SESSION 5 · ESG, AI & MONITORING

When the risk is real but the numbers do not show it yet

ESG Integration, AI Governance &
Investment Monitoring

Session 4 asked who may force the board to act; Session 5 asks what the board should have priced before anyone forced it

SESSIONS 1–4 — PRESSURE FROM OUTSIDE

The portfolio and the capital. Diversification, the five uses of cash, parenting fit — and then who decides, and to whom they answer.

The duty to tell the market. Materiality as probability × magnitude, KAP disclosure, the ban on selective disclosure.

Then the owners pushed back. Activists, minority rights, control blocs and the Turkish defence toolkit.

Note what they all had in common. Everything the activist used was already in the accounts. The argument was about interpretation, not discovery.

SESSION 5 — PRESSURE FROM THE UNPRICED

The risk is not in the accounts yet. Climate exposure, social licence, a model nobody validated — these sit in the gap between today's numbers and tomorrow's.

The lever is the valuation itself. Not a proxy fight but the cash flows, the discount rate, and the scenario you did not run.

And the duty does not stop at approval. Monitoring is where governance actually fails — quietly, and long after the vote.

Today also carries the hour we owe Session 4. GW2, the activist negotiation, runs in the extra sixty minutes.

THE QUESTION Session 4: what happens when someone makes you act? Session 5: what should you have priced before they did?

PART I

ESG as a priced risk factor

Not compliance, not virtue — the part of value the income statement has not reached yet, and the three doors through which it arrives.

ESG is not a values topic bolted onto strategy — it is the point where physics, a treaty and securities law meet the balance sheet

01

It began as physics, not preference

Atmospheric CO_2 has risen from roughly 280 ppm before industrialisation to over 425 ppm. Global mean surface temperature is about 1.3–1.5°C above the 1850–1900 baseline, and 2023, 2024 and 2025 were the three warmest years in the instrumental record. None of this is a corporate opinion; it is a measured quantity, and it does not reverse on a reporting cycle.

02

A treaty turned it into national law

Paris (2015) committed 195 parties to hold warming well below 2°C and pursue 1.5°C. Treaties bind states, not companies — but states deliver their pledges through carbon pricing, permits, product rules and disclosure mandates. Every obligation on your company arrives through that chain.

03

Which is why it reaches the income statement

A carbon price is a cost. An emissions standard is a capital-expenditure decision. A disclosure mandate is a liability if you get it wrong. That is why this session opens the course's regulation-and-risk block — not because sustainability is admirable, but because it is now priced.

THE FRAME FOR TODAY Treat everything in Parts I and II as the transmission mechanism from a physical fact to a line in your accounts. Then Part III asks the same question about a second, faster-moving technology.

What warming actually is, and why the 1.5°C number governs corporate timetables

THE MECHANISM

Greenhouse gases trap outgoing heat. CO_2, methane, nitrous oxide and fluorinated gases let sunlight in and slow infrared radiation out. More gas, more retained energy.

CO_2 is effectively permanent. A substantial fraction of today's emissions stays in the atmosphere for centuries. Warming responds to the cumulative total, not to this year's flow — which is why 'we cut 5% this year' answers the wrong question.

Hence the carbon budget. Holding 1.5°C leaves only a few hundred gigatonnes of CO_2 in total. At current emissions that budget is measured in years, not decades.

WHERE WE ARE

Roughly 1.3–1.5°C of warming above pre-industrial levels, with 2024 the first single calendar year to breach 1.5°C — not yet a breach of Paris, which is measured as a long-term average.

The IPCC is the reference. Not an advocacy body — an intergovernmental assessment of published science, approved line by line by the same governments that then legislate.

Two kinds of consequence. Physical risk — heat, drought, flood, storm, sea level — and transition risk: the policy, technology and market shifts made in response. Both hit companies; only one is about weather.

WHY A BOARD CARES

Because the exposure is asymmetric. Physical risk is concentrated in assets, sites and supply chains. Transition risk is concentrated in business models. Very few companies are exposed to neither.

Because the horizon is the trap. Carney's argument in 2015: the costs fall beyond the horizon of the business cycle, the political cycle and the credit cycle — so no one whose incentives are set inside those cycles has a reason to act. That is a governance failure, not a scientific one.

Türkiye is a front-line geography. The Eastern Mediterranean warms faster than the global average; drought, water stress and heat are already operating variables, not scenarios.

THE ONE SENTENCE Warming is cumulative and effectively irreversible on a business timescale — which is exactly why the response arrived as regulation rather than as goodwill.

The global breakdown by end use — and the Turkish one, which is a different shape

THE WORLD — 57.7 $GtCO_2e$ IN 2024

Energy use in industry	24.2%	Iron and steel 7.2 · chemicals 3.6
Energy use in buildings	17.5%	Residential 10.9 · commercial 6.6
Transport	16.2%	Road 11.9 · aviation 1.9 · shipping 1.7
Agriculture, forestry, land	18.4%	Livestock 5.8 · soils 4.1 · deforestation 2.2
Unallocated fuel combustion	7.8%	Other energy use
Fugitive emissions	5.8%	Oil and gas 3.9 · coal 1.9
Direct industrial processes	5.2%	Cement 3.0 · chemicals 2.2
Waste	3.2%	Landfill 1.9 · wastewater 1.3

End-use taxonomy: Climate Watch / WRI via Our World in Data — 2016 structure, 2024 total. Power emissions sit with whoever used the electricity.

TÜRKİYE — 584.5 $MtCO_2e$ IN 2024

Energy 71.8% · industrial processes 12.9% · agriculture 12.6% · waste 2.6%. TÜİK national inventory, source-based taxonomy — so it is not directly comparable with the table on the left.

Up 5.3% on 2023, 6.8 tonnes per head, roughly 1% of world emissions. Since 1990 energy emissions have risen 192% and industrial processes 228%.

Read it by gas. 86% of CO_2 comes from energy; but 62% of methane comes from agriculture and 78% of nitrous oxide from agricultural soils — the sector is small in CO_2e and dominant in the other two gases.

Which sectors matter here. Electricity and heat, cement, iron and steel, refining and fertiliser — which is precisely the list the emissions trading system starts with.

THE TAXONOMY TRAP Never mix the two views on one page. National inventories put all fuel burning under 'energy'; end-use views push it to the industry, building or vehicle that used it. Same emissions, different story, different policy.

How a treaty between states becomes a line item in a Turkish company's financial statements

STEP	WHAT HAPPENS	LEVEL
The Paris Agreement, Dec 2015	195 parties. Hold warming well below 2°C, pursue 1.5°C. Article 2.1(c) also commits parties to make finance flows consistent with that path — the hook for the whole ESG-finance agenda	**Treaty**
Nationally determined contributions	Each state sets its own pledge and must revise it upward every five years — the 'ratchet'. Nothing in the treaty binds a company directly	**State pledge**
Türkiye ratified in October 2021	Net zero by 2053; the Climate Law (No. 7552, Official Gazette 9 July 2025) establishes the national emissions trading system and the legal architecture behind it	**National law**
The EU delivers it as trade policy	EU ETS, CBAM from 2026 on cement, steel, aluminium, fertiliser, electricity and hydrogen. This is where Paris reaches a Turkish exporter regardless of Turkish law	**Border**
Regulators demand the evidence	TCFD, then IFRS S2, then TSRS 2: disclose governance, strategy, risk management, metrics and targets — and how they survive a 1.5°C scenario	**Disclosure**
Which makes it enforceable	A misstated climate disclosure is a securities problem, not a public-relations one. Vale settled $55.9m with the SEC over what its sustainability report said	**Liability**

WHY IT IS NOT OPTIONAL No one obliged your company to care about climate. States accepted an obligation, and then discharged it through carbon prices, border levies and disclosure law. By the time it reaches you it is not an ethic — it is a cost, a market-access condition and a liability.

Law No. 7552 — what it creates, when it bites, and what it deliberately leaves out

WHAT IT CREATES

Law No. 7552, Official Gazette 9 July 2025. Twenty articles. It is the legal machinery behind the 2053 net-zero pledge rather than a dated emissions cap in itself.

An emissions trading system (Art. 9). Covered installations need a greenhouse-gas permit; allowances are allocated on historical data or benchmarks under national allocation plans; EPİAŞ operates the market and EPDK oversees it.

A Carbon Market Board (Art. 10). Chaired by the Minister, with the SPK and EPDK chairs on it. It sets the allocation plan, the auction volumes, the offset caps and the pilot scope — so the generosity of allocation is a political variable.

Plus a green taxonomy, a national adaptation and planning framework, provincial coordination boards, and an earmarked revenue pool with up to 10% for just transition.

WHEN IT BITES

Pilot 2026–2027. Iron and steel, aluminium, cement, fertiliser and power generation — installations above 50,000 tCO_2e a year, about 41% of national emissions. Allocation is 100% free and fines are cut by 80%.

Implementation from 2028. Free allocation tapers, auctioning begins, and coverage widens toward roughly half of national emissions and 800-plus facilities.

The company calendar. Monitoring plan, verified emissions report by 30 April, allowances surrendered by 30 November, records kept ten years, verification by a TURKAK-accredited body. Emission permits due by 9 July 2028.

Note what already exists. Roughly 770 installations have reported under the 2014 MRV regulation for a decade. The data is not new — the financial and penal consequence is.

WHY, AND WHAT IT DOES NOT DO

It is a CBAM shield. The EU deducts a carbon price effectively paid in the country of origin. The pilot sectors are the CBAM basket, and Türkiye supplies roughly 30% of EU cement imports. The point is to keep the revenue in Ankara rather than pay it in Brussels.

