5 Crucial Enterprise AI Trends for 2021

Overcoming Challenges and Capturing Opportunities in a Year of Unprecedented Digital Change

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Emerj Artificial Intelligence Research

Emerj Artificial Intelligence Research helps global organizations develop AI strategies and initiatives that win in the market. We map the capability-space of AI across major sectors, with a finger on the pulse of academia, Fortune 500s, and the global artificial intelligence startup ecosystem.

"We help leaders survive and thrive in an era of artificial intelligence disruption."

Emerj creates cutting-edge AI impact research, informs executive leadership, and makes important contributions to important decisions around governance, innovation, and strategic planning. We're called upon by many of the most reputable organizations in the world:

Our research focuses on three critical aspects of AI capabilities:

- **Applications ("What's Possible?")** – Examining the landscape of AI applications, open-source tools, and use-cases that might solve organizational problems, or impact strategy.
- **Implications ("What's Working?")** – Determining the use-cases with a genuine track-record of ROI, and determining the integration costs and potential financial upside of AI applications.
- **Plans ("What to Do?")** – Informing strategy by honing in on the AI trends or capabilities most likely to deliver the desired results or the organization.

Through our *Research Services for Enterprise Leaders* and *Catalyst Business Growth Program for AI Consultants*, we help clients win market share and make more profitable decisions – with a firm grounding in the current realities of the AI landscape.

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Introduction

2020 turned out to be a year full of unexpected events. The global pandemic, the shutdown of the economy, and the radical changes in consumer behavior have changed many industries forever.

Heading into 2021, I asked the Emerj team to pull together AI interview and research insights that could help our subscribers grow and thrive in the year ahead. This succinct report is a summary of five critical trends for enterprise leaders and AI champions to pay attention to - and if possible - to use to help them.

For each of the five trends below, you'll see a trend summary - including citations and sources. Under each trend you'll find a section called *What is Means* - summarizing the importance of the trend, and another section called *What to Do About It* - summarizing how leaders can take advantage of this trend (or avoid it's risks).

At the very end of this short guide, you'll see a list of reference links (to both Emerj and outside sources) that may be useful for further exploration. We've made an intentional effort to ensure that these trends are industry-agnostic, and practically useful for leaders in any sector.

We're glad to have you with us as a subscriber here at Emerj - and we're wishing you an excellent year ahead.
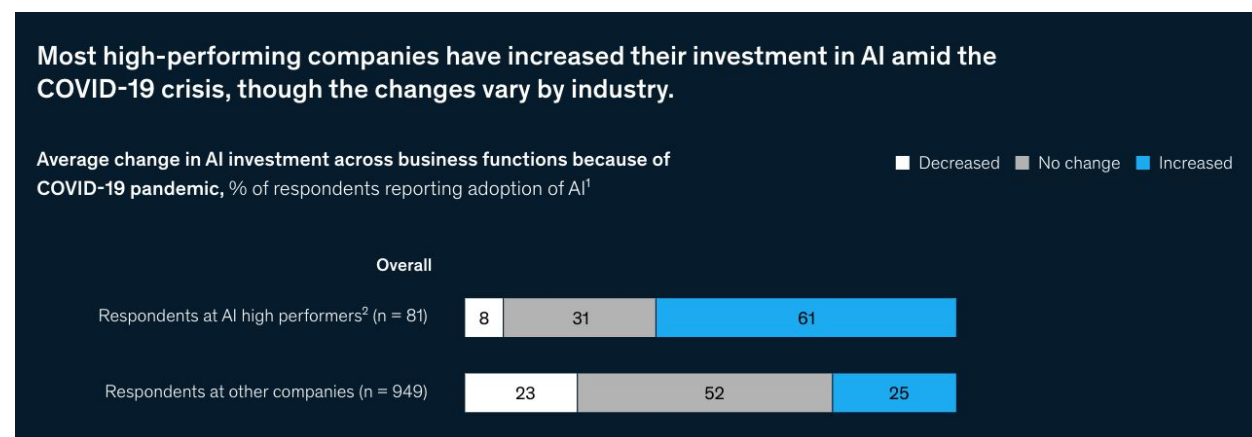
Best,

Daniel Faggella
Founder, Emerj Artificial Intelligence Research

1. Anomaly Detection Remains "Low Hanging Fruit" for Deployment

While a small subset of enterprise firms are investing more in AI as they head into 2021, most firms estimate to keep their spend similar to pre-COVID levels.

