

AI-Ready Enterprise

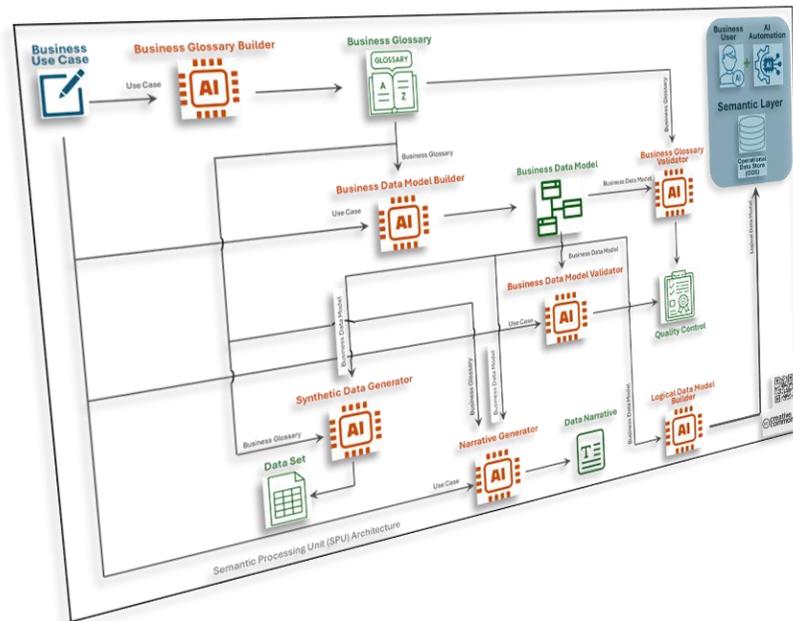
Semantic Layer & IT Architecture For AI

December 20, 2025 (fix 01)



Content

- Build Your Semantic Layer
- Build Your IT Architecture For AI



In this presentation, also discover the **Semantic Processing Unit (SPU)** concept

Part #1

Build Your **Semantic Layer** to Turn Data Into **AI-driven** Automation

3 Key KPIs

Through the deployment of a **Semantic Layer**



Cut **AI errors** by **3x-to-10x**



Augment **AI ROI** by **5x**



Augment Company **Valuation** by **3x**



Cut AI errors by **3x-to-10x**

- ✓ AI hallucinates less because it understands business meaning based on vocabulary, data model, and real examples (not raw tables)
- ✓ Grounding AI in business meaning eliminates 70–90% of semantic misinterpretations



- <https://medium.com/zs-associates/meaning-and-metadata-why-semantic-layers-are-key-to-generative-ai-success-03eb25858bf9>
- <https://cloud.google.com/blog/products/business-intelligence/how-lookers-semantic-layer-enhances-gen-ai-trustworthiness>
- <https://arxiv.org/abs/2503.00600>



Augment **AI ROI** by **5x**

- ✓ By embedding a semantic layer, AI decisions rely on trusted metrics, scalable data models, and well-defined processes unlocking ROI far beyond simple cost-savings
- ✓ 5x ROI is realistic for mature deployments with a strong semantic layer + data foundation. Limited setups typically achieve 2x-to-3x



- <https://nordcloud.com/guides/unlock-3x-roi-with-ai-with-data-you-already-own>
- <https://amplyfi.com/blog/why-only-13-of-enterprises-achieve-5x-ai-roi-the-data-sovereignty-gap>
- <https://thedataexperts.us/insights/ai-investment-roi-analysis-2025>



Augment Company **Valuation** by **3x**

- ✓ A strong semantic layer increases company valuation by enabling scalable AI, predictable performance, and repeatable automation across the business
- ✓ Companies with mature AI foundation capture 3x-to-5x higher valuation multiples versus peers due to improved profitability, operational leverage, and reduced risk



- <https://www.bcg.com/publications/2025/are-you-generating-value-from-ai-the-widening-gap>
- <https://aventis-advisors.com/ai-valuation-multiples>
- <https://arxiv.org/abs/2505.10590>

Semantic Layer **Architecture**

Semantic Layer Blueprint



IT Layer



SEMANTIC Layer
Business Vocabulary



AI Automation with
Business Understanding



AI Analytics with Precise
Data Mapping

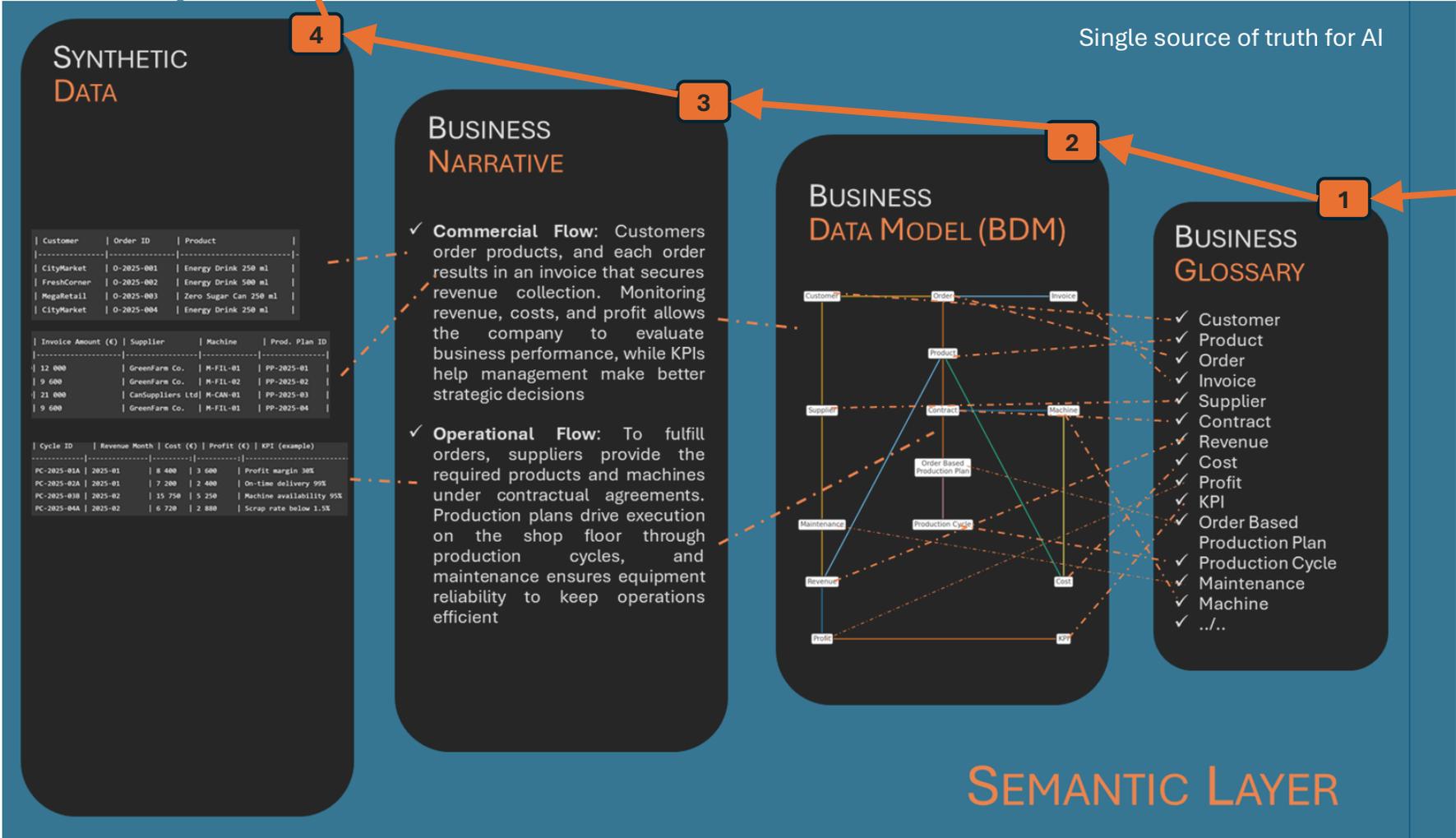
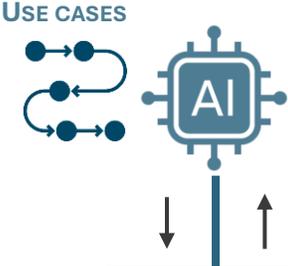


Unifies fragmented and siloed data into a coherent enterprise knowledge model, ensuring consistent meaning

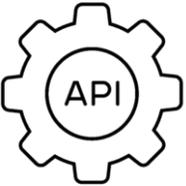


Synthetic data and business narratives form structured examples that speed up AI training

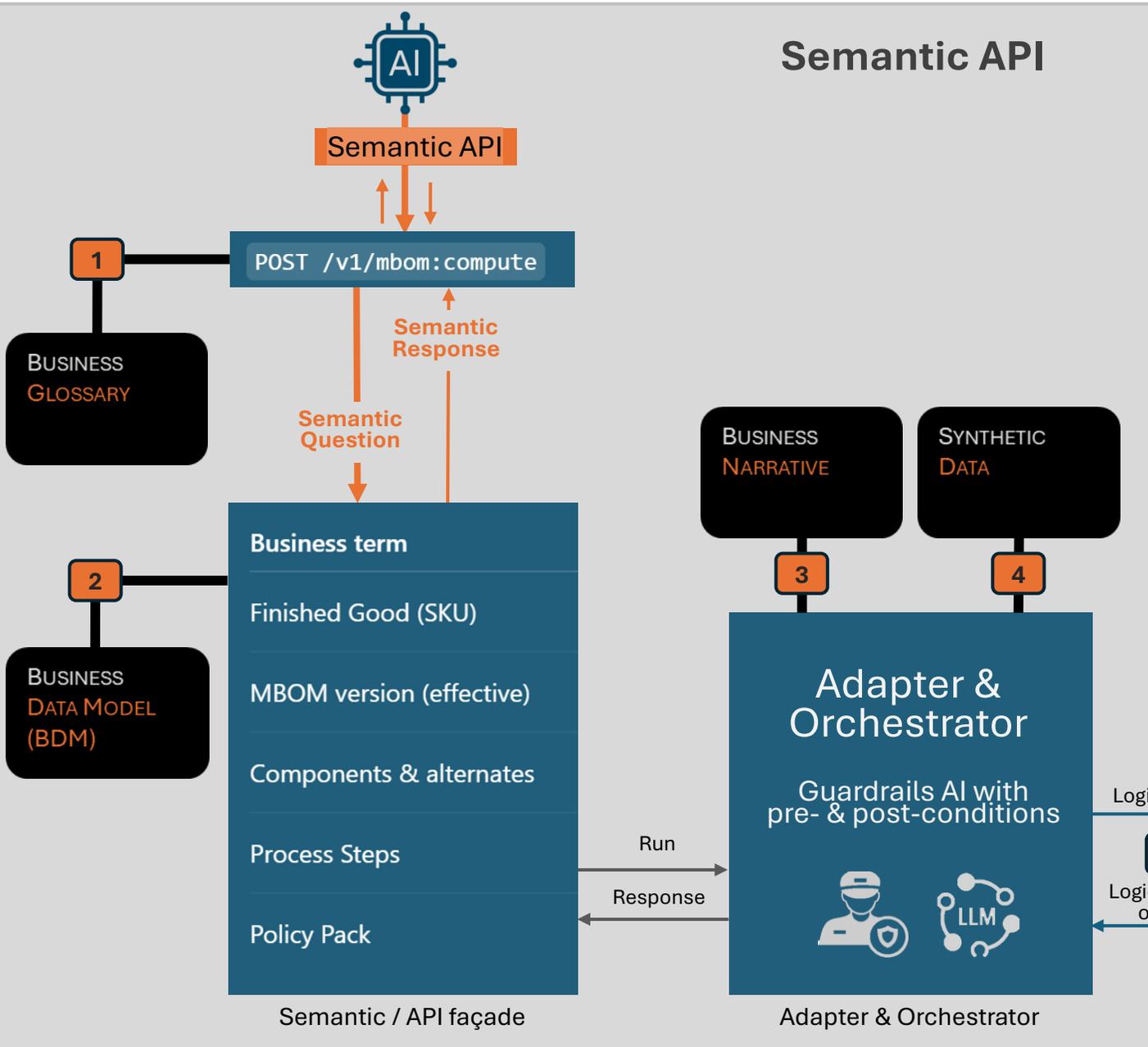
Semantic API



Guarantees reliable AI results by hiding physical data structures and providing consistent business meaning to AI agents



Semantic API

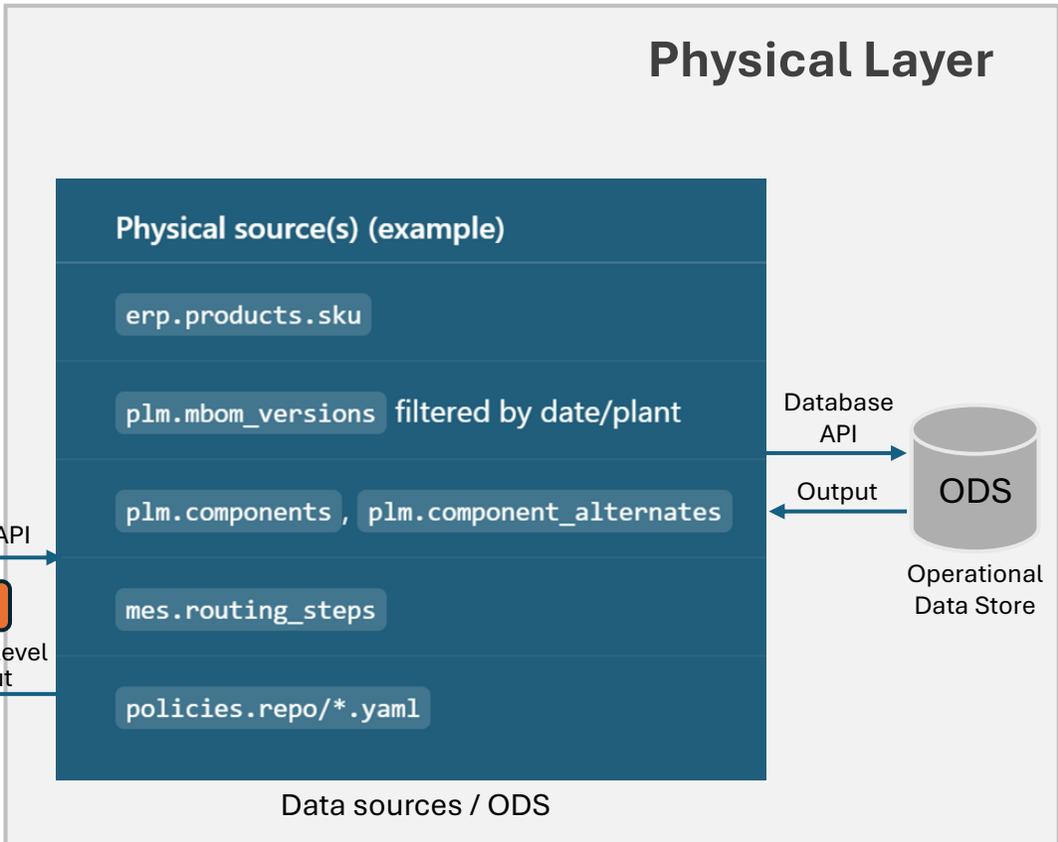


The Semantic API transforms a simple AI request into a reliable business answer by passing through five layers:

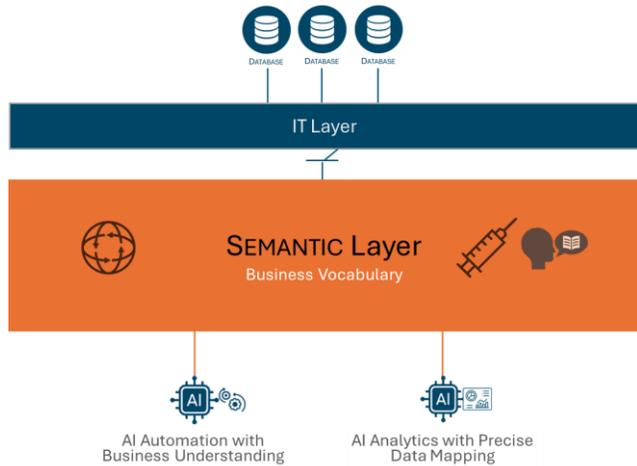
- 1 Business Glossary
- 2 Business Data Model
- 3 Business Narrative
- 4 Synthetic Data
- 5 Orchestrated Logic to access the physical layer

It hides physical data complexity, enforces guardrails, and returns consistent business-level outputs ready for automation

