Artificial Intelligence for Corporate Finance

AI-Augmented Valuation: Delegation, Scenarios and Reconciliation

Amedeo Andriollo

Finance Department (DRM)
Université Paris Dauphine – PSL

Structure of the course

- **Email:** amedeo.andriollo@dauphine.psl.eu
- **Assessment:** 150-minute final in-class examination.
- **Office hours:** feel free to (DO) come: B612.
- Slides/materials are updated regularly. Report mistakes: corrections help the whole class.
- **This session:** delegate valuation work to AI without delegating the valuation judgement.
- **Built on:** Rosenbaum & Pearl, *Investment Banking*; Koller, Goedhart & Wessels, *Valuation*.

Session 3: the case assignment

Today's task:

How do I delegate a valuation problem to AI
w/out allowing AI to silently define comparability, normalize earnings, forecasting or reconciliation?

Session 1	Do not take for granted AI: what to delegate is key.
Session 2	Do not take for granted data: check consistency.
Session 3	Do not take for granted the plausibility of *the valuation* from the AI.

Again, the same problem: who is taking the decision?

Our route: profile → audited model → valuation

Output from Session 1

Business profile
Products, customers, operations, and unresolved questions.

Output from Session 2

Audited historical model
FY2025A revenue EUR 481.0m; reported EBITDA EUR 68.8m; adjusted scenario EUR 70.2m.

Session 3

Preliminary sell-side range
comparables analysis + precedent transactions + DCF + valuation reconciliation.

Output of this session: a preliminary range for the Enterprise Value, reconciliation from Enterprise Value to Equity Value, base case DCF, and unresolved valuation issues.

Refresh: three valuation methodologies

Method	Core question
Comparable Companies	At what multiples are comparable publicly traded companies trading, and what valuation range do those multiples imply for the target?
Precedent Transactions	What multiples were paid in comparable prior M&A transactions, and what valuation range do those multiples imply for the target?
DCF	What enterprise value is implied by the present value of projected unlevered free cash flow and terminal value?

Implied equity value

$$\text{Implied Equity Value} = \text{EV} - \text{Net Debt}$$

The three valuation methodologies use **different information sets** and should not be (mechanically) averaged.

Source basis: RP-IB Chs. 1–3, PDF pp. 39–238; TargetCo audited base.

Reference

Valuation in a Sell-Side M&A Process

Organization and Preparation (before)

- establish preliminary valuation expectations for the seller;
- inform sale-process design and buyer targeting;
- identify key valuation assumptions requiring further diligence.

During the Sale Process

- evaluate bids and offers against the preliminary valuation;
- evaluate bids based on price, transaction terms and execution risk;
- (..negotiation).

A preliminary valuation range supports the sale process; it is not a prediction of the eventual transaction price.

Source basis: RP-IB Ch. 6, PDF pp. 395–470.

Reference

Calculations vs Valuation judgments

	Tasks that can be delegated to AI	Valuation judgments that require analyst approval
Comparable Companies	Calculate trading multiples and summary statistics; apply selected multiples to the target	Define the peer-selection criteria (i.e., the comparables), and determine the appropriate treatment of EBITDA adjustments.
Precedent transactions	Calculate transaction multiples and the implied valuation range	Select the comparable acquisitions and assess transaction-specific considerations (timing and market conditions).
DCF	Project free cash flow, DCF, calculate terminal value, and run sensitivity analysis	forecast assumptions, treatment of non-recurring items, and assumptions underlying continuing value.
Valuation reconciliation	compare the valuation	Determine the preliminary valuation range and articulate the rationale for that conclusion.

Calculations may be delegated (AI); valuations must remain explicit/accountable (Human).

Define the AI's role before writing the prompt

Order of tasks

Required valuation deliverable → valuation judgments → tasks delegated to AI → What the AI is permitted to conclude → recollect source information/evidence → defined independent verification → prompt

Central sentence

Do not write the prompt until you have identified i) which valuation judgments remain with the analyst and ii) what the AI is permitted to do.

Why: Requests such as "select the comparable companies," "determine the assumptions for the DCF" and "reconcile the valuations" implicitly delegate valuation judgments unless the analyst defines the relevant **selection criteria and constraints** in advance.

Delegation Canvas: decisions before the prompt

1. Required valuation deliverable.
2. Valuation judgments requiring analyst decision.
3. What to delegate to AI.
4. Conclusions the AI may draw.
5. What AI is not allowed to conclude (Conclusions reserved to the analyst).
6. Financial data, Company info, assumptions and other sources to be supplied to the AI.
7. Independent verification procedure.
8. Conditions requiring the task to stop for analyst review.
9. Allocation of the six-message budget (prompt budgeting)
10. Initial prompt, written in full (character budgeting).

Closed-laptop sequence: decompose the valuation task, identify the judgments retained by the analyst, define the source information and independent verification, then write the prompt precisely.

Source basis: Instructor-designed Delegation Canvas.

