Beyond Solution-based AI: A Model for Sustainable Organizational Transformation

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Artificial intelligence is a rapidly developing field - and organizations will need to adapt just as quickly.

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A misunderstanding of AI

The Artificial Intelligence (AI) economy is still in its infancy and is probably not what most people think it is. The reality is that modern AI is predominantly a complex set of math- and statistics-driven algorithmic Machine Learning (ML) processes requiring a disciplined technology development process vs. true "Artificial Intelligence" as the media sometimes portrays. AI will not be completely replacing humans anytime soon, but is already beginning to augment human capabilities. However, "AI/ML" abilities are real, advancing quickly and will have significant effects on organizations, business, and society in general.

The need for organizations to begin developing core capabilities and a strategy around this emerging technology cannot be over-emphasized. Most organizations are likely in an early discovery process. They may be experimenting with the capability and not yet fully understanding the necessary approach, let alone developing a strategy that allows AI/ML to scale alongside its business intent. The organizational architecture will require recalibration in order for human capital, tooling, operational processes and ownership to be aligned and well-defined.

Furthermore, while a top-down approach is not a requirement for AI success, leadership from the top of the organization is a key driver to the transformation process.

There are many misconceptions, inadequate knowledge, and half-baked AI strategies in companies worldwide. While one-off AI efforts have merit, executives need to see the broader picture and assess the sustainability potential of AI initiatives they consider.

AI challenges in the workplace

In many organizations, the application of AI/ML has led to numerous challenges:

- **Knowledge and strategy gap** – Gaps exist between executive knowledge on the subject and strategy pertaining to funding, organization, operations and implementation surrounding AI/ML future roadmaps.
- **Miscommunication** - AI/ML efforts and communication at the executive level is at times inadequate, inconsistent, uncoordinated and late.
- **Desire for immediate results** - AI transformation and development is not easy and will take time and capital for large scale transformations. Running an "experiment,"

i.e. building your first production model for deployment, involves many steps, tools, and resources which make it difficult to ensure ROI.

- **Data quality** - Data is key and organizations need to start addressing data ingestion, quality and governance issues as early as possible.
- **Operational inefficiencies** – In most organizations, AI/ML development operations and software development operations are not at the same maturity level thereby causing project delays and increase in operational cost.
- **Lack of scalability** – AI initiatives are sometimes undertaken on a project basis or developed to serve the needs of a single department.
- **Operational silos** – Organizations have not integrated their AI initiatives leaving business units to develop bespoke approaches.

Organizations are taking various actions to address these and other challenges. Some are flattening their structures to better link technology with key business functions. Companies are staffing their corporate boards with technology savvy members. AI Councils have been established to enhance communication clarity across organizational units and uncover areas where real operational value can be identified. This council is not a governance board but an idea sharing and encouragement platform to boost communication.

A broad, company-wide approach to AI can deliver results faster and more efficiently. It helps to start with individual projects and targeted data sources for wins and proof. But, the earlier a cohesive and well-integrated vision is developed, the better. To enhance AI operations, standardization needs to become mainstream. Strategic AI/ML development platforms can help standardize operations on a broader and more impactful way.

The move to a quantitative, i.e. data-driven, world for industries is becoming more apparent and strategic. The survey statistics below highlight the significance of the trend and issues mentioned above:

- 23x more likely that data-driven organization will acquire customers vs. their peers [1]
- 19x more likely that data-driven organization will be profitable [1]
- 6x more likely that data-driven organization will retain customers vs. their peers [1]
- 90% of data has been created in the last 2 years (and other stats) [2]

Contemporary research underscores the need for organizations to carefully think through the AI/ML implementation and strategy.

Beyond a solution-based approach

AI challenges need to be addressed with business solutions in mind and more. Attention to business outcomes and resources have to be directed into three key AI application areas:

Better user/client experience Personal assistants like Siri and Alexa are a new paradigm which shifts the Human-Computer-Interface (HCI) to a more natural form. The big tech firms are rapidly creating new patterns and architecture for voice based HCI to become the norm of the future, not just for simple internet query functions but full interaction with applications. These assistants are already playing a key role for many organizations that have integrated them into their product and service offerings.

Intelligent recommender systems are now options for any internet retail vendor. Think of the product recommendations on Amazon or suggestions for movies you might like on Netflix. This ability relies heavily on knowing your user, their demographics, behavior on your digital channel and feedback information such as "likes" and survey data. This scenario underscores the importance of data, data quality, and user data in particular. Organizations need to be very intentional about creating an analytics foundation for the ingestion and governance of this data.

Another area where client experience is changing as a result of AI/ML application is in authentication. Biometric solutions are maturing and gaining adoption with voice biometrics being the most prevalent. Clients no longer need to be asked a series of security questions but rather the system can auto recognize and validate the client voice print for authentication purposes.