Physical Layer

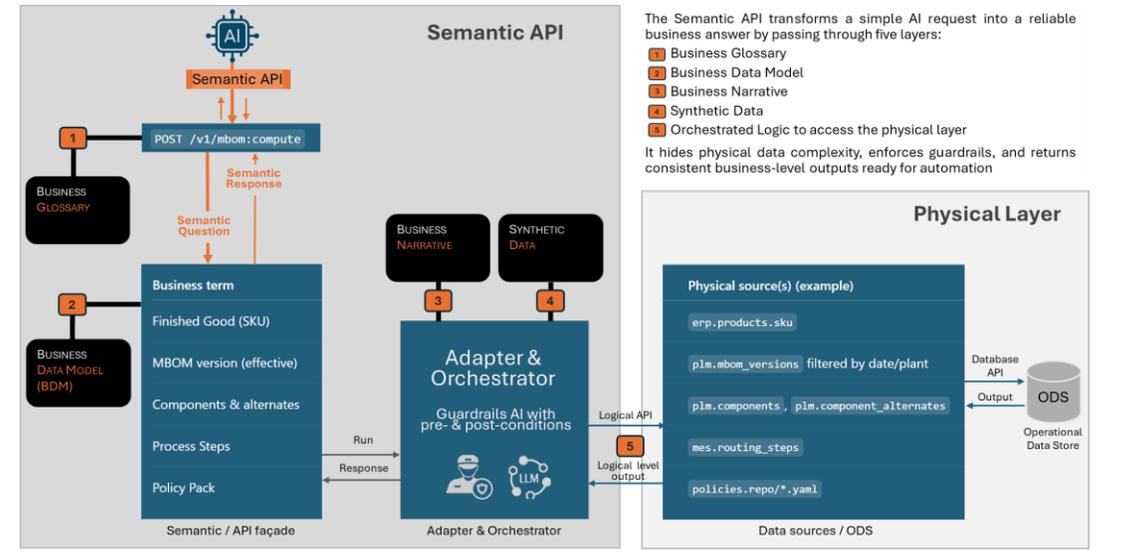
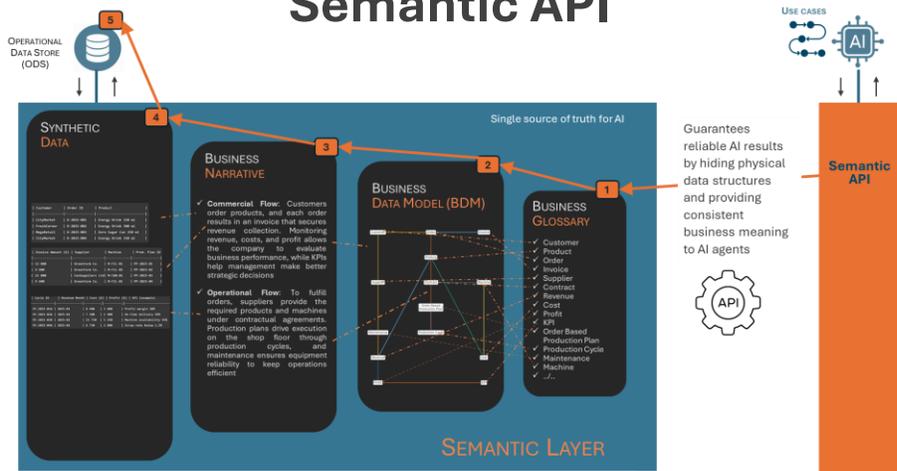


Semantic Layer Blueprint



Synthesis

Semantic API



The Semantic API transforms a simple AI request into a reliable business answer by passing through five layers:

- 1 Business Glossary
- 2 Business Data Model
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- 4 Synthetic Data
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It hides physical data complexity, enforces guardrails, and returns consistent business-level outputs ready for automation

Enterprise Knowledge Graph (EKG)

- In this presentation the Semantic Layer is built on top of an operational database
- It can be complemented with a knowledge-graph-oriented database: an **Enterprise Knowledge Graph (EKG)**
- In such a case, we provide specialized TRAIIDA AI Assistants for generating the RDF/OWL ontology
- The EKG goes hand in hand with a strategy to transform tacit knowledge into explicit knowledge



Feel free to explore the explanations about the EKG on the Engage-Meta website and contact us if you would like to study its implementation in your context



TRAIDA AI Assistants to Build Your Semantic Layer

TRAIDA AI Assistants

Cut data modeling costs by **10x**

- ✓ **Shift from manual modeling to AI-assisted automation:** 70% of the modeling work is generated automatically using business glossaries, narratives, and TRADA AI agents
- ✓ **Drastic reduction of iterations:** The Semantic Layer ensures consistent vocabulary and structures, avoiding endless corrections and rework between business and IT teams
- ✓ **Faster convergence to high-quality models:** AI produces clean UML/XMI outputs in minutes, allowing experts to focus only on the 30% value-added refinement
- ✓ **Reuse across all domains:** Once the core semantic foundation is built, new business domains can be modeled in hours instead of weeks
- ✓ **Lower dependency on scarce experts:** One senior data modeler can supervise 10× more modeling work thanks to the automation and semantic guardrails



- <https://www.secoda.co/blog/improving-enterprise-data-modeling-with-generative-ai>
- <https://www.striim.com/blog/5-key-principles-of-effective-data-modeling-for-ai>

Semantic Layer Modeling Process

 Description of the company's use cases including a narrative about the data

 Business Glossary with terms organized by packages that will be used for business data modeling

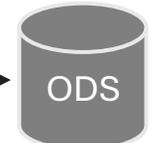
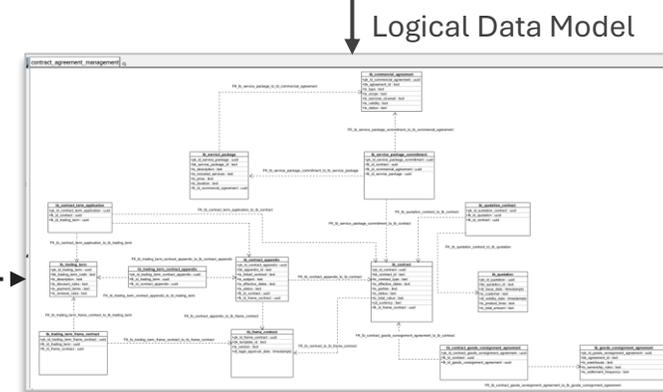
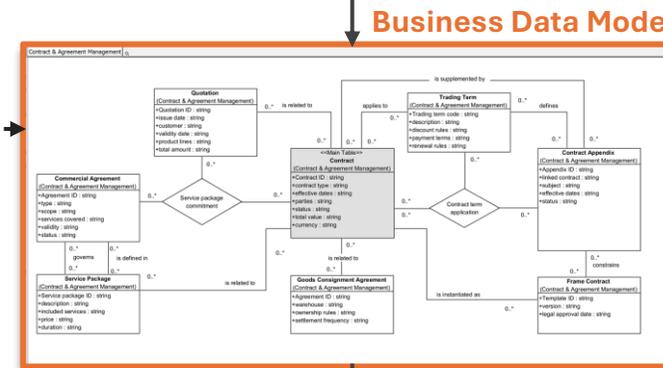
 Business Data Model

Validation + Synthetic Data + Narrative

 Logical Data Model

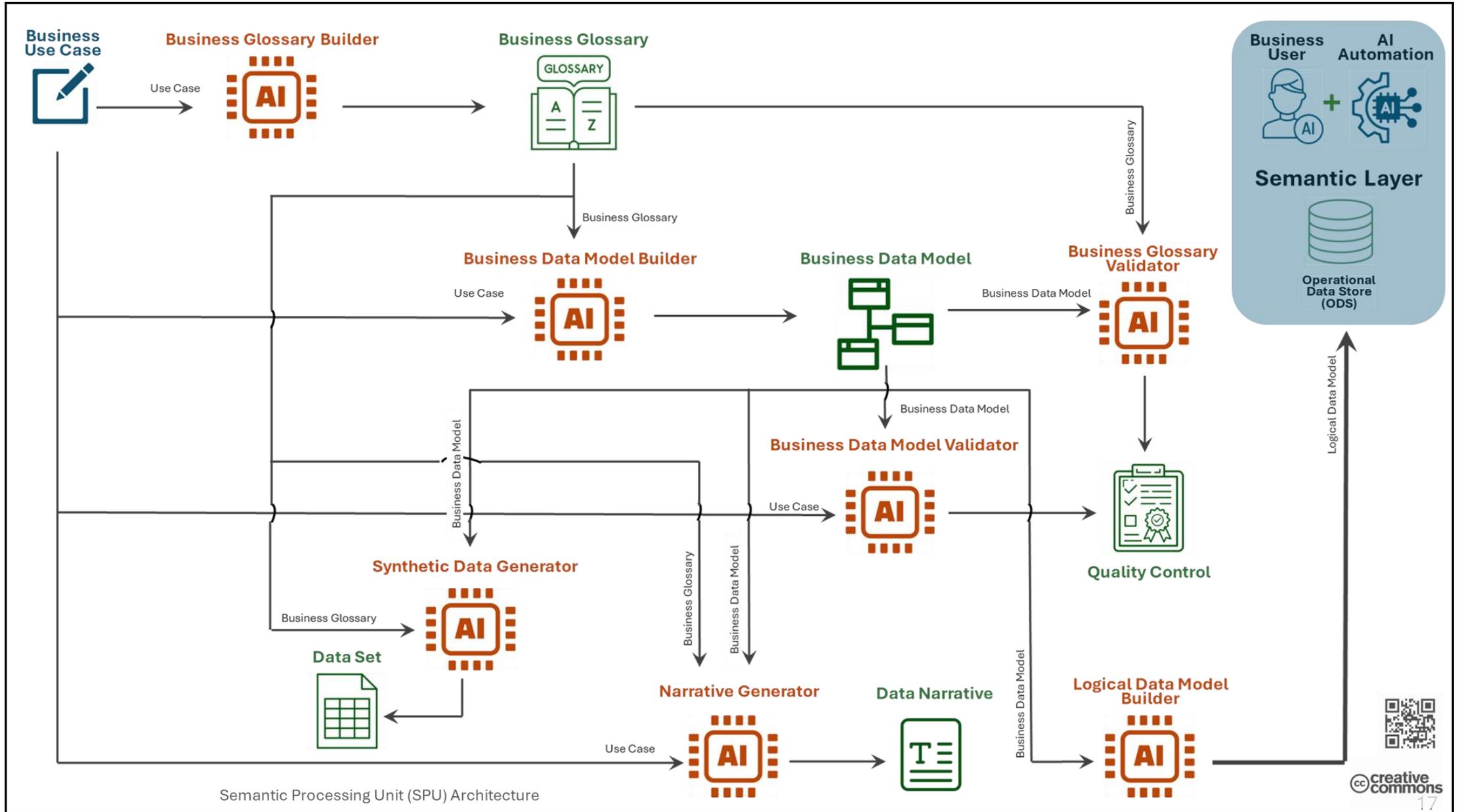
Business Glossary

Root Package	Business Concept	Definition
Customer Management	Customer	Legal or natural person that purchases Vitaspark Beverages products or services through any sales channel.
Customer Management	Sales Channel	Commercial route through which Vitaspark Beverages sells products or services to customers.
Customer Management	Delivery Address	Physical address where ordered goods are delivered for a given customer or order.
Customer Management	Contact Channel	Communication medium used to exchange commercial and operational information with customers.
Customer Management	Customer Segment	Grouping of customers with similar characteristics or business rules, such as B2B or B2C.
Contract & Agreement Management	Contract	Legally binding agreement between Vitaspark Beverages and a customer defining commercial terms and obligations.
Contract & Agreement Management	Contract Appendix	Formal extension attached to a Contract that adds or modifies specific terms or conditions.
Contract & Agreement Management	Commercial Agreement	Document that defines commercial conditions for service packages or special deals with a customer.
Contract & Agreement Management	Trading Term	Specific negotiated commercial conditions such as discounts, payment terms, and logistics responsibilities.
Contract & Agreement Management	Frame Contract	Standard lawyer-approved contract template used as the base for customer agreements.
Contract & Agreement Management	Goods Consignment Agreement	Agreement that defines consignment stock conditions when goods are stored at a consignment warehouse.
Contract & Agreement Management	Quotation	Non-binding commercial offer sent to a customer with proposed products, quantities, and prices.
Contract & Agreement Management	Service Package	Bundle of services and conditions sold as a package, especially for HR Enterprise customers.
Order Management	Customer Purchase Order	Formal order placed by a customer requesting products or services from Vitaspark Beverages.
Order Management	Order Line	Single item entry within a Customer Purchase Order specifying product, quantity, and price.
Order Management	Order Status	State representing the current processing stage of a customer order.
Order Management	Proforma Invoice	Preliminary invoice document issued for comparison or prepayment before the official invoice.
Order Management	Order Fulfillment	Logical representation of activities required to deliver products for a given order.
Product & Pricing	Product	Physical beverage or related item sold by Vitaspark Beverages.
Product & Pricing	Promotion	Temporary commercial incentive applied to products or customers to boost sales.
Product & Pricing	Discount	Reduction applied to the standard price of products or services on an order.
Product & Pricing	Tax	Mandatory amount calculated on taxable items according to current regulations.



Operational Data Store

Semantic Processing Unit (SPU)



BGL: BUSINESS GLOSSARY
 BDM: BUSINESS DATA MODEL
 SDT: SYNTHETIC DATA
 NAL: NARRATIVE IN NATURAL LANGUAGE
 LDM: LOGICAL DATA MODEL

TRAIDA AI Assistants Catalog



	BUSINESS GLOSSARY	BUSINESS DATA MODEL (BDM)	BUSINESS NARRATIVE	SYNTHETIC DATA	ODS LOGICAL DATA MODEL OPERATIONAL DATA STORE
BGL Builder (TRAIDA)	✓				
BDM Builder (TRAIDA)		✓			
BGL Validator (TRAIDA)	✓				
BDM Validator (TRAIDA)		✓			
SDT Generator (TRAIDA)				✓	
NAL Generator (TRAIDA)			✓		
LDM Builder (TRAIDA)					✓

TRAIDA AI Assistants Catalog



GPT Name	Role	Business Objective
BGL Builder (TRAIDA)	Generates the Business Glossary from use cases. Establishes the company's business language (metadata) and enables comparison with standard industry terminology	The Business Glossary provides the common vocabulary used to design business-level APIs consumed by AI automations. By giving AI systems access to clear business terms, the company reduces ambiguity and significantly lowers the risk of hallucinations
BDM Builder (TRAIDA)	Builds the Business Data Model (BDM) from the Business Glossary and use cases. Defines the semantic foundation of the data architecture with entities and relations	Beyond the glossary, AI needs clarity about how business concepts relate to each other. The BDM describes the meaning of entities and their relationships at a semantic level. This structure strengthens the value of data used by AI agents and increases the return on AI investment at scale
BGL Validator (TRAIDA)	Validates the alignment between the Business Glossary and the Business Data Model. Identifies missing, ambiguous, or duplicated terms and checks their correspondence with the BDM entities and relations	A precise and non-ambiguous glossary ensures that AI automations work consistently across all departments. By eliminating duplicated or unclear terms, the company avoids misunderstandings and supports unified analytics, making AI more reliable at scale
BDM Validator (TRAIDA)	Checks the alignment between the Business Data Model and the use cases to ensure that all business scenarios are correctly represented. Assesses completeness, consistency, and semantic quality	The more the data architecture reflects real business scenarios, the easier it becomes to train and feed AI automations with meaningful information. Strong alignment between the glossary and the BDM forms the semantic backbone required for accurate AI reasoning and decision-making
SDT Generator (TRAIDA)	Generates realistic sample data based on the Business Data Model to validate attributes, constraints, relations, and data completeness. Simulates how the BDM behaves in real scenarios	Synthetic data derived from the semantic model provides high-quality, representative examples for training AI. It enables the creation of realistic few-shot prompts and datasets that improve the accuracy and robustness of AI automations without exposing sensitive data
NAL Generator (TRAIDA)	Produces clear natural-language explanations of the Business Data Model. Makes entities and relations understandable for non-technical stakeholders	The narrative makes the data model understandable in plain language, enabling AI to reason on top of business logic instead of raw technical schemas. It also helps guide reporting, analytics, and other AI assistants by clarifying how to interpret business entities and relationships
LDM Builder (TRAIDA)	Transforms the Business Data Model into a Logical Data Model (LDM) that follows database normalization rules and industry modeling standards	The Logical Data Model and the physical schema should not be directly consumed by AI. Instead, they are accessed through the semantic layer, which shields AI from technical details and prevents hallucinations related to low-level data structures or poor-quality data

TRAIDA AI Assistants - GPTs



GPTs

Discover and create custom versions of ChatGPT that combine instructions, extra knowledge, and any combination of skills.

