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Five Steps to Jumpstart Your Artificial Intelligence Success

It seems like Artificial Intelligence (AI), and it's close cousins Machine Learning (ML) and Deep Learning (DL), are everywhere.

An analysis of 2018 technology predictions from Gartner, Forrester, and IDC, reveals a landscape dominated by artificial intelligence. Not only was AI core to 9 of their 33 predictions, it was a vital enabler in nearly a dozen others. While other hot topics such as blockchain and augmented reality were noted, no other topic came close to AI in importance.

Yet according to Gartner only 20% of CIOs report experimenting with AI today. While just 20% of them, or just 4% of organizations overall, report successful AI deployments.[1]

This means that 80% of organizations have not yet commenced their AI journey. With AI hype so high, why is adoption not moving apace? What is holding everyone back? Fear of the unknown? Lack of funding? Or could it be that most organizations have not yet found the formula needed to jumpstart their AI success?

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1 Craft an Artificial Intelligence Strategy: A Gartner Trend Insight Report, Gartner January 19, 2018 https://www.gartner.com/doc/3847266/craft-artificial-intelligence-strategy-gartner

This paper sets out a five-step formula for getting started with AI. If you're impatient, jump to page 3. But if you can hold off for just a minute, these analysts' predictions[2,3,4] might provide some direction, inspiration, or ideas:

GARTNER INC.: AI IS KEY FOR NEXT-GENERATION DIGITAL BUSINESS MODELS AND ECOSYSTEMS

Business school strategies focusing on mass marketing of the best product, best service, or lowest price alone can no longer win in a world of intelligent products, content, and services that cater to each customer's specific needs. And operating models based on continuous improvement cannot keep pace with the discontinuous change that can arise for heavily automated Amazon-like digital business models. Disruption on this scale is why Gartner focuses so heavily on AI.

In its "AI Foundation" prediction, Gartner projects that "the ability to use AI to enhance decision-making, reinvent business models and ecosystems, and remake the customer experience will drive the payoff for digital initiatives through 2025."

And in its "Intelligent Apps and Analytics" prediction, Gartner foresees ubiquitous intersection of AI with software applications and analytics. In particular, the firm estimates that "over the next few years, every app, application, and service will incorporate AI at some level."

FORRESTER: AI ENABLES A CUSTOMER-CENTRIC VIEW

It seems most organizations know little about their customers and their needs, and thus do little to provide personalized product and service experiences that delight and retain them. This may have been fine when your competitor was another cable provider and your customers were content to surf hundreds of channels looking for something they might like.

But what happens when Netflix shows up with AI-based personalized content suggestions from their million-item content catalog? You already know the answer.

To compete in the future, Forrester anticipates that intelligent agents will be tasked with enhancing customer experience. They'll "collect preferences, behaviors, transactions, and emotions" and "use that data to increasingly influence consumer options and decisions."

The result will be personalized next-generation customer experiences far surpassing today's Netflix content model, and these will become the new normal for both B2C and B2B customer engagement.

These customer experiences will do more than delight. For those overwhelmed by the influx of countless offers on every device 24x7x365, Forrester sees the rise of a new class of intelligent agent that can curate and shield consumers from the digital deluge.

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2 Panetta, Kasey. Gartner Top 10 Strategic Technology Trends for 2018. Gartner Inc. October 3, 2017. https://www.gartner.com/smarterwithgartner/gartner-top-10-strategic-technology-trends-for-2018/

3 Forrester Predictions 2018: A Year of Reckoning. Forrester. https://go.forrester.com/2018-predictions/

4 Gens, Frank et al. IDC FutureScape: Worldwide IT Industry 2018 Predictions. IDC, October 2017. https://www.idc.com/getdoc.jsp?containerId=US43171317

IDC: AI WILL DRIVE MASSIVE DIGITAL TRANSFORMATION

IDC uses the term "Digital Transformation" to describe the massive "technology-centric transformation altering business and society." AI's role with respect to Digital Transformation:

- By 2019, 40 percent of digital transformation initiatives will use AI services.
- By 2021, 75 percent of commercial enterprise apps will use AI.
- By 2021, over 90 percent of consumers will interact with customer support bots.
- By 2021, over 50 percent of new industrial robots will leverage AI.

