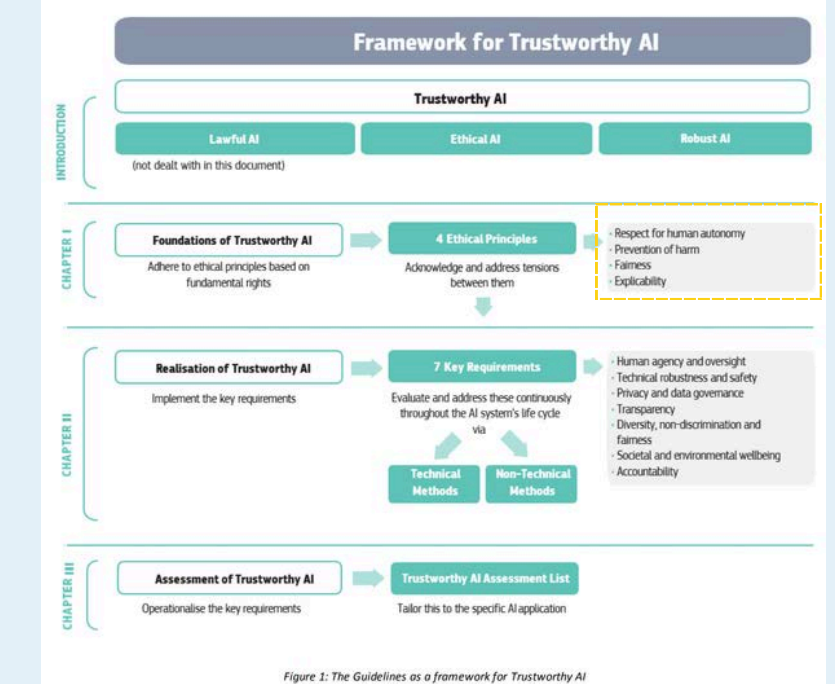


Figure 1: The Guidelines as a framework for Trustworthy AI

Source:

Framework for Trustworthy AI (European Commission, 2019)

Agenda 03

Emerging AI Risk Cases: What Happens When Governance Fails

03. Emerging AI Risk Cases: What Happens When Governance Fails

AI System for Oncology: Rekomendasi Terapi Kanker yang Dinilai "Unsafe and Incorrect"

DIVE BRIEF

STAT: ██████ gave 'unsafe and incorrect' cancer treatment advice

Published July 26, 2018

Source: healthcaredive.com

█████ recommended 'unsafe and incorrect' treatments for cancer patients, investigation reveals

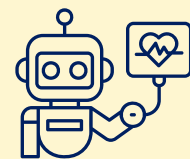
Source: advisory.com

█████ supercomputer recommended 'unsafe and incorrect' cancer treatments, internal documents show

Source: statnews.com



Scenario



1) AI Clinical Support

Sistem AI digunakan untuk membantu dokter menentukan rekomendasi terapi kanker.



2) Misleading Recommendation

Dokumen internal menunjukkan Sistem AI pernah memberikan rekomendasi pengobatan yang dinilai *unsafe* and *incorrect*.



3) Risiko Keselamatan Pasien

Sistem AI merekomendasikan terapi untuk pasien kanker paru dengan risiko pendarahan yang dapat memperburuk kondisi pasien.



4) Governance Dipertanyakan

Kasus ini menyoroti lemahnya validasi, kualitas data training, dan *oversight* terhadap AI medis berisiko tinggi.

Root Cause



Representasi data pasien belum memadai



Rekomendasi dipengaruhi bias sumber data



Validasi dan governance belum matang

Violated AI Principles

Safety & Non-Maleficence

Sistem AI memberikan rekomendasi terapi kanker yang dinilai *unsafe* and *incorrect*, termasuk rekomendasi yang berpotensi memperburuk kondisi pasien.



Data Quality & Representativeness

Data dan skenario training belum cukup merepresentasikan kompleksitas pasien nyata.



Violated AI Principles

Reliability & Validity

Model belum menunjukkan **performa yang andal** dan **tervalidasi** untuk digunakan pada konteks medis berisiko tinggi.



Accountability & Human Oversight

AI digunakan seolah mampu memberikan rekomendasi klinis yang kuat **sebelum validasi** dan **pengawasan manusia** berjalan memadai.