But not yet. With 100% free allocation in 2026–27 the effective price is near zero, so little deduction accrues until auctioning starts. Art. 8 also gives Türkiye its own border mechanism, not yet activated.

Fines, indexed annually. A missing verified report runs to roughly TRY 6.3m in 2026; short surrender costs twice the market price per allowance, and you still surrender.

What it is not. No binding sectoral budgets, no carbon tax, no coal phase-out, no Scope 3, no company disclosure duty.

THE HONEST READING For 2026–27 this is a data-discipline regime, not a decarbonisation one. The number your plant reports in April 2027 is the baseline you will be allocated against when the price becomes real in 2028.

ESG stopped being a reporting chore when investors started charging for it

THE OLD FRAMING

Compliance and reputation. A cost centre, a brochure, a function beside the real business of returns.

Measured by output. Pages published, initiatives launched — none of it connected to a cash flow or a discount rate.

And separable. Something a board could delegate and never revisit.

THE THREE PILLARS, PRECISELY

Environmental. Climate exposure, emissions and the transition, resource use, physical risk to assets — the largest and most quantifiable category.

Social. Workforce, safety, supply chain and human rights, communities — the licence to operate, slow to build and fast to lose.

Governance. Board quality, ownership and control, pay, audit, the treatment of minorities. Sessions 2 to 4, now inside the ESG frame — which means you have already done the hardest pillar.

THE SESSION'S THESIS

Materiality, not virtue. Never 'is this good?' but 'does THIS factor, material to THIS business, move value?'

Price it or meet it later. An unpriced risk does not disappear; it arrives later, larger, and at the worst moment.

And it is now audited. In Türkiye, sustainability reports enter the scope of independent assurance from 2026 — so a claim now carries the liability of a financial statement.

THE SHIFT The question moved from 'what should we report?' to 'what have we not yet put a number on?'

Three doors through which an ESG factor reaches the share price

01

The cost of capital

Higher perceived risk raises the discount rate and shrinks the investor base. A mechanical hit to value that needs no incident to occur — the market simply charges more to bear the risk.

02

Downside and tail risk

Most ESG value destruction is discrete and large: a spill, a dam, a scandal, a stranded asset, a ban. ESG risk is, in substantial part, tail risk — rare, severe and badly modelled by a central-case forecast.

03

Cash flows and growth

Demand, pricing, market access, energy and waste costs, litigation, and the durability of the franchise. The slow channel, running through the operating numbers year after year.

THE DISCIPLINE Name the risk, then say which door it comes through. A risk you cannot route to one of these three is a risk you have not understood.

Five kinds of ESG risk — and the one boards under-price most

THE CATEGORY	WHAT IT IS	THE CHANNEL
Physical risk	Direct damage from climate and environment — to assets, supply chains and operations	Cash flows · tail
Transition risk	Policy, technology and demand shifts that strand assets and reprice them ahead of schedule	Cost of capital · tail
Social risk	Labour, safety, supply-chain and community failures that cost the licence to operate	Tail · cash flows
Governance risk	Board, ownership, pay and minority-treatment failures — the whole of Sessions 2 to 4	Cost of capital
Regulatory & litigation	Fines, bans and liability — including liability for the disclosure itself	Tail · cash flows

THE STRANDED ASSET. Transition risk in one idea: the plant still works, and is already worth less. Policy, technology or demand devalue an asset while it is physically functioning. It shows up as a shorter assumed asset life, a higher discount rate, and an impairment nobody scheduled — and the revenue is front-loaded while the write-down is back-loaded, which is exactly the shape that makes a central-case DCF look comfortable.

THE TEST FOR A BOARD Ask for the asset life, not the NPV. If the payback runs past the policy horizon it depends on, you have a stranding question.

Genel

Five events that turned an ESG risk into a permanent number on the income statement

COMPANY	YEAR	WHAT HAPPENED	THE CONSEQUENCE	CHANNEL
BP	2010	Deepwater Horizon: rig explosion, 11 deaths, the largest US marine oil spill	~$65bn cumulative pre-tax charge (as reported Jan 2018); shares fell ~54% in ten weeks	Tail
Volkswagen	2015	Defeat-device software falsified US diesel emissions tests	~€20bn of market value lost on day one; costs later exceeded $30bn	Tail
Volkswagen — again	2019	The SEC charged VW and its former CEO with defrauding bond investors — not over the engines, but over what the company told the market about them	The disclosure itself became a securities-fraud case, four years after the engineering one	Cost of capital
Rio Tinto	2020	Blasted the 46,000-year-old Juukan Gorge rock shelters — with a lawful permit, and no working internal escalation	CEO and two senior executives gone within four months; a parliamentary inquiry and a lasting licence problem	Licence
PG&E	2019	Equipment ignited California wildfires; Chapter 11 in January 2019	$24.5bn of wildfire settlements approved; equity almost wiped out	Licence

In every case the risk was known internally before it was priced externally. Volkswagen's engineers knew; Rio Tinto's own heritage specialists had put it in writing. The gap was never information — it was that nobody converted the information into a number in the model, or sent it up the reporting line.

READ THE TWO VOLKSWAGEN ROWS The engines cost them the operating business. What they said about the engines cost them a securities-fraud case four years later. Session 3's disclosure rules now reach sustainability claims.

The disclosure regime that binds Turkish issuers — and where your three case companies actually stand

TSRS, SPK AND BIST

TSRS 1 and 2, issued by the KGK and aligned to the ISSB baseline. Published 29 December 2023, effective for periods from 1 January 2024. A TSRS 2 amendment on greenhouse-gas disclosure followed on 28 July 2026.

Who must report — and it changed. FY2024 used TRY 500m assets / TRY 1bn sales / 250 employees. From FY2025 the thresholds doubled to TRY 1bn / TRY 2bn / 500, by KGK decision of 13 January 2026.

SPK, since October 2020. Comply-or-explain: applying the principles is voluntary, reporting whether you apply them is not.

From 2026, assurance. Reports enter the scope of independent audit.

KOÇ AND SABANCI

Koç Holding. In the S&P Global Sustainability Yearbook 2026 — reported as the only Turkish company in the top 8% of Industrial Conglomerates. Be precise: not 'the only Turkish company in the Yearbook'.

Sabancı Holding. First TSRS-compliant report in 2025; MSCI ESG 'AA'; LSEG 'A'; nine group companies on the CDP Global A List — the largest representation of any Turkish group.

Worth connecting to GW2. Sabancı is the company one of your teams argued was missing every target it set itself. Both things are true at once, and that tension is the interesting part.

TÜRK HAVA YOLLARI

On E and S, it is ahead of the Turkish market. TSRS-compliant report filed with the KGK for 2024, sustainability reporting since 2014, PwC limited assurance on selected 2025 indicators, top-tier management-quality score from the Transition Pathway Initiative. The next slide takes this apart.

On AI, the picture reverses. Serious capability — 60+ models live on Red Hat OpenShift AI, 40+ in development, ~$10m of reported savings — and no published AI policy, ethics committee or responsible-AI framework.

State it as a question, not an accusation. Absence of published policy is not absence of policy. But to an investor the two are indistinguishable — which is itself the disclosure point.

THE PATTERN Turkish disclosure has caught up fast on E and S. On the governance of AI, capability is years ahead of oversight — here as everywhere.

A serious programme — and three places where the disclosure does not yet answer the investor's question

WHAT IT ACTUALLY DOES

Fleet renewal is the real lever. New-generation aircraft burn 15–20% less. 168 of 492 aircraft were new-generation at end-2024; the plan is 800+ aircraft by 2033, at least 95% of them next-generation. This is a capital-allocation decision, not a sustainability initiative.

Fuel efficiency, measured. 213,365 tCO_2e avoided in 2025 through operational fuel savings, against a cumulative 2033 target.

SAF, positioned upstream. Domestic supply MoUs signed in 2025 with Tüpraş, Çalık Renewables and SOCAR — an attempt not to be a price-taker when ReFuelEU bites. Plus CO_2mission, the passenger offset and buy-SAF programme, and a corporate SAF programme that sells other companies a way to cut THEIR Scope 3.

WHAT BINDS IT

Three carbon regimes at once. EU ETS on intra-EEA flights (it holds EUAs), the UK and Swiss systems, and CORSIA — under which its filing states emissions are offset as of 2024.

ReFuelEU Aviation. 2% SAF in fuel supplied at EU airports from 2025, 6% by 2030, 70% by 2050. The obligation sits on fuel suppliers; the cost passes straight through, and an anti-tankering rule stops carriers avoiding it.

Note where the pressure comes from. For THY the binding climate constraint is not Turkish law. It is a treaty and an EU trade rule — which is exactly the Session 5 argument in one company.

WHERE TO PRESS

The target is not science-based. 'Carbon neutral by 2050' — not net zero, not SBTi-validated. The interim target is intensity, not absolute: −10% CO_2 per ASK by 2029 against a 2022 base. An intensity target is compatible with rising total emissions.

Scope 3 is missing from the TSRS report. It uses the first-year transitional relief. The CDP filing does disclose it: Scope 1 ≈76%, Scope 3 ≈23%, of ~27.5 $MtCO_2e$ — the reverse of most companies, because an airline burns its own fuel.

Comparability is unresolved. The TPI had to recalculate THY's intensity because the disclosed figures did not fit its sector methodology. Top marks on process; open questions on the numbers.

THE DILIGENCE LESSON Do not stop at 'they have a target and a report'. Ask whether the target is absolute or intensity, whether Scope 3 is in, and whether an outsider can reproduce the number. All three answers here are instructive.