Most high-performing companies have increased their investment in AI amid the COVID-19 crisis, though the changes vary by industry.

Average change in AI investment across business functions because of **COVID-19 pandemic,** % of respondents reporting adoption of AI[1]

□ Decreased　■ No change　■ Increased

Overall

Respondents at AI high performers[2] (n = 81)	8	31	61
Respondents at other companies (n = 949)	23	52	25

(Source: https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/global-survey-the-state-of-ai-in-2020)

Those "AI high performers" were a mere 8.5% of the total number of 1000+ business respondents, and we don't know anything specifically about their industry or size. We heavily suspect that they were a combination of big tech and relatively young, digitally-native firms, with a handful of extremely well-funded global leaders in sectors like financial services (where AI adoption - or at least AI budget - is relatively high).

While optimists see COVID-19 as an accelerator of positive change and digital transformation generally - there are clear downsides for firms in many sectors, especially mid-size enterprises who lack the cash cushion to endure the pandemic and maintain strong R&D budgets.

Larger, well-funded, relatively digitally savvy enterprises may see 2021 as a time to pull ahead of their competition, most firms will be looking for deployments that cut costs or improve efficiencies, and also involve relatively minimal upfront investment in AI maturity.

Machine learning is best at matching patterns - and anomaly detection involves exactly that: Finding *patterns of normal* (for user activity, payment data, or any data stream) and as well as *patterns of divergence* from normal - and flagging them for immediate automated action, or human auditing.

Examples of anomaly detection applications include:
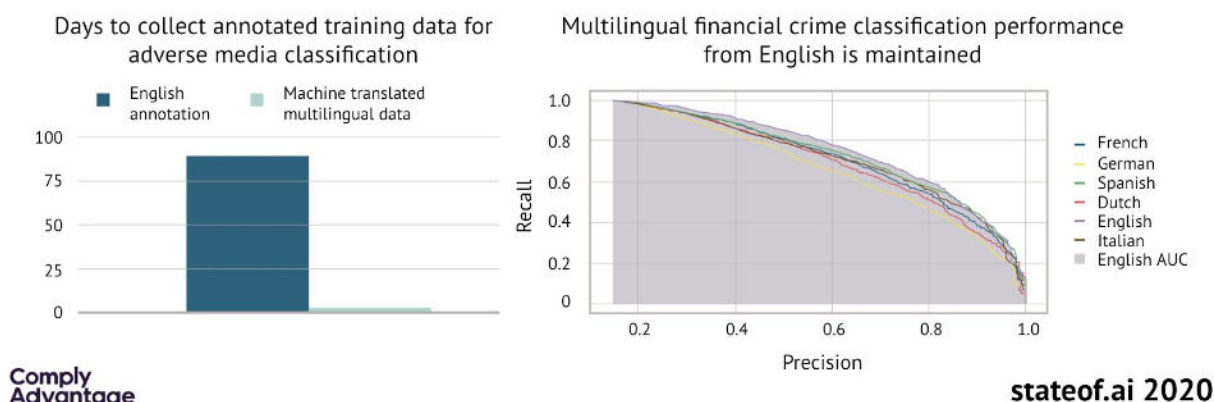- Detecting payment fraud (for credit card companies, eCommerce firms, banks, etc)

- Detecting [account fraud](fake accounts on AirBnB, or on social platforms, or fake business listings on Yelp, etc)
- Detecting instances of [money laundering](see image below)
- Detecting [underwriting](or loan requests that vary greatly from the usual (and so may warrant more immediate human investigation)

(Source: https://www.stateof.ai/)

What it Means:

- Most AI use-cases are still nascent - and developing AI models and applications for novel business processes requires substantial talent, R&D budget, and a willingness to learn from failure. Anomaly detection is a natural fit for ML's main strength (pattern recognition), and can often be integrated into workflows by simply creating a dashboard of false positives and false negatives which can augment a human's judgement or make better use of human attention and time.
- With many businesses coming out of COVID-19 with limited budget, relatively "quick wins" are likely to be desirable. Being able to show traction with AI will be key to slowly growing AI investment and AI fluency in most mid-sized enterprises, and anomaly detection offers many potential pockets of value that may require less robust integration and less workflow change than many other first AI projects.

