

Maximizing The Strategic Benefits Of AI By Establishing A Program

Glen Hilford

Issue 38, spring 2023

ISSN
2995-1550 (digital)

Cite this article

Hilford, G. (2023). Maximizing The Strategic Benefits Of AI By Establishing A Program. *Strategy Magazine*, (38), 12-15.
<https://strategymagazine.org/stratarticles/issue-38/93-maximizing-the-strategic-benefits-of-ai-by-establishing-a-program>

Article abstract

Seemingly overnight, artificial intelligence (AI) has become the hottest thing on the planet, impacting our personal and business lives. As a result, organizations are rushing to adopt AI, often with insufficient consideration of the complex mix of benefits, risks, and intricacies that such a powerful, pervasive technology introduces to business, as well as without a good understanding of the key factors to consider with such an investment. Furthermore, by concentrating on specific business problems and individual projects, leaders tend to treat AI as a tactic, and often lose sight of its value as a strategic differentiator. The objective of this article is to define AI, identify common challenges faced by organizations during AI projects, expose mitigation approaches to alleviate the challenges and, most importantly, introduce the concept of an AI program as a strategic differentiator to help organizations maximize the benefits from such a powerful and radical technology.



Maximizing the Strategic Benefits of **AI** by Establishing a Program

BY GLEN HILFORD

Seemingly overnight, artificial intelligence (AI) has become the hottest thing on the planet, impacting our personal and business lives. As a result, organizations are rushing to adopt AI, often with insufficient consideration of the complex mix of benefits, risks, and intricacies that such a powerful, pervasive technology introduces to business, as well as without a good understanding of the key factors to consider with such an investment. Furthermore, by concentrating on specific business problems and individual projects, leaders tend to treat AI as a tactic, and often lose sight of its value as a strategic differentiator. The objective of this article is to define AI, identify common challenges faced by organizations during AI projects, expose mitigation approaches to alleviate the challenges and, most

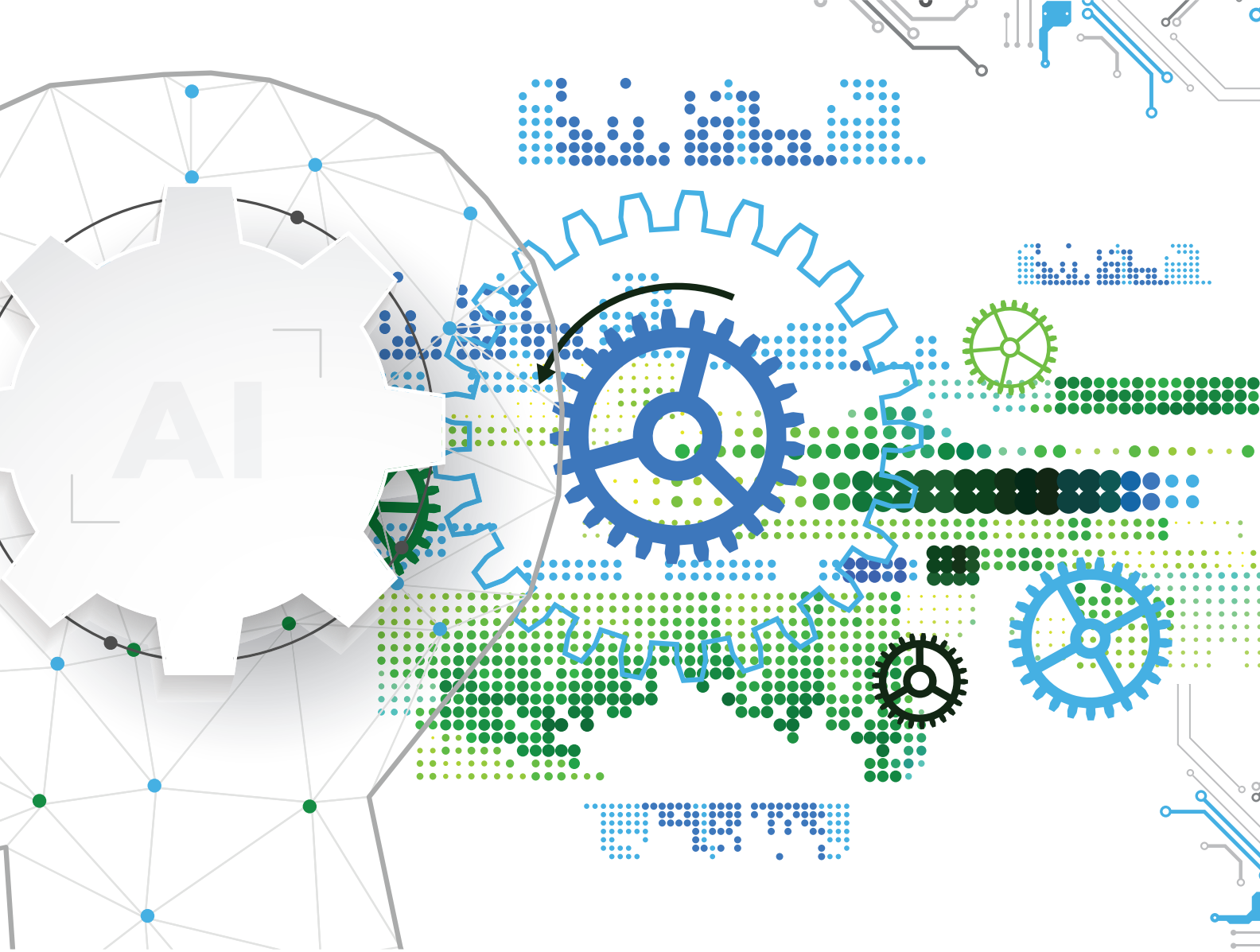
importantly, introduce the concept of an AI program as a strategic differentiator to help organizations maximize the benefits from such a powerful and radical technology.

