

# Amazon: The Depreciation Dial in the AI Capex Race

Term: Spring 2026

## Case positioning and learning goal

This case bridges Chapters 4-5: (i) **earnings quality via operating assets** and (ii) **capitalization / estimate changes** as a measurement layer. It also deliberately demonstrates how an LLM can be used as a **textual research co-pilot** for disclosure-heavy estimates **without outsourcing facts, calculations, or judgment**.

## Student Handout

### Synopsis

Amazon is in an AI-driven capital expenditure cycle. In its FY2024 public disclosures, Amazon reported multiple changes to estimated useful lives of long-lived assets (notably servers and networking equipment) and recorded accelerated depreciation related to early retirements. Your task is to assess **earnings quality and comparability** by translating disclosures into a structured, evidence-based analysis: (i) quantify the effects on operating income and net income, (ii) build a simple “reported vs. normalized” bridge, and (iii) stress-test whether management’s rationale is internally consistent.

### Primary document (required)

You must use Amazon’s FY2024 Form 10-K (fiscal year ended Dec. 31, 2024):

<https://www.sec.gov/Archives/edgar/data/1018724/000101872425000004/amzn-20241231.htm>

### Learning objectives

By completing this mini-case, you will be able to:

- Extract and organize disclosure-heavy estimate changes (useful lives, accelerated depreciation) with evidence discipline.
- Build a normalization adjustment to improve year-to-year comparability.
- Explain why capex/PP&E metrics require reconciliation (cash capex vs net additions to PP&E).
- Evaluate credibility: separate fact vs inference; judge internal consistency of management’s rationale.
- Demonstrate a disciplined **human–LLM division of labor**: the LLM accelerates triage and extraction; you verify facts and compute numbers.

## What you may (and may not) do with an LLM

### LLM usage rules for this assignment

1. **LLMs are not data sources.** All numbers must come from the Amazon 10-K and/or the provided exhibits *and* your own spreadsheet calculations. Do not cite an LLM as a source.
2. **LLMs are allowed as textual co-pilots.** You may use an LLM to (i) locate relevant passages, (ii) translate accounting language, (iii) generate hypotheses and red flags, (iv) critique your narrative, and (v) structure your memo.
3. **Evidence discipline is required.** Every key factual claim must cite **Exhibit + line** (see Appendix A).
4. **You own the analysis.** If the LLM makes an error and you repeat it, it is your error. You must cross-check against the 10-K.

### Data room (exhibits) and citation format

You are provided a small exhibit binder (Exhibits 3–4). You will **create Exhibits 1–2 yourself** by extracting and structuring the relevant 10-K disclosures (Question 1).

Use the following citation format in your memo:

(**Exhibit 3, L2**) means “Exhibit 3, Line 2.”

### Exhibit Table of Contents

- **Exhibit 1 (student-created):** Depreciation policy + key estimate changes and quantified impacts (useful lives; accelerated depreciation).
- **Exhibit 2 (student-created):** Capex context (cash capital expenditures; AI/infrastructure investment signal).
- **Exhibit 3 (provided):** Property & equipment balances and depreciation expense (including by segment).
- **Exhibit 4 (provided):** Selected cash flow statement reconciliation lines (net income and depreciation add-back).

### Your assignment

Write a concise analyst-style memo that answers the questions below.

### Required questions

1. **Build the evidence binder (LLM-assisted extraction; facts first).**

Using Amazon’s FY2024 10-K ([amzn-20241231](#)), extract and structure two mini-exhibits:

- **Exhibit 1 (Depreciation policy + estimate changes).** Include the depreciation method and useful-life policy baseline, and all relevant estimate changes and quantified impacts.

- **Exhibit 2 (Capex context).** Include cash capital expenditures (levels and changes), management’s stated drivers (technology infrastructure / AI signal), and any forward-looking capex guidance for 2025.

**Formatting requirement (must follow exactly):**

Write each exhibit as a numbered list with line labels:

**L1: ... , L2: ... , ...**

Each line should contain **one fact** (1–2 sentences). You may paraphrase, but you must preserve the numbers exactly.

**Source pointer requirement (per line):** after each line, add a short pointer in parentheses: *Item/Note + beginning sentence ... ending sentence* (page/paragraph IDs optional). Example: *(Item 7, “Cash capital expenditures were ...” ... “...primarily driven by ...”)*

**2. Quantify the 2024 earnings-quality impact.**

Using the Exhibit binder, estimate how much of 2024 operating income and net income is attributable to the server useful-life change (and how much was offset by accelerated depreciation related to early retirements). Present:

- a “reported” vs “normalized” operating income bridge; and
- a “reported” vs “normalized” net income bridge.