Which sectors actually do this — worldwide, and in Türkiye

THE WORLD — KPMG SURVEY 2024

Forestry & paper	**89% report**	Highest reporting rate of any sector
Automotive	**86% report · 70% assured · 91% carbon targets**	Leads on assurance AND on targets
Utilities	**85% report**	Physical assets, visible emissions, regulated
Mining	**63% assured · 87% carbon targets**	68% report on biodiversity — the highest of any sector
Financial services	**74% carbon targets**	Below average on environment; first on board infrastructure
Healthcare	**67% report · 70% carbon targets**	Lowest on every environmental measure

Baseline: 96% of the G250 and 79% of the N100 report; 69% of the G250 assure. N100 = 5,800 companies across 58 jurisdictions.

TÜRKİYE

BIST Sustainability 25. Of 25 constituents: five banks, three aviation names (THY, Pegasus, TAV), and both Koç and Sabancı. The main index (XUSRD) holds around 95 lines, up from 15 at launch in 2014.

But by headcount, manufacturing leads. A Sabancı University study put manufacturing at 40% and banking at 14% — as of 2022, when the index held 59 firms.

CDP Türkiye, 2024 cycle. 138 Turkish companies reported; 28 on the Global A List, 15 'Double A'. Yet only 2% of net-zero commitments are SBTi-validated.

What nobody publishes: how many companies fell within TSRS scope for FY2024 and how many actually filed. There is no citable compliance rate.

THE HONEST ANSWER FOR TÜRKİYE Banking leads on governance and disclosure infrastructure · industrials on volume and history · aviation on regulatory compulsion. Your case company sits in one of the three.

Banking, industrials and aviation — three different ESG and AI exposures, and three different governance questions

BANKING & FINANCIAL SERVICES

Double exposure. Direct obligations as a regulated institution — capital, conduct, anti-money-laundering — plus the ESG profile of everything it lends to.

The material number is financed emissions, not the bank's own footprint. Which is why banks report differently and why the figure is so contested.

The AI question is the sharpest here. Which credit, fraud or pricing models make automated decisions materially affecting a natural person? That is the AI Act's high-risk trigger, and it is a narrower, more tractable question than 'do you have an AI policy'.

INDUSTRIAL HOLDINGS & MANUFACTURING

A different AI profile entirely. Not consumer-credit-facing systems but operational ones: quality control, predictive maintenance, process optimisation, supply-chain planning.

Mostly limited or minimal risk under the Act — unless the system is a safety component of a regulated product. An AI quality-control system detecting safety-critical defects in an EU-export line is the exception, and it moves the whole line into the high-risk tier.

The ESG side is the physical one. Emissions, water, waste, biodiversity, and the transition risk in long-lived assets.

AVIATION & TRANSPORT

The obligation comes from a treaty. CORSIA sets monitoring, reporting, verification and offsetting duties on international flights; the EU ETS applies on European routes. No Turkish standard imposes either.

Extensive AI across the operation. Revenue management and dynamic pricing, crew scheduling, predictive maintenance on aircraft systems, passenger-facing bots — much of it vendor-supplied.

And a higher bar on anything flight-adjacent. Boeing's 737 MAX is why safety-critical automation warrants a governance standard above ordinary high-risk compliance — including for systems the airline bought rather than built.

THE CROSS-SECTOR POINT The urgency of AI-governance diligence is not a function of whether a company published a policy. It is a function of what its specific systems are allowed to decide.

PART II

Standards, disclosure and greenwashing

Thirty years of standard-setting, two meanings of 'material', a world map of adoption — and what happens when the claim becomes the liability.

ESG and financial reporting came from different worlds — and four things fused them

WHY THEY WERE SEPARATE

Different lineage. Financial reporting came out of accounting — double entry, securities law, standard-setters. Sustainability reporting came out of disasters and activism: Bhopal 1984, Exxon Valdez 1989, Brent Spar 1995, Nike's supply chain.

CERES was founded in 1989, months after Valdez; its first text was literally called the Valdez Principles. CERES and Tellus founded GRI in 1997 — deliberately multi-stakeholder, not investor-focused.

So the split was structural. Different audience, different materiality, no assurance, no enforcement. One answered to capital; the other to society.

WHAT ACTUALLY MERGED THEM

Investors started using it. The PRI (2006) moved ESG data from the CSR department to the portfolio manager. Information that moves trillions is, by definition, financial reporting's territory.

Materiality was the bridge. SASB (2011) said: report only what is financially material to THIS industry. That made sustainability a subset of financial information rather than a parallel discourse.

Climate made it a stability risk. Carney's 'Tragedy of the Horizon' (2015) reframed climate as financial, not moral — and the TCFD's four pillars are the language of risk management, not of CSR.

Then assurance and liability. Same auditor, same exposure. Vale settled $55.9m over what its sustainability report said.

WHO PROPOSED IT

Joan Bavaria — CERES, 1989. The field's founding figure.
Jean Rogers — SASB, 2011. The materiality move.
Mark Carney — 2015. Created the TCFD as FSB chair; Michael Bloomberg chaired it.
The Big Five — GRI, SASB, CDP, CDSB and IIRC, September 2020: a joint statement of intent to work toward comprehensive corporate reporting. That is the merger proposal.
The IFRS Foundation — announced the ISSB at COP26, 3 November 2021.
Emmanuel Faber — its first chair. The Danone CEO removed by activists in March 2021 was running the global standard eight months later.
IOSCO — endorsed the standards in July 2023, which is what moved securities regulators.

THE HONEST VERSION What merged is the financial-materiality half — outside-in, written for investors. Impact materiality did not: GRI still exists, and the EU is retreating from double materiality.

Convergence is not uniform — it is deepest where the physical risk and the regulator already were

SECTOR	WHY	STATUS
Banking and insurance	Financed emissions, ECB climate stress tests, Pillar 3 ESG disclosure. ESG data feeds prudential capital reporting directly — the distinction has effectively disappeared	FUSED
Energy and utilities	Stranded assets arrive on the balance sheet as impairment and shortened useful lives, not as a CSR narrative	FUSED
Aviation and shipping	CORSIA and the EU ETS make carbon a purchased input and an income-statement line. For THY the binding source is a treaty, not TSRS	FUSED
Automotive and mining	KPMG 2024: assurance 70% and a carbon target in 91% of automotive; biodiversity reporting 68% in mining	ADVANCED
Apparel and chemicals	Where the pressure originated — Nike's supply chain, Responsible Care after Bhopal — but disclosure is still largely supply-chain driven	DRIVER
Healthcare, software, services	Last on every KPMG metric. No physical asset base, no regulatory exposure — the two reports still live apart	SEPARATE

THE PATTERN The two systems fuse where the risk is physical and the regulator is already in the room. Everywhere else, convergence is still a reporting exercise rather than an accounting one.

They are not competing versions of the same thing — they answer different questions for different readers

STANDARD	SCOPE	MATERIALITY APPROACH	STATUS
GRI	Broadest multi-stakeholder sustainability reporting	Impact materiality — the organisation's effect on the world	Voluntary globally, though often referenced or required
SASB	Industry-specific financially material topics	Financial materiality only	Voluntary; now absorbed inside the ISSB
ISSB — IFRS S1/S2	Investor-facing global baseline, climate and broader sustainability	Financial materiality — decision-useful for investors	Adopted jurisdiction by jurisdiction; mandatory in Türkiye via TSRS
EU CSRD / ESRS	The EU directive and its detailed European standards	Double materiality — financial effect AND impact on the world	Mandatory for in-scope EU and EU-exposed companies

THE TRAP FOR A TURKISH ISSUER. TSRS is financial-materiality based. But a Turkish supplier inside an EU value chain will be asked for the other direction by its customer, whatever KGK requires. Your reporting obligation and your customer's information demand are not the same standard.

THE ONE DISTINCTION TO HOLD GRI asks what you do to the world. SASB and ISSB ask what the world does to your value. CSRD asks both. Everything else is detail.

One word, two directions of causation — and the whole political fight over sustainability reporting sits inside it

OUTSIDE-IN — FINANCIAL MATERIALITY

The question. How do sustainability matters affect the enterprise's cash flows, access to finance and cost of capital, over short, medium and long term?

The reader. The investor. This is the ISSB's definition, inherited from SASB and identical in logic to IAS 1 materiality.

A worked example. A drought raises a beverage producer's water cost and shuts a plant. That is a cost line and an impairment — it belongs in the financial statements' risk narrative.

This is TSRS. KGK adopted the ISSB baseline, so a Turkish issuer's legal obligation is outside-in only.

INSIDE-OUT — IMPACT MATERIALITY

The question. What effect does the enterprise have on people and the environment — whether or not that effect ever returns to it as money?

The reader. Everyone else: employees, communities, regulators, NGOs, customers. This is GRI's definition, and it long predates the ISSB.

A worked example. The same plant depletes the aquifer the town drinks from. If there is no permit risk and no boycott, the financial statements never see it — and outside-in reporting is silent.

Note the asymmetry. Impact often becomes financial later. Impact materiality is, among other things, an early-warning system.

DOUBLE — AND ONLY IN THE EU

The rule. Under CSRD and ESRS a topic is material if it passes EITHER test. Not both — either. That is why the EU's scope is so much wider than the ISSB's.

Where it came from. The European Commission's 2019 non-binding climate guidelines coined the term; CSRD made it law in 2023.

It is contested. Critics call it unbounded and costly. Omnibus I (Directive (EU) 2026/470, in force 18 March 2026) cut scope and simplified the assessment — but kept the double test itself.