What to Do About It:

- Ask: "Where do our human experts look for instances of data that is different from the data around it?" - or - "Where would it be useful to detect changes in patterns of data or inputs/outputs?" These questions can find pockets of opportunity where pattern recognition might add value.
- Then ask: "What levels of variance would warrant automated action by an AI?" and "What levels of variance would warrant investigation by a human analyst?" These questions can help to leverage ML's strengths to mold the changes in workflow to augment human action and intuition.

## 2. The Proliferation of RPA and "Intelligent Automation"

Robotic process automation was already picking up steam in 2019, but 2020 put the technology into growth mode - and put many of the top RPA firms into a heavy focus on winning market share as companies scramble to streamline their digital processes and gain efficiencies in COVID-19.

(Source: https://www.stateof.ai/)
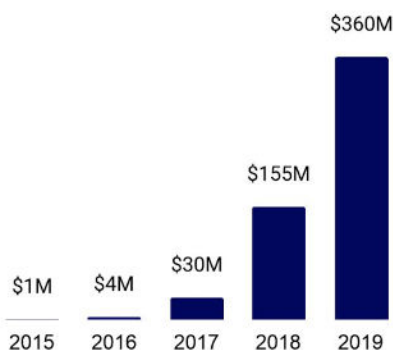
According to Garner: *"Worldwide RPA software revenue is expected to reach $1.58 billion in 2020, an increase of 11.9% from 2019 (see Table 1). Through 2020, average RPA prices are expected to decrease 10% to 15%, with annual 5% to 10% decreases expected in 2021 and 2022, creating strong downward pricing pressure."*

Gartner also predicts that 90% of large organizations globally will have adopted RPA in some shape or form by 2022.

Table 1. Worldwide RPA Software Revenue (Millions of U.S. Dollars)

	2019	2020	2021
Revenue ($M)	1,411.1	1,579.5	1,888.1
Growth (%)	62.93	11.94	19.53

Source: Gartner (September 2020)

COVID-19 Increased Enterprise Interest in RPA

The pandemic and ensuing recession increased interest in RPA for many enterprises. Gartner predicts that 90% of large organizations globally will have adopted RPA in some form by 2022 as they look to digitally empower critical business processes through resilience and scalability, while recalibrating human labor and manual effort.

(Source: https://www.gartner.com/en/newsroom/press-releases/2020-09-21-gartner-says-worldwide-robotic-process-automation-software-revenue-to-reach-nearly-2-billion-in-2021)

I've written at length about the relative decrease in "moonshot" AI projects - especially among mid-sized enterprises - and the relative rise of shorter, less AI maturity-intensive projects geared towards cost savings. RPA fits this bill.

Noteworthy vendors in this space include:
- UiPath
- Automation Anywhere
- Blue Prism
- Pegasystems

Not all RPA involves AI - in fact - most of it doesn't.

The still nascent field of "Intelligent Process Automation" or "Intelligent Automation" blends the rules-based (if-then) software automation with machine learning, allowing systems to learn and adapt, absorbing more of the workflow into a more capable AI-enabled RPA solution. Listen to our executive interview with Pegasystems for more information on intelligent automation.

For AI vendors and for internal AI champions, RPA shouldn't necessarily be seen as a gateway to AI, it should be see (like AI) as its own kind of tool, useful for its own set of use-cases. That said, RPA can be used to open up broader conversations about automation and efficiencies with leadership.

What it Means:

- Large firms looking for cost-savings may flock first to RPA before AI - particularly if they're unprepared for significant investments in AI maturity and AI R&D.
- Correctly or incorrectly, many enterprise leaders will see RPA as part of their roadmap to AI. While AI is a much broader set of capabilities and should not be limited by the scope of RPA, it is true that RPA conversations (which include deep analysis of workflows, of opportunities for automation, etc) may be a fruitful starting point for some initial AI projects.