Reference

CLOSED LAPTOP — 20 minutes

Now

No ChatGPT. No Claude. No laptop.

1. Read the valuation assignment.
2. Complete the Delegation Canvas on paper.
3. Plan how you will use the six analytical AI messages.
4. Write the exact first prompt word for word.

Your first deliverable is a delegation design, not an AI answer:
learn to create an analytical architecture before seeing what an LLM suggests.

Compare AI-use plans and the six-message analytical sequence

Compare

- Which valuation judgments remain with the analyst?
- What conclusions may the AI draw?
- What source information or evidence is supplied for each task (trade-off with independent verification)?
- What conditions require the task to stop for analyst review? (ambiguities: return to analyst, not silently decide).

Exercise constraint

Up to six analytical AI messages. Did you use all of them?

Good delegation reduces wasteful prompting: prompt count is not the lesson, disciplined decomposition of the valuation analysis is.

Valuation info is spread across multiple sources

Source	What it contributes
Company profile (s01)	products, customers, route to market, operations, and management-provided information;
Historical spreadsheets (s02)	audited FY2025A historical financial information, including reported EBITDA and management-adjusted EBITDA (68.8m vs. 70.2m);
Valuation Deck (today)	candidate comparable-company information, management's comparable-company classifications, and information on prior M&A transactions;
Management Case (today)	management's 2026E–2030E forecast assumptions and supporting rationale;
Valuation workbook (today)	source data, calculation framework

Each AI task should identify the source materials relevant to that task because no single source contains all the information required for the valuation analysis.

Excessive delegation in performing comparables analysis

Prompt

"Here are the candidate public companies. Select the best comparable companies for TargetCo and value TargetCo using EV/Revenue and EV/EBITDA."

Plausible AI response

1) Selects *management-designated* core peers, 2) relies on *sector classifications* as evidence of comparability, 3) uses an *average trading multiple* to summarize, and presents an implied valuation range.

Valuation judgments implicitly delegated to AI

1. criteria used to assess comparability, and the relative importance of those criteria;
2. which candidate companies to include/exclude; treatment of borderline comparables;
3. whether the available information is sufficient to support those decisions;
4. whether to use reported vs. management-adjusted EBITDA;
5. which summary statistic.

The prompt implicitly delegates substantive valuation judgments to AI.

Assess the evidence before selecting comparable companies

Stage 1 — AI extracts the relevant source information

Candidate company | Products | End markets | Business model | Geography | Size | Revenue growth | EBITDA margin | ROIC | CapEx/Revenue and D&A | Source and information limitations

Constraint

Do not select the final comparable-company set. Do not create an aggregate comparability score or ranking. Do not calculate an implied valuation range at this stage.

↪ **Stage 2:** Human comparability criteria: AI may then apply those criteria and identify borderline candidates.

For instance, *is Tessera a comparable company?* The evidence is mixed:

- Ceres has an attractive packaging/healthcare label, but materially higher growth, margin and ROIC.
- Alpina has a superficially relevant rigid-packaging label, but a different capital-investment model.
- Tessera lacks the packaging industry label, yet similar qualification, component-manufacturing and capital economics.

Source basis: KGW Ch. 18, PDF pp. 545–570; instructor case.

Reference

Assess comparability using business and financial characteristics

Dimension	Question	Possible role[1]
Products and customer/end-market exposure	Are the products, customers, and end markets sufficiently similar to generate comparable operating economics?	Primary
Business model and route to market	Are manufacturing model, distribution structure, and sales channels comparable?	Primary
Customer qualification and switching characteristics	Are qualification requirements, tooling commitments, design-in processes, and switching costs comparable?	Primary / secondary
Geographic exposure and company size	Are the relevant markets, operating footprint, and company size sufficiently comparable?	Secondary
Revenue growth, EBITDA margin, and ROIC	Do differences in growth, profitability, and returns help explain differences in trading multiples?	Diagnostic
D&A and capital expenditures	Do differences in depreciation and capital expenditures indicate materially different capital intensity or reinvestment requirements?	Diagnostic / exclusion

AI can operationalize the comparability rule, but the analyst must define the rule and the hierarchy of dimensions.

Source basis: KGW Ch. 18, PDF pp. 545–570.

Reference

[1] The hierarchy is case-specific and should be justified by the analyst.

