ECOPETROL´S EMERGING RISKS

Update 2025 - 2026

Risk Management Department
Corporate Compliance Directorate

EMERGING RISKS AT ECOPETROL

Risks that could have a long-term impact (3-5 or more years) or, in some cases, may have already begun to have an impact on the company.

New risks, developing risks or risks that are significantly increasing in importance.

Known risks that occur in a new or unknown context or appear in a new context.

The potential material impact in financial or reputational terms has long-term effects and is significant.

External risks, i.e., they are generated by factors external to the company that are beyond its influence and control.

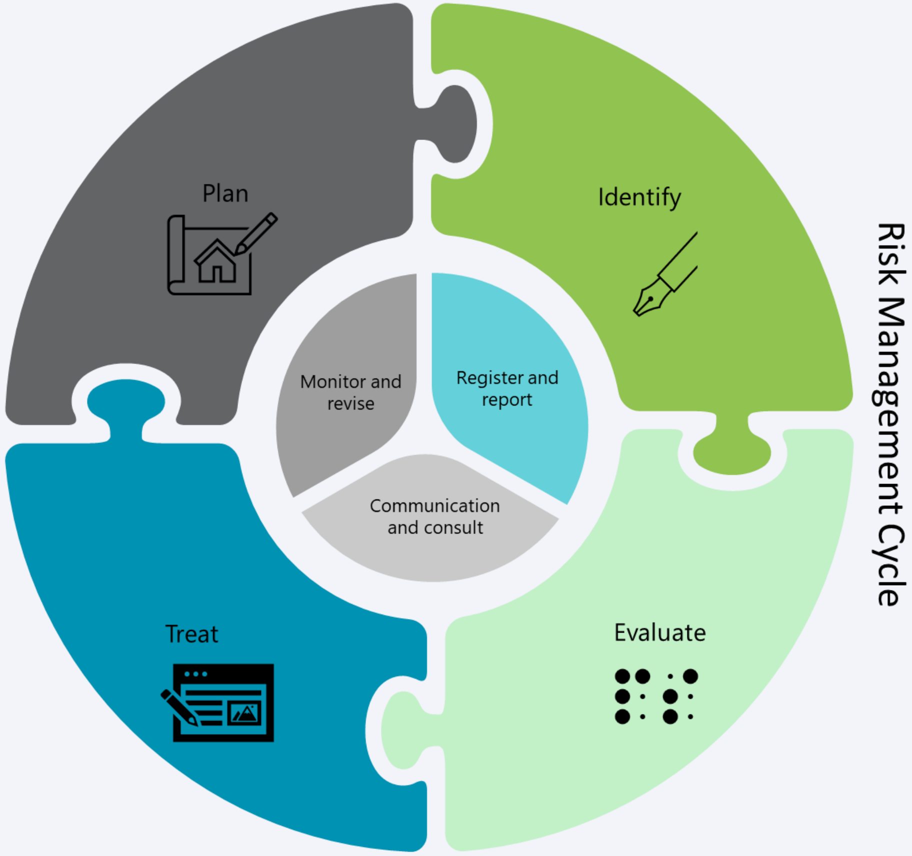
Have a specific impact on the company.

They have a high potential impact for the company and may require it to adapt its strategy and/or business model.

General Concepts – Emerging Risks

* Emerging risks are considered to be those that meet any of these characteristics.