What to Do About it: Enterprise Leaders

- RPA firms are pricing themselves to win market share, not to squeeze maximum margins - allowing enterprise firms to get in cheaper than they may have before. Those with the most funds raised are likely to be cutting deals to win new prospects, and pitting these vendor firms against one another will likely open up substantial savings for enterprise buyers.
- RPA's growth in adoption will make the tools easier to use - more use-cases will be fleshed out - look for those pockets of existing, non R&D value. Firms with no RPA experience should aim to find known, proven use-cases with minimal customization before embarking on robust, bespoke RPA automation projects.
- Enterprise leaders should look squarely at RPA and AI as mere tools - not considering one to be necessarily better than the other. Look at your risk tolerance, and the tension you should feel to be doing AI right now. If you're less far down digital trans journey, you may want to go RPA, but be sure you assess the potential of AI so that you don't RPA "harden" slow, dumb processes that should just be overhauled. If you're R/D hungry and have data science capability, look at problems through that lens - AI builds maturity and you have to look at that as a value unto itself.

What to Do About it: Consultants and Vendors

- Many RPA firms are looking for integration and deployment partners - and these opportunities create a new source of leads for AI services firms who can (a) train clients on RPA tools, and (b) integrate and build on top of (i.e. provide service) on top of RPA solutions. $100MM companies have been built by becoming partners with AWS and Google Cloud, and while RPA players are nowhere near as large, they still provide a major growth opportunity for services firms.
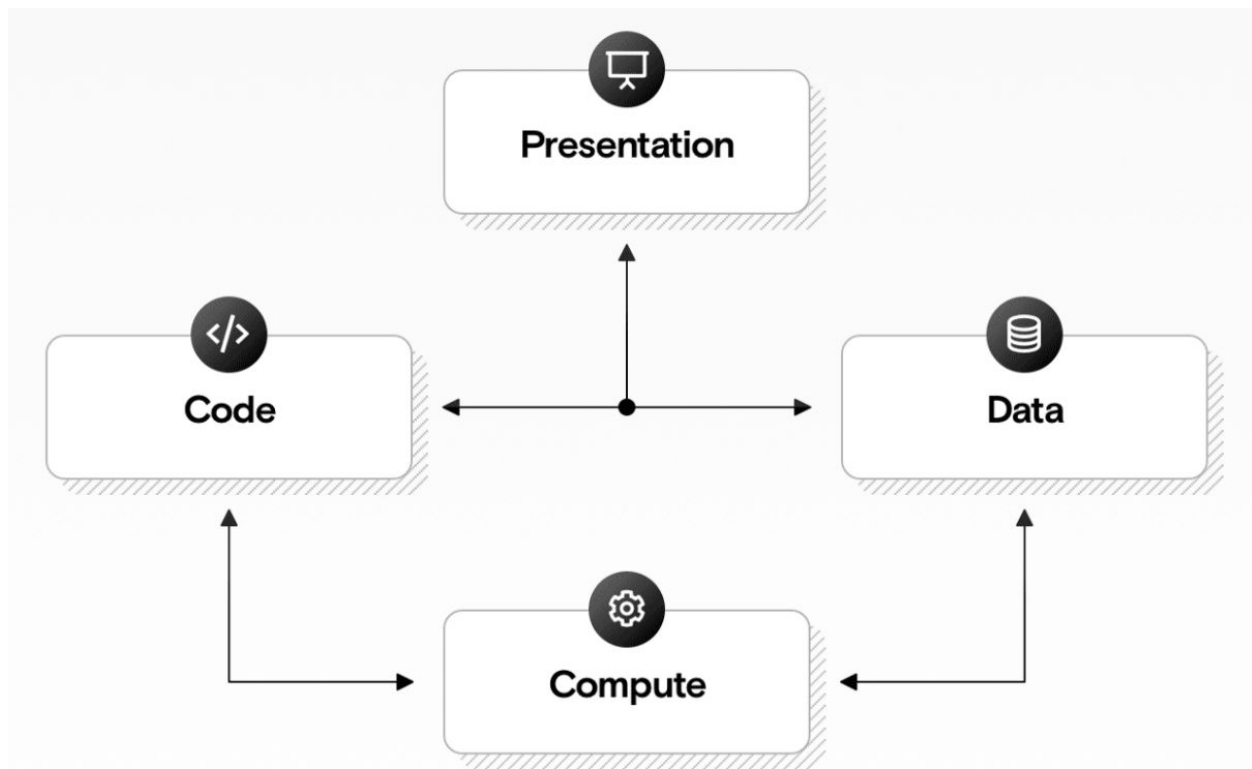
3. AI Platforms Take Center Stage

While AI fluency isn't robust in most boardrooms, more and more leaders understand that AI is challenging to adopt, and that picking a handful of point solutions isn't going to transform their firm. They need to invest in new foundations, in building the capability of AI in the longer term.

