

AI Technical Architecture Survey

Levels of Integration in Your Information System

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May 08, 2025

This document provides a simplified description of the standard content of a technical architecture survey for large-scale AI deployment within the company. **It is intended for all types of readers—both business and technical, decision-makers and operational staff.**

IT Roadmap Based on the Three Levels of AI Integration	2
#1 – Weak AI	2
#2 – Intermediate AI	3
#3 – Strong AI	3
How to Move Forward with Your AI Technical Architecture?	4
Join Engage-Meta.....	5



IT Roadmap Based on the Three Levels of AI Integration

AI automations integrate with your existing IT systems at the following three levels of depth:

- **Weak AI:** AI does not have direct access to production data.
- **Intermediate AI:** AI accesses production data via standard APIs.
- **Strong AI:** AI accesses production data via ontology-based APIs.

The more AI can leverage rich and high-quality data, the more positive its contributions. This is why ontologies are emerging as a key element in the successful large-scale adoption of AI. To recap, an ontology is a unified representation of the information processed within the company.

A standard API that is not based on an ontology typically offers fragmented access to information, with data relationships that are difficult to exploit. In contrast, an ontology-based API provides a 360-degree view of the business concepts managed within the company.

For AI, it is much easier to understand data structured through ontologies than data exposed via fragmented APIs.

The methodological effort required to model ontologies is greater than that of creating a conventional database. However, to ensure a good return on investment from AI, this effort must be factored into your roadmap.

#1 – Weak AI

Although the technical architecture for weak AI may appear basic, it is important to handle it with care for two key reasons: first, there are several technical aspects—such as governance—that must not be overlooked; and second, it serves as a necessary foundation for successfully reaching higher levels of integration.

In other words, even if your ambition is to quickly achieve the level of strong AI, it is advisable to start with this initial level of weak AI.

The topics to be addressed at this stage include:

- Organization of the storage space for data sources used to train AI (office files, databases, multimedia documents). Depending on the technologies currently in place and those being considered, lightweight NoCode database solutions may be appropriate.
- Version control of these data sources and implementation of access security measures.
- Deployment of AI in chatbot mode and user training on writing prompts and creating agents.
- Provision of an automation development environment for both developers and no-coders, along with a financial policy for the use of AI APIs. These APIs may be free (in a private deployment environment) or paid, with usage-based billing (e.g., token-based in SaaS environments).

- Training for developers and no-coders on building automations using a NoCode tool.
- Management of versions, testing, and production deployment of automations.

An economic study assesses the required investment and the expected gains. A roadmap outlines the management process: selection of technical solutions, training of technical and business teams, implementation of initial automations, and drafting of the methodological framework, followed by a review before large-scale deployment.

#2 – Intermediate AI

AI integration mechanisms with existing databases are taken into account:

- Assessment of the quality of available APIs for accessing production data sources. If they do not exist or are inadequate, it is necessary to begin architecture work directly at the strong AI level.
- These APIs include both custom developments and those exposed by ERP systems. The following points must be checked: the data provided is reliable enough to be used in AI automations; response times are compatible with requirements; access time windows meet AI needs; the API granularity suits the automation use cases; physical access security can counter hacking attempts by AI systems; etc.
- Implementation of a repository of available APIs for building AI automations, with business-oriented documentation describing the inbound and outbound data flows (metadata).
- Differentiate data-oriented APIs from those that trigger business processes. Depending on the AI automation needs, it must be decided whether to include all or part of these two API types in the repository.

As with the previous level, an economic study and roadmap are created to clarify decisions, governance, methodology, and the expected commitments and financial benefits of this intermediate level of integration.

#3 – Strong AI

At this level of integration, the goal is to build ontologies that enhance the semantic power of the data used in AI automations. We invite you to consult the TRAIDA framework documents available on the Engage-Meta community website to better understand the importance of ontologies. At this stage, the following points must be addressed:

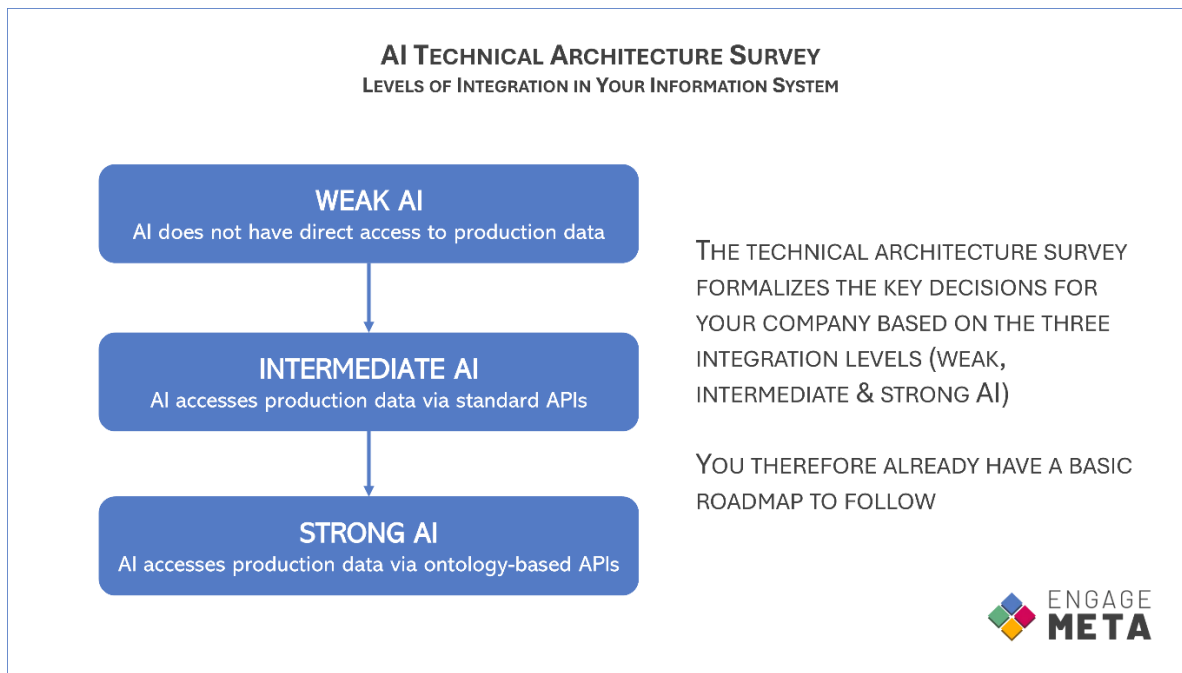
- Establish a methodological foundation to create a business glossary that covers the entire company; create a taxonomy based on this glossary; create a generic ontology from these elements; and derive specialized ontologies based on specific business use cases. At each step, we provide you with an AI assistant specialized in generating draft deliverables based on your documentation analysis.

- Select and install a knowledge graph database to manage ontologies and connect them to various data sources. This repository is referred to as the Enterprise Knowledge Graph (EKG).
- Select and install an OLTP-type database (for transactional data) that uses a data schema aligned with the generic ontology. Known as an Operational Data Store (ODS), this database unifies all production data into a single source of truth, offering a 360-degree view of all business concepts within the company. Depending on your context, this database may be implemented using a NoCode or LowCode ERP solution.
- For companies facing complex data governance regulations, the ODS can be paired with a specialized repository for managing master and reference data, known as Master Data Management (MDM).
- Implement version control and access security for the EKG, ODS, and possibly MDM repositories.
- These repositories then provide AI systems (chatbots and automations) with data flows that carry the required semantic richness to achieve the highest possible AI ROI.

As with the other integration levels, an economic study and a roadmap are prepared to ensure that the targeted technical architecture is aligned with the company's overall strategy.

How to Move Forward with Your AI Technical Architecture?

The technical architecture survey formalizes the key decisions for your company based on the three integration levels we have just briefly described. You therefore already have a basic roadmap to follow.



For the first level, we also recommend carrying out an initial operational deployment of an AI automation to help educate your teams. You might start with a database of about ten tables and an automation with a maximum of five steps, allowing for a development plan over four to five weeks. This initial project will give you your first AI automation and help you better understand the strengths and limitations of these new technologies.

For each level of integration, you must pay close attention to the following criteria and ensure they are clearly incorporated into your roadmap:

- Data quality and semantic power (ontology).
- Reliability of AI-generated outputs.
- Formalization of user knowledge to build the necessary datasets for AI training and execution.
- Selection of EKG, ODS, and MDM repositories based on your needs and whether you operate in a private or public environment.
- Choice of AI systems based on your use cases and deployment model (private or not).
- Upfront license costs, use of open-source alternatives, costs of AI APIs, and overall economic model for your AI automations.
- Training plans for business and technical users.
- Organization of business and technical teams.
- Security, data backup, and degraded-mode operation plans.
- Regulatory impacts.

A multi-year plan will be required to fully implement the system needed for large-scale AI automations. You will also need to make prioritization choices, while maintaining coherence in the sequencing of your technical architecture build-out.

Join Engage-Meta

On the community website, you'll find a set of open-source resources that explain the importance of taking a methodical approach to large-scale AI deployment.