Q TRAIDA

All Personal account workspace

- NAL Generator (TRAIDA)**
TRAIDA Framework: Produces clear natural-language explanations of the Business ...
By Pierre Bonnet 0
- BDM Validator (TRAIDA)**
TRAIDA Framework: Generate an analysis report on the quality control of the align...
By Pierre Bonnet 0
- BGL Validator (TRAIDA)**
TRAIDA Framework: Validates the alignment between the Business Glossary and th...
By Pierre Bonnet 0
- LDM Builder (TRAIDA)**
TRAIDA Framework: Transforms the Business Data Model into a Logical Data Model...
By Pierre Bonnet 0
- BGL Builder (TRAIDA)**
TRAIDA Framework: Generate a Business Glossary for Semantic Modeling purpose
By Pierre Bonnet 0
- SDT Generator (TRAIDA)**
TRAIDA Framework: Generate synthetic data to illustrate how a Business Data Mod...
By Pierre Bonnet 0
- BDM Builder (TRAIDA)**
TRAIDA Framework: Generate a Business Data Model (BDM) for the specified use c...
By Pierre Bonnet 0

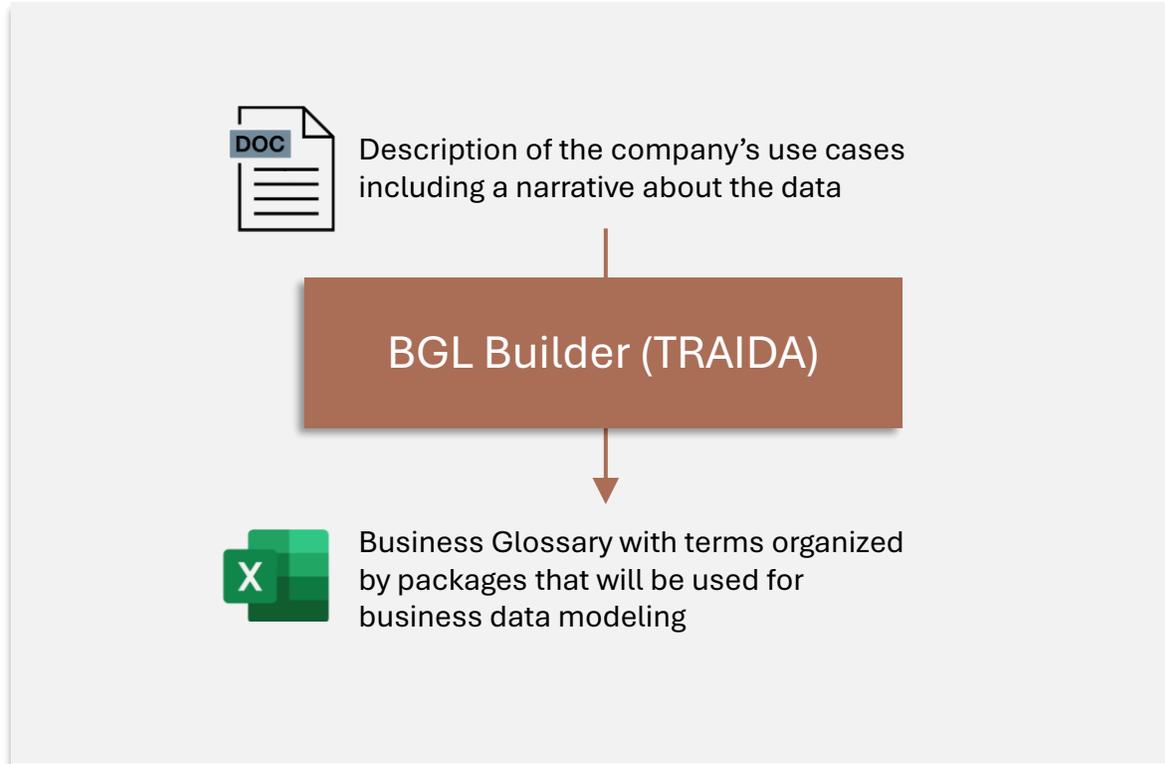
You can find the TRAIDA AI assistants by searching with the keyword TRAIDA

TRAIDA AI Assistants Guidelines

- When using the TRAIDA GPT assistants for data modeling, please note that in the current version of ChatGPT (18 Nov 2025) it is not possible to integrate GPT conversations into a project. In addition, you can no longer insert a GPT into an ongoing conversation (the @ feature has been removed)
- **As a result, each GPT must be used independently, and you should reuse the results from one GPT to another according to your needs and workflow**
- **If you prefer**, you can also upload the resources and instructions yourself instead of relying on the GPTs. All instruction files for each TRAIDA GPT agent are available for download on the Engage-Meta website

TRAIDA Business Glossary Builder

Generates the Business Glossary from use cases



<https://chatgpt.com/g/g-6912ea3de9cc8191aec987936078c4dd-bgl-builder>

Resources	Usage
BGL Builder (TRAIDA).pdf	Used as a knowledge base in the AI agent

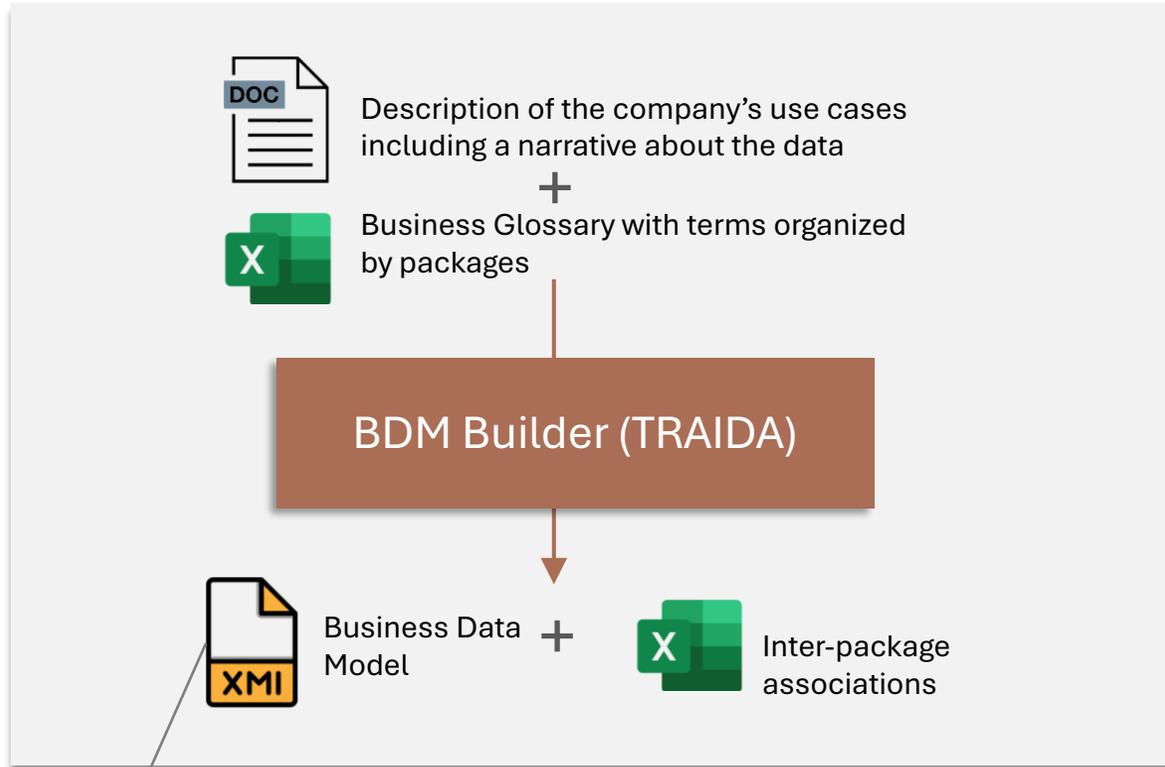
Instructions

Please generate a Business Glossary from the functional document provided by the user, following the instructions in the "BGL Builder (TRAIDA)" file uploaded into your knowledge base

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Business Data Model Builder

Builds the Business Data Model (BDM) from the Business Glossary and use cases



XMI Import

Visual Paradigm

Or another modeling tool compatible with XMI



<https://chatgpt.com/g/g-691306358ee48191b309300e1d861cc2-bdm-builder>

Resources	Usage
BDM Builder (TRAIDA).pdf	Used as a knowledge base in the AI agent

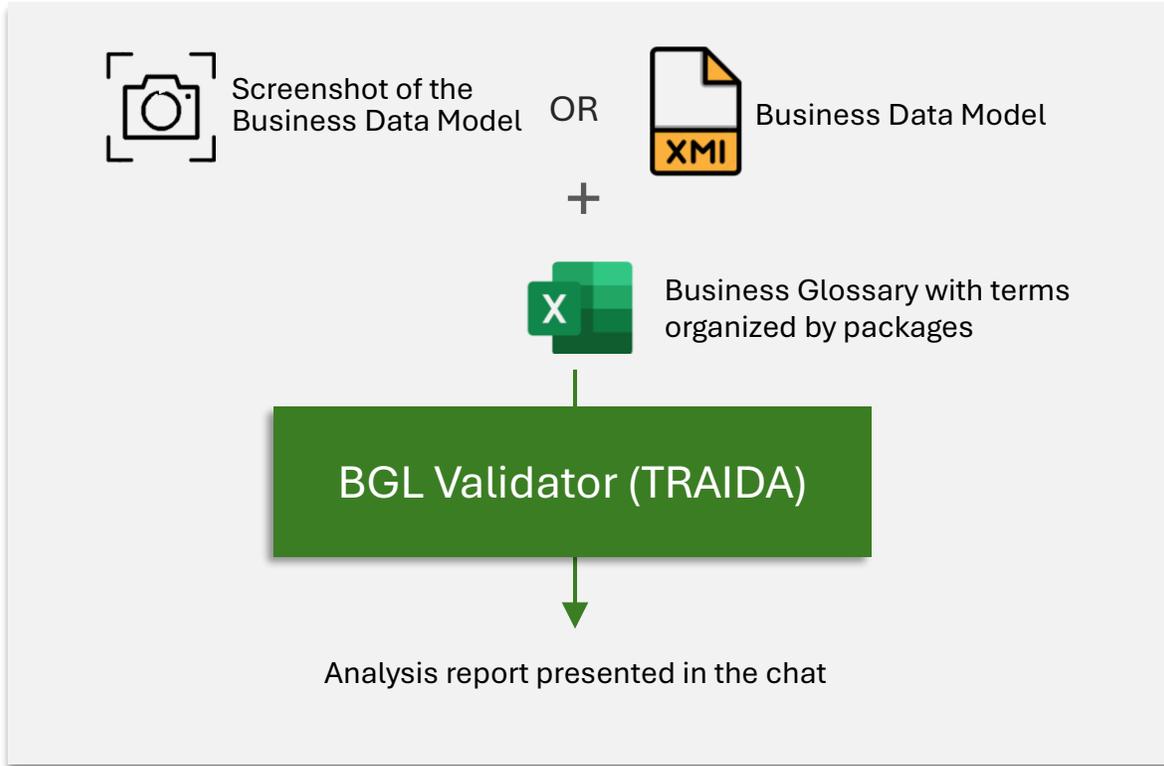
Instructions

Please generate the Business Data Model from the functional document and the Business Glossary provided by the user, following the instructions in the "BDM Builder (TRAIDA)" file uploaded into your knowledge base

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Business Glossary Validator

Validates the alignment between the Business Glossary and the Business Data Model



<https://chatgpt.com/g/g-691c0a092a188191a228fe38b14a1cd7-bgl-validator>

Resources	Usage
BGL Validator (TRAIDA).pdf	Used as a knowledge base in the AI agent

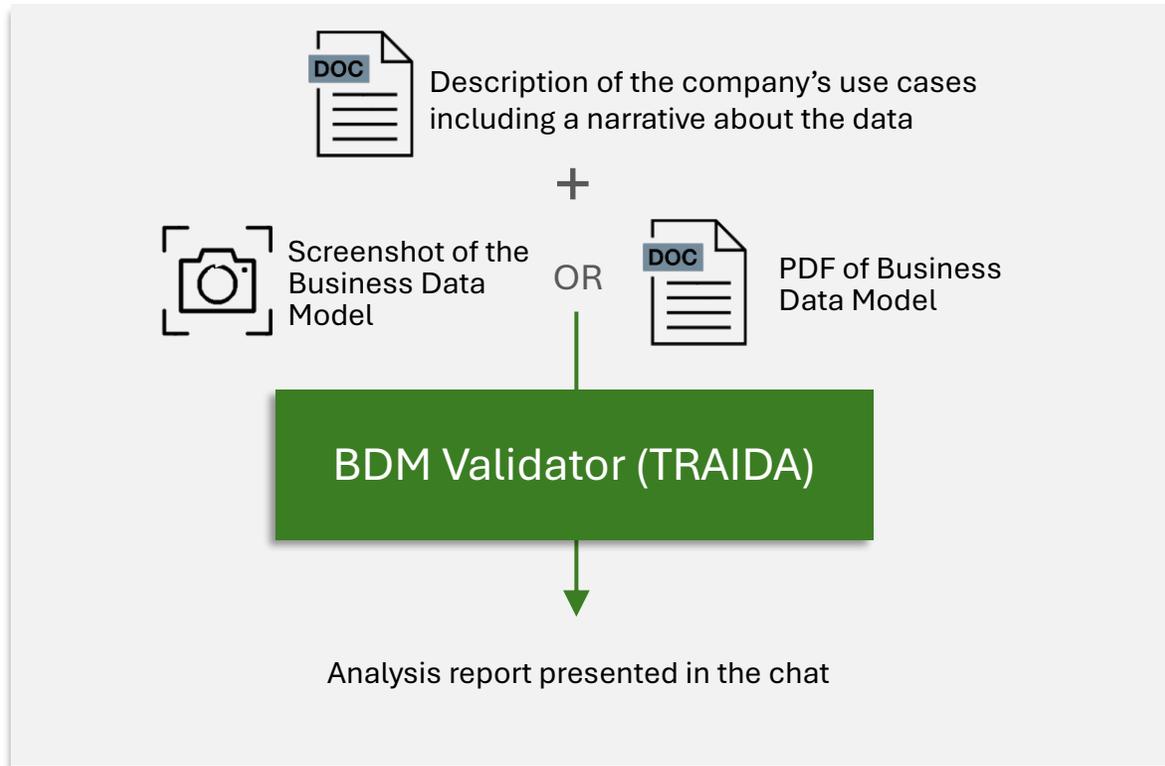
Instructions

Please generate a Quality Control report comparing the Business Glossary and the Business Data Model provided by the user, following the instructions in the "BGL Validator (TRAIDA)" file uploaded into your knowledge base

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Business Data Model Validator

Checks the alignment between the Business Data Model and the use cases to ensure that all business scenarios are correctly represented



<https://chatgpt.com/g/g-69134358fc9c81919fe7273222be100d-bdm-validator>

Resources	Usage
BDM Validator (TRAIDA).pdf	Used as a knowledge base in the AI agent

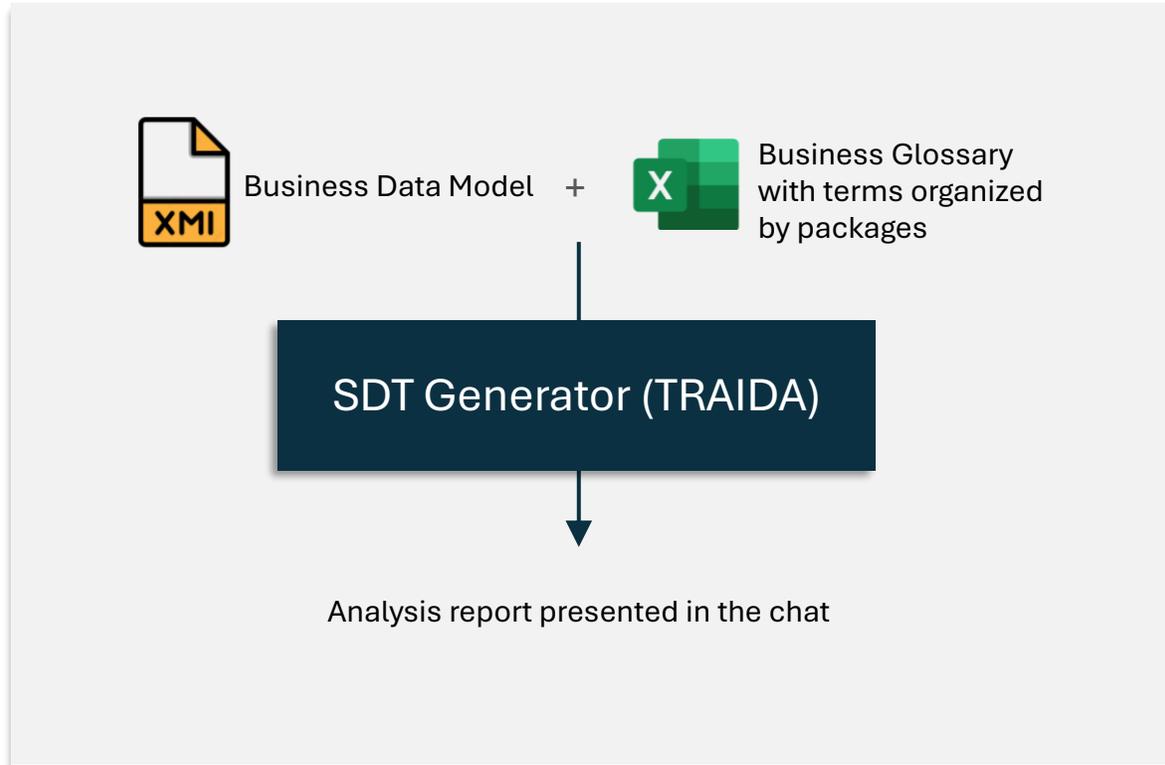
Instructions

Please generate the analysis report on the quality control of the alignment between the Business Data Model and the uses cases provided by the user, following the instructions in the "BDM Validator (TRAIDA)" file uploaded into your knowledge base

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Synthetic Data Generator

Generates realistic sample data based on the Business Data Model to validate attributes, constraints, relations, and data completeness



<https://chatgpt.com/g/g-691346d569788191b36e31aa2f268f9e-dat-generator>

Resources	Usage
SDT Generator (TRAIDA).pdf	Used as a knowledge base in the AI agent