This shift in enterprise focus (especially among industry-leading enterprises) is made evident by the huge fundraising rounds and impressive growth of the AI managed platform vendors (DataRobot Lands $270M At $2.7B).

Firms used to just think about point solutions, now they're thinking about building capability, and they're considering what AI means for their organization. Platforms like DataRobot or Dataiku allow companies to manage their ML operations, handle code and data, and even visualize processes and results.

(Source: https://towardsdatascience.com/dataiku-vs-alteryx-vs-sagemaker-vs-datarobot-vs-databricks-b3870bd34813)

Noteworthy vendors in this space include:
- Dataiku
- DataRobot (Listen to our interview with DataRobot's CEO)
- Sagemaker (Amazon)

- Alteryx
- Knime
- Databricks

Some analysts expect to see Sagemaker (AWS) followed by similar offerings by Google and Microsoft, and that these big firms will buy or squash the other players in the managed ML platform space. We don't hold this opinion currently, and we see tremendous promise in the ecosystems of well-funded ($100MM+) platforms firms.

What it Means:

- [AI platform vendors are forced to sell "transformation"](#) (i.e. AI maturity), not just one-off solutions. This is a potential win for enterprise AI champions or outside AI consultants who want to convey the strategic value of AI to leadership.

What to Do About it: Enterprise Leaders

- Consider AI platform offerings - as more of them focus on winning market share and raising venture capital, prices may be competitive (buyer's market). Most enterprises should focus on working with vendors with explicit experience in their industry - and ideally - with their specific early AI use-cases.
- Use platforms as a way to sell [the value of AI maturity](#), not just point solutions. Use initial AI projects with the platform vendor as a "foot in the door" to talk about expanding AI capabilities, and building towards a greater AI vision.
- While platform vendors may be helpful in painting an AI vision and roadmap for your firm - go into vendor conversations with your own well-considered notions about AI's long-term value for your firm - and your own in-house AI strategists and data scientists. Be open to amending or informing your plan from vendor feedback, but don't count on vendor workshops to be the baseline upon which your initial AI strategy and roadmap is built. Their incentive is for you to use their software, your first consideration should be delivering value to your firm.

What to Do About it: Consultants and Vendors

- Consider becoming a partner with growing AI platform firms as a channel for new business (as with RPA in our previous trend).
- Platform vendor selection and integration will need its own ecosystem of analysts, strategy consultants, and implementation consultants. In the coming 3-4 years, consultancies will emerge with hundreds of employees and a sole focus on AI platform integration and strategy. This may of may not be the direction for your firm, but it is a direction to consider.

- If a client is considering AI platforms as part of their strategy or project, then your transition to [selling the strategic and capability value of AI](#) is much easier. Platforms require longer-term thinking about how data infrastructure will be organized, how teams will work together - and ultimately - what longer-term AI capabilities we're looking to unlock. The business of constant short-term AI point solutions delivers minimal value to clients, and provides minimal lifetime value for consultants to grow. Leverage platform conversations as strategy conversations.