The practical consequence. The ISSB won the global baseline. The EU kept the other half. There is no single global definition of 'material' in sustainability, and there will not be one soon.

WHY THIS MATTERS TO YOUR TEAM A Turkish exporter can be fully TSRS-compliant and still fail its EU customer's questionnaire — not because it disclosed badly, but because it answered the other question.

The most demanding reporting regime ever written — and then cut by two thirds before its second wave ever filed

ELEMENT	WHAT IT SAYS IN 2026
What it is	Directive (EU) 2022/2464. Replaced the 2014 NFRD; moved sustainability reporting into the management report, audited and machine-tagged
The standards	ESRS — twelve standards: two cross-cutting plus ten topical (E1–E5, S1–S4, G1). Sector-specific ESRS have now been dropped
Materiality	Double — a topic is reported if it passes EITHER the financial or the impact test. Retained through the Omnibus
Assurance	Limited assurance. The planned escalation to reasonable assurance was abandoned; EU limited-assurance standards due 1 July 2027
Scope after Omnibus I	More than 1,000 employees AND over €450m turnover — roughly 5,000–6,000 companies, against the 50,000 originally written. Listed SMEs are out entirely
Timing	Stop-the-clock (2025/794) delayed waves 2–3 by two years; mandatory reporting now runs from financial years beginning 1 Jan 2027, first reports in 2028
Turkish companies	Caught directly only if the group earns over €450m in the EU with an EU subsidiary above €200m — otherwise indirectly, through an in-scope customer's value chain

THE VALUE-CHAIN CAP Omnibus I bars an in-scope company from demanding more from a supplier under 1,000 employees than the voluntary VSME standard — and the supplier may refuse. For most Turkish suppliers that is the single most consequential line in the directive.

The GHG Protocol's three boundaries — the accounting convention every climate standard now runs on

SCOPE 1 — DIRECT

What it is. Emissions from sources the company owns or controls: its furnaces, its boilers, its vehicle fleet, its aircraft, process emissions, refrigerant leaks.

Why it is easy. It maps onto assets already on the balance sheet and fuel already on an invoice. This is the number companies report first and get assured first.

Why it is not the answer. For most companies it is a small fraction of the total — which is precisely why an early-stage reporter is tempted to stop here.

SCOPE 2 — PURCHASED ENERGY

What it is. Indirect emissions from the electricity, steam, heating and cooling the company buys — generated elsewhere, consumed here.

Two answers to one question. Location-based uses the grid average; market-based uses the contracts actually signed — PPAs, green tariffs, certificates. The GHG Protocol requires BOTH.

Where the claims live. ‘100% renewable electricity’ is almost always a market-based Scope 2 figure. The location-based number beside it is the physical truth, and it is rarely zero.

SCOPE 3 — THE VALUE CHAIN

What it is. Everything else, in fifteen defined categories — eight upstream (purchased goods, capital goods, transport, business travel, commuting) and seven downstream (use of sold products, end-of-life, investments).

The scale. Typically the large majority of a company's footprint, and for banks and retailers effectively all of it.

The difficulty. It is not measured, it is estimated — spend-based factors, supplier averages, allocation choices. Two firms with the same activity can report Scope 3 figures a factor apart, legitimately.

THE RULE THAT MATTERS IFRS S2 — and therefore TSRS 2 — requires all three, gross and absolute, using the GHG Protocol; Scope 3 carries a one-year transition relief. A report without Scope 3 is not an early report; it is an incomplete one.

The same three scopes give completely different pictures by business model — read the shape before the number

BUSINESS MODEL	SCOPE 1	SCOPE 2	SCOPE 3
Airline (THY)	Dominant — jet fuel burned in owned aircraft	Small — ground operations, terminals	Moderate — fuel production (WTT), catering, fleet manufacture
Bank (a Turkish lender)	Negligible — branch fleet, generators	Small — branch and data-centre power	Effectively all of it — Category 15, financed emissions, measured under PCAF
Cement / steel (Ereğli, OYAK)	Dominant — process CO_2 from calcination and coal	Material — electric arc and grinding	Moderate — raw materials and outbound logistics
Retail / apparel (LC Waikiki)	Negligible — own stores	Modest — store and warehouse power	Dominant — purchased goods, the supplier factories the company does not own
Automotive (Ford Otosan, Tofaş)	Small — plant operations	Small — plant power	Dominant — Category 11, the fuel burned by vehicles already sold

THE DILIGENCE QUESTION Ask where a company's emissions sit before you ask how large they are. A bank with a credible Scope 1 target and no financed-emissions number has disclosed the irrelevant 0.1% — and that is a governance finding, not a data gap.

The global picture, and the country league table — including where Türkiye sits

THE GLOBAL PICTURE

96% of the G250 — the world's 250 largest companies — publish sustainability reporting. Flat since 2022.
79% of the N100, the top 100 companies in each of 58 jurisdictions: 5,800 firms in the sample.

Assurance: 69% of the G250, 54% of the N100. Up from 30% and 33% in 2005 — and almost all of it is limited, not reasonable, assurance.

Beyond the largest firms: more than 22,100 companies disclosed through CDP in the 2025 cycle, including nearly 11,000 SMEs and over 4,400 first-time disclosers.

Nobody counts the global total. There is no credible single figure for how many companies report worldwide. CDP's 22,100 is the largest verifiable count of individual corporate disclosers.

Source: KPMG Survey of Sustainability Reporting 2024; CDP 2025 cycle.

JURISDICTION	N100	NOTE
Japan · United States · Korea · Singapore	100%	
United Kingdom · Sweden	98%	
Germany · Canada · Netherlands	94%	
Italy · Brazil	93%	
India · China	88%	Both under domestic mandates
GLOBAL AVERAGE (N100)	79%	
Greece	67%	
TÜRKİYE	57%	Up from 44% in 2022 — bottom quartile
Saudi Arabia	53%	
Israel	38%	

WHERE TÜRKİYE SITS 57% of the largest hundred Turkish companies report, against a 79% world average — but that is up thirteen points in two years, one of the larger improvements in the survey.

How many companies each mandate actually catches — and what the Turkish numbers really say

REGIME	IN SCOPE	STATUS
EU CSRD — as written, 2022	**>50,000**	Against 11,700 under the old NFRD
EU CSRD — after the Omnibus	**~5,000–6,000**	Thresholds: 1,000 employees AND €450m turnover. In force 18 March 2026
CSRD — non-EU companies	**~10,000 → ~1,200**	EFRAG estimate, June 2026
ISSB / IFRS S1–S2	**28 jurisdictions**	Plus 12 more planning adoption (IFRS Foundation, April 2026)
United Kingdom — UK SRS	**~500 companies**	Voluntary from Feb 2026; mandatory S2 proposed for 2027
Japan — SSBJ	**~69 companies**	Phase 1 from FY2027; widening to ~1,800 later
United States — SEC climate rule	**Rescinded**	Adopted 2024, stayed, rescission proposed May 2026

TÜRKİYE, FY2024 — THE FIRST CYCLE

458 entities filed a TSRS report with the KGK. Official — KGK 2025 Activity Report, published 1 July 2026.

104 of them are published on KGK's public page. Counted 2 August 2026. Roughly 45% financial sector.

How many were REQUIRED to file? Not published. KGK has never released the in-scope count, so nobody can compute a compliance rate — be sceptical of anyone who quotes you one.

50 firms are authorised for sustainability assurance. Against 458 filers, when assurance becomes mandatory.

And read the regulator's own behaviour: deadline extended, scope narrowed twice, first-time filers exempted for year two, thresholds doubled. That is what a hard first cycle looks like in the record.

THE SINGLE LARGEST RETREAT The EU wrote a rule for more than 50,000 companies and now applies it to perhaps 5,000. Content converged; scope is diverging everywhere.

What sustainability reporting actually costs, who does it, and which part is genuinely hard

THE MONEY

Recurring cost, per company, per year under the EU standards — the regulator's own working figures:
- **Under 10,000 employees** — €157,000 in the first year, falling to about €88,000
- **Over 10,000 employees** — €1.14m in the first year, falling to about €636,000

Plus a one-off build: €130,000 and €832,000 respectively.

Assurance alone: €86,000 and €725,000 a year.

So the first year runs roughly 1.8× the steady state. Budget for the hump, not the plateau.

Source: EFRAG cost-benefit analysis, December 2025; European Commission SWD(2026) 500, July 2026.

THE PEOPLE

6.9 full-time equivalents in the core team for a first CSRD cycle — median 5.5 — over a programme lasting about 15 months.

And that is the core team only. It excludes the operations, procurement, HR and finance people who supply the data, and the external advisers.

77% of companies are creating new sustainability roles; 83% expect ESG responsibilities to spread into non-ESG job descriptions.

44% name insufficient capacity as a barrier.

Source: Wavestone CSRD Benchmark 2025 (35 European large caps); Deloitte 2024 Sustainability Action Report.

THE FIVE HARD PARTS

Scope 3. Supply-chain emissions average 26× a company's own Scope 1 and 2 combined — and only 15% of CDP disclosers have a Scope 3 target

The data is in spreadsheets. 47% of companies still use spreadsheets as their primary ESG data system — outside the ERP, outside financial controls

No audit trail. 81% name documentation and sign-off as a top challenge; 57% name data quality as their single biggest

Supplier data. 64% lack confidence in vendor-supplied Scope 3 data. You have no instruction authority over the source

Pricing the effect. Quantifying the financial effect of climate risk was the most expensive requirement of all — most companies retreat to narrative

THE LINE FOR A SPONSOR Companies were already spending about $533,000 a year on climate disclosure BEFORE any mandate existed (ERM, 2022). The question is not whether to spend it — it is whether you are getting assurance-grade output for it.