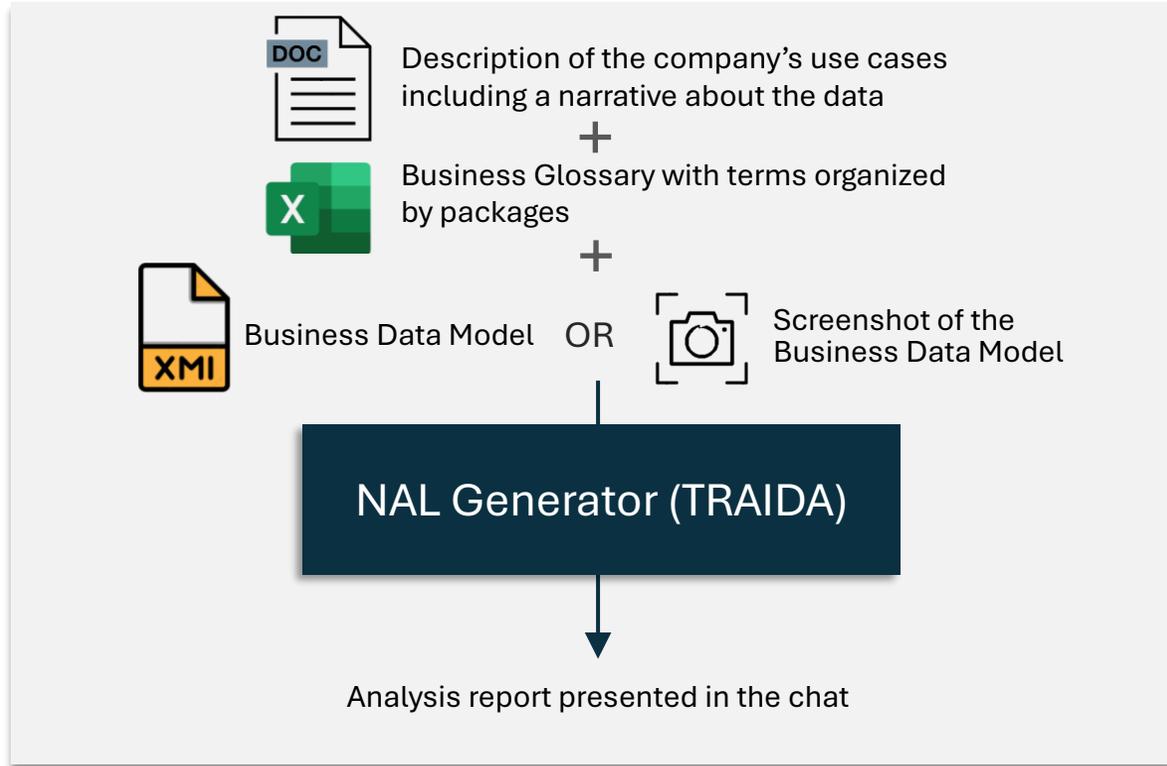
Instructions

Please generate some synthetic data values to illustrate how the Business Data Model provided by the user works, following the instructions in the file "SDT Generator (TRAIDA)" uploaded into your knowledge base. The user should also provide you with a Business Glossary to clarify the semantic

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Narrative Generator

Produces clear natural-language explanations of the Business Data Model



<https://chatgpt.com/g/g-691c0c90c9808191a057b163b18bac19-nal-generator>

Resources	Usage
NAL Generator (TRAIDA).pdf	Used as a knowledge base in the AI agent

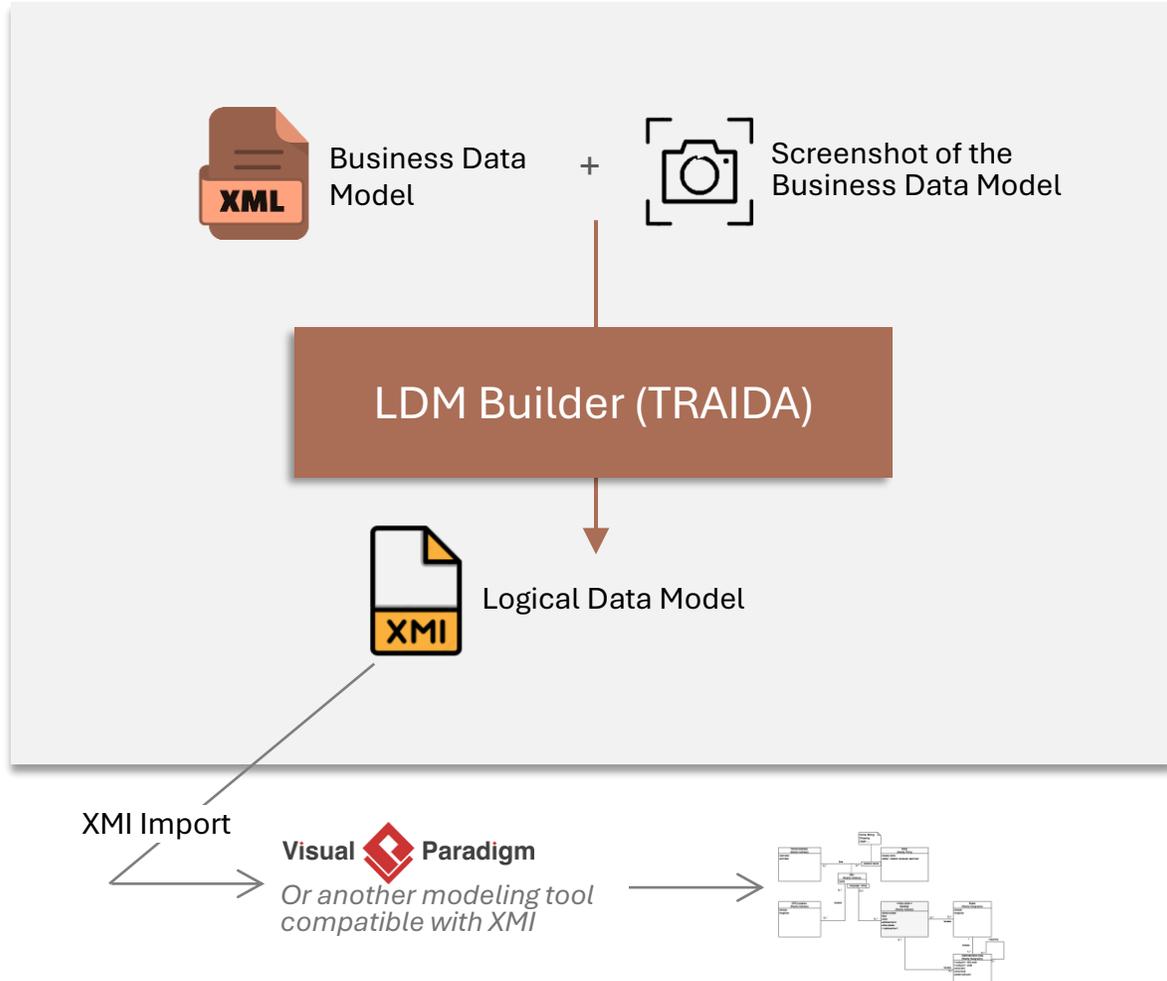
Instructions

Please generate a natural language description of the Business Data Model provided by the user, following the instructions in the "NAL Generator (TRAIDA)" file attached in the knowledge base

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

TRAIDA Logical Data Model Builder

Transforms the Business Data Model into a Logical Data Model (LDM) that follows database normalization rules and industry modeling standards



<https://chatgpt.com/g/g-691c0f25c2548191ae495ab867cdd26a-ldm-builder>

Resources	Usage
LDM Builder (TRAIDA).pdf TRAIDA Data Logical Transformation Rules TRAIDA Dotted Arrow Example	Used as a knowledge base in the AI agent
TRAIDA Data Logical Naming Convention	To use manually as a complement to the AI's action (no need to upload in the chat)

Instructions

Please generate the Logical Data Model (XMI file) based on the Business Data Model the user share with you and by following the instructions provided in the file "LDM Builder (TRAIDA)" uploaded in your knowledge base. You must also use the uploaded files "TRAIDA Data Logical Transformation Rules" and "TRAIDA Dotted Arrow Example"

Reminder: if you prefer to use the agent's logic directly in your conversation without using the GPT, then upload the PDF and copy/paste the instruction manually

Semantic Layer - **Practical case**

Company VitaSpark - Sales domain

Fictitious Cases and Company for Academic Purposes Only

Getting Started Guidelines

- ✓ The terms Class and Table are used as synonyms. Table is preferably used, including at the Business Data Model level. It could also be replaced by Business Entity or Business Object
- ✓ OpenAI AI agents (GPTs) are publicly accessible, and you have the access links. All interactions described with these agents can be reproduced in independent conversational sessions, if you upload into the conversation or into your own AI agent the instruction files that are also made available to you
- ✓ The data models are generated in XMI format with a directive targeting the Visual Paradigm V17.3 modeling tool. Although the XMI standard can be reused in any UML modeling tool, you may need to adjust this directive depending on the modeling software you are using
- ✓ As always with generative AI, you will not be able to reproduce the same results presented in this case study. You must therefore keep a critical mindset regarding the results obtained, to interact with the AI and converge toward an outcome that suits you. In general, the goal is to reach 70% of the expected result, leaving around 30% of the work to be completed by humans to finalize the deliverable
- ✓ To avoid hallucinations, the description of your functional context (use case with a narrative focused on the data) must be as clear and concise as possible (maximum 10 pages). Therefore, you will need several iterations if you have multiple use case descriptions
- ✓ If you notice a degradation in the AI's results during the same conversation, it may correspond to memory loss (forget collapse). In that case, it is recommended to ask the AI for a summary of the most important points of the work completed during the conversation, then open a new conversation using that summary

Use Case Including **Data Narrative**

- The quality of the use-case write-up is essential to obtain relevant results from the AI agents
- It must focus primarily on the data and not on the processes
- To avoid hallucinations or memory loss, it is recommended to limit the content to a maximum of 15 pages
- Multiple iterations are necessary when dealing with several use cases
- It is always possible to attempt processing multiple use cases at once, but in that situation, you must assess the results and adjust the interaction with the AI agents accordingly

Description of the company's use cases including a narrative about the data. Sales Procedures (14 pages)

Introduction

VitaSpark Beverages manages its commercial activities through a structured set of data objects that support the full sales lifecycle, from initial engagement to post-de follow-up.

Although operational procedures are organized in sequential phases (Pre-Order, C Payment, Delivery, Invoice, Acceptance, Return, After-Sales), the underlying struct company relies on persistent business entities and their relationships.]

1. Commercial Engagement & Contractual Framework

The commercial relationship begins with a Customer.

Each customer interaction may result in the creation of:

- A Contract (Frame Contract, Commercial Agreement, Master Contract)
- A Contract Appendix
- Defined Trading Terms
- A Quotation

Contracts are created using lawyer-approved templates to ensure legal compliance. Each contract is associated with a specific Customer, a Sales Channel, a defined Duration, and applicable Commercial Terms.

Contract status is tracked in the management system to ensure transparency and traceability.

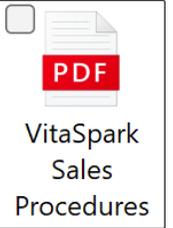
2. Customer Orders & Commercial Commitments

Once a commercial agreement exists, the customer may issue a Customer Purchase Order (CPO).

Each CPO includes:

- Customer identification
- Order number and date
- Product references
- Quantities
- Discounts or promotions
- Applicable tax information

The CPO constitutes the formal commercial commitment and becomes the central reference object for downstream processes including stock allocation, invoicing, delivery, and payment tracking.



Business Glossary Generation

GPT BGL Builder (TRAIDA) (Open AI 5.1 Auto)



BGL Builder (TRAIDA) 5.1 ▾

VitaSpark Sales Procedures.pdf
PDF

please generate the business glossary for this use case



Use Case and simple instruction to interact with the GPT



Business_Glossary_VitaSpark_Sales_v1

After the first result, feel free to ask the AI to double-check that the glossary is the best possible version and fully covers the entire use case (in this example we obtained around 60 business terms)

Root Package	Business Concept	Definition
Customer Management	Customer	Legal or natural person that purchases VitaSpark Beverages products or services through any sales channel.
Customer Management	Sales Channel	Commercial route through which VitaSpark Beverages sells products or services to customers.
Customer Management	Delivery Address	Physical address where ordered goods are delivered for a given customer or order.
Customer Management	Contact Channel	Communication medium used to exchange commercial and operational information with customers.
Customer Management	Customer Segment	Grouping of customers with similar characteristics or business rules, such as B2B or B2C.
Contract & Agreement Management	Contract	Legally binding agreement between VitaSpark Beverages and a customer defining commercial terms and obligations.
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Product & Pricing	Discount	Reduction applied to the standard price of products or services on an order.
Product & Pricing	Tax	Mandatory amount calculated on taxable items according to current regulations.



The root packages will be reused to build the Business Data Model around packages with strong semantic weight (Cluster of tables)

Relationships	Abbrev.	Synonyms	Origin
Customer – places → Customer Purchase Order; Customer – signs → Contract; Customer – provides → Customer Feedback		Client, Buyer	explicit
Sales Channel – classifies → Customer; Sales Channel – constrains → Contract		Route to Market, RTM	explicit
Delivery Address – is used by → Delivery; Customer – maintains → Delivery Address		Ship-to Address	inferred
Contact Channel – supports → Customer Communication; Customer – uses → Contact Channel		Communication Channel, Digital Channel	explicit
Customer Segment – groups → Customer; Customer Segment – drives → Trading Term		Customer Category	inferred
Customer – signs → Contract; Contract – governs → Customer Purchase Order		Sales Contract	explicit
Contract – is supplemented by → Contract Appendix; Contract Appendix – defines → Trading Term		Contract Annex	explicit
Commercial Agreement – governs → Service Package; Customer – signs → Commercial Agreement		Service Agreement, Business Agreement	explicit
Trading Term – applies to → Contract; Trading Term – conditions → Customer Purchase Order		Commercial Terms	explicit
Frame Contract – is instantiated as → Contract; Frame Contract – constrains → Contract Appendix		Master Contract	explicit
Goods Consignment Agreement – governs → Consignment Stock; Goods Consignment Agreement – relates to → Warehouse		Consignment Contract	explicit
Quotation – is based on → Price List; Quotation – precedes → Customer Purchase Order		Offer, Sales Quote	explicit
Service Package – is defined in → Commercial Agreement; Service Package – is ordered via → Customer Purchase Order		Service Bundle	explicit
Customer – places → Customer Purchase Order; Customer Purchase Order – triggers → Order Fulfillment	CPO	Customer PO, Sales Order	explicit
Customer Purchase Order – contains → Order Line; Order Line – refers to → Product		Order Item	inferred
Customer Purchase Order – has → Order Status; Order Status – drives → Delivery Planning		Order Phase	inferred
Proforma Invoice – is based on → Customer Purchase Order; Proforma Invoice – precedes → Invoice		Pro-forma	explicit
Order Fulfillment – results in → Delivery; Order Fulfillment – requires → Stock		Order Execution	inferred
Product – is included in → Customer Purchase Order; Product – is stored in → Warehouse		Item, SKU	explicit
Promotion – applies to → Customer Purchase Order; Promotion – conditions → Discount		Sales Promotion, Campaign	explicit
Discount – is applied to → Order Line; Discount – is defined in → Trading Term		Rebate, Price Reduction	explicit
Tax – is applied to → Order Line; Tax – is reported in → Invoice		VAT, Sales Tax	explicit



The AI assistant may generate additional terms (inferred) that do not appear directly in the use case specification. These are generally needed to cover a broader semantic scope and anticipate the evolution of the business glossary

Before moving on to the next step of generating the Business Data Model, it is important to manually validate the Business Glossary with your business experts and carefully verify that it is properly organized around the root packages



Business Data Model Generation

The modeling tool used is Visual Paradigm. You may switch to another modeling tool depending on your context, if it supports the XMI exchange format

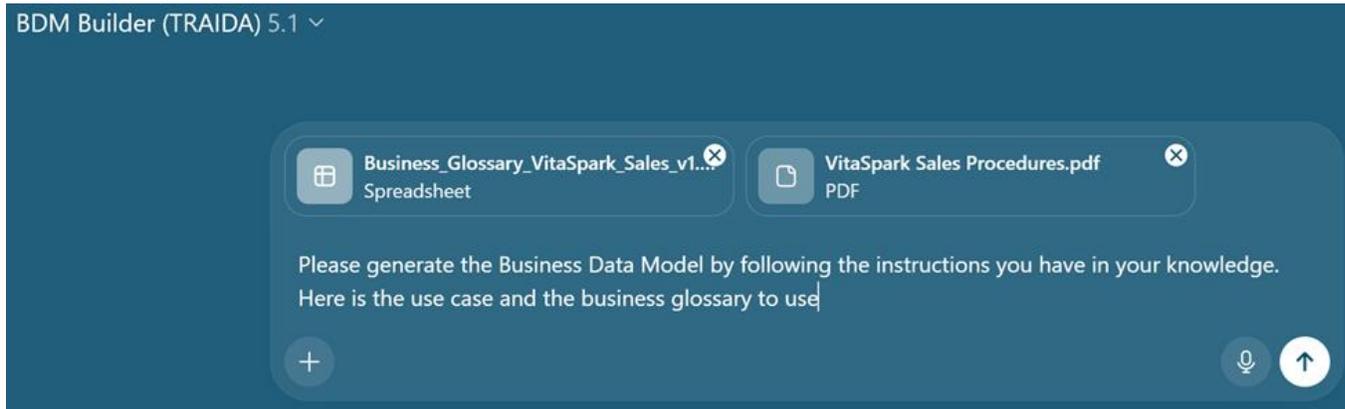
Visual Paradigm is referenced in this material exclusively as an example of a UML modeling tool capable of producing and consuming XMI artifacts. This mention does not constitute endorsement, promotion, or requirement. Organizations are free to use any compliant modeling tool offering equivalent features, if it supports standard XMI exchange for interoperability

<https://www.visual-paradigm.com>



Visual Paradigm

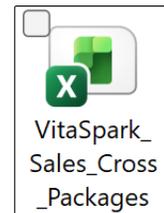
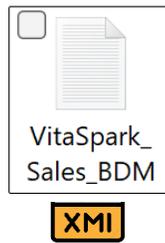
GPT BDM Builder (TRAIDA) (Open AI 5.1 Auto)



Use Case + Business Glossary and simple instruction to interact with the GPT

While working with the AI, you will likely need to interact several times before obtaining an XMI file that is 60% or 70% aligned with the best result. For example, you may need to remind the AI about the requirement to avoid isolated tables in a package or clusters of isolated tables (copy/paste into the chat the text)

Example (package internal structure)

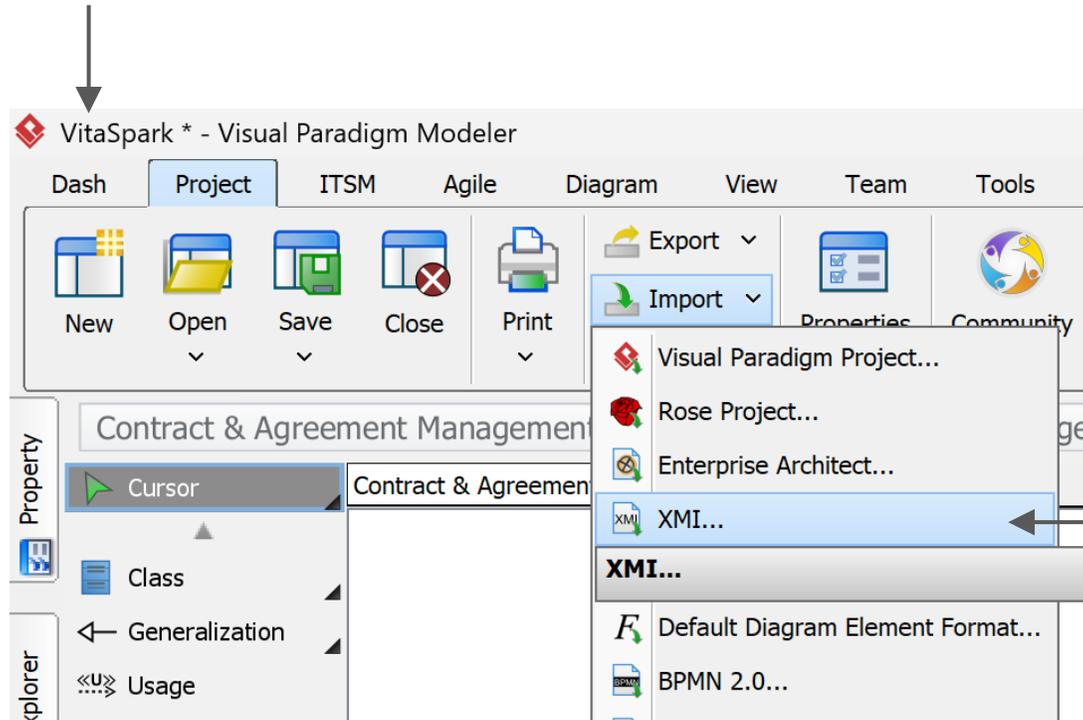


Within each package, the class diagram must form a *single connected component*. Every table must be associated with at least one other table in the same package, and all tables in the package must be reachable from the main table via a chain of in-package associations. If multiple disconnected clusters appear, you must either:

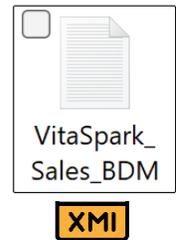
1. add the missing semantic bridges, or
2. re-scope the package by moving misfit tables to the package where their strongest semantics live.