Key Takeaways

1

AI di area high-risk wajib berbasis data yang **valid** dan **representatif**

2

Rekomendasi AI wajib dapat ditelusuri sesuai **evidence** dan **guideline**

3

Human *oversight* tetap menjadi kontrol utama dalam **pengambilan keputusan**

03. Emerging AI Risk Cases: What Happens When Governance Fails

Deepfake Fraud: Video Conference Palsu yang Menyebabkan Kerugian US\$25 Juta

Finance worker pays out \$25 million after video call with deepfake 'chief financial officer'

By Heather Chen, Katharine Margano
FEB 4, 2024
Source: cnn.com

Deepfake video call : Finance worker pays out \$25 million

Source: channelnewsasia.com

'This happens more frequently than people realize': ██████ chief on the lessons learned from a \$25m deepfake crime

Feb 4, 2025
Source: weforum.org



Scenario



1) Instruksi Palsu

Pegawai menerima permintaan transaksi rahasia yang seolah berasal dari CFO.



2) Video Call Deepfake

Korban diyakinkan melalui *video conference* dengan CFO dan rekan kerja palsu berbasis AI/deepfake.



3) Transfer Dana

Korban mentransfer dana senilai HK\$200 juta (±Rp450 miliar) ke beberapa rekening sesuai instruksi palsu.



4) Fraud Terdeteksi

Penipuan baru terungkap setelah dilakukan konfirmasi langsung kepada kantor pusat.

Root Cause



Kontrol Approval Transaksi Lemah



Trust Exploitation melalui Deepfake



Rendahnya AI Fraud Awareness

Violated AI Principles

Privacy & Data Protection

Wajah, suara, dan identitas CFO serta pegawai lain diduga disalahgunakan untuk **membuat konten deepfake** tanpa persetujuan.

Safety & Security

Kontrol keamanan belum memadai untuk mencegah penyalahgunaan AI sehingga deepfake dimanfaatkan sebagai sarana fraud.

Violated AI Principles

Explicability

Korban **tidak memiliki mekanisme** untuk **memverifikasi** apakah peserta *meeting* merupakan identitas asli atau hasil manipulasi AI.

Accountability & Human Oversight

Tidak terdapat verifikasi **independen** (*human verification*) sebelum transaksi bernilai besar diproses.

Key Takeaways

1

Critical transaction wajib melalui **verifikasi independen**

2

Tingkatkan **awareness** atas risiko AI

3

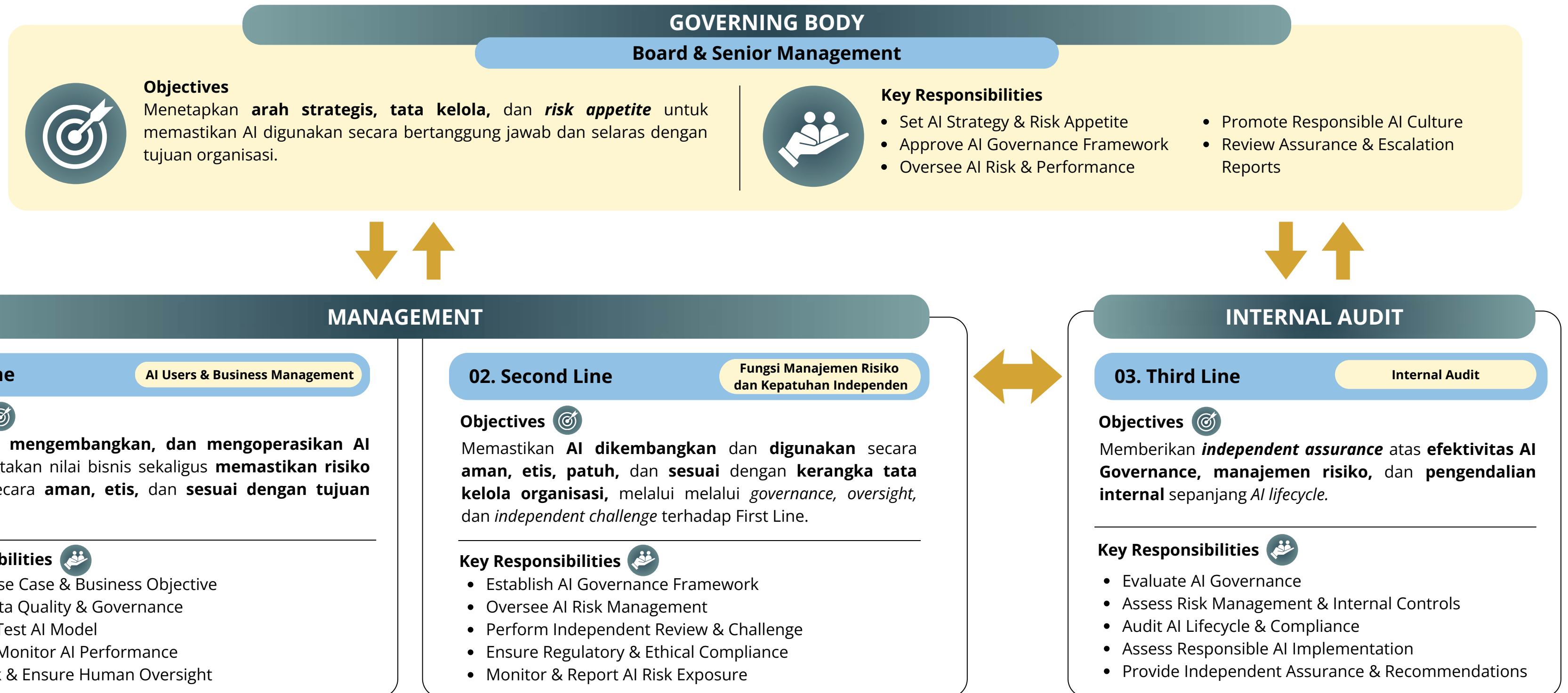
Terapkan **multi-layer controls** untuk transaksi berisiko tinggi.