4. AI in Cybersecurity

Some problems can be solved just fine without machine learning. Some almost certainly require machine learning. Our AI Opportunity Landscape research at Emerj shows ML-based cybersecurity applications proliferating across industries over the last two years, and for good reason: You can't beat an intelligent adversary with hard-coded rules.
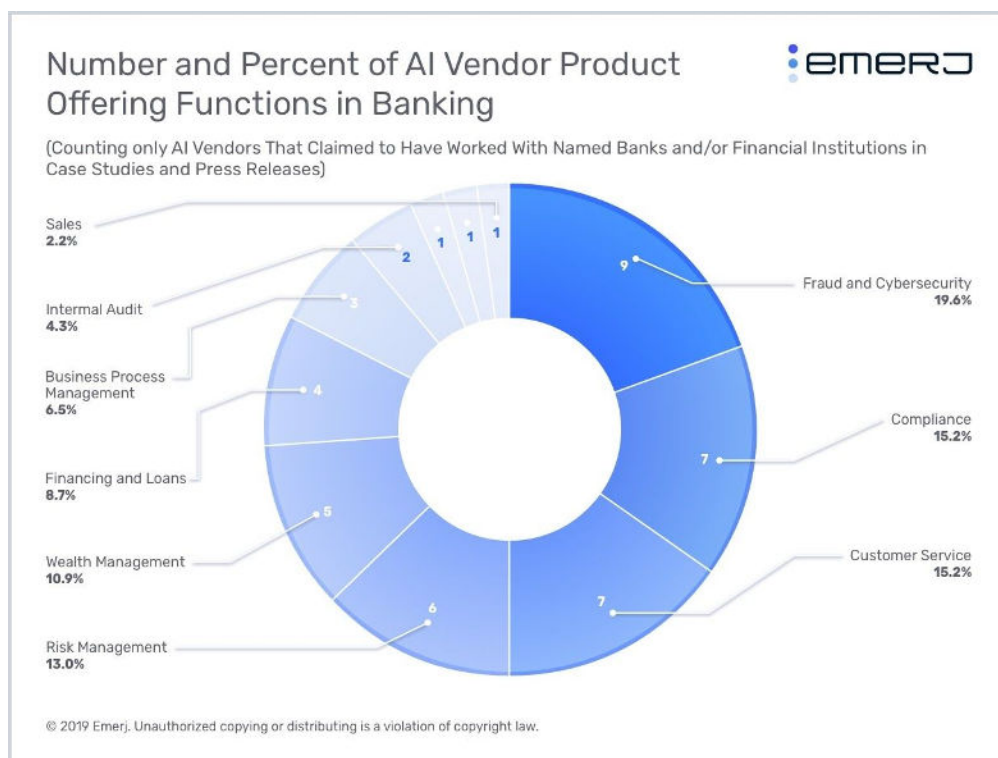
(A chart highlighting the vendor density in the commercial and retail banking sectors - with nearly 20% of vendor solutions related to either fraud or cybersec. Source: Emerj's AI in Banking Vendor Analysis 2019)

Hackers are constantly leveraging new approaches in order to work around cyber security protocols and avoid detection, and AI's ability to detect patterns and anomalies is well suited for the job. Crowdstrike went public in summer 2019, and Darktrace is eyeing a nearly $4 billion dollar valuation as it aims to go public.

Vendors in this domain include:
- Darktrace (Listen to our interview with Darktrace's Director of Cyber Intelligence)
- Cylance
- Crowdstrike
- Fireeye

At Emerj, we scour industries looking for AI applications demonstrating measurable returns today (ROI) and applications that experts and practitioners alike agree are here to stay

(inevitability). Cybersecurity is like fraud in that it's a high-value, adversarial, inevitable AI trend - except that cybersecurity is applicable in literally every industry.

With most enterprises focused on efficiency and risk reduction, cybersecurity appeals to what's on the mind of listeners. On top of that, cybersecurity is all the more important given the [myriad cybersec risks related to remote work](#).

What it Means:

Workers are unlikely to ever return to physical workplaces like before the pandemic, and the number of devices and locations accessed via remote work opens up a huge [attack surface](#) for hackers and criminals. Cybersecurity - already clearly being taken over by ML capabilities - will continue to climb in importance. Firms relying on legacy cybersec systems are more and more likely to pivot to more nimble and capable AI systems.

