MAINTAIN CONTROL OF YOUR IT + AI THROUGH THE MINIMUM VIABLE SCALE

INTRODUCTION TO THE TRAIDA FRAMEWORK (TRANSFORMATIVE AI AND DATA SOLUTIONS)

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INTRODUCTION

The IT industry is undergoing a profound transformation with recent breakthroughs in artificial intelligence from **OpenAI** (ChatGPT, released to the general public in November 2022) and **Nvidia's** super-powerful chips (processing capacity increased by 1,000 times from 2016 to 2024). Whether one is enthusiastic or cautious about these technological breakthroughs, it is dangerous for business to ignore them. Their considerable impacts on productivity and creativity in companies are documented in numerous studies.

For the decision-maker who has already steered several IT revolutions, managing this one might seem similar. Companies have survived the advent of the internet and microcomputers. They have deployed complex software packages covering all their processes (ERP, CRM, Supply Chain, etc.). They have implemented integration solutions to synchronize their siloed processes and databases (EAI, ESB, SOA, webservices, MDM, data mesh, etc.). They have also created management rules to ensure their operations comply with internal and market regulations. Despite their quality flaws, IT systems function, and the organization compensates for their dysfunctions. This is not to say that everything is perfect, but that IT fulfills a minimum function of processing data and processes.

Like any system, it is subject to periodic overhauls. Companies then engage in business and technical architecture studies to define their new targets, taking care not to abruptly break away from the existing. A know-how in Enterprise Architecture (EA) has been consolidated over the past decades, embodied in frameworks such as TOGAF or Zachman. However, this rather comfortable situation that has persisted over time is reaching a breaking point. This is the entire subject of this paper.

NEW IT RISKS

The know-how in steering IT overhauls is challenged by the transformation of the IT industry described in the introduction, one that relies on AI and super-powerful computing chips. Decision-makers must be aware of new risks inherent in this transformation:

1. The skills required to grasp the entire IT domain have become too vast for a single expert to master the entirety of the architecture. The new transformation with AI amplifies this blurring of the global vision. It then becomes difficult to judge the relevance of technical decisions made over time.
2. In a fast-evolving world, the business and technical targets of IT city planning (EA) are often mistaken. Their design faces a lack of visibility by the actors on the future of their business. Today, the definition of these targets is perceived as theoretical, yet they remain necessary for a rational deployment of IT. Ultimately, the technical architecture no longer adapts quickly enough. It lags behind the velocity of business operations and proves costly in maintenance.
3. Artificial intelligence needs quality data for learning algorithms and decision-making processes to function correctly. More generally, knowledge governance is emerging as a crucial subject to benefit from AI. This knowledge relies on data of all kinds: structured and unstructured, produced internally within the organization, but also collected from outside the company. It's no longer just about synchronizing databases between silos to improve their quality, but about formalizing and capitalizing on knowledge in an industrial and sustainable manner.
4. The above issues have impacts on the behavior of business and technical teams both during the construction and operation of IT. This transformation induced by AI is not framed by classic change management. It is a cultural revolution that upends the very idea of management. Indeed, AI should be perceived through two simultaneous levers: first, AI can handle a part of the administrative controls of business processes and team monitoring; second, AI aids actors in seeking productivity and creativity. With these two levers, the role of the manager changes as they delegate some administrative tasks to AI to save time. They must then work with AI on innovation and team engagement. In other words, a portion of managers must accept a role with more leadership and intra-preneurship and less administration. In the hyper-competitive world emerging with AI and super-powerful chips, organizations are doomed to increase their productivity and creativity to improve their profitability.

Each company should thoroughly investigate these topics to prepare for large-scale AI use. A strategic positioning dossier on AI and super-powerful chips should be structured around the four chapters detailing the aforementioned points:

1. Assessment of IT skills and the ability to maintain control of a global vision of the IT architecture.
2. Assessment of the relevance of business and technical EA targets and exploration of alternative solutions.
3. Update on knowledge management necessary for training AI systems with quality data that is both structured, unstructured, internal, and external to the organization.
4. Analysis of the impact of AI on productivity and creativity for operations and management.