**3. Credibility test: is the rationale internally consistent?**

Management links the 2025 server/network changes and early retirements to the pace of AI/ML technology. Using only your Exhibits 1–4, evaluate whether the pattern of changes is *consistent* with that story, *in tension* with it, or *ambiguous*. Support with evidence and clearly label **fact vs inference**.

**4. Capex reconciliation: cash capex vs net additions to PP&E.**

Amazon presents multiple “investment” measures. Using the FY2024 10-K, reconcile:

**Cash capital expenditures vs. Net additions to property and equipment.**

- Compute the difference for 2024.
- Identify the **two largest reasons** the measures differ (use filing language; cite your exhibits).

**Note:** you will likely need to extract “net additions to property and equipment” (and its definition) from Item 7. You may add these extracted facts as additional lines in **Exhibit 2** (capex context), clearly labeled.

**5. Reinvestment check: what does the capex surge imply about asset refresh/-turnover?**

Use your Exhibit 2 (capex levels) together with Exhibit 3 (PP&E net balance and PP&E D&A) and Exhibit 4 (cash flow D&A add-back) to answer:

- Is 2024 consistent with a one-off capacity build, or a higher steady-state reinvestment regime? (Support with numbers.)
- Compute and interpret at least **two** reinvestment diagnostics, for example:

- (a) Capex / PP&E D&A (refresh intensity),
- (b)  $\Delta$ PP&E net / Capex (how much capex shows up as net PP&E growth),
- (c) PP&E D&A / Avg PP&E net (implied depreciation intensity).

Conclude with 2–3 sentences on what these imply about “asset turnover” in the *refresh-cycle* sense (how fast the capital base is being replenished), and why that matters for the depreciation dial.

## Deliverables and format

### What you submit

- **Main memo (3–5 pages)**
- **One spreadsheet (Excel/Sheets):** bridges and ratio computations (show formulas).
- **Appendix (required):** Audit trail (operational template below).
- **Student-created Exhibits 1–2 (required):** included as an appendix or as the first page(s) of the exhibits section.

### Grading emphasis (guidance)

- 80%: Main memo and Spreadsheet.
- 10%: Communication quality (clarity, structure, concision).
- 10%: Audit trail quality (credible workflow; verification notes).

## Exhibits

### Important note on exhibits

Exhibits 3–4 are provided below as a short evidence binder. **You must create Exhibits 1–2** by extracting from Amazon’s FY2024 10-K and formatting them as numbered lines (L1, L2, ...) with source pointers (Question 1). Use the line numbers for citations in your memo.

### Exhibit 3 (provided): Property & equipment balances and depreciation expense (including by segment)

- L1:** Property and equipment, net: **\$ 204.177B** (Dec. 31, 2023) and **\$ 252.665B** (Dec. 31, 2024).
- L2:** Gross property and equipment: \$ 324.288B (2023) and \$ 394.055B (2024); accumulated depreciation and amortization: \$ 120.111B (2023) and \$ 141.390B (2024).
- L3:** Depreciation and amortization expense on property and equipment: **\$ 24.924B (2022), \$ 30.225B (2023), \$ 32.067B (2024)**.
- L4:** Depreciation and amortization expense by segment (in \$ B):
  - North America: 11.565 (2022), 13.678 (2023), 14.285 (2024).
  - International: 3.483 (2022), 4.016 (2023), 4.462 (2024).
  - AWS: 9.876 (2022), 12.531 (2023), 13.320 (2024).
  - Consolidated: 24.924 (2022), 30.225 (2023), 32.067 (2024).

### Exhibit 4 (provided): Selected cash flow statement reconciliation lines

- L1:** Net income: \$ 30.425B (2023) and \$ 59.248B (2024).
- L2:** Depreciation and amortization of property and equipment and capitalized content costs, operating lease assets, and other: \$ 48.663B (2023) and \$ 52.795B (2024).

## A Appendix (Required): Audit Trail (Operational Template)

### Audit Trail (Operational Template)

For any AI-assisted deliverable (lab write-up, memo), include an appendix with:

- **Objective of LLM use:** why you used the tool (evidence mapping, red-team critique, writing assistance).
- **Inputs provided:** document names/dates (e.g., Amazon, 10-K, fiscal year end Dec. 31, 2024).
- **Prompts:** the key prompts used. For each prompt, also record an **excerpt/exhibit pointer** for every excerpt/exhibit you pasted: (*e.g., Item 7 / Item 8 / Note X*) + *beginning sentence ... ending sentence* (optional page/paragraph IDs from EDGAR). Do **not** paste full excerpts to keep the appendix length manageable.
- **Outputs used:** selected outputs that materially shaped the work product (and where they influenced it).
- **Verification log:** what you verified, and where (filing citations; spreadsheet tabs/cells; reconciliations).
- **Rejected outputs:** what you rejected and why (unsupported inference, fabricated citation, scope error).

**Rule:** Numbers and factual claims must be verified against primary documents.