Greenwashing is Session 4's empty signal meeting Session 3's misleading disclosure

WHY IT IS TEMPTING, AND WHY IT FAILS

The asymmetry. The reputational reward is immediate and cheap; the substance is slow and expensive. The incentive to claim ahead of reality is structural, not occasional.

The signalling parallel. A signal works only if it is costly to fake. A sustainability claim with nothing behind it is an empty signal, and the market eventually prices it as one.

The disclosure parallel. A sustainability claim is a public statement that moves capital. If it is misleading, that is not a communications problem — it is a disclosure problem, with disclosure consequences.

Which is what assurance fixes. Independent verification is what makes the claim expensive enough to believe.

SPOT THE TELL — FIVE RED FLAGS

✗ **Adjectives, not data.** 'Green', 'sustainable', 'responsible' — with no metric, baseline or target behind them

✗ **Cherry-picked scope.** One product line, one geography, Scope 1 only — the boundary chosen to flatter

✗ **Distant targets, no path.** 2050 commitments with no interim milestone and no capital attached

✗ **Offsets doing the work.** Neutrality bought rather than reduced, with the quality undisclosed

✗ **No assurance.** Nothing independently checked, and the claim always in the unaudited section

THE LINE Say nothing about sustainability that you could not defend line by line to an auditor — because increasingly you will have to.

When the claim became the liability — and where enforcement actually stands in 2026

FIRM	YEAR	REGULATOR	THE CLAIM	THE PENALTY
Vale	2023	SEC	Reports said dams met safety standards; internal audits said otherwise	**$55.9m**
BNY Mellon IA	2022	SEC	Implied every holding had an ESG quality review; many had none	**$1.5m**
Goldman Sachs AM	2022	SEC	ESG questionnaires completed after stock selection, not before	**$4m**
DWS	2023 / 2025	SEC; Frankfurt	Marketed itself as an 'ESG leader'; overstated ESG integration	**$19m + €25m**
Invesco Advisers	2024	SEC	Claimed 70–94% of AUM was 'ESG integrated'; counted passive holdings	**$17.5m**
TotalEnergies	2025	Paris tribunal	'Carbon neutrality by 2050'; 'major player in the energy transition'	**Claims banned**

THE PICTURE IN 2026. The SEC disbanded its Climate and ESG Task Force in September 2024 — which is why the American list stops there. The EU Green Claims Directive is neither adopted nor formally withdrawn: an intention to withdraw was announced in June 2025, but it still sits in the Commission's 2026 work programme.
And the largest effect came without a single fine. ESMA's fund-naming guidelines led 64% of 924 EU ESG-named funds to change their names before the May 2025 deadline; 61% of those dropped ESG terms entirely.

THE REAL MECHANISM Enforcement punishes the outlier. Rules about what you may call yourself move everyone — which is why the naming guidelines mattered more than the fines.

PART III

AI governance

Model risk, data provenance, and the oversight of a system the board cannot see inside — governed by a law that changed its own timetable last week.

Today, 2 August 2026, the European Commission's power to fine general-purpose AI providers becomes live

DEPLOYMENT IS ALREADY EVERYWHERE

AI now sits inside credit decisions, hiring, pricing, fraud detection, operations and customer service.

Your own case company. Türk Hava Yolları runs 60+ AI models in production, with 40+ more in development.

It is an operating dependency, and in most firms nobody has inventoried it.

AND THE BOARDS MOVED, FAST

~6% → ~20% in one year. The share of S&P 500 boards citing AI among committee responsibilities roughly tripled between 2024 and 2025 — most often assigned to the audit committee rather than a new body (EY, Q2 2025 proxies).

75–83% now name AI as a material risk factor. The gap between that number and the committee number is the finding.

Why so fast? DiMaggio & Powell. Coercive (anticipating the AI Act), mimetic (copying visible peers under uncertainty), normative (advisers and proxy firms propagating a norm). If a committee was created by mimicry, its existence tells you very little.

THE LAW ARRIVED TOO

Today the GPAI grace period ends and the Commission may fine general-purpose AI providers.

Maximum exposure. €35 million or 7% of worldwide annual turnover, whichever is higher, for prohibited practices.

If you have EU customers, this is not somebody else's regulation.

A note on your reader. Table 2 gives sector figures of ~4% for energy and ~10% for consumer. Those are EY's TECHNOLOGY-committee numbers — energy 19%, consumer 18%. EY publishes no sector split for AI oversight at all.

THE OVERSIGHT GAP Boards are accountable for decisions they cannot see inside and could not explain if asked. Closing that gap is the whole of Part III.

Jensen and Meckling, extended: the model is a third agent, and the old monitoring toolkit does not reach it

01

The original problem (1976)

Jensen and Meckling formalised agency as a contract in which a principal delegates decision-making authority to an agent. Agency costs arise because interests rarely align and monitoring is costly. The toolkit — compensation, performance review, reporting lines, audit — was built for a human agent.

02

The new layer

A deployed model sits between management, the traditional agent, and the decisions that affect the firm. Delegation is now two-step, and the last step adds an information asymmetry that cannot be closed by asking. The model has no interests to align — and no judgement to appeal to.

03

Why the old instruments fail

You cannot incentivise a model, review its performance with it, or dismiss it. New instruments are required: model documentation analogous to financial disclosure, independent validation analogous to audit, and drift monitoring, which has no human analogue at all.

THE SENTENCE WORTH KEEPING Agency theory did not stop applying when the agent stopped being a person. The monitoring instruments simply have to be rebuilt.

Six kinds of AI risk — and why five of them are really data or process risks

THE TAXONOMY

Model risk	Wrong, mis-specified, or used outside its validated range — and a decision is taken on the output
Data governance	Poor, biased, stale, unlawfully obtained, or leaking. Garbage in, liability out
Bias and fairness	Systematically different outcomes for some groups — legal, reputational and ethical at once
Opacity	Nobody inside the firm can fully explain why the system decided what it decided
Security	Model theft, prompt injection, data poisoning — an IT risk with a new shape
Third-party dependency	The model, the data or the platform belongs to someone else — and so does the failure mode

THE BLACK BOX, AND WHAT CLOSES IT

The problem is accountability, not mathematics. A director cannot discharge a duty of care over a process they cannot interrogate, and cannot answer a regulator who asks why a customer was refused.

Full interpretability is not the answer. For many useful models it is not available, and waiting for it is a way of doing nothing.

Process closes it. Validation before deployment, monitoring after, documented limits on use, and a human who can explain the decision in ordinary language and override it.

The board's version of the question: not 'how does it work?' but 'who checked it, who watches it, and who can turn it off?'

THE REFRAME Most 'AI risk' is data risk and process risk wearing a new name — which is good news, because you already know how to govern those.

Banking has governed decision-making models for thirty years — and the data underneath carries its own Turkish statute

MODEL RISK MANAGEMENT

Inventory. Every material model registered: what it is, what it decides, who owns it, what data it uses, what happens if it is wrong. Most firms cannot produce this list — which is itself the finding.

Independent validation. Before a model drives decisions, someone who did not build it tests whether it is fit for purpose.

Monitoring and challenge. Drift, degradation and changing conditions tracked after deployment, with a named human who can override.

THREE LINES OF DEFENCE

First — the business. The team that builds and uses the model owns its risk: design, data, controls, daily operation.

Second — risk and compliance. Independent challenge. Sets standards, validates models, maintains the inventory, and has the standing to say no.

Third — internal audit. Assurance to the board that the first two lines are doing what they claim.

The first question to ask: who owns AI risk here? Unowned risk is ungoverned risk, and 'everyone' is the same answer as 'no one'.

THE DATA — KVKK, LAW No. 6698

Amended by Law No. 7499, effective 1 June 2024.

Article 6. Processing sensitive data is no longer confined to explicit consent; a defined list of alternative legal grounds was added.

Article 9. A tiered, EU-style transfer regime: adequacy decision first, then appropriate safeguards including standard contract clauses notified to the KVKK within five business days.

Why it belongs here. If your model is trained or hosted outside Türkiye, Article 9 is an AI governance question, not a legal footnote.

THE POINT None of this requires the board to understand the mathematics. It requires the board to insist the steps happened.

A risk-based pyramid — and a timetable that moved nine days ago

UNACCEPTABLE Prohibited outright — social scoring, manipulative systems. Applicable since 2 February 2025.

HIGH-RISK Permitted but heavily conditioned — risk management, data governance, documentation, human oversight, accuracy.

LIMITED RISK Transparency — people must know they are dealing with a machine; synthetic content must be marked.

MINIMAL RISK The vast majority of systems. No specific obligation beyond existing law.

THE TIMETABLE, AS IT NOW STANDS

2 Feb 2025	Prohibited practices and AI-literacy obligations	Live
2 Aug 2025	General-purpose AI model obligations	Live
2 Aug 2026	GPAI grace period ends — fines now possible	TODAY
2 Dec 2026	Synthetic-content marking; the new NCII prohibition	Coming
2 Dec 2027	Annex III high-risk — deferred from 2 August 2026	Deferred
2 Aug 2028	Annex I high-risk in regulated products — deferred	Deferred

THE SOURCE Regulation (EU) 2026/1744, the Digital Omnibus on AI — published 24 July 2026, in force 27 July. The €35m / 7% maximum is unchanged; the high-risk dates are not.