WHAT IS ARTIFICIAL INTELLIGENCE?

When attempting to understand AI, the first challenge is the term itself. Artificial intelligence isn't monolithic, rather it is a generic term encompassing the five capabilities of cognition, language, vision, animation, and information coordination. These capabilities attempt to mimic human functionality. Cognition is achieved through machine learning (ML), which is the ability to learn from history and experience before making complex decisions and deductions. Language, or natural language processing (NLP) as it's called in the AI world, refers to the ability to interact with

human language, including reading, writing, hearing, and speaking. AI's computer vision capability enables a computer to recognize and act on "visual" information from sources such as images, video, and radar. Animation represents its ability to automate both physical activity and business processes. Finally, information coordination is achieved using knowledge graphs which function much like the human nervous system.

Each of these capabilities is valuable but they are not all created equally. Due to its cognitive abilities, ML acts as AI's "brain." While it can be used in a stand-alone capacity, ML is frequently combined with, or embedded in, the other capabilities. "In just the last five or 10 years, machine learning has become a critical way – arguably the most important way – most parts of AI are done, so that's why some people



use the terms AI and machine learning almost as synonymous...” (Brown, 2021).

COMMON AI PROJECT-LEVEL CHALLENGES AND HOW TO ALLEVIATE THEM

While investment in any AI project entails some level of risk, four challenges are common enough to merit special attention. This section describes each of these along with a recommendation for their mitigation.

Poor Requirements Analysis

Just as due diligence, or using requirements to drive decisions, is a key to merger and acquisition (M&A) success, successful software initiatives are guided by requirements. AI projects should be treated with the same due diligence, using thoroughly defined requirements to maintain focus and temper enthusiasm. Unfortunately, most

organizations either skip or don't apply adequate rigor to this vital step, frequently leading to project failure and lost investment.

For example, an energy company wanted to use AI to determine if their drivers followed safety instructions while transporting gasoline. “After some time, the data scientists presented a solution – a hardware module which looked perfect: it recorded videos, evaluated them using neural nets, and triggered alarms with a very low error quote. The only problem was the module was too big to be mounted anywhere in the truck’s cabin” (Perlin, 2021). In the absence of clearly defined requirements, the data scientists developed a solution that performed well, but was impractical to use. Had requirements driven the solution, this costly oversight could have been avoided.

To alleviate this problem, carefully designed and vetted requirements should always drive both investment decisions and solution design.

