

EXPLORING THE ARTIFICIAL INTELLIGENCE JOURNEY FOR THE **DATA-DRIVEN ENTERPRISE**

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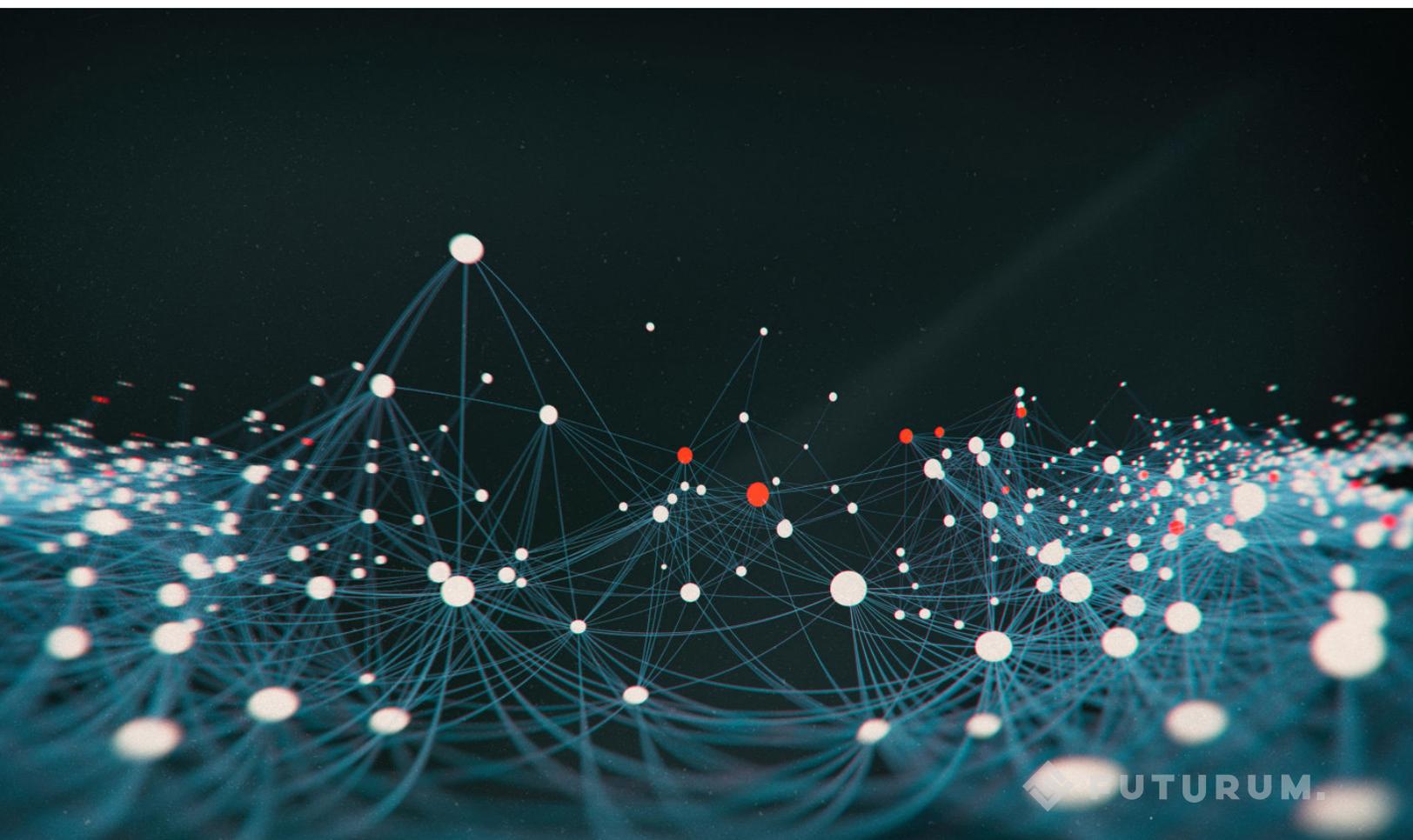
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EXECUTIVE SUMMARY

In the next few decades, Artificial Intelligence (AI) will be the [biggest commercial opportunity](#) in the world—and with good reason. The ability to harness large amounts of data from many sources and effectively manage and leverage that data can lay the foundation for not only successful digital transformation, but also help establish a significant business competitive advantage as well.