Initial Comparable-Company Universe: 14 candidates

- Nordwell Closures
- Luminex Dispensing
- Veridia Rigid Solutions
- Helix Consumer Dispense
- Ceres Pharma Pack
- Marello Food Containers
- Alpina Glass and Metal
- Solvia Healthcare Components
- Flexora Films
- Baltic Molded Fiber
- Kernhaus Distribution
- Orbis Recycled Materials
- Tessera Precision Components
- Vela Contract Filling

Design: The initial universe intentionally contains companies with varying degrees of business and financial comparability to TargetCo. Industry classification is only a starting point;

Management-designated core peers

Company	Management rationale	Key comparability issue to assess
Nordwell Closures	Product overlap, European footprint and direct/key-account selling	Confirm end-market mix, qualification requirements and operating economics.
Luminex Dispensing	Dispensing exposure, qualification intensity and key-account business model	Confirm product/end-market mix and financial comparability.
Ceres Pharma Pack	TargetCo's growing Healthcare exposure and Ceres's regulated packaging capabilities	Test whether TargetCo's healthcare mix, growth, margins and ROIC are sufficiently comparable.
Alpina Glass and Metal	Rigid packaging formats, premium end markets and direct brand-owner relationships	Test whether different production technology, D&A, CapEx and ROIC make its economics insufficiently comparable.

Question:

Does the management-designated comparable reflect TargetCo's current business and financial characteristics?
Or primarily the economics management expects TargetCo to achieve?
↪ Management's proposed comparable-company set is an input to the analysis, not a substitute for (independent) criterion.

Source basis: KGW Ch. 18, PDF pp. 545–570; instructor-created data.

Reference

AI-organized representation of useful inputs

Candidate company	Business model	Revenue growth	ROIC	CapEx/ Revenue	Relevant information not supplied / comparability limitation
Nordwell	Technical component manufacturer	4.2%	13.6%	5.4%	Healthcare mix not supplied.
Ceres	Regulated pharmaceutical-packaging specialist	6.2%	20.8%	5.0%	TargetCo's regulated-pharma mix and economic profile are not shown to be comparable.
Alpina	Glass and metal packaging manufacturer	3.0%	9.4%	9.2%	Different production technology and capital-investment requirements.

Business model, products, customers, qualification: *Is this company sufficiently comparable to include?*
+ growth rate, margin, ROIC, CapEx: *Does this company have sufficiently similar economics to include?*

Allowed to be delegated: AI may extract source information, organize comparisons, and identify contradictions or missing information.

Not allowed: the analyst defines the comparability criteria and approves the comparable-company set.

Student exercise: define the comparability criteria, then select the comparable companies

1. Identify 3/4 comparability criteria you consider most important for TargetCo and justify them (e.g. product/customer similarity).
2. Identify additional characteristics that will be used as supporting evidence or diagnostic checks (e.g., geography may be supporting evidence).
3. State any (at least one) characteristics that would make a candidate unsuitable as comparables (e.g., distributor rather than a manufacturer).
4. a) Select the main comparable companies (e.g., low/high) + identify any additional companies retained for sensitivity analysis/cross-checking (i.e., borderline cases).
5. a) Ask AI to apply the analyst-defined criteria + b) identify candidates for which i) the criteria point in different directions or ii)the available information is insufficient.

False precision test

If AI reports that a company is "8.4/10 comparable," ask: *which comparability criteria were used, how were they measured and weighted, how was missing information treated, and what rule maps the resulting score into inclusion or exclusion?*

↪ **A score mayorganize judgement.**

Try yourself — 15 minutes

1. State your comparability criteria and any exclusion conditions
2. Select the companies for your principal Comparable Companies Analysis and identify any additional companies retained for cross-checking.

Now

Allow to use AI

3. Ask the AI to apply your criteria and identify conflicting or missing information.

Be ready to defend one inclusion and one exclusion!

Debrief: comparing comparables

Set	Members	Interpretation
Selected comparables	Nordwell, Luminex, Veridia, Helix	Strong similarity in products, customer/end-market exposure, business model, qualification characteristics, growth, profitability, ROIC and capital-investment requirements.
Alternative set including an out-of-industry economic analogue	main suspects + Tessera	Tessera is outside the packaging industry classification but has similar component-manufacturing, qualification, growth, ROIC and capital-investment characteristics.
Management-designated comparables	Nordwell, Luminex, Ceres, Alpina	Includes two close operating comparables, one company with materially stronger regulated-pharma growth/ROIC economics, and one with materially different production technology and capital intensity.

No single truth: different comparable-company sets may coexist, but use explicit defensible (non-AI-delegated) criteria.

Revenue growth and ROIC help explain differences

Candidate	Revenue Growth	EBITDA margin	ROIC	EV/Revenue[2]	EV/EBITDA
Veridia	3.8%	14%	12.6%	1.11x	7.85x
Nordwell	4.2%	14.8%	13.6%	1.13x	7.63x
Tessera	4.5%	15.2%	13.7%	1.17x	7.70x
Luminex	5.6%	16.5%	15.2%	1.22x	7.40x
Ceres	6.2%	18.9%	20.8%	1.74x	9.17x
Solvia	8.1%	24.5%	27.3%	2.52x	10.26x

Interpretation:

Companies with similar products can trade at different multiples when their growth/profitability/ROIC differ materially.
(Growth and ROIC are to be interpreted together)

Source basis: KGW Ch. 18, PDF pp. 545–570.