Emerging Risks Cycle 2025 - 2026

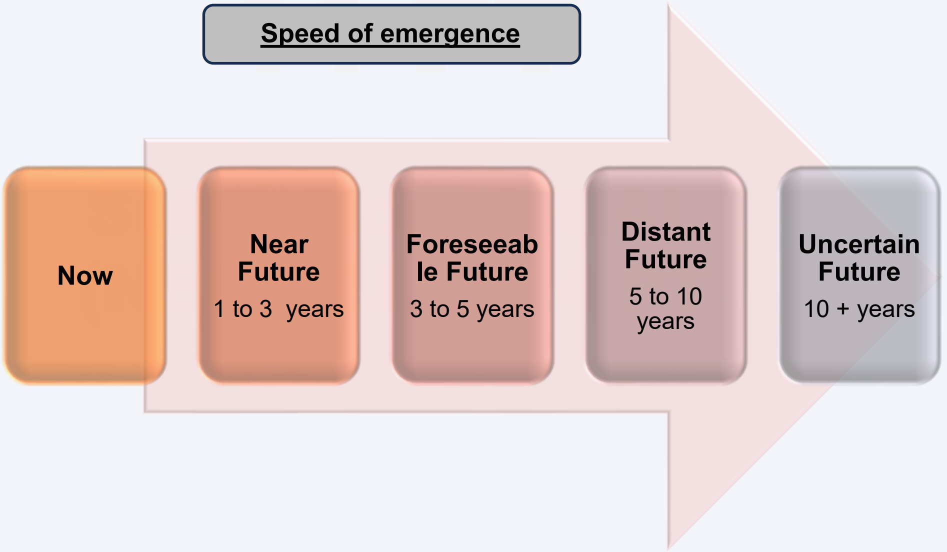


Through the application of the EMERGING RISK MANAGEMENT CYCLE, Ecopetrol performs understanding, analysis and recording of emerging trends and their derived risks. Emerging risks are evaluated based on criteria of (i) potential impact and (ii) speed of emergence to prioritize them.