But while that potential for competitive advantage, the benefits of process automation, and the ability to deliver more personalized interactions are all undeniably attractive, many companies struggle with the ability to properly implement AI, to move

beyond initial pilots, as well as harnessing the power that AI can deliver. The primary reason for this is simple: There is a tremendous learning curve between the launch of an AI/data analytics system, and the successful integration, adoption, and active security and management of it. Successful AI requires clean data—and lots of it. It requires high-performing compute and storage both on-premise and/or in the cloud that can support sophisticated algorithms, often in real-time. It requires clear processes, scaled throughout an enterprise. And it requires an enterprise-wide commitment to use the insights AI provides to make decisions—and act on them.



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Readiness and Challenges to a Data-Driven Enterprise

Often, organizations experimenting with AI don't optimize their IT infrastructure but instead settle for expensive options cobbled together "for now." There is a need for architectural rethinking for AI *from the outset*.

One of the current key indicators of your company's success with AI integration—basically how well your company is using AI consistently on a day-to-day basis with a positive outcome—is how, or perhaps whether, you're using AI within your entire enterprise or market at scale. For instance, one simple example that can quickly illustrate the readiness for AI adoption throughout the enterprise relates to sales and marketing data. Is your company using sales and marketing data to drive business strategy and development enterprise-wide—or are real-time results sitting in the marketing department collecting dust after each campaign? If you answered the latter, you're not alone, nor are these challenges an industry-specific issue. That's just one example, but you likely get my drift. In fact, it is estimated that between [70% and 85%](#) of data science projects fail. Some common challenges organizations face include:

- **Business value.** We find that many organizations aren't there yet when it comes to understanding the value AI/data, analytics, and emerging technologies can deliver. According to a recent study, while [25 percent of business leaders](#) are showing a strong commitment to AI initiatives, it's clear that not all leaders are ready to take the plunge when it comes to integrating AI into business operations.
- **Organization and data-driven-culture:** As noted above, 70-85 percent of data science projects fail. To a large degree, that's because companies are lacking a data-driven culture in the enterprise itself. If the company isn't committed to using and honoring data, how can one expect their projects to succeed? At the very least, companies need to trust in data and analytics for decision-making and business processes. They also need to adopt processes driven by automated decision-making or with machines complementing humans.
- **Data quality and AI infrastructure readiness.** For those organizations that do understand the business value of an AI/data-driven ecosystem, just [15 percent](#) have the right infrastructure in place to support AI and an underlying data foundation. Data quality is of critical importance especially in the era of automated decisions. IT and data teams spend the biggest part of the AI project on finding, preparing, labeling, and integrating data. The data ecosystem is complex, and is often siloed and not readily available to support advanced analytics. Too often, businesses don't optimize their infrastructure and settle for expensive options cobbled together. There is a need to rethink AI infrastructure. From AI libraries, to models, to languages, use cases, data lakes, and data warehouses, the infrastructure you choose to manage AI deployment is important, and it needs to be able to scale. It needs to be flexible for AI training, inference, real-time analytics needs and open for ease of integration throughout the enterprise.
- **Data, AI security, privacy, governance.** Data security, privacy concerns, and data governance have never been more critical to an organization's bottom line and reputation. Understanding how these things interrelate in a data-centric, data-driven culture is mission critical and yet we see many organizations struggling in this regard. AI has the potential to provide large benefits to the overall cyber security defense. For example, fraud detection in financial services is a big use case via automating the collection of threat intelligence.

However, AI can also accelerate the risks as hackers have the ability to target and attack security algorithms. Companies can use AI and machine learning to boost their intrusion detection.
- **Inadequate staffing/funding.** Launching an AI/data ecosystem initiative is one thing, staffing and funding it moving forward is another. Lack of advanced data-modeling skills are an industry-wide problem, and

unquestionably limit an organization's ability to manage AI-driven initiatives. Expertise around strategy, use cases, data foundations, technical expertise around AI and machine learning, and a wealth of other technical expertise and the ability to support AI/data ecosystem deployments is paramount to success. Finding top talent and funding that expertise is a challenge for many organizations.

What we have found is that it's not only the lack of resources but also the alignment of these resources that causes a problem. Many data scientists spend a huge chunk of their time preparing and cleaning up data rather than doing more meaningful work such as building models and pipelines.