Will you use AI to launch new digital business models and ecosystems? Adopt powerful new customer experience capabilities? Digitalize your processes and interactions with AI-driven bots and robots? Or something else? Whatever your goals, here's a formula to help you get there:

STEP 1 – SEEK OUT COMPETITIVE ADVANTAGE

It seems that with every new major technology wave—desktop computing, the Internet, big data, and now AI—the proverbial technology cart gets ahead of the business value horse. To start, it's technology for technology's sake. Hype is hip. But business value, typically in the form of disruptive new products, new markets, new cost models, and more, eventually regains its primacy. AI is no exception.

In *Craft an Artificial Intelligence Strategy: A Gartner Trend Insight* Report, Gartner advised CIOs to treat AI as they would any other advanced technology. Start with business and IT collaboration that identifies the scenarios and outcomes required to create competitive advantage. These scenarios and outcomes then inform where you might apply AI.

STEP 2 – IDENTIFY SPECIFIC AI APPLICATIONS

The next step is to identify specific AI applications that will deliver your prioritized scenarios and outcomes. This won't be easy given that McKinsey recently identified nearly 600 distinct AI applications spanning the value chains of major industry groups.[5] Some examples:

- *Planning* – Improved forecasting accuracy using deep learning algorithms can reduce stock-outs in retail and optimize alternative power usage at electric utilities.
- *Production* – In manufacturing, smarter synchronization of material deliveries via deep learning can improve performance on existing production lines, while adding AI-driven robotics can increase yield and cut costs.
- *Promotion* – Airlines have long used AI to enable dynamic pricing, and other industries are following. Across industries, marketing teams use deep learning algorithms to better segment their markets and fine tune promotions to increase revenue per customer and reduce churn.
- *Placement* – In today's "it's all about me" world, customers in nearly every industry value personalized user experiences that have been enriched, tailored, and made more convenient by AI programs that understand each individual's preferences in context. These fantastic experiences are often retold via social media, multiplying revenue gains.

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5 Artificial Intelligence: The Time to Act is Now. McKinsey. December 2017. https://www.mckinsey.com/industries/advanced-electronics/our-insights/artificial-intelligence-the-time-to-act-is-now#0

Your objective is to short list five to ten AI application candidates and then select two or three as pilots. Based on pilot efforts, move forward with one AI application that can deliver both the business outcomes you seek today and the people, process, and technology pioneering you will need for future AI applications success.

STEP 3 – PROCURE AI TECHNOLOGY

By definition, AI applications are built using AI technology. Finding the right technology to power your AI application is a critical next step.

The Gartner Hype Cycle for Artificial Intelligence 2017 lists 38 AI technologies[6]—from low-level GPU accelerator chips you can use to build AI optimized hardware, to high level marketplaces you can use to find prebuilt AI algorithms.

Given that you aren't yet an AI expert, it is easy to make costly AI technology procurement mistakes. Fortunately there are two shortcuts that will improve your odds of success.

SHORTCUT 1 – LEVERAGE THE CLOUD

Rather than procuring your own set of AI technologies, you can take advantage of powerful cloud-based AI platforms that provide modern services running on optimized hardware. Amazon Machine Learning, Google Cloud AI, and Microsoft Azure Machine Learning are three of the most popular and complete platforms. You can use these to quickly obtain a rich set of AI capabilities in support of a wide range of AI applications. If you are building your AI application from scratch, consider this shortcut.

SHORTCUT 2 – LEVERAGE YOUR APPLICATIONS VENDORS

But nobody says you have to build your own AI applications. You can also select from a myriad applications with "AI Inside." Today's modern analytics applications such as TIBCO Spotfire® embed AI to automatically discover data relationships, identify patterns, recommend analyses and visualizations, and more. Fortunately many of these AI applications are available in the cloud. If you take this approach, you can benefit from both shortcuts.