Reference

[2] = EV/EBITDA X EBITDA Margin

EV/EBITDA may be misleading when capital intensity differs materially

Candidate	EV/EBITDA	EV/EBIT	EV/NOPAT	CapEx/rev.	ROIC
Nordwell	7.63x	10.85x	14.47x	5.4%	13.6%
Luminex	7.40x	10.19x	13.59x	5.2%	15.2%
Alpina glass/metal	7.81x	**13.89x**	**18.52x**	**9.2%**	**9.4%**

Primary trading multiples: EV/Revenue and EV/EBITDA.

Additional diagnostics: EV/EBIT, EV/NOPAT, CapEx/Revenue and ROIC. These diagnostics help identify differences in depreciation, capital intensity and reinvestment requirements that EV/EBITDA does not capture.

Source basis: KGW Ch. 18, PDF pp. 545–570.

Reference

TargetCo FY2025A EBITDA: reported vs. management-adjusted bases

Reported FY2025A EBITDA

$$\text{EBITDA} = \text{EUR } 68.8m$$

Audited FY2025A result

Management-adjusted FY2025A EBITDA

$$68.8 + 1.4 = \text{EUR } 70.2m$$

Management proposes a EUR 1.4m adjustment for external commissioning support and duplicate QA costs.

Do not create an unsupported intermediate EBITDA.
Keep the EBITDA basis explicit:
Do not average or combine the two measures without analytical support.

$\hookrightarrow$ comparables multiples are fixed, TargetCo's EBITDA basis is the only variable.

Implied Enterprise Value from selected trading multiples

TargetCo statistic	Selected multiple	Implied EV
Revenue EUR 481.0m	1.11x / 1.17x / 1.22x	533.3 / 562.5 / 585.7
Reported EBITDA EUR 68.8m	7.40x / 7.69x / 7.85x	509.3 / 529.3 / 539.8
Management-adjusted EBITDA EUR 70.2m	7.40x / 7.69x / 7.85x	519.6 / 540.1 / 550.8

Think about it

At the median selected EV/EBITDA multiple, the EUR 1.4m management adjustment increases implied Enterprise Value by approximately EUR 10.8m (7.69x1.4m).

Analyst decision: The analyst must determine whether the EUR 1.4m management adjustment is sufficiently supported before choosing which EBITDA basis should inform the valuation conclusion.

Source basis: Session 3 validated workbook; RP-IB Ch. 1 mechanics.

Reference

Precedent Transactions Analysis uses a different information set

Comparables

Current trading multiples of selected publicly traded comparable companies.

Precedent transactions

Purchase-price multiples observed in selected prior M&A transactions involving comparable companies.

Assess **transaction comparability** using the target business, transaction date, market and industry conditions, buyer type, transaction structure, process information and special circumstances.

Observed transaction multiples do not **by themselves** identify the causal contribution of synergies, scarcity, competitive tension or seller circumstances to the purchase price.

Source basis: RP-IB Ch. 2, PDF pp. 131–186.

Reference

Try yourself — 10 minutes

Now

Use one analytical AI message for this stage

1. Ask AI to organize the supplied transaction evidence into a comparison matrix (e.g., EV/ LTM Revenue, EV/ LTM EBITDA, relevant facts).
2. Requirement for the AI: i) to distinguish facts from unsupported explanations; ii) not to select the transactions for you.
3. Using the AI output and the source materials, decide which transactions to include in the Precedent Transactions Analysis and enter your decision and principal caveat in the workbook.
4. Extra: independently verify the transaction multiples in Excel + bookkeeping: record this AI prompt.

Your deliverable is not the AI matrix. Your deliverable is a human-approved transaction selection supported by evidence, with the AI's role made explicit.

Precedent Transactions Analysis: 8 candidate transactions

Target	Announce date	EV/LTM Revenue	EV/LTM EBITDA	Relevant transaction facts
Capella Closures	Jun-24	1.19x	8.16x	European technical-closure manufacturer; EUR 24m annual procurement and cross-selling plan announced.
LumiDose	Sep-23	1.23x	7.90x	Dispensing-components supplier; accelerated sale process following working-capital disruption and covenant pressure.
Veralux Pack	Nov-22	1.14x	8.06x	Specialty rigid-packaging and closures business; transaction occurred during a capacity-expansion ramp and demand-normalization period.
PharmaNest	Apr-25	1.85x	8.09x	Primary pharmaceutical-packaging specialist; announcement described it as one of few independent European suppliers qualified for two regulated delivery formats.
Northbay	May-21	0.70x	7.29x	2021 transaction involving a standard food-container business with limited technical differentiation; followed a year of weak food-service demand.
FlexiSeal	Feb-24	1.07x	7.79x	Flexible-film and pouch manufacturer; EUR 30m procurement and footprint synergy plan announced.
EuroPack	Mar-23	0.67x	9.09x	Pan-European packaging distributor; carve-out transaction; standalone-cost adjustments not quantified.
MediCore	Aug-25	2.67x	N/A[3]	Medical-device components supplier with proprietary IP; comparable LTM EBITDA unavailable.