Missing Value Analysis

Opportunities to increase revenue/margin, lower cost, or mitigate organizational risk should drive any investment. If a project doesn't address at least one of these criteria, it should raise a red flag. Unfortunately, the desire to be innovative with AI can distract organizations from focusing on these criteria, leading to solutions that provide little or no actual value to the organization.

For example, a technology products company that designs, builds, and maintains manufacturing facilities globally is challenged with maintaining up-to-date sets of facility designs. To help alleviate the problem,

the organization uses an industry standard known as a 'key plan' to determine the currency of a drawing. When the organization explored the use of AI object detection to automate identification of key plans, through value analysis it concluded that the AI solution actually increased costs. The existing manual process would be more cost-effective.

No Viability Analysis

The 'sunk cost fallacy' refers to the tendency to continue with an investment even after it makes more sense to abandon. Sometimes, seemingly viable AI solutions don't pan out due to uninformed expectations about AI's capabilities, incorrectly identified model inputs, inadequate historical data, or models that won't converge on an answer.

should carefully define the business problem in a way that supports an objective evaluation of AI's capabilities. Identifying the right data inputs is typically a trial-and-error process and a rapid prototype can be used to determine which data inputs should be used. At the same time, the prototype can be used to determine if the AI model can converge on an answer. Once appropriate data inputs have been identified, historical data should be examined to ensure that the model can be adequately trained and validated.

User Resistance

Study after study shows that user resistance and lack of adoption are primary causes of AI failure. AI involves more than technical capabilities and projects. Perhaps its most important, and frequently overlooked, component is the people that it affects. Initiatives that don't consider users and their predictable resistance to change, are destined to fall short of their objectives.

For example, an energy transportation company recognized an opportunity to dramatically lower operational costs by improving three-day-ahead forecasts for natural gas demand in its market area. Traditionally, pipeline operators would rely on decades of experience to predict summer and winter demand with some degree of accuracy. However, the accuracy of their spring and fall forecasts varied wildly.

“ARTIFICIAL INTELLIGENCE ISN'T MONOLITHIC, RATHER IT IS A GENERIC TERM ENCOMPASSING THE FIVE CAPABILITIES OF COGNITION, LANGUAGE, VISION, ANIMATION, AND INFORMATION COORDINATION. THESE CAPABILITIES ATTEMPT TO MIMIC HUMAN FUNCTIONALITY.

To mitigate this issue, the company should have examined its motivations and base its investment decisions on a return-on-investment (ROI) calculation. In this scenario, ROI includes a realistic evaluation of the project's value and an estimate of its true cost (including intangibles such as data provisioning, change management, and ongoing governance). Since ROI focuses on revenue, margin, and cost, the technology product company should also factor in organizational risk. With this analysis complete, the company could then have made an informed decision about the value of the project.

"Is an AI approach even viable? Isn't this the fundamental question when considering an AI initiative? Is there a way to determine this early in a project before making a significant investment?" (Hilford, 2021). The challenge is to determine if the proposed solution is viable as early as possible in the project. Unfortunately, most organizations don't have the discipline to determine early on when a project isn't viable and thus fall in the trap of throwing good money after bad.

Early analysis is the key to mitigating this risk. Before attempting to create an AI solution, organizations

AI PROJECT LEVEL CHALLENGES

Challenge	Brief description	How to alleviate
Poor Requirements Analysis	Overenthusiasm about AI can cloud judgment when making investment decisions.	Use carefully designed requirements to maintain focus and drive decision-making.
Missing Value Analysis	A desire to be innovative can distract us from focusing on actual project value.	Opportunities to increase revenue/margin, lower costs, or mitigate organizational risk should drive any investment.
No Viability Analysis	The risk of continuing with an investment even when it makes sense to abandon it.	Clear problem definition, carefully vetted requirements, and rapid prototyping can all be used to determine solution viability before over investing.
User Resistance	User resistance and lack of adoption are primary causes of AI project failure.	Use a proven change management methodology to drive targeted, intentional, and repeated change communications and support before, during, and after solution implementation.

