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Starting the AI Journey: How to Make the Right First Steps

by J. Mark Munoz and Dariol Matteo

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AI still has an aura of uncertainty that scares off many who wish to utilize it.

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Artificial Intelligence (AI) still has an aura of uncertainty that scares off many who try to utilize it. A Gartner (2019) Report indicated that about 37% of organizations have used AI in some form. This data suggests that a majority of firms still have to take the first step in their AI journey.

There could be several reasons behind this hesitancy. But a major deterrent has been technological preparedness. The level of complexity is high and it requires new tools, skills, and a proper mindset to initiate the process correctly.

In this article, the authors offer perspectives that could be helpful in a company's AI journey.

The contemporary digital age requires firm competence in at least five (5) areas:

Human Resources – companies need to have the ability to attract and retain the right talent. Millennials and Gen Z currently comprise more than 50% of the U.S. workforce[1]. Unlike their parents, they are driven more by a sense of purpose than mere economic compensation. Not only are they proficient in the use of the latest technological tools, such as AI, Machine Learning or Deep Learning, but they also tend to be early adapters of these technologies.

Technology – firms need to find the appropriate balance between technological tools, employee skills and competencies, as well as the process involved in order to achieve set goals. A major challenge lies on the business side: how will this new technology affect a company's business model? Will it enable new revenue streams that would be impossible to obtain otherwise? This is evident in the field of AI, where the "productization" of a smart solution can present a set of interesting challenges[2]. Another mega-trend is the "servitization" of hardware products, clear sign of the predominant role that software (and AI) have in creating new markets or disrupting old ones.

Data – the strategic gathering, processing and utilization of data is becoming a growingly important basis for a firm's competitive advantage. Most firms already do a good job at collecting as much data as possible from a variety of sources, but without proper analytics planning this wealth of information can turn quickly into an economic burden with no value added. Data also bring with it two key characteristics: accountability and measurability. There is no more room for "gut feelings", the AI-savvy company makes decisions with the support of objective and quantifiable insights. Moreover, AI is a data hungry technology, the more data available, the more accurate the results will be.

Architecture – companies need to have in place a proper data pipeline to achieve desired goals. Similar to a house with its plumbing and electrical systems, a firm must be equipped with a solid IT infrastructure that can support its AI activities. The first step is obtaining data from various data sources, machines, equipment, IoT and sensors among others. Then, the AI-savvy organization will allow AI practitioners, data scientists and domain experts to work on a project concurrently and in a seamless manner. Finally, the loop is closed by enabling secure software deployment and reactive DevOps. This process is repeated until the set AI networks achieve the desired degree of accuracy.

Cognition – the goal of every firm starting its AI journey is to reduce uncertainties and to obtain "supernatural" predicting capabilities. For some, this translates into accurately forecast market demands, limiting stocks and reducing logistics risks. For others this means predicting machine failures, scheduling downtimes and ordering spare parts before catastrophic breakdowns happen. Whichever the industry may be, AI must become an important and trusted ally.

Regardless of whether a firm uses AI or not, the competitive terrain as well as heightened consumer expectations require firms to leverage technology in some shape or form within the organization to create optimal products, services, or business operations.

Lost in the forest

In this "digital jungle", some firms have failed to optimize gains from technological breakthroughs either as a result of failing to start, starting at the wrong time, or making missteps along the way. The authors classify these "lost" firms into three (3) types:

Laggards – these firms are slow to take on technology and are way behind some of their competitors. In the case of boutique retailers, those that don't even try to sell their products online or use AI to better know their customers are disadvantaged compared to those who do.

Buzzards – these firms take on technological "scraps" and do not integrate them well into their organization. For example, a farmer might decide to buy the latest AI systems and tools for his farm, only to later learn that he and his staff don't have the tech skills to troubleshoot or even process the data correctly.

Waywards – these firms pursue a non-technology strategy and consequently miss opportunities for growth and profitability. A hospital that disregards the opportunity to use data to enhance customer service, boost payment collections, and heighten work productivity could lose out on revenue improvement pathways.

While these examples refer to small and medium sized enterprises, even large firms can also get lost along the way. For example, there was the case of IBM Watson's failed AI project which ended up being canceled after a total investment of $62 Million[5]. Real world applications do not always behave as imagined. The people behind Watson found out that doctors function differently from the logic they instilled in their AI software. This shows that no matter how good the AI is or how skilled machine learning engineers are, it will not always be possible to find if the organization's domain comprehension is inadequate.

In contrast, there are remarkable examples of success. The use of AI can be found behind the success of Alibaba[6] and Amazon. Although coming from two completely different socio-economic frameworks, the firms pioneered an extensive application of AI at every level of the organization. "Automate decision through machine learning" is the mantra that led Alibaba to an extraordinary success in a relatively short amount of time.

The cases above indicate that in this digital age, while some firms have found their way to achieve extraordinary success many firms continue to struggle and have yet a lot to learn to get their AI bearings right.