Potential Impact

- Very High
- High
- Moderate
- Low
- Very Low

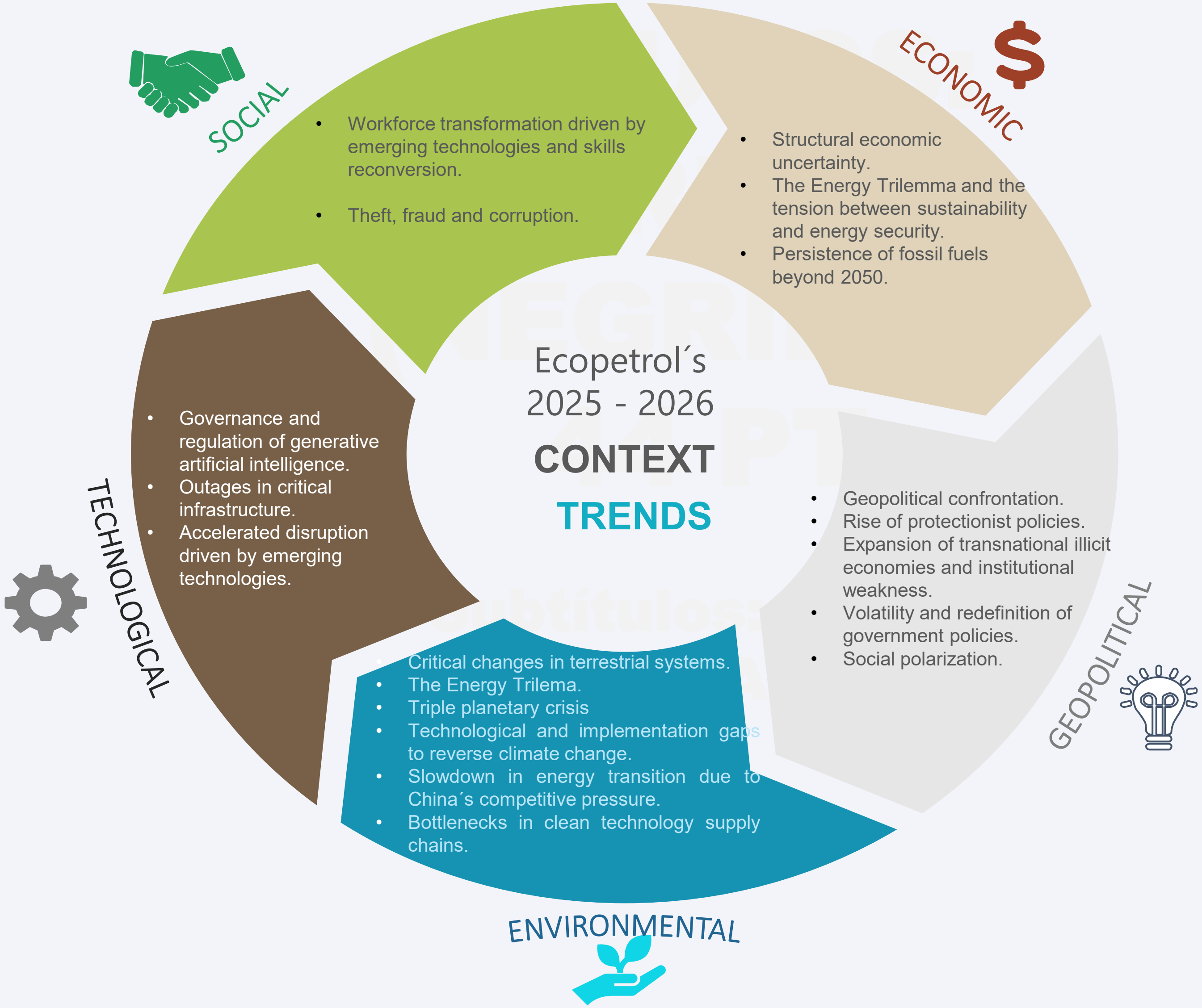
Speed of emergence



Based on the analysis carried out in different joint construction scenarios, Ecopetrol identified the following external environment TRENDS that have the greatest influence on the company, from which the emerging risks are derived:

How do we identify trends?

- Assessment of the context and the different external conditions that may affect the company.
- Analysis of all trends to identify signals in the industry and their connection with the company, seeking to address all critical areas, classified in the categories applied by the World Economic Forum (social, technological, economic, geopolitical and environmental).
- Identification of emerging risks for the company derived from the trends analyzed, to determine their treatment as emerging, business or tactical risk.