Regulation (EU) 2026/1744 — six months from proposal to law, and not only in the direction the headlines suggested

WHAT	THE CHANGE	DIRECTION
High-risk, deferred	Annex III stand-alone systems move from 2 Aug 2026 to 2 December 2027; Annex I product-embedded systems to 2 August 2028. National regulatory sandboxes to 2 August 2027	RELAXED
Prohibitions, extended	New bans on AI generating child sexual abuse material and non-consensual intimate imagery, from 2 December 2026 — and they catch reasonably foreseeable output, not only intended use	TIGHTENED
General-purpose AI, untouched	Obligations have applied since 2 Aug 2025; 2 August 2026 — today — is still when the Commission gains enforcement powers. The AI Office also takes exclusive competence over systems built on the provider's own model	UNCHANGED
Transparency, a grace period	Article 50 stays on schedule; machine-readable marking of AI content gets until 2 December 2026 for systems already on the market	EASED
AI literacy, softened	From 'ensure a sufficient level' to 'take measures to support the development of' — a live obligation since Feb 2025, relaxed retroactively	RELAXED
Penalties, intact	The €35m / 7% ceiling for prohibited practices and the tiered structure below it stand. The lower-of cap now extends to SMEs and small mid-caps	UNCHANGED

AND NOTE WHAT IS NOT LAW. The November 2025 package had two legs. Only the AI leg passed. The data and privacy leg — legitimate interest for AI training, narrower special-category data, cookie reform — is still in trilogue. Anyone telling you the GDPR has been relaxed for AI training is wrong.

READ THE VOTE 423 for, 57 against — and 174 abstentions. Parliament passed it without endorsing it. Draghi had called for a pause; 127 civil-society organisations called it a point of no return. Both readings are in the abstentions.

The lobbying, the split over the voluntary code, and what a real compliance programme contains

THE LOBBYING, AND ITS OUTCOME

4 July 2025: the stop-the-clock letter. Around fifty European companies — Airbus, ASML, Mercedes-Benz, Siemens Energy, Lufthansa, BNP Paribas, Carrefour, TotalEnergies, Dassault Systèmes, Mistral — asked for a two-year pause.

The Commission refused within days. 'No stop the clock, no grace period, no pause.' Four months later it proposed the deferral itself.

The lesson is not that lobbying works. It is that the competitiveness argument — Draghi's, not industry's — is what moved the institution. Find the argument the regulator already believes.

THE VOLUNTARY CODE, AND THE SPLIT

The GPAI Code of Practice, July 2025. OpenAI, Google, Microsoft, Anthropic, Mistral, IBM, Amazon and Aleph Alpha signed.

Meta refused publicly, calling it overreach that introduces legal uncertainty. xAI signed only the safety chapter.

Why a voluntary code matters. Signing buys a presumption of conformity and a quieter supervisory relationship. Refusing is a strategic bet that the obligation will be litigated rather than administered.

And a correction worth making in class. Meta withheld multimodal Llama, Apple delayed Apple Intelligence, Google delayed Gemini — all of these were GDPR or DMA decisions, not AI Act ones. No verified case yet exists of a product pulled from the EU because of the AI Act.

WHAT A PROGRAMME CONTAINS

An inventory first. Every AI system in use, mapped to a risk tier. Most companies discover they cannot produce this list.

Then the role question, which is the trap. Provider or deployer? Fine-tuning a model or putting your name on it can turn a deployer into a provider, with the full Annex IV documentation duty behind it.

Then the substance. Data governance and bias testing, human-oversight design, technical documentation and model cards, post-market monitoring and incident reporting, conformity assessment — internal control for most Annex III systems, a notified body for biometrics and product routes.

The emerging anchor. ISO/IEC 42001 as the voluntary management-system standard — the AI equivalent of what ISO 27001 became for security.

THE BOARD QUESTION Ask for the inventory and the provider-or-deployer determination. A company that cannot answer those two has not started, whatever the policy document says.

No AI law, three stalled bills — and a European regulation that reaches Turkish companies anyway

WHAT TÜRKİYE HAS

No AI law. Three private members' bills, none through committee: Gergerlioğlu, June 2024 — a risk-based framework mirroring the EU Act, with penalties copied almost verbatim at 35m TL or 7% of turnover; Öztürk, November 2025 — deepfake-focused amendments to existing laws; Özdemir, December 2025 — mandatory labelling of AI content.

So what binds a Turkish company today? KVKK 6698, the Cybersecurity Law 7545, sectoral regulation — and the KVKK's Generative AI and Personal Data guide of November 2025, which is guidance, not law.

Financial-sector rules are in preparation, not issued. Nothing AI-specific has appeared in the Resmî Gazete from the BDDK, SPK or EPDK.

WHY THE EU ACT STILL APPLIES

Article 2(1)(c). The Regulation applies to a provider or deployer established in a third country where the OUTPUT produced by the system is used in the Union. Not where the company sits — where the answer lands.

Article 22. A third-country provider of a high-risk system must appoint an authorised representative inside the EU before placing it on the market.

And the faster route: the contract. An in-scope EU customer flows the obligation down long before any regulator arrives — exactly as CBAM and CSRD do on the sustainability side.

Where the exposure concentrates. Automotive and appliance suppliers to EU manufacturers, where AI sits inside an Annex I product; aviation — the same regulation also amends the Aviation Safety Regulation; banks with EU customers; software and e-commerce exporters.

THE GAP, STATED HONESTLY

A search finds deployment everywhere. Credit scoring, demand forecasting, network optimisation, chatbots, revenue management — Turkish corporates run AI at scale and say so.

It finds almost no governance. For the large Turkish groups and banks we would name here, no published AI policy, ethics committee, model-card practice or ISO/IEC 42001 certification could be located.

Say it as a question. Absence of published governance is not absence of governance. But an investor, an EU customer and a regulator all see the same thing — which makes it a disclosure problem regardless of the truth.

Which is where you come in. The deferral to December 2027 is not relief. It is the window in which the inventory, the role determination and the oversight design have to be built.

THE SESSION 5 SYMMETRY On sustainability and on AI the pattern is identical: Türkiye legislates later, but the binding constraint arrives earlier — through a treaty, a border mechanism or a customer contract. Waiting for Turkish law is not a strategy.

Four jurisdictions, four philosophies — and a Turkish board is governed by all of them at once

JURISDICTION	THE MODEL	PRIMARY STRENGTH	PRIMARY CRITICISM
European Union	**Comprehensive, risk-tiered statute**	A single, detailed, cross-sector framework with clear risk classes	Compliance cost and complexity — which produced the 2026 Omnibus
United States	**Fragmented, state- and sector-led**	Rapid, targeted response to specific harms such as hiring or biometrics	A patchwork burden across states, with no single national standard
China	**Sector-specific, rapid iteration**	Fast, technology-specific responsiveness to what is actually deployed	High-frequency change creates a compliance-currency problem
United Kingdom	**Principles-based, existing regulators lead**	Flexible and sector-expert-driven; avoids a rigid cross-sector statute	Much less advance certainty about what compliance requires

TÜRKİYE HAS NO ENACTED AI LAW. Three bills are pending before the TBMM; none has passed. The National AI Strategy ran 2021–2025 with no confirmed successor. So do not tell a Turkish board 'we are waiting for the law' — the applicable duties are already here, in KVKK, in sector regulation, in the TCC duty of care (TTK 369), and in the EU AI Act wherever your output reaches the Union.

THE DESIGN PROBLEM You will not be governed by one of these — you will be governed by all of them at once, wherever your output lands.

Six AI governance failures — and note how few of them are really about the model

ORGANISATION	YEAR	WHAT FAILED	THE GOVERNANCE GAP	THE CONSEQUENCE
Amazon	2018	Experimental CV-screening model down-ranked résumés containing 'women's'	No bias testing of training data before building a hiring tool	**Scrapped. An internal prototype — never the sole basis for hiring**
Apple Card / Goldman	2019–21	Viral claims of gender-biased credit limits	Unexplainable decisions destroy trust even when they are lawful	**NY DFS found NO fair-lending violation; criticised transparency**
Zillow Offers	2021	Valuation model mispriced homes at scale in an iBuying programme	Model uncertainty not bounded before betting the balance sheet	**$304m Q3 write-down; ~25% of the workforce cut**
Dutch tax authority	2013–21	Algorithmic fraud profiling used nationality as a proxy	Discriminatory proxies, no redress route, no human override	**Cabinet resigned; 33,000+ families recognised as victims**
Air Canada	2024	Website chatbot invented a bereavement-fare policy	No accountable owner for what the chatbot says	**Tribunal rejected the 'separate entity' defence**
Luka Inc. (Replika)	2025	Companion chatbot with no valid legal basis and no age verification	Product shipped without a lawful basis or age gating	**Italian Garante fined €5,000,000**

TWO CORRECTIONS WORTH MAKING OUT LOUD Amazon's tool was a prototype, never production. And the Apple Card regulator found no discrimination — the failure was explanation, not bias.

Five questions — and a board that can ask them does not need to understand the mathematics

What AI are we running?	An inventory of material systems and what each one actually decides. Most boards cannot get this list, and that is the first finding.
What is the risk tier?	Which systems are high-stakes, and are they governed in proportion? Effort should scale with what the system is allowed to decide.
Who validated it, independently?	Testing before deployment and monitoring after — by someone who did not build it.
Where did the data come from?	Quality, lawfulness, privacy and bias at the source — including anything that crossed a border.
Who is accountable, and who can switch it off?	A named owner, and a human who can explain the output and override it.

NOT A NEW LAW AI does not create a new body of fiduciary duty. It creates a new domain in which the duty of care from Session 2 is discharged — or is not.