Plotting the right journey

Similar to a team embarking on a major journey or expedition, firms can be overwhelmed in the preparation process. Furthermore, lack of knowledge and misinformation can lead to poor judgements.

The authors recommend five important steps in starting an AI journey:

Step 1: Know your goal. Practitioners in the industry often say that AI is the art of asking the right question. Firms need to realize what AI can do for them. It is important to understand the real objective and ask the right questions. If one sets a target in the wrong direction, it does not matter how many arrows are shot, the bullseye will be missed.

Step 2. Walk and don't run. It is important to start small and set reasonable objectives, then gradually expand your scope, and improve your results. For example, if one reduces the scope of a new AI project, this will build a sense of achievement in any newly formed AI team and help them psychologically. AI is not a rigorous science, but rather quite empirical. Every AI project is iterative in nature and involves a considerable amount of time for trial and error.

Step 3. Adopt a "culture of data". Giving managers the freedom to pick the best way to adopt new technology into their everyday tasks would lead to more buy in. It would encourage the team to take ownership of the project and give managers the confidence they need to succeed. But it would also force them to (re)think about their tasks in terms of data. Important questions to ask are: *how can I use data to make my job more productive? how can I leverage an AI tool to reduce inefficiencies?*

Step 4. Set checkpoints. Identify periods for project review and evaluation. Conduct regular assessments and be prepared to make appropriate adjustments. Failure is an acceptable outcome, as long as it is identified fast and used to avoid future mistakes. Organizations need to establish measurable benchmarks. Firms need to know exactly what the best practices are and what excellence in their field really looks like. Aiming high can make a huge difference.

Step 5. Create cross-functional teams. In every organization there is a wealth of knowledge dispersed among employees. The cross-pollination of ideas and from different teams can result to a faster company-wide adoption of AI solutions. AI engineers or data scientists can come up with innovative artificial neural network architecture, but their success will be limited if they fail to see the big picture or if they don't get the buy-in from managers or the product end users.

Despite significant challenges, the benefits from AI certainly outweigh the risks. Research as well as industry experiences suggest that advancements in AI positively impacts efficiency, customer engagement and productivity in organizations. Furthermore, it boosts organizational competencies such as digitalization, data strategy and change management. AI is an innovation catalyst that empowers managers to reframe and refine the company's vision and strategies and accelerate the achievement of important goals.

The right first steps in the AI journey should be grounded on cautious optimism. Firms should understand that while a number of opportunities exist, the risk for failure equally abound. As may be learned from explorers who succeeded in long expeditions, extensive research, preparation and having a top quality team are sensible first steps.

To learn more, read "A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence" in California Management Review, Volume 61, Issue 4. \ https://journals.sagepub.com/doi/full/10.1177/0008125619864925

References

[1] Three Reasons You Need To Adopt A Millennial Mindset Regardless Of Your Age - **https://www.forbes.com/sites/jeannemeister/2012/10/05/millennialmindse/?sh=1aba34174ee4**

[2] Artificial Intelligence driven business models; A strategic approach to capture the full potential of AI - **https://www2.deloitte.com/nl/nl/pages/innovatie/artikelen/artificial-intelligence-driven-business-models.html**

[3] Case studies of successful startups - **https://venturebeat.com/2021/02/02/case-studies-of-successful-ai-startups/**

[4] Gartner (2019). Gartner survey shows 37% of organizations have implemented AI in some form. - **https://www.gartner.com/en/newsroom/press-releases/2019-01-21-gartner-survey-shows-37-percent-of-organizations-have**

[5] Five biggest failures of AI, why AI projects fail? - **https://thinkml.ai/five-biggest-failures-of-ai-projects-reason-to-fail/**

[6] Smart Business: What Alibaba's Success Reveals about the Future of Strategy - **https://hbsp.harvard.edu/product/10148-HBK-ENG**

[7] This much-hyped technology is failing businesses. Here's why - **https://www.fastcompany.com/90449015/this-much-hyped-technology-is-failing-businesses-heres-why**

[8] Why machine learning strategies fail - **https://venturebeat.com/2021/02/25/why-machine-learning-strategies-fail/**

[9] 23 Examples of Artificial Intelligence Shaking Up Business as Usual - **https://builtin.com/artificial-intelligence/examples-ai-in-industry**

[10] **A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence**

J. Mark Munoz Follow

Dr. J. Mark Munoz is a tenured Full Professor of Management at Millikin University, and a former Visiting Fellow at the Kennedy School of Government at Harvard University. Aside from top-tier journal publications, he has authored/edited/co-edited more than 20 books such as: Global Business Intelligence and The AI Leader.

Dariol Matteo Follow

Matteo Dariol is a lead innovation strategist for Bosch Rexroth, intrapreneur, technologist, AI and IIoT expert. Currently located in Bosch’s innovation and co-creation space, the Chicago Connectory, his activities revolve around the intersection between R&D and product development, with the goal of harnessing new technologies and explore new business models.