STEP 4 – DEVELOP AI SKILLS

Whether you plan to build your own AI application or leverage an AI-inside application, your staff will need to build new skills. While this will be perceived as an exciting new opportunity for your early adopters, others will see it as a major threat. Invest in developing your early adopters. And don't worry about turning them into AI experts overnight. Instead, develop them in a steady fashion that combines education, enablement, and experience.

EDUCATION

To build foundational knowledge, take advantage of leading open online course providers. These typically free courses cover a broad range of AI subject matter. Here are a few examples of Introduction to AI courses from three independent providers:

- edX - Artificial Intelligence (AI)
- Udacity - Intro to Artificial Intelligence
- Udemi – Artificial Intelligence A-Z: Learn How to Build An AI

6 Brant, Kenneth F. and Tom Austin. Hype Cycle for Artificial Intelligence, 2017. Gartner Inc., July 24, 2017 https://www.gartner.com/doc/3770467/hype-cycle-artificial-intelligence-

You can build on this baseline knowledge with additional courses to develop skills in certain techniques (rules, heuristics, machine learning algorithms, neural networks), applications (natural language processing, robotics, vision), and languages (Python, Prolog, Lisp, and more).

ENABLEMENT

All of the cloud-based AI platforms listed above also include enablement tools that you can use to simplify and accelerate AI applications development.

- Amazon SageMaker enables your data scientists and developers to quickly and easily build, train, and deploy machine learning models with high-performance machine learning algorithms, broad framework support, and one-click training, tuning, and inference.
- Google provides video, vision and speech recognition APIs that use powerful neural network models to enable you to easily search and extract metadata from videos, understand the content of an image, convert audio to text, and more.
- Microsoft Azure Machine Learning Studio is a fully-managed cloud service that enables you to easily build, deploy, and share predictive analytics solutions.

AI Inside applications also provide a range of enablement tools to improve your time to solution. For example TIBCO provides a number of off-the-shelf solution accelerators that include pre-built models and business rules, best practice guidance, and more. Reusable and extensible, these packages allow you to be productive more quickly and complete your AI applications sooner.

EXPERIENCE

With AI technology, education, and enablement, your early adopter team is now ready to implement your initial AI application. But as with any area of innovation, do not expect that everything will go perfectly from the start. When inevitable problems arise, recall the wisdom of one of the world's most prolific inventors, Thomas A. Edison: "I have not failed. I've just found 10,000 ways that won't work."

You can also take advantage of others' hard-earned lessons. The Artificial Intelligence Forum is a popular forum for discussions ranging from simple questions about AI to detailed questions about specific AI problems. Your developers may also find GitHub a valuable source. With over 10,000 searchable AI projects, your team can learn from and collaborate with over 20 million others.

STEP 5 – BUILD ON SUCCESS

In the wise words of Antoine de Saint-Exupery, "True happiness comes from the joy of deeds well done, the zest of creating things new." As you complete your first AI application, it is time to celebrate as a team.

And because success breeds success, this is the time to market your success beyond the team. Write an internal case study that identifies the business problem and technical challenge. Describe the solution, with special focus on how you used AI to make the solution better. Showcase the benefits being achieved and spotlight key contributions by team members. Then promote the case study using all reasonable internal communications channels. If you are also willing to promote your case study externally, call on one of your AI vendors' marketing teams. They will be glad to help showcase your joint success.

As knowledge of this initial success rises, funding for additional AI applications will be more forthcoming. Take advantage by launching several more projects using the same four-step formula for success described above.

When you have completed another four or five AI applications, you can begin to think more broadly about your overall AI strategy and execution. This is also the time when you can expand your team beyond early adopters, repurposing them as player-coaches. And while you are at it, take a look at lessons learned, best practices developed, and AI technology strengths and limitations. They will be a great beginning for your "How to Jumpstart AI at Scale" playbook.

AI technology is transformative and here to stay. Start now to understand what your organization stands to gain from it, and to test application candidates, acquire technology, develop skills, and build on your success.

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