PART IV

Integration and monitoring

Pricing the risk into the decision rather than filing it in a report — and then watching the decision after the board has stopped looking.

Four levels of seriousness, and only the last two change a decision

1

Compliance

Report what the rules require. Necessary, but a floor: it changes the disclosure, not the decision.

2

Screening

Exclude or favour whole sectors on ESG grounds. A blunt filter that captures values but very little nuance.

3

Integration

Price ESG and AI risk directly into the valuation and the investment decision. The level this session targets.

4

Active ownership

Use the position — engagement, votes, board seats — to change the risk itself. Session 4, pointed at ESG.

WHERE MOST FIRMS SIT Level one, describing themselves as level three. The test is simple: name one investment decision your ESG analysis actually changed.

Genel

Three ways to get the risk into the number — and the scenario is the one that matters for tail risk

01

Adjust the cash flows

Higher operating costs, capped revenues, shorter asset lives, a contingency for shocks. Best where the risk is specific and estimable — and the most honest, because the assumption is visible and arguable.

02

Adjust the discount rate

Where the risk is systematic or hard to model line by line, reflect it in a higher cost of capital. Blunt: a single premium hides what you actually believe, and it is easy to double-count against the cash flows.

03

Run scenarios

Where the uncertainty is deep — climate transition, AI regulation — value the decision across several plausible futures. Not a forecast: a stress test. Build three that genuinely diverge, and compare the DECISIONS they imply.

ROBUST OR FRAGILE Robust: it survives most plausible futures — commit. Fragile: it works in the central case and fails elsewhere — buy optionality, stage it, or do not proceed. Avoid false precision; a range beats a two-decimal NPV built on weak data.

What has to be true before an investment paper reaches the committee

☐ Material ESG risks priced

Climate, social and governance exposure built into the cash flows or the discount rate — and it is stated which

☐ AI risks assessed

Model, data, bias and dependency risk in anything the target or the project relies on

☐ Scenarios run

The decision stress-tested across divergent futures, with the fragile cases named

☐ Monitoring metrics defined

The indicators and thresholds to be watched afterwards — chosen before approval, not after

☐ Reallocation trigger set

The pre-committed condition under which capital is pulled back

☐ Disclosure-ready

Claims and assumptions documented to the standard Session 3 would demand of a public statement

THE RULE If a risk is material enough to mention in the paper, it is material enough to price — and material enough to monitor.

Monitoring is where governance actually fails — quietly, and long after everyone has stopped watching

THE ATTENTION ASYMMETRY

Boards pour effort into approving an investment, and then move on.

Approving capital is a single, visible, career-defining event. Withdrawing it is a slow, contested, ego-bruising process spread over years.

So good money follows bad — not because anyone decided to let it, but because nobody was required to decide anything.

THE BEHAVIOURAL MACHINERY

Sunk cost. Capital already spent should be irrelevant to the next decision. Psychologically it dominates every discussion.

Escalation of commitment. Decision-makers double down rather than admit the original call was wrong.

Reporting asymmetry. The people who own the project write the update. Bad news arrives late, softened, and framed as temporary.

THREE ANTI-PATTERNS

Vanity metrics. Tracking what looks good rather than what tests the thesis. The tell: the dashboard has never been amber.

Soft thresholds. Limits loose enough to rationalise any result, or revised quietly when approached. The tell: the threshold moved and nobody minuted why.

Consequence-free breach. A metric turns red, it is noted, discussed, and nothing is decided. The tell: nobody can name who owns the metric.

THE DIAGNOSTIC Ask when the dashboard last produced an uncomfortable conversation. If the answer is never, it is not measuring anything.

Five parts, all committed before the capital moves — that is the whole difference between monitoring and hoping

1 · Define the thesis	What did this investment promise, in measurable terms? If you cannot write it as a number, you cannot monitor it.
2 · Pick the metrics	Three to six. Leading indicators that signal where the thesis is heading, lagging ones that confirm it — including the ESG and AI risks you priced.
3 · Set the thresholds	Green, amber and red for each metric, committed before the capital moves, so the judgement is made cold rather than under pressure.
4 · Wire the escalation	Who is told, how fast, and what decision is forced. A breach must reach a person with authority, on a clock.
5 · Define the trigger	The pre-set condition under which capital is reallocated or withdrawn — the hardest to write and the only one that matters when it fires.

THE FULL CIRCLE Decide, deploy, monitor, report, reallocate — and back to decide. Governance is not a line that ends at approval; the return leg is the one nobody schedules.

PART V

The workshop — your own company

Forty minutes, three moves and a share-out. Your assigned company's real disclosures, one AI proposal put to your board, and a dashboard a board could use.

Three moves on one company, run as a single piece of work — then the cross-team synthesis

01

MAP THE DISCLOSURE 12 min

Take your assigned company's ACTUAL ESG disclosures — the sustainability report, any TSRS-aligned reporting, the KAP filings. Map them against what is required or expected of a company that size in that sector. Then flag the gaps: what is absent, what is asserted without evidence, and what is reported but immaterial.

02

REVIEW THE AI PROPOSAL 10 min

A vendor AI platform is put to your board for approval — the brief is on the next slide. List the governance risks the board should raise BEFORE adopting it, under four headings: model risk, data provenance, explainability, and regulatory exposure.

03

DESIGN THE MONITORING DASHBOARD 10 min

Take one past capital-allocation decision your company actually made. Design a simple dashboard a board could use to track whether it is performing as promised: three to five key indicators, with thresholds.

04 · THE SHARE-OUT 8 min. Each team presents its dashboard briefly. We then synthesise across the cohort: which gaps recur in all three companies, which indicators everybody chose, and which risk nobody watched.

WHY IT RUNS AS ONE PIECE The disclosure gap, the AI proposal and the dashboard are the same question asked three ways: what does this board know, and how would it find out if that changed?

Project Meridyen — a vendor platform put to your board for approval this quarter

WHAT THE VENDOR IS OFFERING

① **Proposal scoring.** Ranks incoming capital requests against a model trained on ten years of the group's own investment outcomes, and returns a recommended approve / defer / decline.

② **Portfolio monitoring.** Tracks approved projects and automatically flags those deviating from their approved thesis — the instrument Part IV asked you to build, bought rather than built.

③ **Disclosure drafting.** Assembles the quarterly ESG and TSRS-aligned climate disclosure automatically, from operational and supplier data.

The commercial terms. Twelve-month implementation, a five-year contract. The vendor will not disclose the model architecture or the training data, citing commercial confidentiality.

The CFO supports it. The projected saving is meaningful and the board has been asked to approve at this meeting.

THE FOUR HEADINGS TO ANSWER UNDER

Model risk. It is trained on your own past decisions — including the bad ones. What does it do with a proposal unlike anything in the training set?

Data provenance. Supplier data feeding a published disclosure. Where did it come from, is it accurate, and was it lawfully obtained — including across a border, under KVKK Article 9?

Explainability. The vendor will not open the model. Can you explain to a regulator why a proposal was declined — or why a disclosure said what it said?

Regulatory exposure. Function ③ drafts a public disclosure. If it is wrong, that is Vale: the report becomes the liability. And which AI Act tier does each function fall into?

THE QUESTION THE BOARD IS ACTUALLY BEING ASKED Not 'is this a good tool?' but 'what would we need to know before we could responsibly approve it — and can we get that from this vendor?'

One page, three outputs — and it becomes a component of your Session 6 board pack

① **The disclosure gap map**	What your company discloses, against what is required or expected — and the three gaps that matter most. Distinguish absent from asserted-without-evidence from reported-but-immaterial.
② **The AI proposal risk list**	The governance risks under the four headings, and one clear recommendation: approve, approve with conditions, or decline. Name the conditions.
③ **The monitoring dashboard**	One past capital decision. Three to five indicators with green/amber/red thresholds, who is told on a breach, and one condition that would pull the capital back.

WHAT GOOD LOOKS LIKE

Specific, not exhaustive. Three gaps you can defend beat fifteen you listed. Materiality is the whole point of Part I.

Indicators that could turn amber. If every metric you chose would look fine today and next quarter, you have chosen vanity metrics.

A recommendation, not a survey. The board asked whether to approve Project Meridyen. Answer the question.

Traceable. Every disclosure claim tied to the actual report, page or KAP filing you read — the standard you have been held to all term.

THE SHARE-OUT QUESTION Each team states one indicator it chose and one risk it decided NOT to watch. The second answer is usually the more interesting one.

THE EXTRA HOUR

GW2 — the activist negotiation, carried over

Sixty minutes. Three activist teams, one board panel, three rounds. The engagement you wrote in Session 4 — now argued out loud.

How the next hour runs — and the rules of the room

01

Open 15 min

Each team opens as the activist: the thesis in two minutes, then the demand list. Anchor high — but anchor in your own evidence, because the board has read your report.

02

The board counters 15 min

The board panel answers each demand — accept, partially accept, reject — with a reason grounded in strategy, fiduciary duty and minority protection.

03

Settle or walk 15 min

Revise. What do you concede, what do you hold, and what is your walk-away? Name the Turkish instrument you would use if this fails.

Who you are

The activist holding the stake you claimed in GW2

Who they are

The instructor and two students from another team

What you bring

Your anchor, your fall-backs and your walk-away

The standard

Every claim traceable to a source you can name out loud

THE RHYTHM Escalation is a bargaining lever, not the goal. The settlement is where the value actually gets split.

What the board will open with, and what is actually being judged

THE BOARD'S OPENING SHOTS

Which discount is your case? A discount measured on listed subsidiaries plus net cash is not the same as one measured on full NAV — and the full-NAV figure may already match the world norm.