CLASSICAL APPROACHES TO IT ARCHITECTURE

As it is difficult to stabilize business and technical EA targets on a significant scale, IT architecture is regularly called into question. Companies then adopt two approaches to maintain a minimum control of their IT:

1. Using IT architecture best practice frameworks that have become market standards, such as TOGAF and Zachman. Decision-makers are reassured by aligning with a "state of the art" provided by these frameworks. Unfortunately, these best practices are often academic and do not integrate enough technological evolutions. They lead to recommendations that do not sufficiently guide application projects.
2. Using the agile approach to compensate for the rigidity of the best practice frameworks. A variant of IT architecture is then developed for each application project. A mutualization of technical services shared by several projects helps to reduce the risk of technology fragmentation. For example, this could involve setting up a unified data repository of the MDM (Master Data Management) type or a common bus for integrating processes between silos (EAI, ESB, etc.).

With this mode of management, most decision-makers observe a loss of confidence from their business and technical teams in the architecture. Indeed, IT architects are isolated from the projects and business teams face IT quality defects due to a lack of unification in the architecture. In other words, the alignment between business and IT is not achieved. The lack of an approach to formalize this alignment is often a sign of architectural wandering.

PROPOSITION FOR A NEW APPROACH

To alleviate the IT architecture problems identified in this paper, we propose an approach based on the following principles:

- Rather than forcing the definition of technical and business EA targets, the company first compares itself to a set of essential topics for large-scale deployment of AI and associated data solutions. The goal is not to try to describe targets on a wide range of topics, but to limit the analysis to AI and data management. We start from the principle that the minimally viable technical architecture is based on these two devices: AI and data management. **It is important to emphasize the significance of this concept of "minimally viable architecture", also qualified as "Minimum Viable Scale – MVS", which aptly illustrates the idea of progressively scaling the architecture**.
- Thanks to an appropriate MVS-IT architecture in the context of the company, more agile integration of application projects is favored. Mastery of AI and data management solutions constitutes the launching pad or the minimal starting point for an evolving IT architecture.
- The essential topics for large-scale deployment of AI and associated data solutions are gathered in a framework named TRAIDA for "Transformative AI and Data Solutions". It consists of 13 cards. Each card contains a series of topics. The entire framework comprises a total of 49 topics. The cards are classified according to three perspectives: technical, governance, and business. TRAIDA does not provide detailed best practice architecture but a decision-making aid on architectural choices that the company must retain for AI and data management.

- As already mentioned, the TRAIDA framework is dedicated solely to the field of AI and data management solutions. It focuses architectural thinking on the essentials. A three-step work process then helps the company to identify its MVS-IT architecture:

Step 1: Measure maturity level	The first step involves assessing the company's maturity level for each topic on the technical and governance cards of the TRAIDA framework. This is a task with a global scope on the architecture, meaning it is systemic.
Step 2: Highlight fundamental business choices	The business cards are added to evaluate the alignment between the company's business objectives and the levels of technical and governance maturity. As with the first step, the analysis has a global scope on the architecture and is therefore systemic..
Step 3: Initiate transformation projects	This final step focuses on transformation projects around AI and data management. It involves building a strategic and operational vision, based on the analysis of the results from the previous two steps. Here, the scope is no longer systemic but limited to the portfolio of transformation projects. This is where the alignment between business and IT is addressed in a concrete manner.

CONCLUSION

The important principles presented in this paper that should be retained are as follows:

1. In a rapidly transforming world, IT architecture must be built from fundamental elements that allow it to evolve according to business needs. With the velocity of business affairs, the work by business and technical EA targets has become less effective in building a solid architecture. **Consequently, the company must define a minimally viable technical architecture (Minimum Viable Scale - MVS) to scale up: MVS-IT architecture**.
2. To build this launching pad or starting point of the architecture, **priority must be given to the needs of AI and data management**. The rest will be structured around this foundation. The TRAIDA framework provides methodological tools to assist in constructing the MVS-IT architecture.
3. By focusing architectural efforts on MVS-IT, stakeholder involvement improves thanks to a more concrete vision than the sole business and technical EA targets. Of course, the impacts of AI are not limited to a technical concern. The transformation also affects managerial concern. Indeed, **AI overturns the very idea of classical management, particularly the traditional French style based on administration**.

If you wish to deepen your understanding of the approach described and the TRAIDA framework, do not hesitate to contact the author..