You must create your project (here, VitaSpark)

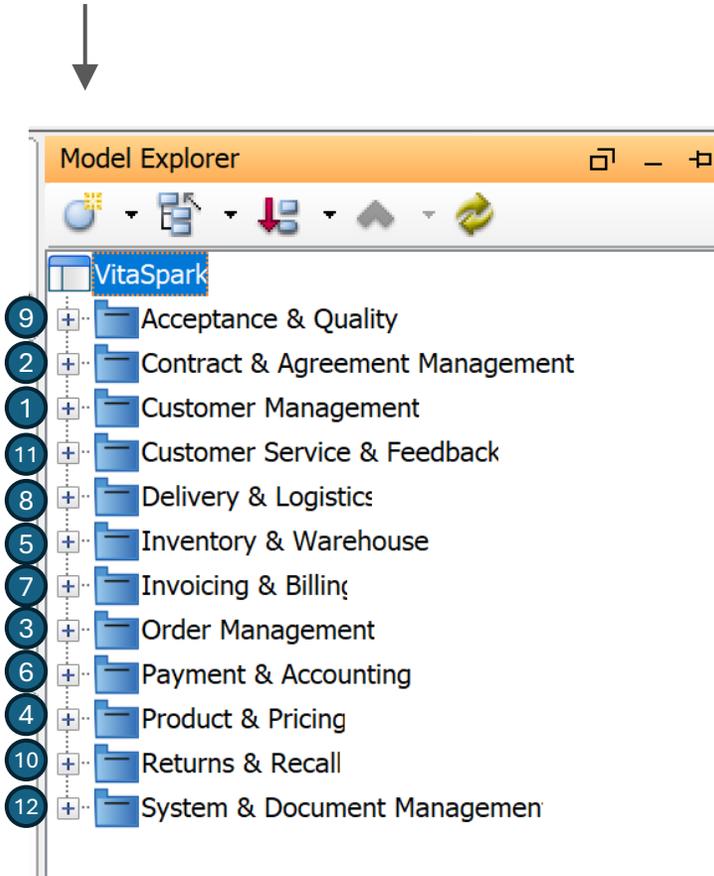
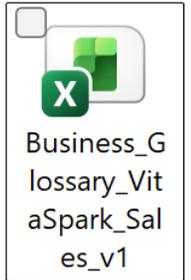


You must import the XMI file generated by the AI agent



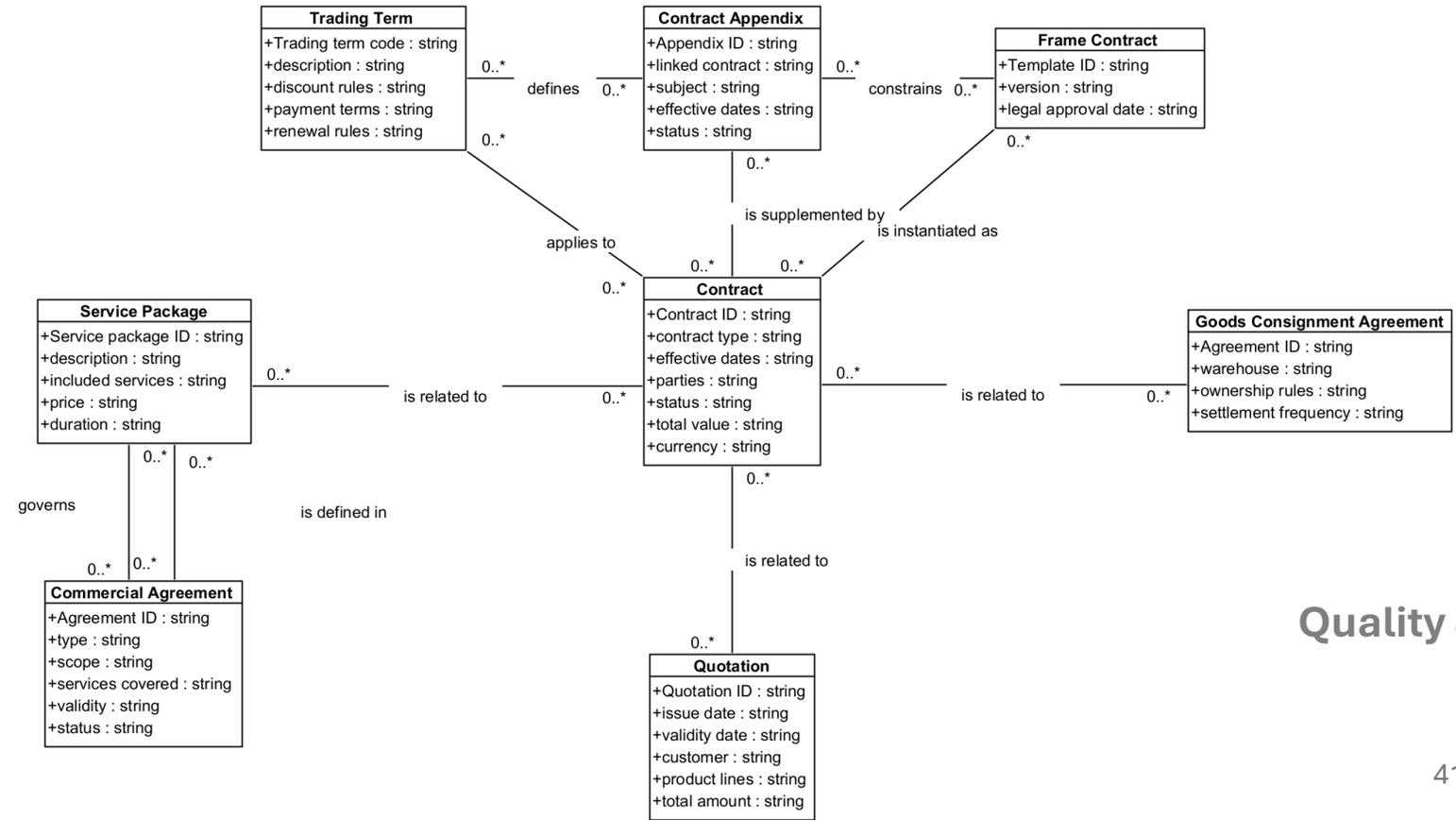
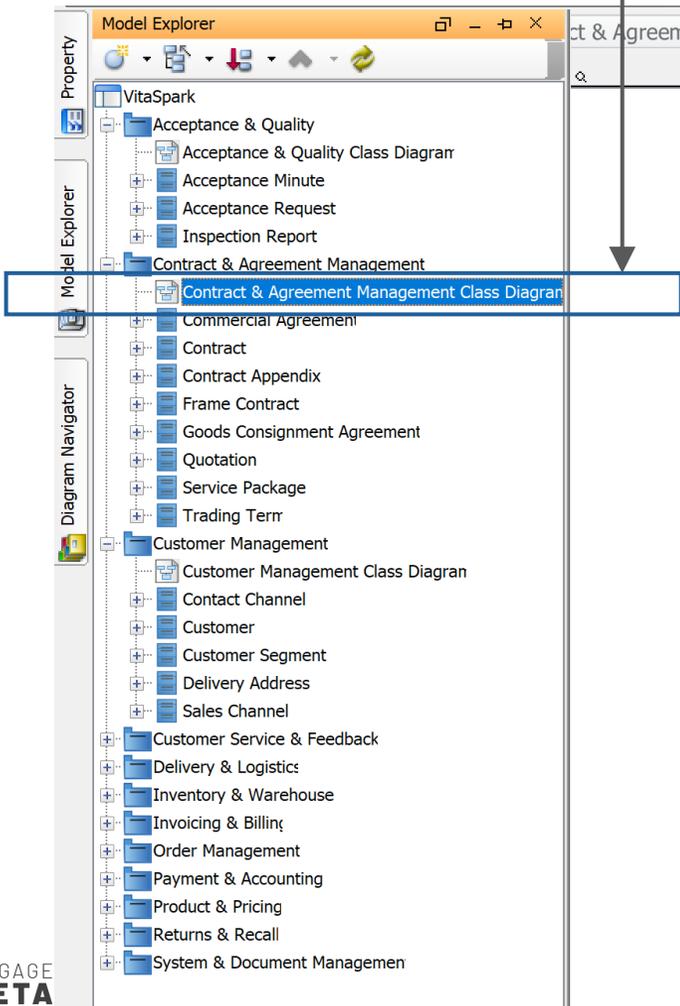
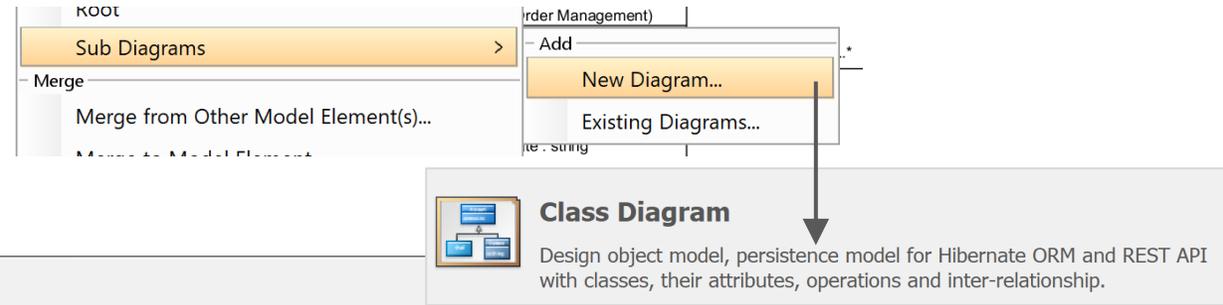
If the XMI import produces errors, then explain the context to the agent and ask it to regenerate the file so that it becomes compatible with your environment. By default, the agent generates the XMI file for Visual Paradigm version 17.3. You can change this setting either directly in the instruction file “BDM Builder (TRAIDA).PDF” or in the chat conversation

You will obtain the data architecture in the form of packages that follow the root packages identified during the Business Glossary work. To view these packages, you must go to the Model Explorer in Visual Paradigm

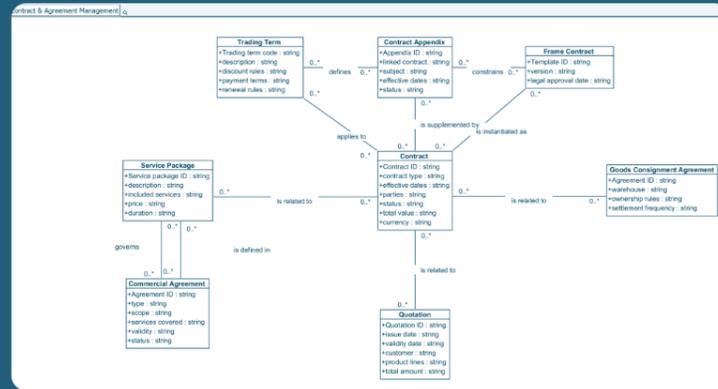


1	Root Package	Business Concept		
2	Customer Management	Customer		
3	Customer Management	Sales Channel		
4	Customer Management	Delivery Address		
5	Customer Management	Contact Channel	6	
6	Customer Management	Customer Segment		
7	Contract & Agreement Management	Contract		
8	Contract & Agreement Management	Contract Appendix		
9	Contract & Agreement Management	Commercial Agreement		
10	Contract & Agreement Management	Trading Term		
11	Contract & Agreement Management	Frame Contract	7	
12	Contract & Agreement Management	Goods Consignment Agreement		
13	Contract & Agreement Management	Quotation		
14	Contract & Agreement Management	Service Package		
15	Order Management	Customer Purchase Order	8	
16	Order Management	Order Line		
17	Order Management	Order Status		
18	Order Management	Proforma Invoice		
19	Order Management	Order Fulfillment		
20	Product & Pricing	Product	9	
21	Product & Pricing	Promotion		
22	Product & Pricing	Discount		
23	Product & Pricing	Tax	10	
24	Product & Pricing	Price List		
25	Product & Pricing	Service		
26	Inventory & Warehouse	Warehouse	11	
27	Inventory & Warehouse	Stock		
28	Inventory & Warehouse	Stock Status		
29	Inventory & Warehouse	Goods Issue Voucher		
30	Inventory & Warehouse	Goods Receipt Voucher	12	
31	Inventory & Warehouse	Goods Receipt/Issue Request		
32	Payment & Accounting	Payment		
33	Payment & Accounting	Payment Request		
34	Payment & Accounting	Payment Proof		
35	Payment & Accounting	Cash Receipt		
36	Payment & Accounting	Account Receivable Note		
37	Payment & Accounting	Account Receivable		
38	Payment & Accounting	Account Receivable Report		
39	Invoicing & Billing	Invoice		
40	Invoicing & Billing	Invoice Template		
41	Invoicing & Billing	Invoice Software		
42	Delivery & Logistics	Delivery		
43	Delivery & Logistics	Delivery Request		
44	Delivery & Logistics	Delivery Request Code		
45	Delivery & Logistics	Shipping Partner		
46	Delivery & Logistics	Delivery Cost		
47	Delivery & Logistics	Shipping Bill		
48	Acceptance & Quality	Acceptance Request		
49	Acceptance & Quality	Acceptance Minute		
50	Acceptance & Quality	Inspection Report		
51	Returns & Recall	Return Request		
52	Returns & Recall	Product Return		
53	Returns & Recall	Return Status		
54	Returns & Recall	Return Report		
55	Customer Service & Feedback	Customer Feedback		
56	Customer Service & Feedback	Customer Feedback Form		
57	Customer Service & Feedback	Product Development		
58	System & Document Management	Knack Record		
59	System & Document Management	Google Drive Folder		
60	System & Document Management	Accounting Archive		
61	System & Document Management	Management Review		

For each package, you must create a Class Diagram and move the tables of this package into this diagram to display the model. Then, you can either edit it directly or interact with the AI to improve it



Quality 40%



can you regenerate the XMI for the package "Contract & Agreement Management" only by enriching the semantic because I think we could have association class and/or n-ary rather than pure binary associations. I give you the screenshot of the current data model I got from the current XMI

N-ary Association

why don't you use the n-ary representation

Here, I ask the AI to review the modeling of a package in order to achieve a more powerful semantic representation. Depending on the modeler's level of expertise, this step is not always necessary, and a human can then manually make the relevant semantic adjustments