What to Do About it:

- While AI-enabled cybersecurity vendor applications are far from the most genuinely transformative AI capability in the enterprise - they're a relatively simple early application, and may be able to create early confidence in how AI works, and how internal teams collaborate and worth together with IT staff and AI vendors to bring an AI application to life. Because most enterprise firms should be shifting to AI-enabled cybersecurity already, this presents an opportunity to build AI experience and momentum towards more transformative projects.
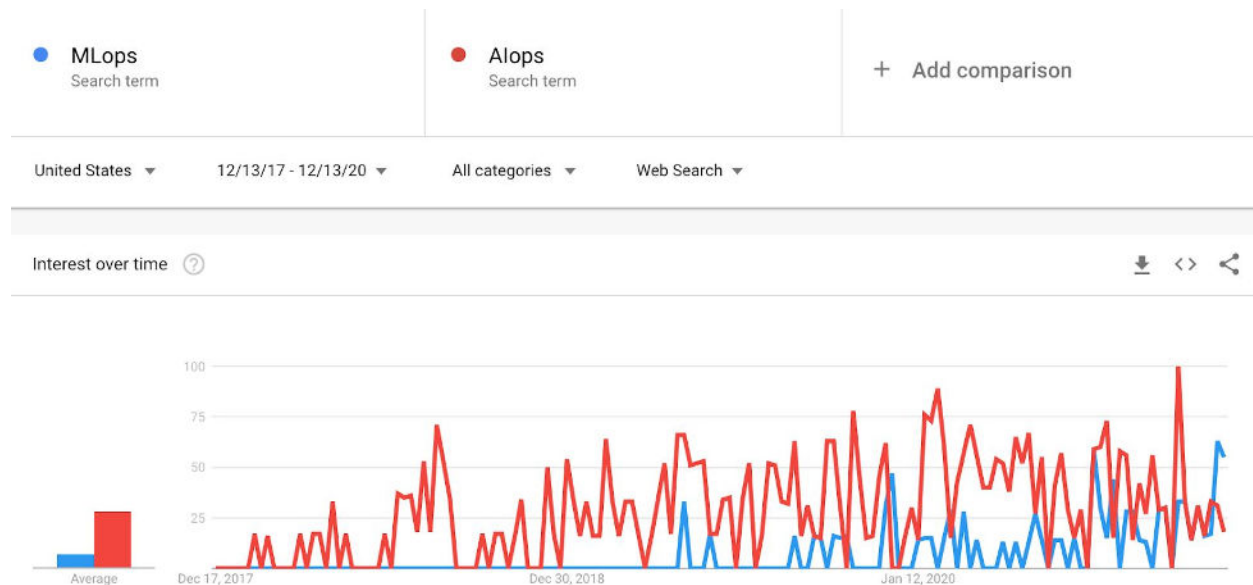
5. AI Hype Transfers from "AI" to "AIOps"

AIOps might be referred to as "how IT operations can use artificial intelligence to monitor data and reduce outage times" ([Gartner](#)).

The term itself gained traction in 2019, but has grown in popularity as maintaining AI

(Source: [Google Trends](#))

While AIOps is an inevitable development in leveling up IT infrastructure, we see far fewer large funding rounds heading to AIOps than cybersecurity, and a generally lower sense of urgency. The technology is at a lower level of maturity and funding - but over the coming five years will almost certainly become a norm - at least among leading enterprises with the budgets to invest in them - and new, venture-backed firms who adopt best-practices from the start.

That said, AIOps shares two important tailwinds with AI in cybersecurity:
- Increased digital interactions with customers and drastically increased remote work make AIOps - and the upkeep of IT systems and applications - more relevant than ever.
- AI's ability to detect patterns is arguable just as relevant for detecting outages or mishaps in IT systems as it is for detecting malicious or suspicious activity in a cybersecurity context.

Noteworthy AIOps vendors include:
- Splunk
- AppDynamics

- DataDog
- Dynatrace
- LogicMonitor

What it Means:

- IT teams often resist AI adoption because AI creates new challenges and demands on already limited IT staff, and because AI can often seem to be a threat to IT (nobody likes to admit that a vendor can do something better than they themselves can do, and nobody likes to feel that their job is being threatened by automation). That said, IT teams may open up to AIOps as a way to (a) allow them to win some of the glory and excitement of AI, and (b) allow them to handle the massive influx of AI issues and increased demand on IT and digital systems that have come along with COVID-19 and remote workforces.