Do not select transactions based on the highest multiples or the most recent dates.
Assess business comparability, timing, transaction-specific circumstances and denominator quality.

[3] N/A because comparable LTM EBITDA is not supplied.

Debrief: a prompt that converts facts into unsupported claims

Audit your own prompting choice: what analytical judgment has been delegated to AI?

Prompt

"**Explain why** the candidate transactions with the highest observed EV/LTM EBITDA multiples were priced at higher multiples than the other transactions."

Plausible weak response

"The higher transaction multiples likely reflect strategic fit, meaningful synergy potential, scarcity of differentiated assets and competitive bidding tension."

What the evidence does establish:

- Certain buyers announced synergy plans (disclosed for only two transactions).
- One transaction description contains evidence consistent with scarcity.
- Some transactions contain seller/process circumstances.
- Buyer type and transaction context are supplied.

What the evidence does not establish:

- how synergies affected the purchase price;
- whether competitive bidding affected price;
- whether scarcity caused a higher multiple;
- whether "strategic fit" explains any observed multiple difference.

↪ Relevant facts ≠ cause of purchase prices

The prompt delegates causal interpretation that the available transaction evidence cannot support.

Transaction evidence: what I would want from the AI.

Better question

Which supplied facts are relevant to interpreting and which conclusions are not established?

Supplied fact	What the evidence supports	What the evidence does not establish
Buyer announced a EUR 24m annual procurement and cross-selling plan (Capella).	The announced synergy plan is a transaction-specific fact that may be relevant when interpreting the buyer's economics.	The synergy plan caused the observed purchase price or transaction multiple, or how much value was attributable to it.
Sale process accelerated after ERP-related working-capital disruption and a covenant test (LumiDose); no insolvency filing occurred.	A transaction-specific seller/process circumstance that should be considered when assessing comparability.	A quantified "distress discount" or quantify any effect on the purchase price.
PharmaNest as one of few independent European suppliers qualified for two regulated delivery formats.	Relevant infor about the target's differentiation and market position.	A quantified scarcity premium, competitive bidding tension, or that scarcity caused the observed multiple.
Comparable LTM EBITDA is not supplied (MediCore).	EV/LTM EBITDA cannot be calculated from the supplied information.	The missing EBITDA should not be inferred, estimated or reverse-engineered w/out additional evidence.

↪ Transaction facts are supporting info (not explanation).

Debrief: selecting precedent transactions

Transaction	Selection status	Analyst rationale / principal caveat
Capella Closures	Include	Strong business comparability; EUR 24m synergy plan announced, but its effect on purchase price is not identified.
LumiDose	Include	Strong business comparability; accelerated sale process and working-capital/covenant circumstances require caution.
Veralux Pack	Include	Strong business comparability; older transaction, with capacity-expansion and demand-normalization context relevant to comparison.
PharmaNest	Retain (upper reference)	Regulated-pharma business and stronger differentiation; announcement describes few qualified suppliers, but no scarcity premium or bidding effect is identified.
Northbay	Exclude / retain as context	Older transaction and more standardized, less differentiated business.
FlexiSeal	Exclude	Production model differs materially from TargetCo.
EuroPack	Exclude	Distributor rather than manufacturer; carve-out with unquantified standalone-cost adjustments.
MediCore	Exclude	Different device/IP economics; comparable LTM EBITDA unavailable.

Strong business comparability does not eliminate differences in transaction timing or special circumstances.

Precedent Transactions Analysis: implied EV and its limits

TargetCo financial statistic	Low selected multiple	Median selected multiple	High selected multiple
FY2025A Revenue: EUR 481.0m	1.14x → 547.0m	1.19x → 573.5m	1.23x → 589.2m
Reported FY2025A EBITDA: EUR 68.8m	7.90x → 543.7m	8.06x → 554.2m	8.16x → 561.3m
Management-adjusted FY2025A EBITDA: EUR 70.2m	7.90x → 554.8m	8.06x → 565.5.2m	8.16x → 572.7m

What this analysis tells us: The selected prior transaction multiples imply the three valuation ranges shown above. In this case, selected transaction EV/EBITDA multiples are above the selected comparable-company EV/EBITDA multiples, while EV/Revenue ranges overlap substantially.

What this analysis does not tell us: It does not predict TargetCo's eventual transaction price, identify a standalone control premium, or establish why any individual transaction occurred at its observed multiple.

BREAK — 15 minutes

Next: open the workbook to `07_DCF`.

DCF mechanics familiar; delegation problem new

Mechanics

$$\text{Revenue} \rightarrow \text{EBITDA} \rightarrow \text{EBIT} \rightarrow \text{NOPAT} \rightarrow \text{FCFF} \rightarrow \text{PV} + \text{TV} = \text{EV}$$

$$\text{FCFF} = \text{NOPAT} + \text{D\&A} - \text{CapEx} - \Delta\text{NWC}$$

New question: who is allowed to specify growth, margin, reinvestment, normalization and steady state?