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AI Journey Mapping and Preparation

Just as it's imperative to map the customer journey, considering every touchpoint and how it will impact them, for a successful AI/data ecosystem implementation, it's important to map your own journey with AI. This allows you and your team to focus on various areas where AI can help extract value. This involves things like:

- Optimizing for faster orchestration of AI deployment
- Ensuring that analytics can be used when it's meant to be used—in real-time
- Designing AI use cases that scale as the business grows and designing the data foundation that can support multiple AI use cases and scale these use cases, as well
- Keeping data governance, quality, security and management top mind

There are other everyday things you can do to optimize your AI efforts and maximize impact. These might seem like no-brainers, but the reality is that businesses struggle with these issues on a regular basis. Having a get down to the basics,

no-nonsense approach will go a long way toward helping you achieve the success with your AI journey. These basic premises include:

- Actively commit to breaking down organizational and technology silos wherever possible
- Automate whenever possible
- Creating a data-driven culture
- Integrate and consolidate data so that it can be used at scale
- Restructure your company/ business processes to embrace digital transformation in general, and AI specifically

AI is meant to make our lives easier, but that doesn't mean it's easy to implement. There is tremendous value for those companies who make a commitment to fully strategize and invest in the process of AI for digital transformation, rather than simply investing in AI technology itself.



Introduction: State of AI, Data, Analytics

In the next few decades, Artificial Intelligence (AI) will be the [biggest commercial opportunity](#) in the world. Experts believe it could advance the global GDP by [14 percent](#) by 2030—adding some \$14 to \$15 trillion to the global economy. But that's only if AI is deployed, integrated, and managed correctly. We know that few companies today are fully harnessing the power of AI. Let's explore why.

When it comes to embracing digital transformation, most companies seem to realize they need to get started with artificial intelligence. They know they need to modernize their legacy systems. They need to break down silos. They need to better organize their data. But—*then what?* According to one [recent report](#), just 18 percent of companies actually have a strategy in place for making sure their AI efforts really work for them, at least when it comes to accessing and maintaining data. In theory, we all

know we need data for our AI to work effectively. But knowing how to keep it up and running efficiently after launch is another story.

When we talk about artificial intelligence and analytics on the enterprise level, we need to think of it as a continuum. The starting point is fairly straightforward. It's where businesses need to set up and get organized. The end point, however, is more complicated. It evolves every day at the speed of digital transformation. Perhaps that's why so many companies get thrown off course in the space between the two. There is a tremendous learning curve between the launch of an AI/data, and analytics ecosystem, and the successful active management of it. This paper will provide insights for how to successfully explore the power of AI once you've gotten your infrastructure set up and put a data strategy in place.



Exploring the Challenges and Uncovering Opportunities with AI

There is no doubt AI holds tremendous potential for pretty much every business. We can gather data, process it in real-time, discover insights, and apply what we learn in a multitude of ways—from improving the layout of a retail store location to improving the quality of prescription drugs. While many associate AI with merely improving efficiency—allowing companies to automate redundant work, data-driven decisions and repetitive processes—there is so much more that AI can do when there is a solid data foundation, infrastructure and strategy behind it.

In my work, I have much access to senior leaders, CIOs, and others trying to get their arms around AI. Where they generally seem to be falling short is not in the area of trying to use AI. Even a couple

of years ago, in 2017, more than half of companies surveyed reportedly were already using AI—at least in some form. The area where companies are struggling and/or downright failing is in maximizing their AI efforts. And when it comes to digital transformation, investing in AI but failing to optimize it would be like buying a brand new Lamborghini and driving it only on the side streets at 20 mph. A side street car is not what AI was meant to be.

One of the key indicators of whether your company is succeeding at AI right now is whether you're using AI within your entire enterprise or market at scale. Being able to scale AI and generate insights rather than keep it in a silo is essential to successful digital transformation. For instance, as mentioned earlier, a good benchmark is what's happening with

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Exploring the Challenges and Uncovering Opportunities with AI

Data preparation. Just as an IT system can be fragmented, so can the data pipeline that you establish to feed your AI efforts.

Data science and the need for expertise. It can be hard for existing teams to manage projects across the enterprise.

Data infrastructure readiness. In today's digital world, making decisions about tomorrow based on data from last week just won't cut it.

Roles, responsibilities and bridging the gap. In many instances companies that have recognized the need for data expertise, might still be failing their teams and hamstringing their AI/data ecosystem adoption efforts.

Organizational planning and change management. Some business leaders are still set on making gut-based decisions.

Data Management and Security: Data management and security must always be on the priority list, preferably near the top.



your company's sales and marketing data. Is that data, containing real-time customer insights and mission critical data points for your company sitting in a marketing or sales database somewhere largely forgotten, or is it actively being used throughout the organization to help drive business strategy and development? Is your talent recruitment team working with department managers to fully understand the skillsets and talents that exist companywide today, as well as analyzing what's needed for next-gen business success? Or is this information siloed within multiple departments and teams? When AI is done piecemeal rather than with a broad vision for the company as a whole, it will never deliver maximum impact.