You call it ROIC; the denominator is equity. A sell decision at a small positive return is a magnitude call on a number described as only indicative.

Your own scorecard rebuts your thesis. If your table shows payout ratios that contradict your narrative, the board will read your own table back to you.

Where did that number come from? An opening ask that halves on first contact tells the board it was theatre.

That peer multiple will not survive. A lira reporter under inflation accounting against euro reporters, averaged and undated, comes apart in one sentence.

WHAT IS BEING JUDGED — NOT WHETHER YOU WIN

Is the thesis grounded? Every claim traceable to the company's own numbers, not to a general view of the sector.

Do the demands fit the owner? Realistic against the actual control bloc — and proportionate to the problem you diagnosed.

Can you sequence a concession? Trade the survivable to hold the essential.

Did you use a Turkish lever? One instrument, correctly applied, beats five named in passing.

What if they say no? The escalation path: who you go to, with what, and why they would listen.

A team can lose the demand and still score highest on craft.

THESE ARE NOT TRAPS They are the first sentences a real board would say — and every one of them is answerable if you have prepared it.

SESSION 6

The final board panel, and what is due

The last session is a decision argued in front of practising CEOs — and it is assembled starting today, not after today.

A live board-level defence of one resolved recommendation, in front of a panel of invited CEOs

THE FORMAT

Group work, 30% of the final grade. The single largest component of the course.

Delivered live at the start of Session 6. Maximum ten slides, or the page equivalent, for a fifteen to twenty minute presentation.

The panel is a panel of invited CEOs acting as an external board. They will question your capital-allocation logic, your governance reasoning and your recommendation directly.

Attendance is mandatory at Sessions 2, 4 and 6.

THE SIX REQUIRED SECTIONS

1 · Executive summary. The recommendation, up front.
2 · Portfolio diagnostic recap. GW1, compressed to what still matters.
3 · Governance & disclosure assessment. Sessions 2 and 3.
4 · The activist and market-pressure lens. GW2, and what the negotiation actually revealed.
5 · ESG & AI considerations. Today's work, including the monitoring page.
6 · Final recommendation & defence. One resolved call, and the arguments against it that you have already answered.

In that order, under those headings. The structure is graded.

IT IS A SYNTHESIS, NOT A SUMMARY

The commonest failure. Re-presenting GW1 and GW2 side by side, as two reports stapled together.

What is required instead: resolve the tension between them. GW1 said the portfolio was configured a certain way. GW2 attacked it. Which of those two positions does your team actually hold, and why?

Then fold in today. The ESG and AI exposures you priced, and the monitoring instrument you designed.

The output is one recommendation that a board could vote on.

THE SHAPE OF IT Six sections, ten slides, twenty minutes — and one recommendation that survives the tension between everything you have written so far.

Genel

How it is graded, and what separates the teams that hold up under questioning

CRITERION	WEIGHT	WHAT IT ACTUALLY MEASURES
Quality and coherence of the final recommendation	**30%**	One resolved call, internally consistent, that follows from your own evidence
Governance and disclosure reasoning	**20%**	Sessions 2 and 3 applied to your company's actual decisions, not in general
Handling of the activist / market-pressure lens	**15%**	What GW2 revealed, including the escalation path and one Turkish instrument
ESG and AI integration	**15%**	Material risks priced and instrumented — today's page, folded in
Presentation delivery and live defence	**20%**	Under real-time questioning from the panel. This is a fifth of the grade

DO. Rehearse the whole thing once, within the time limit. Prepare answers to the two or three hardest questions you expect. Make sure every member can speak to any section. Keep every claim traceable to a source.

DON'T. Don't exceed ten slides. Don't let one person answer every question — the panel is testing whether the team understands the case. And no AI tool can answer for you in the room: a scripted answer that fails the follow-up counts against you.

THE ONE THING TO DO TODAY Agree your headline recommendation before you leave this room, while the argument is still fresh. Grading assumes consolidation began in Session 5.

Practising CEOs do not ask about frameworks — they ask what you would do with their money

On the recommendation	'If this were your capital, would you do it? What would you need to believe for this to be wrong?'
On the portfolio	'You say this unit destroys value. Who is the better owner, what would they pay, and why has nobody bought it?'
On governance	'Who actually decided this, and what would have had to happen for the board to say no?'
On the activist lens	'The board rejects everything. What do you do on Monday morning?'
On ESG and AI	'Which of these risks changed your number — and by how much? If none did, why is this section here?'
On the evidence	'Where did that figure come from, and what date is it?'

THE PATTERN Every one of these is a question about whether you own your own argument. Prepare the answer to 'what would make you wrong' for every claim you make.

What has to happen between this room and that one — and the deadline that comes after it

1	**Before you leave today**	Agree the headline recommendation your presentation will argue for. Assign one of the six sections to each member. Set an internal deadline for a full run-through.
2	**This week**	Re-read your own GW1 and GW2 and every member's individual work. Decide explicitly where GW1's diagnostic and GW2's activist case disagree — and which one your team is going to back.
3	**Next**	Fold in today: the ESG and AI risks you priced, and the monitoring page. Then a final check of KAP and the investor-relations page for anything material disclosed since GW1.
4	**Before the session**	One full rehearsal, inside the time limit. Prepare the two or three hardest questions you expect and answer them out loud. Make sure every member can take any section.
5	**Session 6**	Live presentation and defence before the CEO panel. Attendance is mandatory.
6	**One week after**	The combined individual paper is due — 40% of the final grade. Start it while the panel's feedback is still fresh.

THE ONE THAT MATTERS Grading assumes consolidation began today. A team that starts assembling the pack the week before Session 6 is visibly a team that started the week before.

Genel

IW1 and IW2 are now one document carrying 40% — do not write two papers

WEIGHT	DUE	SCOPE	BASIS
40% of the final grade, replacing IW1 (22%) and IW2 (18%). The largest individual component of the course.	One week after Session 6. One document per student.	One M&A or strategic-investment decision at your company — judged through the governance lens, then reflected on.	Individual work. Your own reasoning, defensible in your own words if questioned.

THE SIX SECTIONS, IN THIS ORDER

1. Decision overview
2. Decision process reconstruction
3. Fiduciary duty analysis
4. Disclosure analysis
5. ESG, AI and monitoring
6. Reflection and recommendation

Sections one to five are the judgement you were already writing for IW1; section six is the reflection. Nothing has been added — the two halves have been joined. Label every statement as verified fact, reasoned hypothesis or open question: that labelling is graded.

ONE NOTE The Grading Guide still shows IW1 at 22% and IW2 at 18%. This slide supersedes it; a corrected guide follows.

ONE LINE TO REMEMBER

"The risk that destroys value is rarely the one nobody knew about — it is the one everybody knew about and nobody put a number on."

BRIDGE TO SESSION 6 From pricing the decision to defending it. Bring the board pack, the monitoring page you built today, and the one Turkish instrument you have decided to stand behind.

Where the facts, figures and cases in this session come from

ESG — THEORY, EVIDENCE, CASES, STANDARDS

Theory and evidence: Friede, Busch & Bassen (2015); Khan, Serafeim & Yoon (2016); Berg, Kölbel & Rigobon (2022); Friedman (1970); Freeman (1984); Elkington (1994); Porter & Kramer (2011); DiMaggio & Powell (1983); Mitchell, Agle & Wood (1997).

Sector statistics: KPMG Survey of Sustainability Reporting 2024 (N100 = 5,800 companies across 58 jurisdictions); EY Center for Board Matters, September 2025; CDP Türkiye 2024 cycle; Borsa İstanbul index rules.

World cases: BP Q4 2017 results; Volkswagen 2015 and 2017 disclosures; Vale 2019 market data, the 2021 R$37.7bn settlement and SEC v. Vale (2023); PG&E bankruptcy court approval, December 2019.

Enforcement: SEC releases 2022-86, 2022-209, 2024-179; DWS 2023 and the Frankfurt €25m fine, April 2025; Paris tribunal, TotalEnergies, 2025; ESMA TRV study, December 2025.

Standards: IFRS S1 and S2; EU CSRD and ESRS; GRI; SASB; TSRS 1 and 2 (KGK).

AI GOVERNANCE, TÜRKİYE AND THE COURSE

AI regulation: EU AI Act; Regulation (EU) 2026/1744, the Digital Omnibus on AI, published 24 July 2026 and in force 27 July 2026; NIST AI RMF 1.0; ISO/IEC 42001:2023.

AI cases: Reuters on the Amazon prototype (2018); NY Department of Financial Services report, 23 March 2021; Zillow Q3 2021 results; Autoriteit Persoonsgegevens on the toeslagenaffaire; Moffatt v. Air Canada, 2024 BCCRT 149; Garante decision on Luka Inc., May 2025.

Türkiye: KGK announcements and the Board decision of 13 January 2026 (Official Gazette 16 January 2026, No. 33139); SPK communiqué II-17.1.a; Borsa İstanbul sustainability index rules; KVKK Law 6698 as amended by Law 7499; TBMM records on the three pending AI bills; Sabancı University CEF (2022).

Companies: Koç, Sabancı and THY investor relations and integrated annual reports; S&P Global Sustainability Yearbook 2026; Red Hat press release, 20 May 2025.

Course materials: ADEX547 Week 5 Reading Coursepack (expanded edition); Session 5 Study Guide; Course Overview; Grading Guide.

A NOTE ON SOURCING Figures are dated to the source that reported them. Where a claim could not be verified — THY's AI governance, the TSRS compliance rate, the live index constituent count — the slide says so rather than guessing.