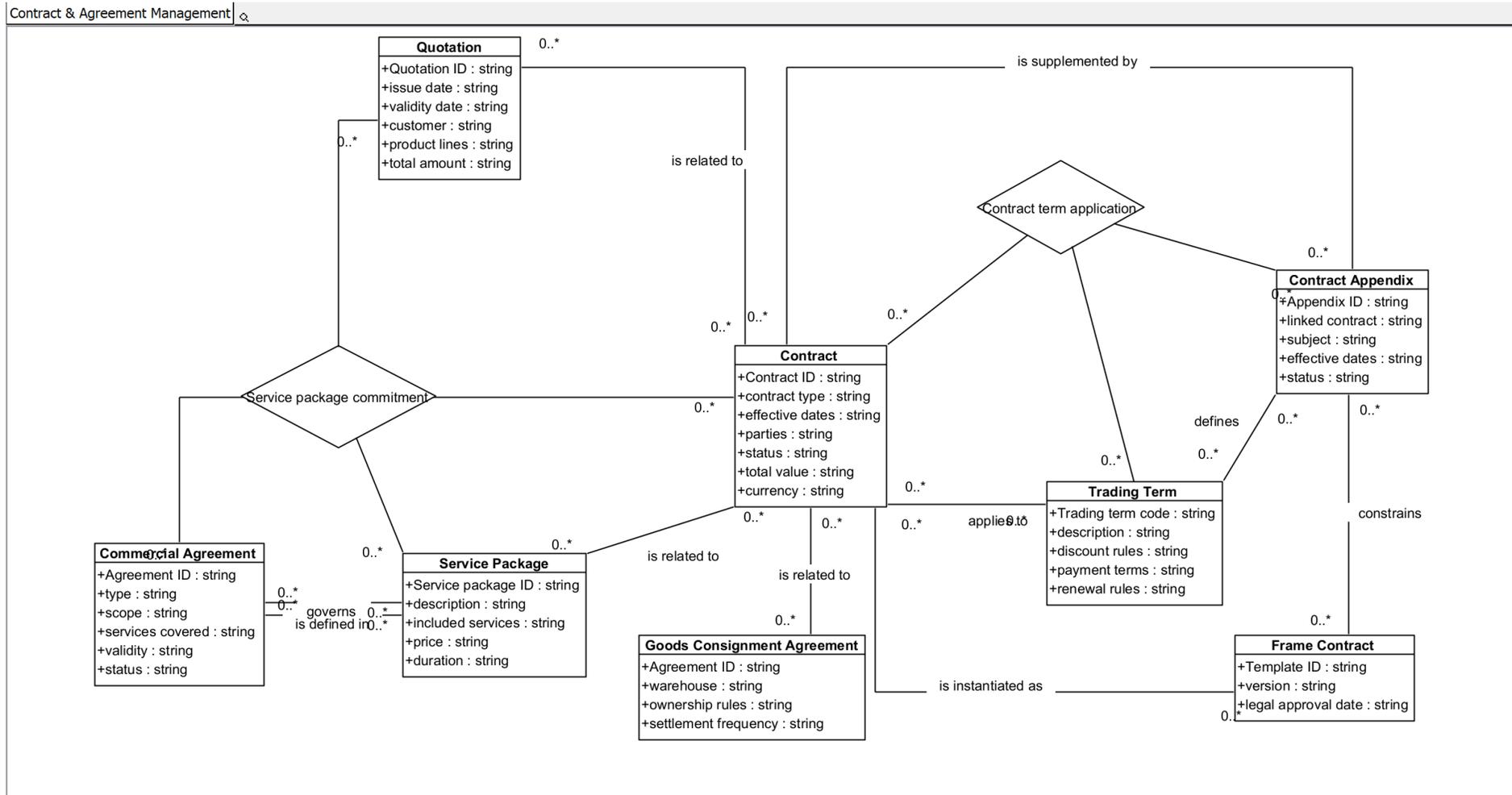


We obtain an XMI file dedicated to the package being remodeled, which you simply need to import to get the new version. It is recommended to delete the tables in the relevant package before performing the import.

Tip: Ask the agent to make sure it preserves the links between the tables in this package and the tables in the other packages. It is therefore necessary to keep the cross-packages table list up to date

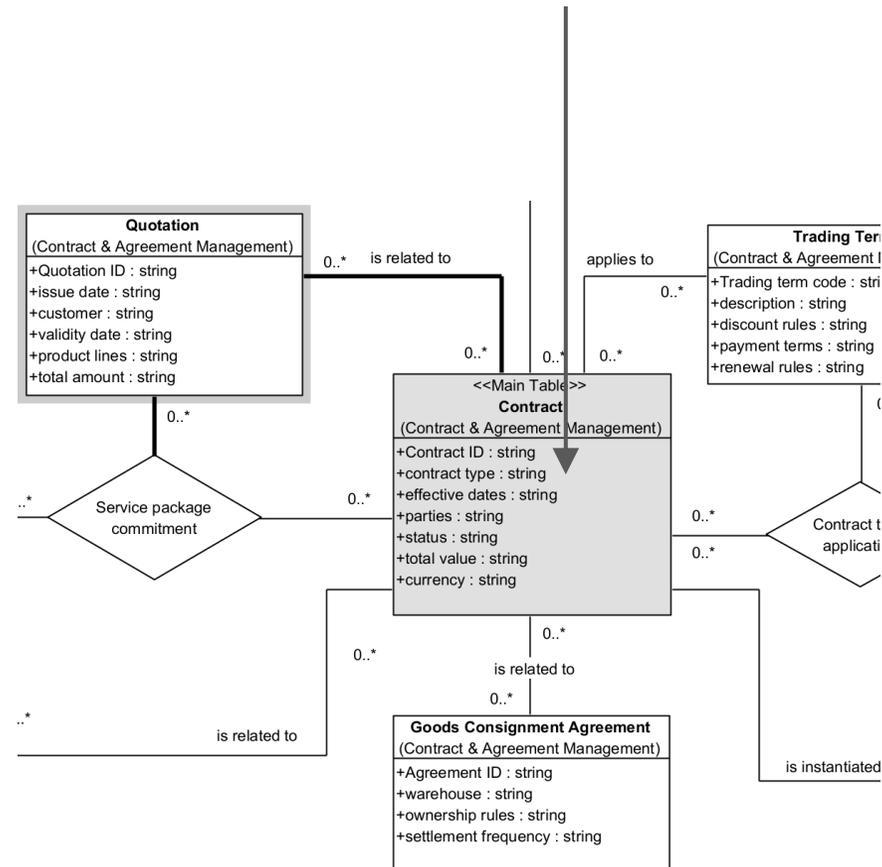


Here is the new version of the package. We can see a default layout that needs to be manually improved (the agent does not optimize the presentation). We can also see the presence of two new n-ary relationships, including one that should probably be optimized, as a 4-ary relationship is generally not considered a good practice

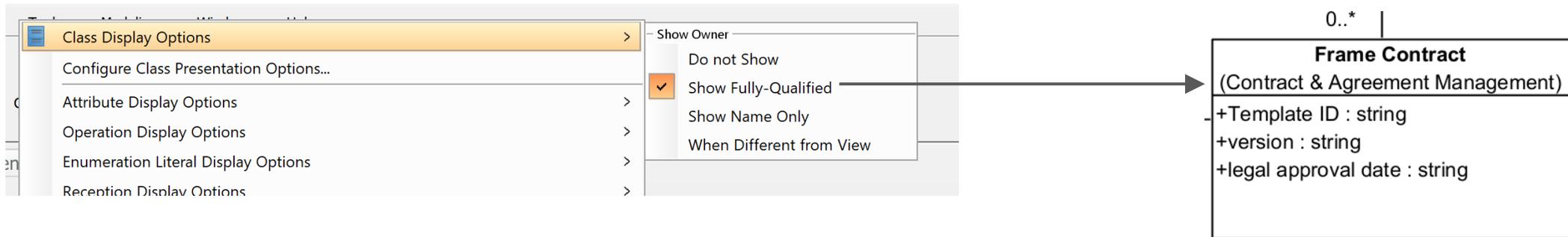


Quality 60%

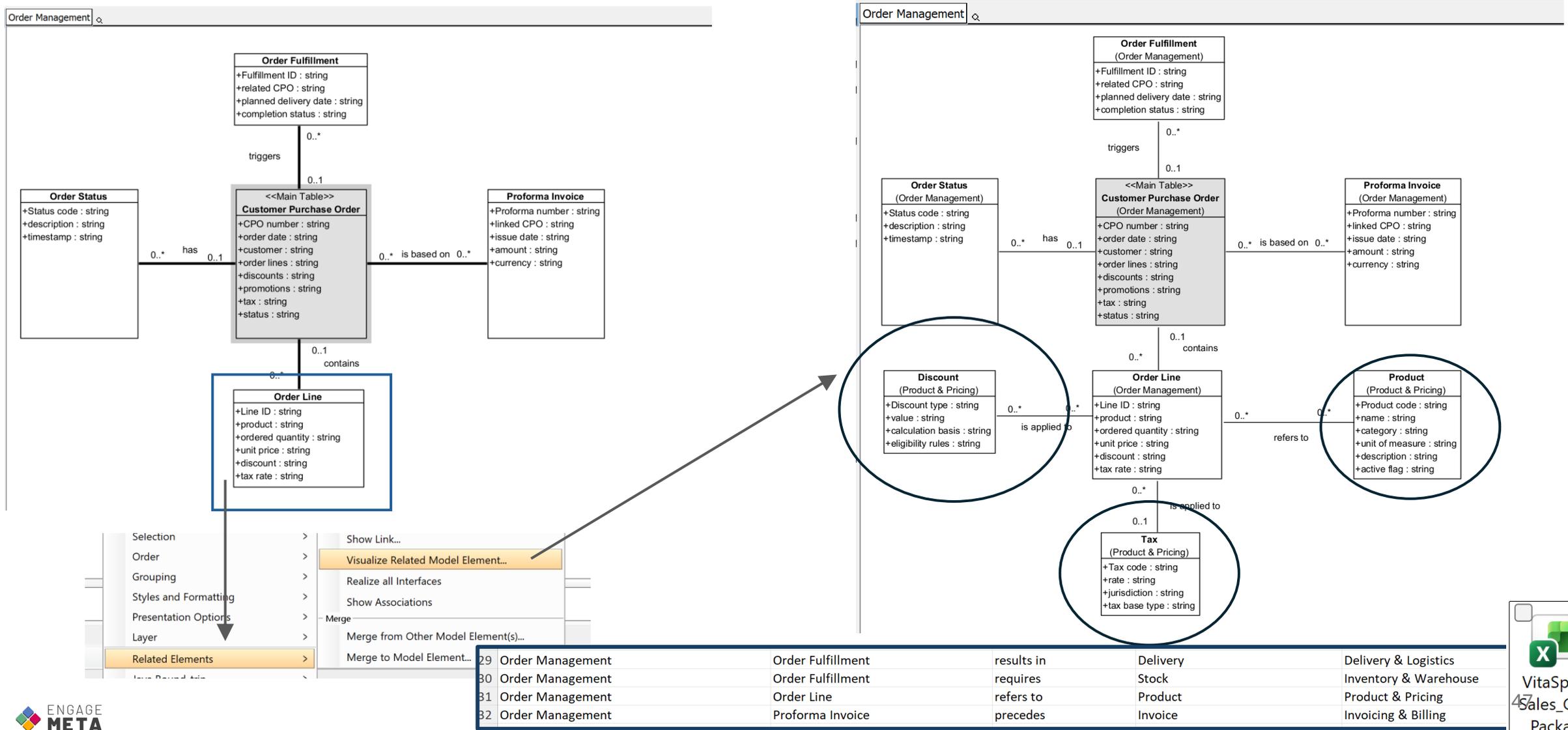
Each package has one and only one table with the “**Main table**” stereotype and a grey background color so that it can be easily identified when reading the Business Data Model.



Option to force the display of the table's package of origin.



By default, inter-package associations are not displayed. You can make them visible depending on your visualization needs, using the references found in the Cross-Packages Excel file (this file provides the most important links). Example below with the table “Order Line”

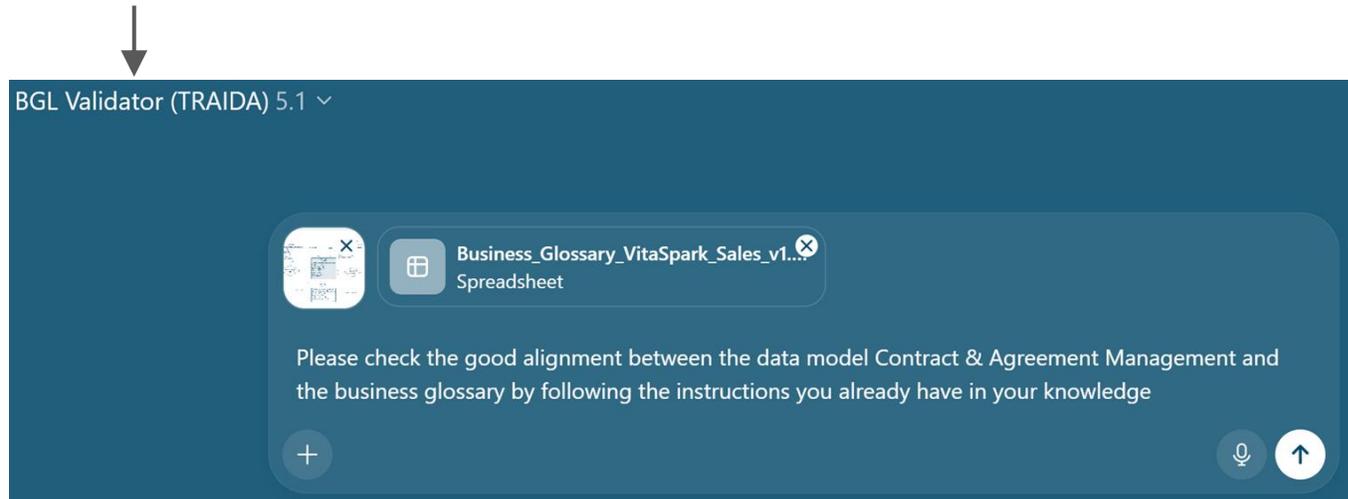


Business Glossary Validation

Business Glossary Validation

Validates the alignment between the Business Glossary and the Business Data Model

GPT BGL Validator (TRAIDA) (Open AI 5.1 Auto)



← Screenshot of the Business Data Model or XMI file and Business Glossary and simple instruction to interact with the GPT

↓
Analysis report presented in the chat

Concept (Entity / Attribute / Association)	Defined in Glossary?	Standard Market Compliance	ISA-95 Correspondence	Remark / Suggestion
Contract (entity)	✓	✓	L4 – Customer agreements / sales management	Fully aligned name, definition and properties.
Contract Appendix (entity)	✓	✓		Clearly defined as extension to Contract; no direct ISA-95 equivalent.
Commercial Agreement (entity)	✓	✓	L4 – Customer / pricing agreements	Definition and relationships with Service Package match the model.

- ISA-95 is an international standard (IEC 62264) that provides a reference model for integrating business systems (ERP, CRM) with manufacturing operations (MES, SCADA). In the TRAIDA Quality Control framework, ISA-95 is used as a neutral, industry-agnostic benchmark for evaluating whether a glossary term or data model entity corresponds to a widely recognized business/operations concept. It helps detect gaps or misalignments in definitions, especially for companies in manufacturing, supply chain, or logistics
- If the company does not operate in manufacturing (e.g., finance, healthcare, telecom), it may be more appropriate to map glossary concepts to another industry standard: **GS1 / GDSN standards, IFRS & Revenue Recognition (IFRS 15), BCBS 239, TM Forum Information Framework (SID), HL7 / FHIR, CIM (IEC 61970/61968), ISO 27001, etc.**

Concept (Entity / Attribute / Association)	Defined in Glossary?	Standard Market Compliance	ISA-95 Correspondence	Remark / Suggestion
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Commercial Agreement (entity)	✓	✓	L4 – Customer / pricing agreements	Definition and relationships with Service Package match the model.
				
Frame Contract – constrains – Contract Appendix	✓	✓	L4 – Template constraints	Relationship text matches glossary.
Quotation – is related to – Contract	✗	△		Glossary places Quotation before Customer Purchase Order , not directly linked to Contract; clarify whether this link is needed or should be replaced by Quotation → Customer Order.
Contract – is related to – Goods Consignment Agreement	✗	△	L4 – Customer agreement vs. consignment agreement	Glossary relates Goods Consignment Agreement to Warehouse and Consignment Stock , not to Contract; consider defining or justifying this link.

(✓ = clearly defined/compliant, △ = partial or ambiguous, ✗ = missing or non-standard.)

Short synthesis

- Approx. **90%** of concepts in the Contract & Agreement Management model have at least partial coverage in the business glossary, with all entities fully defined.
- Strong alignment exists for the core entities (**Contract, Commercial Agreement, Trading Term, Frame Contract, Quotation, Service Package, Goods Consignment Agreement**) and most key properties.
- Gaps concern mainly **associations involving Quotation ↔ Contract and Contract ↔ Goods Consignment Agreement**, plus missing explicit definitions for lifecycle and rule attributes (status, ownership rules, settlement frequency, etc.).
- Improvement action 1: **enrich the glossary** with short entries for the main business attributes and the two “missing” relationships, or adjust the model if those links are not actually desired.
- Improvement action 2: **document the tri-party “Service package commitment” pattern** (Contract – Commercial Agreement – Service Package) as a reusable business concept aligned to customer agreements at ISA-95 level 4.

Business Data Model Validation

Business Data Model Validation

Checks the alignment between the Business Data Model and the use cases to ensure that all business scenarios are correctly represented

GPT BDM Validator (TRAIDA) (Open AI 5.1 Auto)



Description of the company's use cases including a narrative about the data and the Business Data Model (screenshot or pdf file) and simple instruction to interact with the GPT



Analysis report presented in the chat

I. Narrative Explanation of the Data Model 📄

(Contract & Agreement Management vs. VitaSpark Sales Procedure)

The diagram represents how VitaSpark wants to formalize its commercial relationships with customers before and around the sales process: quotations, contracts, trading terms, appendices, service packages and consignment agreements. It is focused on the “**Pre-Order / Contracting**” part of the Sales Procedure and on some special agreements used later (e.g. Goods Consignment Agreement).

Main entities in business language

- **Quotation** – a commercial offer sent to a customer with validity dates, product lines, and total amount. It can later be linked to a contract once the customer accepts it.
- **Contract (Main Table)** – the signed agreement with the customer, including type (B2B, consignment, service, etc.), parties, effective dates, value, currency and status. This is the central object of the diagram.
- **Trading Term** – the set of business rules that apply to a contract: discounts, payment terms, renewal rules and other commercial conditions.
- **Contract Appendix** – specific clauses or conditions attached to a contract (for example, product lists, service SLAs, or special conditions). One contract can have many appendices.