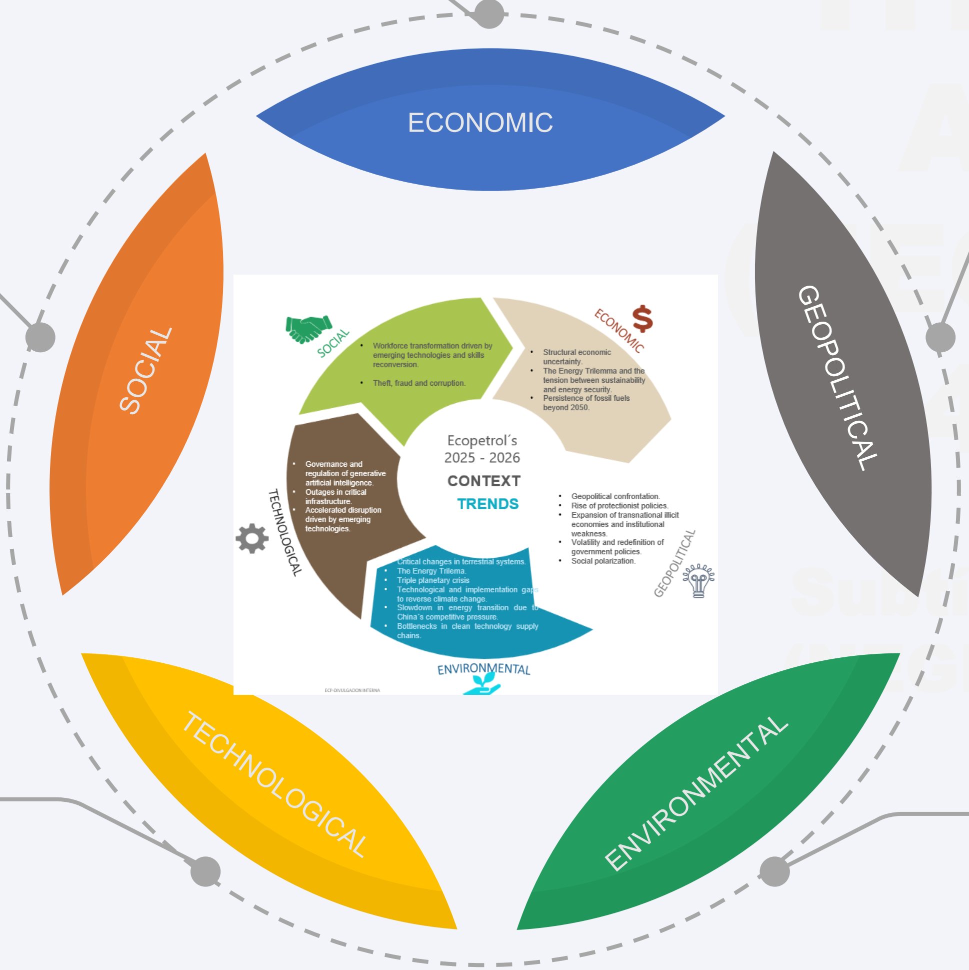


Trends vs Emerging Risks 2025 - 2026

Trend	Risk
Structural economic uncertainty	Prolonged impacts resulting from a global recession.
The Energy Trilemma and the tension between sustainability and energy security.	Loss of competitiveness and financial pressure under the Energy Trilemma.
Persistence of fossil fuels beyond 2050.	Insufficiency of reserves amid prolonged fossil fuel demand.

Trend	Risk
Workforce transformation driven by emerging technologies and skills reconversion.	Misalignment with transformation needs for workforce capability reconversion.
Theft, fraud and corruption.	Integrity and transparency challenges associated with the territorial expansion of operations.

Trend	Risk
Governance and regulation of generative artificial intelligence.	Increased digital vulnerability from unregulated use of generative AI
Outages in critical infrastructure.	Critical operational disruptions due to grid overload and increased outages in essential infrastructure
Accelerated disruption driven by emerging technologies.	Difficulty in integrating clean technologies (firm clean technology and renewable) with existing systems