Agenda 04

Reimagining the Third Line Model in Digital Era

04. Reimagining the Third Line Model in Digital Era

AI Governance Through the Three Lines Model



KEY: ↑ Accountability, Reporting

↓ Delegation, Direction, Resources, Oversight

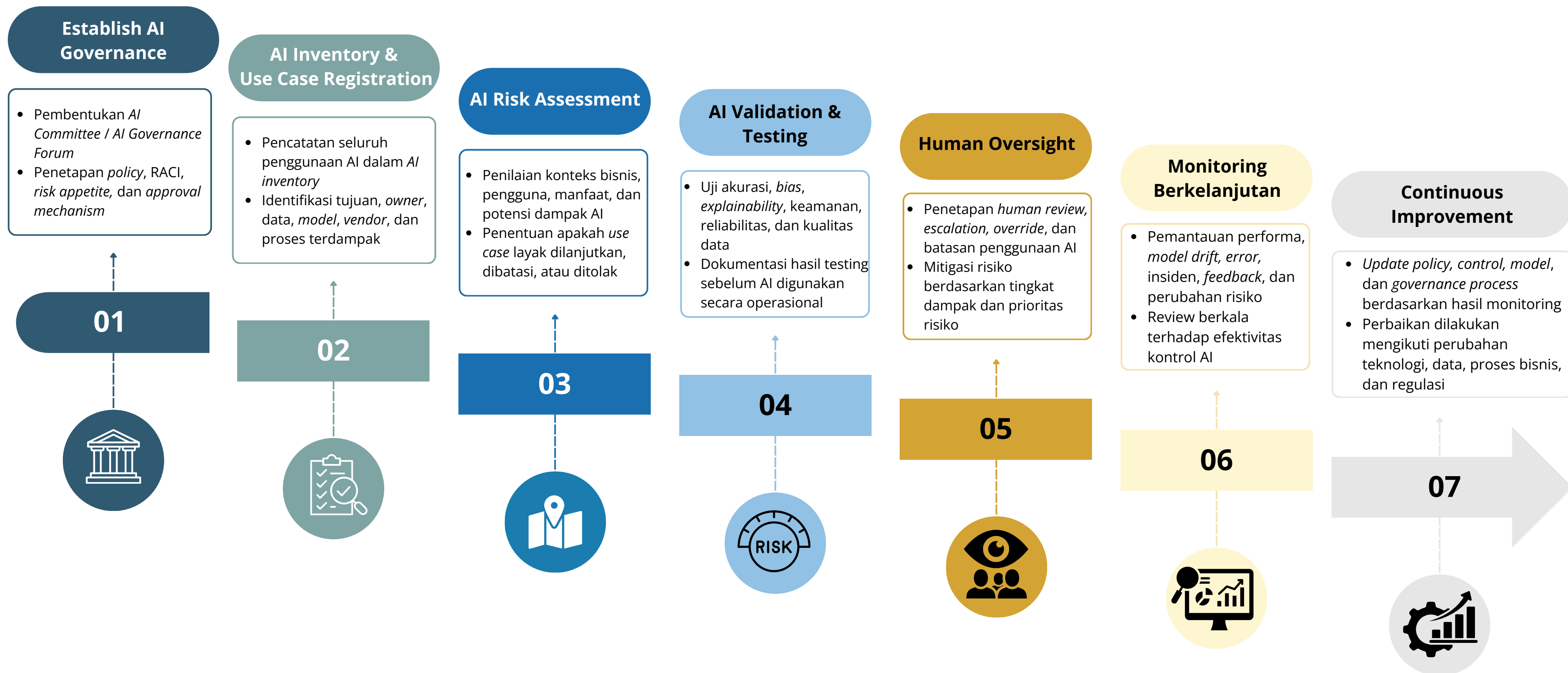
↔ Alignment, Communication, Coordination, Collaboration