#01- Narrative Explanation of the Data Models for business users

II. Business Concept Alignment Table

Legend: = Well aligned | ⚠ = Partially / implicitly covered | ✕ = Missing in this model

Business Concept (from Sales Procedure)	Found in Data Model	Alignment Status	Comment / Adjustment
Contract (signed with customer)	Contract	<input checked="" type="checkbox"/>	Central entity with type, dates, status, parties – good match. Could explicitly distinguish “customer” vs. “internal party”.
Frame Contract (lawyer-approved template)	Frame Contract	<input checked="" type="checkbox"/>	Attributes (template ID, version, legal approval date) reflect narrative well; “is instantiated as” to Contract fits the process.
Customer	Only as text fields (Quotation.customer, Contract.parties)	<input type="checkbox"/> ⚠	Concept is there but not a dedicated entity. For integration and reuse across processes, a separate Customer entity is recommended.
Sales Channel (Distributor, HR Enterprise, HORECA, POS)	Not explicit	<input type="checkbox"/> ⚠	Mentioned in process for choosing contract type but not modeled. Could be an attribute on Contract or a separate Sales Channel dimension.
Contract storage / tools (Knack, Google Drive, Gmail)	Not modeled (systems only)	<input checked="" type="checkbox"/> (not needed)	Correctly kept out of the conceptual model; may appear in an implementation / metadata model instead.
Customer Purchase Order, Invoice, Goods Vouchers, Returns	Not in this diagram	<input type="checkbox"/> ✕ (out of scope)	These are central to other sections of the Sales Procedure but belong to an Order & Logistics model, not Contract & Agreement.

#02 - Business Concept Alignment Table

III. Three Key Business Processes

1 Contracting & Quotation Process

• Purpose

Turn customer requirements into legally binding contracts using approved templates, with clear pricing and validity.

• Main Inputs / Outputs

- Inputs: Customer needs, Quotation, Frame Contract template, Trading Terms, internal approvals.
- Outputs: Signed Contract, related Quotation, initial Trading Terms and Appendices.

• Alignment Comment

Very good coverage: Quotation, Contract, Trading Term, Frame Contract and Contract Appendix are all modeled and linked. Missing explicit **Customer** and **Sales Channel** dimensions slightly reduce traceability.

2 Service Package & Commercial Agreement Management

#03- Identify and describe the 3 main processes covered by the use case

IV. ISA-95 Alignment and Mapping

#04- ISA-95 Alignment and Mapping

1. Concept Mapping Table

Use Case Concept	Data Model Entity	ISA-95 Concept	Alignment Comment
Customer contract / agreement	Contract	Customer Agreement / Sales Order Contract (Level 4)	Good match: contractual backbone at business-planning level.
Frame Contract template	Frame Contract	Standard Contract Template / Master Data (Level 4)	Works as master data governing allowed contract instances.
Trading Term (discount, payment, renewal)	Trading Term	Commercial Terms / Pricing & Payment Conditions (Level 4)	Aligned with ISA-95 notion of commercial terms attached to customer orders.
Quotation	Quotation	Customer Request / Proposal (Level 4)	Upstream artifact before a formal order; mapping is straightforward.
Commercial Agreement for services	Commercial Agreement	Customer Agreement / Service Contract (Level 4)	Fits Level-4 customer-facing contracts; may influence Level-3 service execution models.
Service Package	Service Package	Product / Service Definition (Level 4, sometimes L3)	Represents packaged services that should map to product/service definitions in ISA-95.

- ISA-95 is an international standard (IEC 62264) that provides a reference model for integrating business systems (ERP, CRM) with manufacturing operations (MES, SCADA). In the TRAIDA Quality Control framework, ISA-95 is used as a neutral, industry-agnostic benchmark for evaluating whether a glossary term or data model entity corresponds to a widely recognized business/operations concept. It helps detect gaps or misalignments in definitions, especially for companies in manufacturing, supply chain, or logistics
- If the company does not operate in manufacturing (e.g., finance, healthcare, telecom), it may be more appropriate to map glossary concepts to another industry standard: **GS1 / GDSN standards, IFRS & Revenue Recognition (IFRS 15), BCBS 239, TM Forum Information Framework (SID), HL7 / FHIR, CIM (IEC 61970/61968), ISO 27001, etc.**

V. Global Assessment and Executive Summary ★

Criterion	Evaluation (stars)	Comment
Coverage of contract-related concepts	★★★★☆	Captures all key agreement types from the Sales Procedure (contracts, frame contracts, trading terms, service packages, consignment).
Naming & business readability	★★★★☆	Names are mostly intuitive for business users; a glossary would make "Contract vs Commercial Agreement vs Appendix" distinctions even clearer.
Alignment with Sales Procedure steps	★★★★☆	Very good for Pre-Order and special agreements; order, invoicing and logistics concepts correctly left to other models.
Normalization & reuse of core concepts (Customer, Channel, Product)	★★★☆☆	Customer and Sales Channel are only implicit; product/services are textual, not linked to master data.
ISA-95 consistency & integration potential	★★★☆☆	Clear Level-4 focus; needs explicit Customer / Order entities and stronger links to Level-3 inventory and production models.

#05- Global Assessment and Executive Summary

Synthetic Data Generation

Use it to validate the Business Data Model with business users



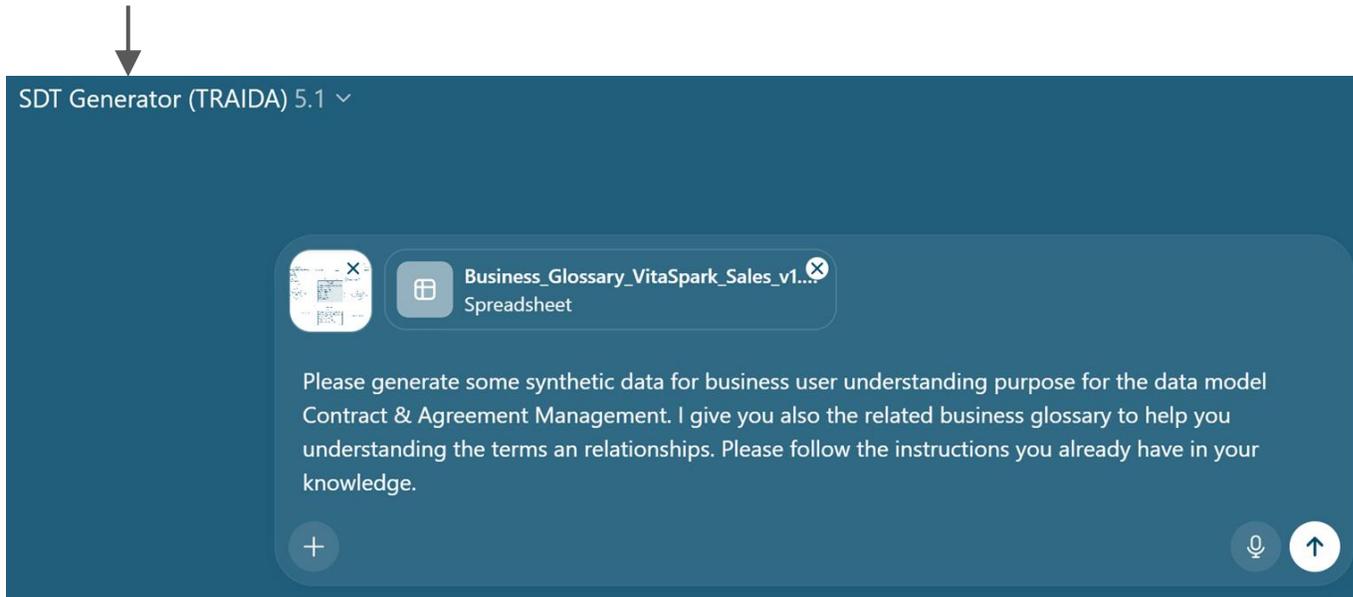
Use it to train the AI agents



Synthetic Data Generation

Generates realistic sample data based on the Business Data Model to validate attributes, constraints, relations, and data completeness

GPT STD Generator (TRAIDA) (Open AI 5.1 Auto)



Business Data Model (screenshot or pdf file) and the Business Glossary and simple instruction to interact with the GPT

Analysis report presented in the chat

I. Simple business explanation

This model describes how VitaSpark manages all documents around selling to customers: quotations, contracts, standard templates, commercial agreements, service packages and consignment agreements. A sales quotation can lead to a signed contract, which may follow a standard "frame" template and be supplemented by trading terms and appendices. Commercial agreements define longer-term commercial conditions and the service packages the customer gets. Some contracts are supported by consignment agreements that govern stock held in the customer's warehouse.

#01 - Explain briefly what the model represents, using simple business language

II. Example data per main entity

(All names and numbers are invented for illustration.)

1. Quotation

Quotation ID	Issue date	Customer	Validity date	Product lines	Total amount (EUR)
QT-2025-001	2025-01-10	FreshMart Retail GmbH	2025-02-10	VitaSpark 1.5L PET, VitaSpark Zero 0.5L PET	185,000
QT-2025-002	2025-01-15	Urban Corner Stores BV	2025-02-15	VitaSpark 0.5L Cans Assorted	62,500
QT-2025-003	2025-01-22	Hotel Riviera SA	2025-02-28	VitaSpark Glass 0.33L Still & Sparkling	38,200
QT-2025-004	2025-02-02	FreshMart Retail GmbH	2025-03-05	VitaSpark 1.5L PET Promo Packs	95,000

#02- Example data (synthetic values) for each main table

III. Associations (how records link)

A. Quotation → Contract (quotation is related to contract)

Quotation ID	Contract ID	Relation note
QT-2025-001	CT-2025-1001	Annual supply quotation converted to contract
QT-2025-002	CT-2025-1002	Promotion quotation converted to contract
QT-2025-003	CT-2025-1003	HoReCa quotation converted to contract

B. Contract ↔ Trading Term (trading term applies to contract)

Contract ID	Trading term code
CT-2025-1001	TT-STD-01
CT-2025-1002	TT-PROMO-01

#03- Show a small linking example (2–3 rows) to illustrate how records connect

IV. Short summary

- The model represents how VitaSpark moves from quotations to legally binding contracts, supported by standard templates, detailed trading terms and appendices.
- It also shows how broader commercial agreements and service packages sit around the contract, plus separate consignment agreements for stock held at customer sites.
- The sample data illustrate one coherent story with a few customers and contracts so business users can “see” how IDs and documents link together across the whole Contract & Agreement Management domain.

#04- Short summary

Narrative Generation

Use it to validate the Business Data Model with business users

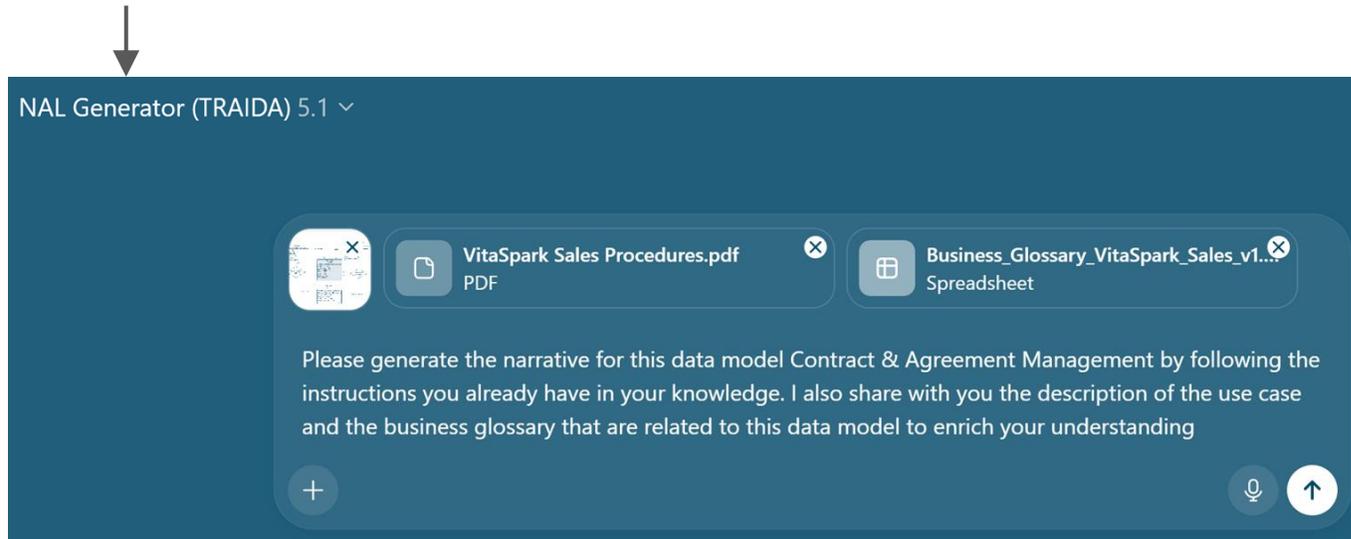


Use it to train the AI agents



Produces clear natural-language explanations of the Business Data Model

GPT NAL Generator (TRAIDA) (Open AI 5.1 Auto)



Business Data Model (screenshot or pdf file) and the Business Glossary and the Description of the company's use cases including a narrative about the data and simple instruction to interact with the GPT

Analysis report presented in the chat

I. Global Description of the Model

The **Contract & Agreement Management** data model describes how a company manages the full lifecycle of contractual commitments with customers, partners, and suppliers. It captures the processes starting from initial commercial quotations, the creation and negotiation of service packages or trading terms, the establishment of formal contractual agreements, and the subsequent creation of appendices or derived commitments.

The model centers around the **Contract**, which acts as the primary business object linking various commercial elements. Surrounding this main table are several supporting entities: **Quotation**, **Commercial Agreement**, **Service Package**, **Trading Term**, **Contract Appendix**, **Frame Contract**, and **Goods Consignment Agreement**. Each of these objects represents a specific type of commercial commitment or support document.

Relationships in the model illustrate the business flow: quotations may precede formal contracts; commercial agreements and service packages mutually define offered services; trading terms enrich or govern contractual obligations; appendices extend or modify existing contracts; and frame contracts act as templates for instantiated contracts. The model ensures traceability across multiple document versions and supports ongoing contract governance.

#01 - Explain in plain language what the entire model represents

II. Main Table Description: CONTRACT

The **Contract** is the central object in this domain. It represents any formal, legally binding agreement between the company and external parties (customers, distributors, suppliers, or partners). It is the core reference point for tracking obligations, terms, value, scope, and validity.

Business Role:

The **Contract** defines the official commitment between the parties, including the type of contract, effective dates, payment obligations, responsibilities of each party, and financial value. It is directly influenced by upstream documentation (quotations, trading terms, commercial agreements) and may generate downstream objects such as appendices or goods consignment agreements.

Key Attributes:

- **Contract ID:** Unique identifier of the contract.
- **Contract type:** Identifies the category (e.g., sales contract, service contract, distribution contract).
- **Effective dates:** Defines the validity period.
- **Parties:** Specifies the customer or counterparties involved.
- **Status:** Indicates lifecycle status (draft, active, expired, terminated, etc.).
- **Total value:** Monetary value covered by contract terms.
- **Currency:** Currency used in the contract.

Key Relationships:

#02- Identify the main table (marked with a stereotype <<Main table>>, or otherwise select the most central entity) and describe it

III. Supporting Tables and Associations

1. Quotation

Represents an initial commercial proposition sent to a prospect or customer before signing a contract. It includes details such as quotation ID, issue date, customer information, product lines, validity date, and total amount.

Associations:

- A contract may be related to multiple quotations, indicating that a quotation supported the commercial negotiation process.

2. Commercial Agreement

Defines overarching business terms negotiated with a customer, typically covering service bundles, pricing agreements, or long-term commercial conditions. Attributes include agreement ID, type, scope, included services, validity, and status.

Associations:

#03(a)- Provide a short paragraph explaining its business meaning and its key attributes

Association Summary Table

Association	Cardinality	Business Meaning
Contract → Quotation	0..* → 0..*	Contracts may be derived from one or several quotations.
Commercial Agreement → Service Package	0..* → 0..*	Commercial agreements outline commitments to deliver specific service packages.
Contract → Service Package	0..* → 0..*	Contract may formalize delivery of service packages.
Contract → Trading Term	0..* → 0..*	Trading terms govern commercial and financial rules within a contract.
Trading Term → Frame Contract	0..* → 0..*	Frame contracts may be supplemented by trading terms.
Contract → Contract Appendix	0..* → 0..*	Appendices extend or modify a contract after signing.
Contract → Frame Contract	0..* → 0..*	Contracts may be instantiated from reusable frame templates.

#03(b)- Provide an Association Summary Table

IV. Attribute-Level Checklist for Business Review

CONTRACT

Attribute	Business Definition	Comment
Contract ID	Unique identifier	
Contract type	Type of contract	
Effective dates	Contract start and end	
Parties	Contractual parties	
Status	Lifecycle status	
Total value	Contract value	
Currency	Currency used	

#04- List all attributes grouped by table to allow business users to confirm completeness



V. Summary Insight

This model provides a comprehensive structure for managing all contractual relationships within the organization. It clearly distinguishes between quotations, commercial agreements, service packages, trading terms, and legal appendices. The central positioning of the Contract entity ensures visibility across the full lifecycle: from commercial negotiation to formalization and ongoing governance.

The model appears well structured but may require validation regarding service-package-to-contract relationships, reuse of templates, and governance of appendices. All attributes listed appear business-oriented, but stakeholders should confirm naming conventions, missing financial fields, and possible metadata attributes (e.g., contract owner, versioning). Overall, the model covers most core contract-management needs.