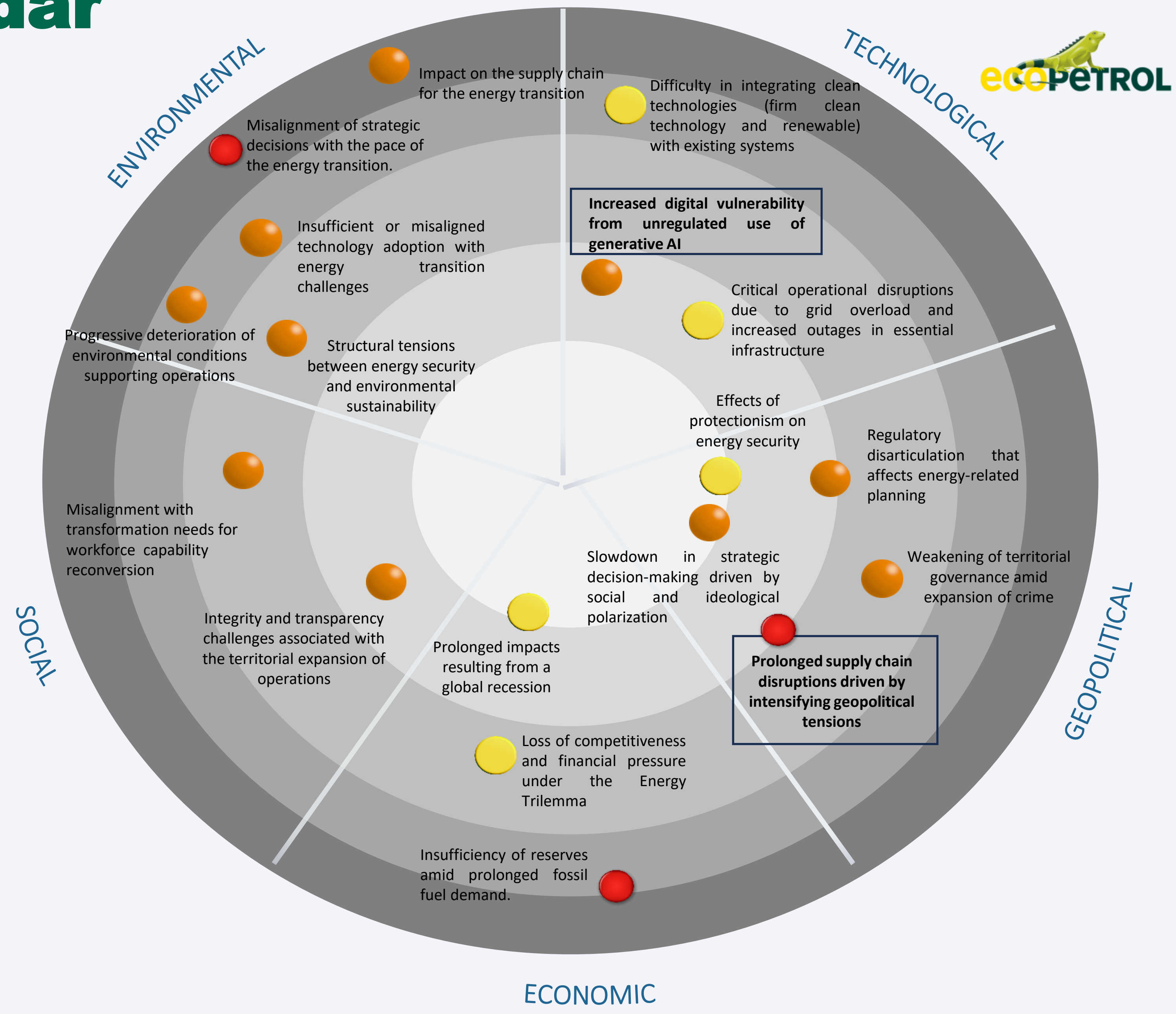


Trend	Risk
Geopolitical confrontation	Prolonged supply chain disruptions driven by intensifying geopolitical tensions.
Rise of protectionist policies	Effects of protectionism on energy security.
Expansion of transnational illicit economies and institutional weakness	Weakening of territorial governance amid expansion of crime.
Volatility and redefinition of government policies	Regulatory disarticulation that affects energy-related planning.
Social polarization	Slowdown in strategic decision-making driven by social and ideological polarization.

Trend	Risk
Critical changes in terrestrial systems.	Progressive deterioration of environmental conditions supporting operations.
Triple planetary crisis	
The energy trilema	Structural tensions between energy security and environmental sustainability.
Technological and implementation gaps to reverse climate change.	Insufficient or misaligned technology adoption with energy transition challenges.
Slowdown in energy transition due to China´s competitive pressure.	Misalignment of strategic decisions with the pace of the energy transition.
Bottlenecks in clean technology supply chains.	Impact on the supply chain for the energy transition.

Emerging Risks Radar 2025 - 2026

According to our methodology, and aiming to identify the most relevant emerging risks, the following is a risk assessment for each trend category, considering the levels of impact and speed of emergence:



Risk: Prolonged supply chain disruptions driven by intensifying geopolitical tensions

Category: GEOPOLITICAL

Description

The escalation of global and regional geopolitical tensions increases the risk of prolonged disruptions in the supply chain for crude oil, natural gas, and materials critical to the energy transition, affecting logistics routes, availability, costs, and the stability of energy markets. This environment increases Ecopetrol's exposure to supply risks, price volatility, and operational disruptions, with potential impacts on national energy security.

Potential Actions

If Ecopetrol is not prepared to understand the current geopolitical environment and the effects it may have on its strategy and operations, it could be impacted in the following ways:

Strategic and business model impact:

Disruption to financial planning, project profitability, and/or the stability of long-term contracts with key customers, due to cost volatility associated with the supply chain and other economic variables.

Impacts on the execution of the growth and energy transition strategy, due to limitations in access to key inputs, equipment, or technologies.

Potential loss of positioning as a reliable supplier, affecting strategic commercial relationships and the ability to capture new market opportunities.

Potential extraordinary regulatory changes stemming from geopolitical tensions that could lead to a reconfiguration of the business model, affect business margins, and challenge the company's established strategy.

Operational and supply chain impact:

Disruptions in the supply of crude oil, gas, and/or critical materials with direct impacts on the ability to meet volumes, timelines, and commercial agreements.