The big-tech firms have set the pace and the bar and will continue to do so. Business services and client-facing channels in all industries will need to meet the same level of functionality and AI their users and clients are experiencing in their daily lives provided by the big tech firms.

Process automation efficiency

Process automation is a clear efficiency opportunity for many organizations with legacy systems and manual back-office processes in place. Robotic Process Automation (RPA) is an excellent place to start and offers a baseline for more advanced AI automation in the future. Although RPA is rule-based and not data trained like AI/ML, when successfully implemented it can function as basic AI given that it does replace simple human processing. This can bring a cultural shift to organizations, creating the impetus for further automation of process tasks via AI/ML where human judgment cannot be replaced by human-programmed RPA rules.

There are many organizational tasks that could be targeted for AI automation such as voice query and image recognition. One of the largest areas for AI application is in document processing. Many processes exist where human level intelligence is required to read a semi-structured or unstructured document in order to extract key pieces of data for further downstream processing. Natural Language Processing (NLP) capability has advanced to the point where key entities (i.e. names, dates, values) and concepts such as legal provisions and clauses can be extracted with high certainty in an automated manner.

There are many efficiency gains to be made in most large organizations that can free up value resources performing "robotic" tasks for higher value efforts. Digital process automation via RPA combined with AI/ML has become a reality and organizations need to start thinking in digital terms first i.e. if technology can't perform the process then insert a human in the loop.

Impactful AI/ML driven insight Prior to recent advancements in AI, only humans could extract key insight from documents, images, understand voice or interpret a computer log file entry. To do this at scale required large operational teams which necessitate a significant ROI for the business problem at hand. AI has now provided organizations the ability to extract insight from these alternative data sources providing a myriad of potential business opportunities. New and improved products and services are a key goal for many organizations across all industries and can now be enhanced to include insights from these new data sources.

The data captured in the recommender system discussed in the Client/User Experience section above can also be leveraged for a more holistic understanding of clients, sometimes referred to as client 360. This same data is often used to segment users and combined with other data forms a foundation not just for recommender engines but also enables key marketing, client acquisition, sales and retention capabilities.

Risk is another broad area for AI/ML adoption within the organization ranging from cyber security and credit risk to corporate finance and strategy. Modern cyber security tools are growingly more dependent on AI/ML techniques for intrusion detection and are used to augment existing cyber security teams. Given the sheer level of web traffic on modern websites, it would be beyond human capability for a team to manually attempt to comb through these event logs. However, an AI/ML system can be used to search for anomalies and alert the human team for next best action.

When companies use AI for operational solutions, it affects other business units, processes and systems. Executives need to view AI not solely on a solution-based point of view but rather on a broader perspective.

Shift from solution orientation to sustainable transformation Targeted use of AI/ML for business solutions helps in the short term but not nearly enough for the long term. Organizations need to think bigger and aspire for a sustainable digital transformation. The transformation needs to be strategically implemented under five key themes:

- **Plan for data management.** Any organization aspiring to take part in the digital economy must start thinking about foundational elements for data ingestion and management.
- **Improve cross-functional coordination.** Executives and product owners need to clearly understand the gaps between traditional development operations (DevOps) and machine learning development operations (MLOps). Machine learning based products and services should not be treated as projects but continuously maintained and monitored products with a different capital expense strategy.
- **Focus on value.** Buy vs. build decisions are still key and organizations shouldn't replicate or invest in capabilities that big tech and vendors will commoditize. Be sure to focus on areas that are high value for your organization with business driven goals.

- **Strategic partnerships.** Startups and the big technology firms are in constant competition seeking competitive advantages. Many startups are offering market leading niche capability and functionality but over the long term may get pushed out or acquired as big tech catches up and sees opportunity. Under this scenario, organizations need to be strategic regarding partnerships and view business operations from a long-term perspective.
- **Monitor strategically.** Many traditional vendors are embedding "AI" capabilities in their applications or claim to be. Organizations need to have a way to assess these claims and monitor product performance in any deployment scenario.

The reality is that most organizations are still in early stages of their AI/ML strategy and transformation. There is a long journey ahead in the technology, business application and the operationalization of it. Efforts should be based on clear business opportunities with business-owned and led objectives and not on a "build it and they will come" philosophy.

Setting out on their AI-driven transformation journey, organizations need to be resource-conscious, efficiency-driven and future-oriented. They must understand that success is not easy and never a single-step process. Firms will evolve in stages and take on new directions as needed. A sustainable organizational transformation is largely about understanding that technologies and business models will change swiftly, but forging ahead in a calculated and cautiously optimistic manner can make all the difference.

The opinions expressed in this document are those of the authors, and do not necessarily reflect the views of Northern Trust.

1. McKinsey: **https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/five-facts-how-customer-analytics-boosts-corporate-performance** ↩ ↩2 ↩3

2. IORG: **https://iorgforum.org/case-study/some-amazing-statistics-about-online-data-creation-and-growth-rates/** ↩

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