Source basis: RP-IB Ch. 3, PDF pp. 187–238; KGW Ch. 17, PDF pp. 533–544.

Reference

Management Case versus Banker/Base Case

Management Case

Complete 2026E–2030E forecast supplied. It is evidence to test, not a case to "clean up" silently.

Banker/Base Case

Student-built. Change a few transparent driver families and record management assumption, Base assumption, evidence and reason.

Preferred drivers: utilization pace, EBITDA-margin normalization, CapEx/reinvestment and—if justified—NWC efficiency.

Bad delegation: “build a reasonable Base Case”

Prompt

“Build a reasonable Base Case using management’s assumptions and the historical model.”

Plausible weak response

Slightly lowers growth and margin, accepts declining reinvestment, presents polished FCFF and never calculates implied ROIC or tests steady state.

What did we allow AI to invent?

Growth path; utilization conversion; normalized margin; maintenance CapEx; NWC efficiency; evidence standard; meaning of “reasonable.”

Source basis: Instructor benchmark S3-P3; prepared response.

Forecast-consistency table: read across, not down

Management Case	25A	26E	27E	28E	29E	30E
Revenue growth	–	6.9%	6.4%	6.0%	5.2%	4.4%
Utilization	84%	88%	91%	93%	94%	95%
EBITDA margin	14.3%	15.7%	16.5%	17.1%	17.5%	17.8%
CapEx / revenue	6.1%	6.0%	5.3%	4.8%	4.6%	4.5%
NWC / revenue	14.0%	14.0%	13.9%	13.7%	13.5%	13.4%

Line-by-line: plausible. **Jointly:** growth + margin + less reinvestment + better NWC may imply exceptional returns.

Source basis: KGW Ch. 17, PDF pp. 533–544; instructor-created forecast.

Reference

Individually plausible, jointly demanding

Growth	Margin	Reinvestment	NWC
Fades	Rises	Falls	Improves
6.9% → 4.4%	14.3% → 17.8%	6.1% → 4.5%	14.0% → 13.4%

NOPAT rises faster than invested capital $\implies$ implied ROIC rises materially.

Plausibility is a property of the model together, not each row separately.

Student exercise: test the economic consequences

1. Recalculate EBITDA, NOPAT, FCFF and invested capital.
2. Compute ROIC on average beginning/ending operating invested capital.
3. Compare 2030E with FY2025A and close peers.
4. Change only a few driver families for Banker/Base.
5. State the evidence and reason for each change.

ROIC definition

$$\text{ROIC}_t = \frac{\text{NOPAT}_t}{(\text{IC}_{t-1} + \text{IC}_t)/2}$$

Source basis: KGW Ch. 17, PDF pp. 533–544.

Reference

Implied ROIC exposes the tension

	25A	26E	27E	28E	29E	30E
Management Case	10.6%	12.8%	14.4%	16.0%	17.3%	**18.4%**
Banker/Base	10.6%	12.2%	13.2%	14.3%	15.1%	**15.9%**

Management DCF

EUR 699.6m EV

Banker/Base DCF

EUR 600.3m EV

Finding: Management is demanding rather than cartoonish; the economic consequence needs evidence.

Source basis: Session 3 validator; KGW Ch. 17.

Reference

Historical normalization: do not count the same saving twice

Historical scenario

FY2025A reported EBITDA 68.8
$+$ management adjustment 1.4
$=$ adjusted EBITDA 70.2

Forecast construction

$$\text{EBITDA}_t = \text{Revenue}_t \times \text{Margin}_t$$

Forecast margins already assume the costs disappear.

Wrong: start from adjusted EBITDA and add EUR 1.4m again as a forecast saving.

Correct separate forecast add-back: zero in every year.

Source basis: TargetCo normalization rule; Session 3 validator.

Reference

Terminal value requires a credible steady state

Continuing value

$$TV_{2030} = \frac{FCFF_{2031}}{WACC - g}$$

Ask whether 2030E jointly supports:

- 2.0% continuing growth;
- 16.7% Base EBITDA margin;
- 15.9% implied ROIC;
- enough reinvestment to sustain growth;
- a 9.5% WACC.

Terminal assumptions describe an economic state, not two cells appended to a model.

Source basis: KGW Ch. 17, PDF pp. 533–544.

Reference

Sensitivity is diagnosis, not decoration

WACC \ g	1.5%	2.0%	2.5%
9.0%	598.1	631.9	670.9
9.5%	570.6	**600.3**	634.2
10.0%	546.3	572.6	602.5

Base DCF composition

Explicit FCFF PV: 157.7

Terminal-value PV: 442.6

Terminal / EV: 73.7%

Interpret: what moves value; what needs diligence; whether the sensitivity changes confidence in the range.

Source basis: Session 3 validated DCF; KGW Ch. 17.