To address these inaccuracies, the organization implemented an AI solution that dramatically improved demand predictions. Rather than embrace this new capability, the operators viewed the AI solution as an affront to their expertise and experience and, predictably, a threat to their jobs. After considerable effort by their management to assuage their fears, the operators came to accept and grudgingly embrace the new capability. Had effective change management been employed at the beginning of the transition, much of the resistance could have been avoided.

On the surface, AI-related change differs little from other business changes, with the exception that the misconceptions about AI can intensify fear and resistance.

The only way to minimize fear and resistance is to intensify the standard change management principles of targeted, intentional and repeated communications support. "Participants who applied a structured approach were 33% more likely to experience good or excellent change management effectiveness than those without a methodology" (Best Practices in Change Management, 2020).

AI PROGRAM AS A STRATEGIC DIFFERENTIATOR

Long-term success for any organization is dependent upon its ability to align its strategy with their operating model, meaning each initiative should align with the organization's shared long-term vision and value propositions. AI is no exception.

While each of the project-centric challenges discussed above is important at a tactical level, if we stop there, we forego the opportunity for AI to serve as a strategic differentiator. What's missing is an AI program to transform and coordinate efforts in a way that elevates AI beyond the individual project level but into the organization's overall strategy. Although the concept is new, our research provides hints as to what to do.

In this context, an AI program is a framework that enables the organization to:

- **Manage its portfolio** of AI projects as a whole, rather than as siloed and uncoordinated

solutions, and supports prioritization of investments for strategic fit and value.

"A successful portfolio operationalizes a strategy" (Bhore, 2022).

- **Develop its capabilities** (i.e., the skills, roles, and responsibilities) needed to execute and maintain AI initiatives in a way that strikes an optimal balance between organic resources, consulting, and AI function acquisition.
- **Achieve an appropriate level of AI maturity** by measuring its current capabilities, determining how capable it needs to be (as influenced by industry vertical and organizational risk profile), and identifying any resulting gaps. This enables the organization to gauge the size of the investments required to develop needed AI capabilities.
- **Ensure the value and viability of projects** by centralizing the specialized expertise needed to make these determinations and to apply it consistently across the portfolio.
- **Identify, understand, and adapt to AI constraints** imposed by internal, industry, or governmental policies, procedures, and regulations.
- **Treat data as a strategic asset** by defining functions and the processes to support the systematic collection, management, provision, and governance of the data.
- **Effectively govern** related AI data, models and outputs in support of repeatability and explainability. "Biased machine learning outcomes can have very real and dangerous consequences, leading to decisions or actions that are unethical, immoral, or just plain wrong" (Erickson, 2022).
- **Address change** imposed on the organization and individual users by AI's novel data-driven decision-making capabilities. Much like value and viability, this provides a way to centralize the expertise required to address AI's effects on users and to apply it consistently across the organization.

CONCLUSION

Introduction of an AI program can elevate AI far beyond the value of isolated projects. Operating AI at a programmatic level provides opportunities for the organization to rationalize, prioritize and coordinate its efforts, while simultaneously governing it effectively and supporting users as they transition into a new reality. As such, an AI program can provide a pathway for AI to become an integral part of an organization's overall strategy.

REFERENCES

- Anonymous (2023) *Best Practices in Change Management*. Prosci.
- Bhore, N. (2022) *How Does DQ and Innovation Help or Hinder in the Energy Transition*. Society of Decision Professionals.
- Brown, S. (2021) *Machine Learning Explained*. MIT Management Sloan School.
- Erickson, S. (2022) *Recognizing and Avoiding Machine Learning Bias*. Access Sciences.
- Hilford, G. (2021) *AI for Business: What About Business Leaders*. Access Sciences.
- Perlin, M. (2021) *Catalog of Requirements for AI Products*. Towards Data Science.

ABOUT THE AUTHOR

Glen Hilford is Vice President of Corporate Development at Access Sciences. He has more than 35 years of industry and professional services experience spanning the petrochemical, transportation, power and utility, e-commerce, manufacturing, financial services, engineering and construction, defense, maritime, healthcare, and government sectors. Glen first witnessed AI's potential to transform business in the 1990s as part of a team that used machine learning to predict commodity demand. This experience sparked a long-term interest in the practical application of AI, specifically how an AI Program can be implemented as a strategic differentiator.

E: ghilford@accesssciences.com