This inability to scale AI and generate insights is not unique to any specific industry. In the automotive space, for instance, just [10 percent](#) of major players are implementing AI at scale. And in finance, [more than one-third](#) of IT decision makers in the UK's top financial services companies say their infrastructure isn't prepared for the transformation.

So, what are the things that contribute to a company failing to scale their AI and/or move past that first phase of AI development? It comes down to six issues:

- **Data preparation.** Just as an IT system can be fragmented, so can the data pipeline that you establish to feed your AI efforts. When it comes to big data, the big value comes

from data that is clean, consistent, and complete. Data should be collected from multiple sources and held in multiple formats. It should be labeled clearly and correctly so it can be easily accessible by anyone in the organization. An enterprise culture that promotes protectionism versus data sharing will never find success. Yes, something as simple as culture could be holding your company's AI efforts back from optimization.

Fragments can occur when any part of the data architecture breaks down or is different from team to team.

- **Data infrastructure readiness.** In today's digital world, making decisions about tomorrow based on data from last week just won't cut it. To stay a step ahead of the competition, businesses require on-demand access to real-time data as well as the AI/ML and analytics tools and techniques to create new business value from their data. Yet another recent study showed that just [15 percent](#) of companies have the right infrastructure in place to support AI—whether they've already implemented AI programs or not. Maybe they're hamstrung by legacy systems that can't work fast enough to process data quickly. Maybe they don't have the capacity to hold the mass amounts of data required for AI to work at an optimal level. Technology will always perform to its lowest

common denominator. When you invest in an AI ecosystem, or even an AI project, you need to invest knowing that your AI needs will grow and evolve with your company. The infrastructure you choose needs to scale with your success, as noted above.

Businesses need to develop infrastructure for agility and speed or risk setting up multiple AI/ML tools for each individual team. In the current self-service and on-demand environments for AI and ML, data science teams can build and iterate on their models quickly and deliver greater business value, but only if the infrastructure is in place. That means even if you don't need machine learning or deep learning at this particular moment in time, you want to know that the infrastructure you choose is capable of running those systems down the road. The ultimate goal of an AI investment is to advance your company on every level—not shoot for the bottom rung of digital transformation. Otherwise, you will never be generating the types of insights that will move your company forward.

- **Organizational planning and change management.** Some business leaders are still set on making gut-based decisions. Some think they know the industry better than a computer ever could. Still others have not yet created a culture that supports digital transformation at the highest level. And as we've seen over and over again in digital transformation efforts, if a leader is not fully on board, it's hard for tech initiatives to succeed. In enterprises where the leaders are still wearing legacy-era thinking caps in a digitized working environment, AI adoption can be fragile at best. Leaders who are prepared for change will be able to better equip their teams to handle change.
- **Data science and the need for expertise.** It can be hard for existing teams to manage projects across the enterprise, keep up with emerging trends, and hire enough data scientists to make sense of data that is collected. Without the right expertise, regardless of size, businesses will struggle with identifying the right use cases and proving value of AI/ML systems. Businesses need to develop data science teams outside of existing business intelligence teams to ensure projects and deployments have the right focus.
- **Roles, responsibilities and bridging the gap.** In many instances companies that have recognized the need for data expertise might still be failing their teams and hamstringing their AI/data ecosystem adoption efforts. How so? If they haven't yet defined responsibilities or set up processes whereby those data scientists are working directly with operations, business development, marketing, and IT teams to accomplish clearly established business goals, that's a problem.
- **Data Management and Security:** Data management and security must always be on the priority list, preferably near the top. Your team must be asking things like: Once the data is collected, what is the process for managing it—keeping it safe—and deleting it when it is no longer needed? And, which of those processes can be automated for increased efficiency and security? These questions, and the processes developed as a result, can help keep your organization and your customers' data safe and go a long way toward protecting your business's reputation.