Reference

Three methods, different information sets — one bad prompt

Bad reconciliation prompt

"Combine the trading comps, precedent transactions and DCF into the most reasonable final valuation for TargetCo."

Plausible weak answer

Averages method midpoints, invents 40% / 30% / 30% weights and reports a precise point estimate.

Why wrong: current market evidence, historical control values and forecast intrinsic value do not become comparable votes merely because each produces EV.

Reconcile evidence, not midpoints

Method	Evidence	Dominant issue	Use in range
Trading comps	509–586	Peer rule + EBITDA basis	Market lower/central anchor; preserve scenarios
Precedents	544–589	Selection + transaction context	Control-value reference; not automatic premium
Management DCF	700 point	Joint ROIC and steady state	Upper evidence; not approved Base
Banker/Base DCF	600 point	Terminal dependence	Primary intrinsic reference

Preliminary sell-side range

EV **EUR 550m–EUR 610m** − net debt 170 = equity value **EUR 380m–EUR 440m**

No midpoint average. Bounds follow from method evidence, limitations and unresolved assumptions.

Source basis: TargetCo canonical reconciliation preserved.

Final AI use: make the model the challenger

VP prompt

"You are the VP reviewing this valuation. Do not rewrite it and do not choose a new valuation. Identify the three analytical choices or assumptions most capable of materially changing the conclusion. For each, state the evidence or analysis needed to resolve it."

Expected pressure points:

1. peer set and reported versus adjusted EBITDA;
2. forecast economics, reinvestment and steady state;
3. precedent selection and unsupported transaction narratives.

AI is now the challenger. Students decide whether the conclusion survives.

What AI did / what the analyst retained → Session 4

AI did

Extract evidence; apply stated rules; calculate; surface contradictions; run diagnostics; challenge the conclusion.

Human retained

Comparability rule; normalization decision; Base assumptions; steady-state judgement; reconciliation; sign-off.

Session 4 bridge

The approved peer set(s), calculations, scenarios and reconciliation checks become the benchmark to reproduce and extend in Python. Session 3 does not teach Python.

Handoff: a defensible valuation architecture with visible decision rights.

Reference: sell-side valuation context

- Valuation analysis helps a seller form expectations before a process starts.
- It can inform positioning, buyer selection, evaluation of indications/offers and later negotiation.
- It does not guarantee market clearing value; process structure, terms, financing and buyer-specific economics still matter.
- Session 3 therefore uses a range with evidence and unresolved issues, not a predicted transaction price.

Source basis: RP-IB Ch. 6, PDF pp. 395–470.

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Reference: EV, equity value and method outputs

Item	Meaning	TargetCo
Enterprise value	Value of operations available to capital providers	Output of comps, precedents and DCF
Net debt	Gross debt less unrestricted cash	$198.0 - 28.0 = 170.0$
Equity value	Residual value to shareholders	EV $-$ 170.0
Reported EBITDA	Audited denominator before management adjustment	68.8
Adjusted EBITDA	Management-proposed historical scenario	70.2

Control: do not mix an EV multiple with an equity-value denominator; do not hide the EBITDA scenario.

Source basis: RP-IB Chs. 1–3, PDF pp. 39–238; TargetCo audited base.

Back to core

Reference: trading-comps mechanics

1. Define the peer rule and screen the universe.
2. Recalculate $EV/Revenue$ and $EV/EBITDA$ from source fields.
3. Inspect distribution: low, median, high and outliers.
4. Apply selected multiples to consistent TargetCo denominators.
5. Preserve reported/adjusted EBITDA scenarios and explain the range.

$$EV_{Target} = \text{Selected multiple} \times \text{Target metric}$$

Session 3 advance: peer selection and denominator treatment are controlled judgements, not preliminary data cleaning.

Source basis: RP-IB Ch. 1, PDF pp. 39–130.

Back to core

Reference: peer selection, growth and ROIC

- Industry classification is a starting point, not a sufficient peer rule.
- Management peer lists can contain aspirational companies.
- Growth and ROIC help explain why similar product labels trade at different multiples.
- Business model, mix and reinvestment can dominate superficial sector overlap.

Analyst use

Use growth and ROIC to diagnose multiple differences and challenge selection. Do not turn them into an unexplained composite score.

Source basis: KGW Ch. 18, PDF pp. 545–570.

Back to core

Reference: EBITDA multiple and capital intensity

$$EBITA = EBITDA - D\&A \qquad NOPAT = EBIT(1 - t)$$

- Similar EV/EBITDA can conceal different D&A, replacement CapEx and asset lives.
- A capital-intensive peer may look inexpensive on EBITDA yet expensive on EBITA/NOPAT.
- CapEx/revenue and ROIC reveal whether the reinvestment burden is similar.
- EV/EBITA and EV/NOPAT are diagnostics here, not a new valuation method.

Source basis: KGW Ch. 18, PDF pp. 545–570.