Increased logistics and transportation costs that could compromise profit margins.

Greater complexity in managing suppliers and international contracts.

Reputational, commercial, and stakeholder impact:

High volatility in supply or breaches that could erode the trust of domestic and international customers.

Greater scrutiny by authorities, investors, and ESG rating agencies regarding the company's commercial and operational resilience.

Potential impact on national energy security, affecting domestic prices and public perception of Ecopetrol's role as a strategic player in the national energy mix.

Impacts on commercial, financial, and supply partnerships and agreements

Mitigating Actions

- Continuous monitoring of external factors and the international context.
- Continuous monitoring of the regulatory environment.
- Strengthening of legal and administrative due diligence for any commercial or technical engagement.
- Geopolitical risk monitoring dashboards.
- Scenario models addressing the impacts of changes in the geopolitical environment.
- Identification of early warning signs related to conflicts, sanctions, trade blockades, or regulatory changes that could affect operations, supply, or marketing.
- Assessment of impacts across the value chain, including maritime transport, insurance, crude oil supply, marketing, and reputational risks.
- Strengthening corporate diplomacy through strategic relationships with governments, multilateral organizations, and business partners, among others, to anticipate trends, manage shared risks, and ensure the Group's presence in scenarios of high strategic value.

Risk: Increased digital vulnerability from unregulated use of generative AI

Category: TECHNOLOGICAL

Description

The growing use of generative artificial intelligence solutions to produce analyses and projections that support strategic decisions and critical processes can lead to erroneous or unsustainable decisions when such solutions process sensitive or strategic information without adequate controls for protection, validation, traceability, and governance.

In a context of strict regulatory oversight and transparency requirements in the securities market, the decentralized use of solutions and the absence of clear regulatory and governance frameworks can amplify legal, operational, technological, reputational, and regulatory compliance risks, including impacts on data protection, the use of sensitive, strategic, or regulated information, digital rights, and stakeholder trust. The materialization of this risk could impact the integrity of decision-making, digital security, and the credibility of the company's digital transformation strategy.

Potential Impact

If Ecopetrol is not prepared to understand and mitigate its vulnerability to the unregulated use of generative AI, it could be impacted in the following ways:

Strategic and business impact:

Loss of strategic value due to potential leaks of sensitive information, automated errors, or decisions based on unreliable information.
Revision of strategic assumptions related to the pace of innovation, technology adoption, and value creation.
Reassessment of critical organizational talent capabilities described as part of cutting-edge knowledge.
Damage to credibility in accordance with the integrated CT+i plan, limiting the responsible scaling of generative AI.
Erosion of trust among investors, regulators, and other stakeholders due to failures in AI technology governance.
Strategic or financial decisions based on unvalidated AI-generated information, affecting value creation and business sustainability.
Impact on customer trust due to decisions or interactions supported by unreliable AI.

Impact on IT/OT and operations:

Increased exploitation of vulnerabilities in IT/OT infrastructure, reduced control, and low traceability of automated decisions.
Potential impact on operational continuity and reliability, within the operational environment and data analytics.
Excessive reliance on AI solutions without quality controls, contingency plans, or effective human oversight.
Increased digital attack surface through information leaks, personal data breaches, unauthorized access, or misuse of generative AI tools.

Regulatory and reputational impact:

Exposure to penalties, litigation, and heightened regulatory scrutiny in light of future AI and data protection regulations.
Erosion of trust in the ethical and responsible governance of technology and the management of AI within the organization.
Reputational damage due to unethical, non-transparent, or insecure use of AI, impacting market perception and stock value.

Mitigating Actions

- An AI analytics governance guide, integrated with codes of ethics, information security, and regulatory compliance, to drive standards, secure architectures, use case validation, and performance monitoring.
- Cybersecurity strategy applied to AI, including access controls, usage monitoring, data leakage prevention, and security testing.
- Ongoing training for employees and executives on using AI technologies to optimize operations, improve decision-making, and increase efficiency across various processes.
- Audit, traceability, and reporting mechanisms that demonstrate control, transparency, and compliance.

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