What to Do About it:

- Three or four years ago, smart innovation and strategy teams used any excitement or undue hype about "AI" to open up a broader conversation about AI capabilities and use-cases - rationally assessing technology solutions and proper AI projects rather than appealing to hype alone. Smart, AI fluent leaders will do the same with any building buzz around "AIOps," using it as an opportunity to improve executive AI fluency and open up more useful conversations around AI transformation and project selection.
- Around 2016, enterprises - especially in financial services - all announced the power and capability of their new chatbot solutions. They spent money on pilot projects because they believed the press releases of their competitors, who were [following the same "me too" motive](). Then chatbots rightly fell in popularity, with giants like Ally Bank and Wells Fargo dropping their chatbots altogether. Look for strong proven use-cases, scrutinize vendors carefully, and invest in AI while being anchored in a strong digital transformation vision and understanding of what AI can do - not based on the flurry of buzzwords in enterprise press releases.
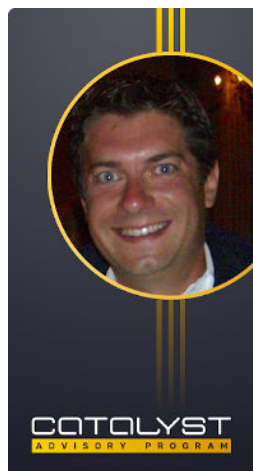
Resources:

- https://www.globenewswire.com/news-release/2020/05/29/2040784/0/en/Robotic-Process-Automation-RPA-Market-to-Reach-6-81-Billion-by-2026-Increasing-Investment-in-Cloud-Integration-Will-Bode-Well-for-Market-Growth-says-Fortune-Business-Insights.html
- https://towardsdatascience.com/dataiku-vs-alteryx-vs-sagemaker-vs-datarobot-vs-databricks-b3870bd34813
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- https://sloanreview.mit.edu/article/cybersecurity-for-a-remote-workforce/
- https://www.gartner.com/smarterwithgartner/how-to-get-started-with-aiops/
- https://www.prnewswire.com/news-releases/chatbots-are-over-hyped-emerj-report-shows-banks-overstate-the-traction-and-roi-of-conversational-interfaces-300878154.html

Success Frameworks for AI Consultants / Vendors

The [Catalyst Advisory Program](#) is designed to help you start and grow your AI consulting or services business, by learning the best practices of selling AI and delivering AI results for clients.

Here's what other Catalyst members have had to say about the value of the program:

"The program breaks down AI consultant and AI sales success into a series of building blocks - and Daniel's level of sophistication and understanding is something I could never get from other sources.

Daniel is able to drive home the key insights about AI ROI and deployment with each successive call from new angles, and this is extremely valuable for putting these insights into action - and the 1-on-1's and direct monthly dialogue lets me apply Catalyst insights directly to my business problems."

Dan Barry
Managing Director at Crowe Barry Consulting Group, LLC
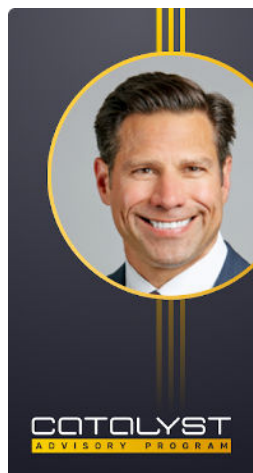
"The Catalyst program has enabled me to discuss and present AI approaches with confidence to my teams and at the client level needed. This has given me opportunities to get in front of clients that I normally would not have met and guide them through AI strategies they haven't pursued yet.

For any AI consultants or strategy leaders on the fence about joining Catalyst, I'd say "Do it!" The more you put into working with the program, the more you get out of it."

Scot Alexander
Managing Director, Optimity Partners

Don't start your consulting journey alone - get 1-on-1 guidance and access to proven frameworks to get you up and running quickly - without reinventing the wheel.

Learn more about the Catalyst Advisory Program at: www.emerj.com/catalyst, or apply today via our [online application form](#).

About Emerj Artificial Intelligence Research

Emerj Artificial Intelligence Research is where executive leaders turn to understand how AI is impacting their organization or industry – and what to do about it. We're the industry source for authoritative market research and competitive intelligence for the business applications of artificial intelligence.

Our objective, jargon-free research and industry overviews are designed to give executives and decision-makers exactly what they need for competitive insight, informed AI technology procurement and strategic planning around AI.

With a finger on the pulse of academia, Fortune 500s, and the global artificial intelligence startup ecosystem, organizations call upon us for insight and research for their most important AI-related strategic decisions.

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