Back to core

Reference: precedent-selection discipline

Question	Why it matters
Business comparability	Product, customer, business model and geography shape economics.
Timing / cycle	Capital markets and industry conditions change observed multiples.
Buyer type	Strategic and sponsor motivations can differ, but labels do not prove price causality.
Special circumstances	Distress, carve-outs or missing standalone costs can distort comparability.
Denominator quality	Missing or non-comparable LTM data can make a multiple unusable.

Output: usable observations with explicit caveats, not a search for the highest multiples.

Source basis: RP-IB Ch. 2, PDF pp. 131–186.

Back to core

Reference: transaction narrative and causality

Evidence status	Permitted statement
Synergy plan disclosed	Buyer announced the plan; it could affect willingness to pay.
Scarcity stated	The target was described as one of few qualified suppliers.
Seller pressure supplied	Timetable and liquidity context may affect interpretation.
Bidder count missing	Do not claim competitive tension.
Price bridge missing	Do not claim the amount of premium caused by any factor.

“Could plausibly affect” is different from “explains.”

Source basis: Instructor-created transaction evidence; no textbook case reproduced.

Back to core

Reference: simplified DCF mechanics

$$EBITDA_t = Revenue_t \times Margin_t$$

$$NOPAT_t = (EBITDA_t - D\&A_t)(1 - t)$$

$$FCFF_t = NOPAT_t + D\&A_t - CapEx_t - \Delta NWC_t$$

$$EV = \sum_{t=1}^{5} \frac{FCFF_t}{(1 + WACC)^t} + \frac{FCFF_{2031}}{(WACC - g)(1 + WACC)^5}$$

Session boundary: WACC/CAPM derivation is not the lesson; forecast specification and validation are.

Source basis: RP-IB Ch. 3, PDF pp. 187–238.

Back to core

Reference: Koller-style model validation

1. **Technical correctness:** formulas, links, signs and units.
2. **Economic consistency:** growth, margins, reinvestment and returns fit together.
3. **Plausibility:** forecast outcomes make sense against history, peers and industry economics.
4. **Scenario / sensitivity:** identify which assumptions drive the conclusion.

Key warning

Individually plausible assumptions can jointly imply implausible ROIC or an incoherent steady state.

Source basis: KGW Ch. 17, PDF pp. 533–544.

Back to core

Reference: implied ROIC calculation

$$IC_t = IC_{t-1} + CapEx_t - D\&A_t + \Delta NWC_t$$

$$ROIC_t = \frac{NOPAT_t}{(IC_{t-1} + IC_t)/2}$$

2030E Management example

NOPAT $= 64.0$; average invested capital $= 347.1$; $ROIC = 64.0/347.1 = 18.4\%$.

Use: translate a forecast of accounting lines into the economic return path those lines jointly imply.

Source basis: KGW Ch. 17, PDF pp. 533–544; Session 3 validator.

Back to core

Reference: normalization and forecast double counting

Legitimate role	Not automatic
Assess sustainable FY2025A margin	Add EUR 1.4m to every forecast year
Calibrate confidence in management's margin path	Treat historical adjustment as new incremental saving
Create reported/adjusted trading scenarios	Count the same cost removal in EBITDA margin and add-back

$$\mathit{Forecast\ EBITDA} = \mathit{Revenue} \times \mathit{Forecast\ margin} + \underbrace{0}_{\mathit{separate\ normalization\ addback}}$$

Source basis: TargetCo historical normalization rule; Session 3 validator.

Back to core

Reference: terminal state, sensitivity and reconciliation

- A terminal growth rate requires reinvestment; growth, ROIC and reinvestment must be mutually consistent.
- High terminal-value share makes the conclusion sensitive to small changes in WACC, g, margin and ROIC.
- Sensitivity identifies diligence priorities; it does not validate the central case by itself.
- Reconciliation compares evidence quality and dominant assumptions. It does not mechanically average outputs.

TargetCo: 73.7% of Base EV comes from terminal value; the 3-by-3 table spans EUR 546.3m–EUR 670.9m.

Source basis: KGW Ch. 17, PDF pp. 533–544; Session 3 validated DCF.

Back to core

Reference: completed Delegation Canvas example

Task	AI may conclude	AI may not conclude	Check / stop
Peer evidence matrix	Extract and flag missing/conflicting facts	Final peer set or hidden score	Re-read pack; stop if source is missing
Criteria application	Candidate meets analyst rule	Which dimensions/weights matter	Compare borderline alternatives
DCF diagnostics	Implied ROIC, TV share and sensitivity	"Reasonable" Base assumptions	Recompute FCFF and ROIC
VP challenge	Three material pressure points	New final valuation	Human decides whether range survives

Strong first-prompt pattern

Task + supplied files + allowed conclusion + prohibited conclusion + output schema + evidence citations + stop rule + independent calculation requested.

Source basis: Instructor-designed benchmark; not distributed before the closed-laptop exercise.

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