Source:

- The IIA's Three Lines Model (IIA, 2024)
- The IIA's Artificial Intelligence Auditing Framework (IIA, 2024)

04. Reimagining the Third Line Model in Digital Era

Key Steps to Implement AI Governance



04. Reimagining the Third Line Model in Digital Era

How Internal Audit Audits AI



What Guides an AI Audit?

AI Auditing Frameworks



COBIT Framework



US GAO AI Accountability Framework



IIA AI Auditing Framework



Singapore PDPC Model AI Governance Framework



AI Audit Challenges



Black Box AI Model



Regulatory & Governance



Skills & Capability Gap



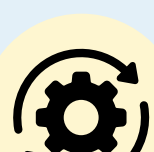
What Should Internal Audit Evaluate?

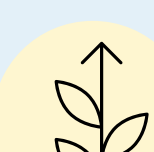
AI Auditing Universe

- 

Tata Kelola AI (AI Governance)
Menilai struktur tata kelola AI di organisasi.
Contoh: kebijakan, peran dan tanggung jawab, mekanisme *approval*, *risk management*, serta pengawasan terhadap vendor AI
- 

Pengembangan AI (AI Development)
Mengevaluasi proses identifikasi dan prioritas *use case* AI.
Contoh: *model development*, *testing*, *validation*, dan kesiapan model sebelum maupun setelah *deployment*.
- 

AI Security & Privacy
Menilai pengelolaan data yang digunakan oleh AI.
Contoh: kualitas data, *data lineage*, akses data, keamanan informasi, perlindungan data pribadi, dan kepatuhan terhadap regulasi
- 

AI Operations
Mengevaluasi efektivitas operasional AI setelah implementasi.
Contoh: *performance monitoring*, *model drift*, *incident management*, *change management*, dan proses *retraining* model.
- 

AI Program & Maturity
Menilai tingkat kematangan program AI organisasi
Contoh: Strategi implementasi, integrasi dengan proses bisnis, skalabilitas implementasi, dan optimalisasi AI.

Source: Auditing Artificial Intelligence (KPMG, 2025)

04. Reimagining the Third Line Model in Digital Era

The Future of Bank Mandiri's AI Audit

Rencana Jangka Panjang (RJP) 2026-2028

No	Inisiatif	
1		
2		
3		
4		
5		Continuous Auditing
6		Predictive Analytics
7		Enhance Audit Systems

AI-Driven Audit Engine Roadmap

- 7 Audit Intelligent Sampling Engine**

📅 Q1 2025 - Q4 2026
- 7 Fraud Analysis Engine**

📅 Q3 2026 - Q4 2027
- 8 Risk and Control Analysis Engine**

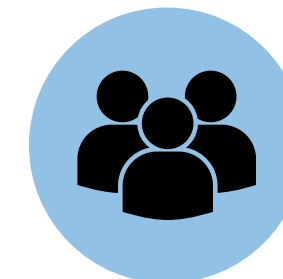
📅 Q3 2026 - Q4 2028

AI Impact On Audit Process

People

AI & Technology Capability

Peningkatan kompetensi auditor dalam pemanfaatan AI, data analytics, dan teknologi digital.



Process

AI-Driven Audit Process

Integrasi AI dalam seluruh tahapan proses audit.



Policy

Data Analytics Framework

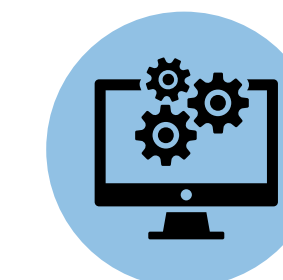
Penyusunan kerangka tata kelola, standar, dan metodologi *data analytics* sebagai pedoman implementasi audit berbasis data, termasuk *Artificial Intelligence*.



System

AI-Powered Audit System

Pengembangan sistem audit berbasis AI yang mendukung otomatisasi aktivitas audit, *continuous monitoring*, dan *insight delivery*.



Any Questions?

THANK YOU