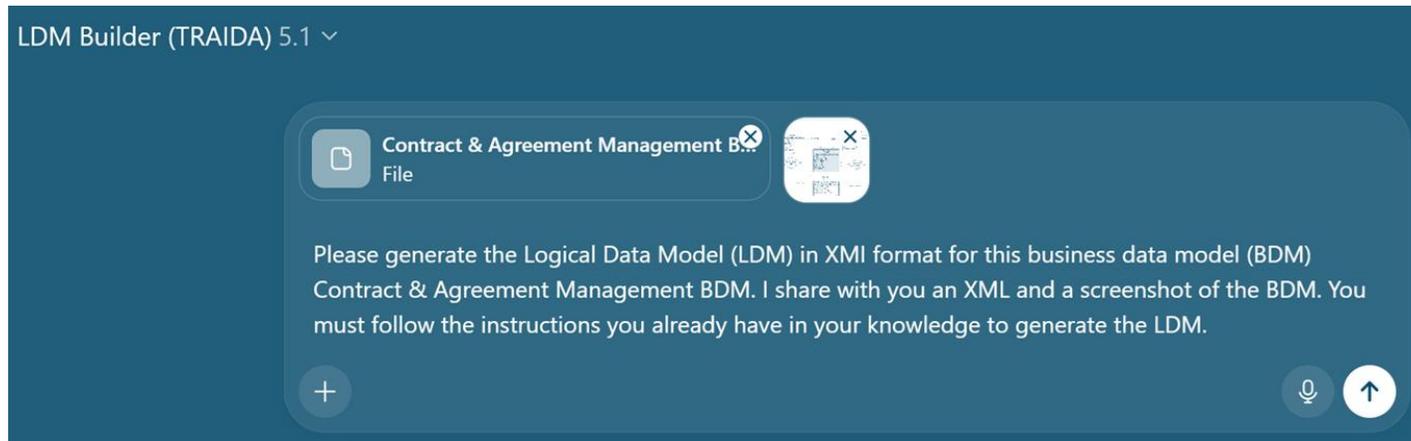
#05- Summary

Logical Data Model Generation

Logical Data Model Generation

Transforms the Business Data Model into a Logical Data Model (LDM) that follows database normalization rules and industry modeling standards

LDM Builder (TRAIDA) (Open AI 5.1 Auto)



Business Data Model (XML and screenshot) and simple instruction to interact with the GPT



XMI

- For each package, you must create an **Entity Relationship Diagram** and move the tables of this package into this diagram to display the model. Then, you can either edit it directly or interact with the AI to improve it
- Please note that we recommend using the agent **on the scope of only one data model at a time** to optimize the quality of the results. You should therefore provide a screenshot and XML of a single Business Data Model package for each iteration

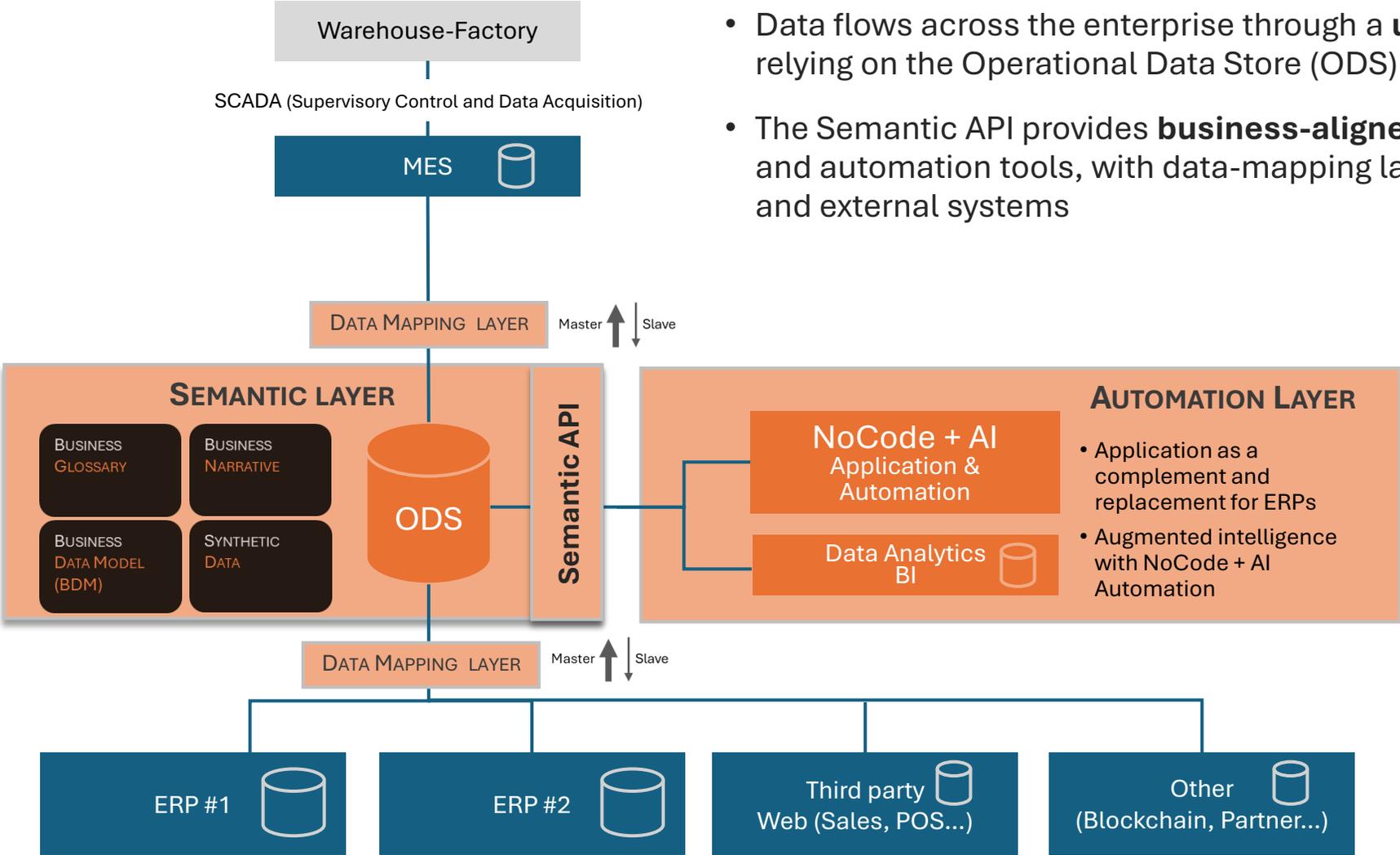
The screenshot illustrates the workflow in the LDM Builder. On the left, the 'New Diagram' dialog is open, showing the 'Entity Relationship Diagram' option selected. In the center, the 'Model Explorer' window displays the project structure for 'VitaSpark LDM', with the 'contract_agreement_management' package expanded to show its 'Entity Relationship Diagram' and a list of tables including 'boolean', 'numeric', 'tb_commercial_agreement', 'tb_contract', 'tb_contract_appendix', 'tb_contract_goods_consignment_agreement', 'tb_contract_term_application', 'tb_frame_contract', 'tb_goods_consignment_agreement', 'tb_quotation', 'tb_quotation_contract', 'tb_service_package', 'tb_service_package_commitment', 'tb_trading_term', 'tb_trading_term_contract_appendix', 'tb_trading_term_frame_contract', 'text', 'timestampz', and 'uuid'. On the right, the 'Diagram Navigator' shows the 'contract_agreement_management Entity Relationship Diagram' selected. A text box on the right states: 'This section is automatically generated following the XMI import'. The Engage Meta logo is visible in the bottom left corner.

You have access to the instruction files and the naming standard document at the logical level. Based on these materials, you can adapt the instructions to your own standards and train your own AI agent that will comply with the database creation context in your company

Part #2

Build Your **IT Architecture** For AI

Starting Point Of The IT Architecture For AI



- Data flows across the enterprise through a **unified Semantic Layer** relying on the Operational Data Store (ODS)
- The Semantic API provides **business-aligned data** to NoCode, AI, BI, and automation tools, with data-mapping layers connecting ERPs, MES, and external systems

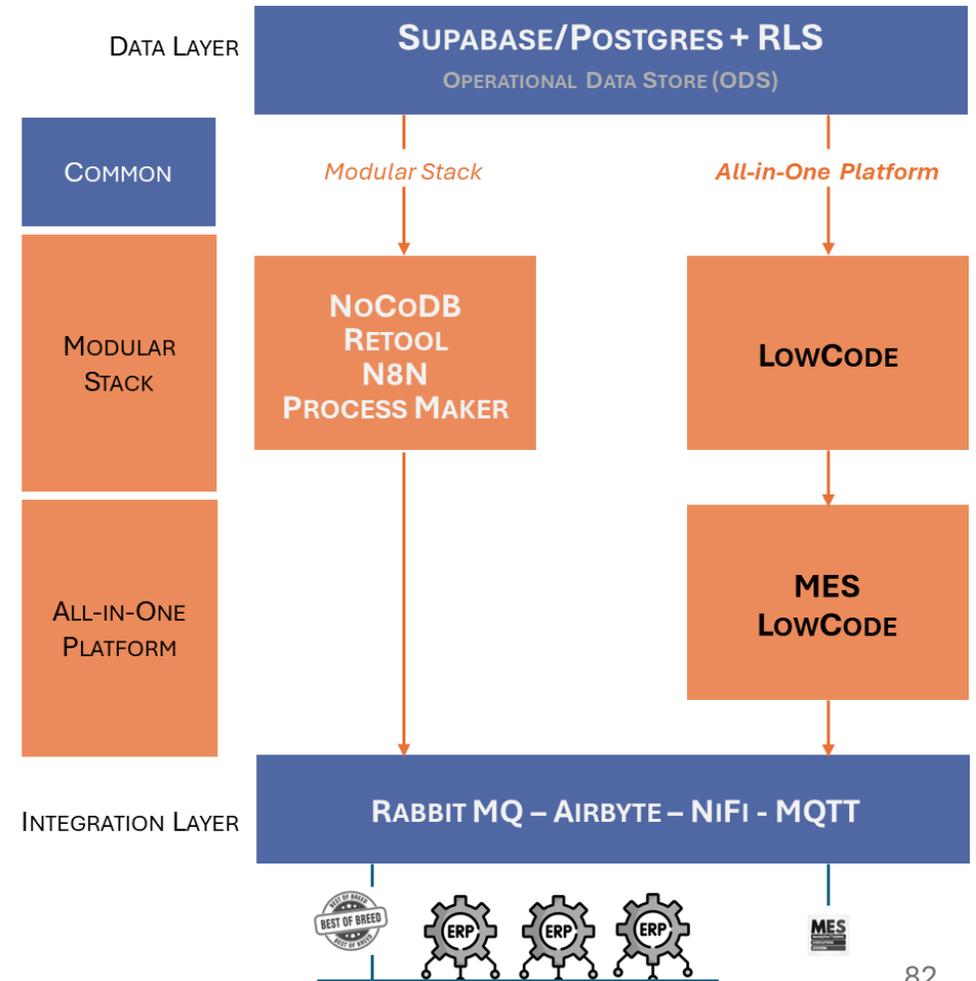
The result is a coherent IT architecture that enables AI-driven automation, faster application development, and consistent analytics across all business domains

IT Architecture Design For AI

IT Stack & Governance

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Depending on the company’s needs and budget, the most suitable combination of tools (NoCode, LowCode, workflow engines, ODS, integration tools, etc.) will be recommended to ensure a scalable, secure, and efficient AI environment



IT Architecture Design For AI

Financial Assessment

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- Financial assessment of the IT Architecture for AI summarizing the key cost components based on OPEX, CAPEX, ROI, and NCO
- It provides an overview of planned expenses for different implementation scenarios and highlights the financial indicators needed to evaluate the long-term economic impact of adopting an AI-ready IT stack

OPEX

Planned OPEX Modular IT Stack (USD/year) - Exclude Data Analytics cost, AI cost and IT staff expenses								
Solutions	Comment	No. Digital User 2025-2026			Software		Cloud infra	
		Read-only	Update	Concurrent	License	Support		
ODS: Supabase	Open-source: no license cost. Only infra is counted; optional external support could add up to 20k/year	0	0	0	0	0	0	
Workflow: Bonita BPM	20 workflows - Bonita BPM: Enterprise Edition license + support = 20-30k USD/year. Community Edition is free; only infra (=10k USD/year) would apply if vendor support is not required				0	0	0	
Integration: n8n, RabbitMQ, Nifi, MQTT	Open-source: no license cost. Only infra is counted; optional external support could add up to 10k/year				0	0	0	
UI: NoCoDB	50% of DB scope - Open-source: no license cost. Only infra is counted; optional external support could add up to 10k/year	0	0	0	0	0	0	
App: Retool	Some UI via NoCoDB - Commercial license required (=60k USD/year). If self-hosted, infra =15k USD/year applies	0	0	0	0	0	0	
Total (USD/year)					0	0	0	
Grand Total Planned OPEX Modular IT Stack (USD/year)					0			

CAPEX

Planned Grand Total CAPEX-OPEX Summary				
CAPEX (Implementation)	Modular Stack (USD)	Mendix Stack (USD)	EKG & Data Analytics	Comment: XXX
IT Staff Expenses (one year)	0	0	Included	
Total 3 years implementation	0	0		
OPEX (Steady State – Annual)				
IT Staff Expenses (maintenance)	0	0	Included	Comment: XXX
Licences & infrastructure	0	0	0	
Total	0	0		
OPEX-to-CAPEX ratio				
HanoiMilk (OPEX/CAPEX)	#DIV/0!			Comment: XXX
Ratio in the IT market	20%			
CAPEX - OPEX benchmark				
% of revenue allocated to IT (OPEX)	1%			Comment: XXX
Annual revenue (USD)	0			
Annual OPEX value	0			
Standard CAPEX value (OPEX/20%)	0			

ROI

NCO

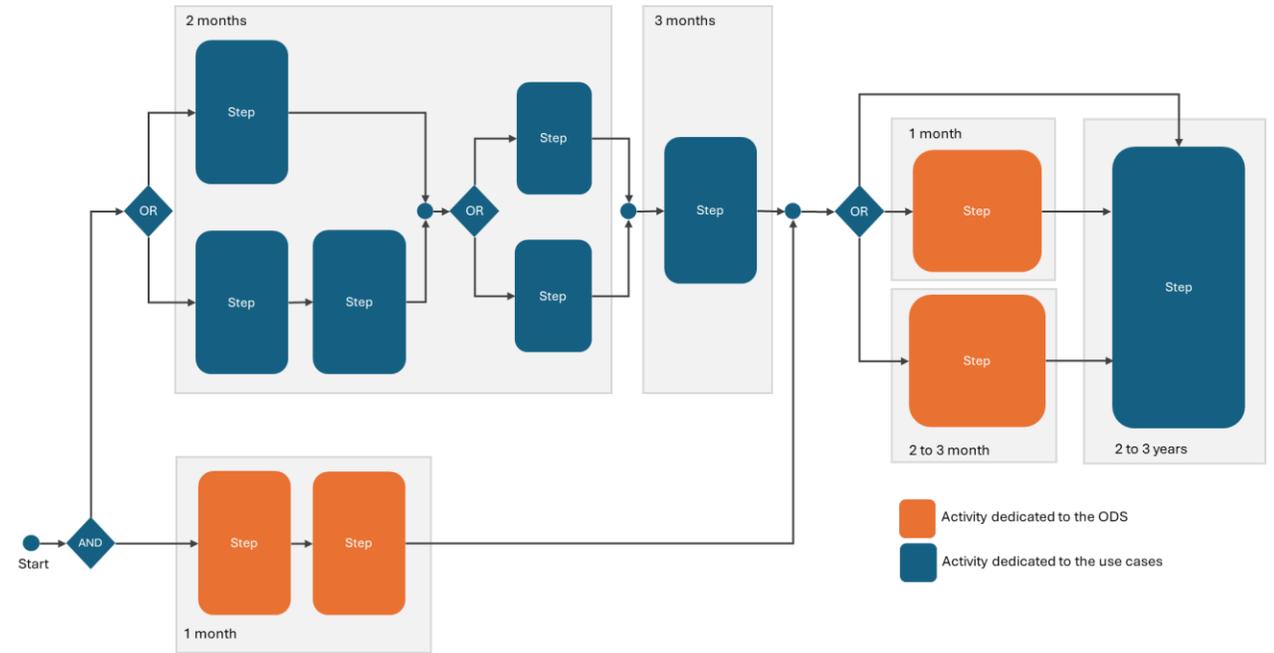
Net Cost of Ownership (NCO) (all amount in USD)										
Comment: XXX										
Net Cost of Ownership (NCO) (all amount in USD)	Amount	Year 01		Year 02		Year 03		3-year cumulative total	Year 04	
		%	Amount	%	Amount	%	Amount		%	Amount
Annual CAPEX	0	100%	0	100%	0	100%	0	0	0%	0
Annual OPEX for Licences & infrastructure	0	30%	0	50%	0	100%	0	0	100%	0
Annual OPEX for EKG & Data Analytics	0	30%	0	50%	0	100%	0	0	100%	0
Annual OPEX for IT staff (after implementation)	0	0%	0	0%	0	0%	0	0	100%	0
Business user participation	0	0%	0	0%	0	0%	0	0	0%	0
On premise server	0	0%	0	0%	0	0%	0	0	0%	0
ROI	0									
NCO (all costs - ROI)		0		0		0		0		0

IT Architecture Design For AI

Roadmap & Risk

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B. Risk	31

- Anonymized example of a macro-roadmap for implementing an AI-ready IT architecture
- It illustrates the sequence of activities dedicated to the ODS and to the use cases, along with estimated durations
- The diagram also highlights key decision points and dependencies, helping to assess project risks and plan a realistic multi-year deployment



Thank you!



Feel free to explore our approach on the Engage-Meta website and contact us if you would like to study a potential implementation in your context