Experimenting with AI

While it may feel overwhelming, I encourage companies to focus on the opportunities presented by AI, rather than the challenges. There is a tremendous amount of “low hanging fruit” that could help your company move forward in the business context, not just as an IT initiative. Don’t

let the challenges stop you from harnessing the power of AI and creating a data-driven enterprise, because I’m confident that the opportunities for your organization are exciting. Start small, try, test and build trust on early successes so your company gets comfortable with AI. Even though we are still in

Experimenting with AI

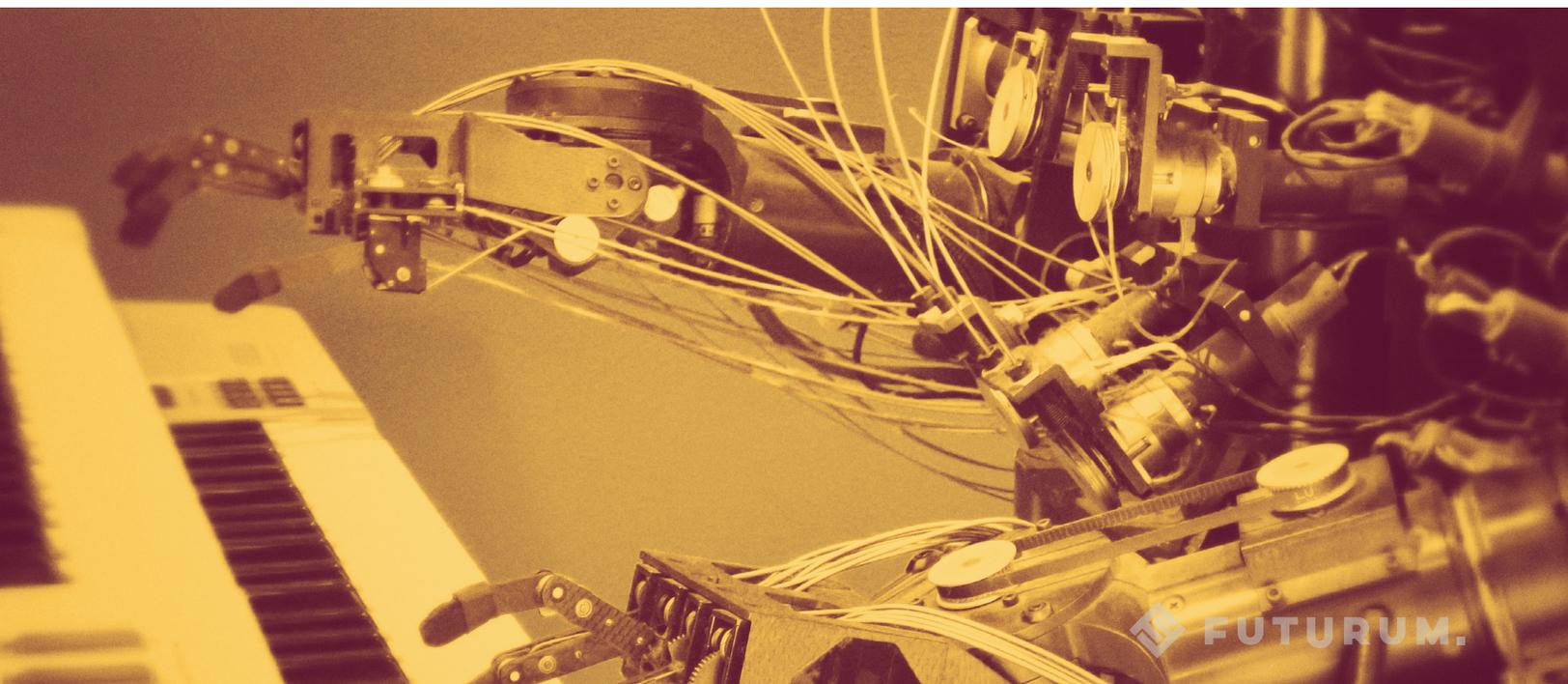
-  Enabling the digitization and monitoring of the supply chain.
-  Helping doctors monitor patients in rural areas
-  Preventing downtime
-  Allowing cities to improve operations
-  Helping researchers pull data
-  Enhancing physical security
-  Improving the processing of long lines
-  Improving the efficiency of quality control

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the early days, we are already seeing the power of AI harnessed and optimized in some amazing ways. This includes:

- Enabling the digitization and monitoring of the supply chain.
 - Preventing downtime through prescriptive and preventative maintenance of machines.
 - Helping doctors monitor patients in rural areas by allowing them to increase their own efficiencies while serving those in need.
 - Allowing cities to improve operations, including traffic, energy usage, and trash pickup.
 - Helping researchers pull data from sources around the world to better understand global health issues, food shortages, and weather patterns.
 - Enhancing physical security surveillance through improved real-time facial recognition and object detection.
- Improving the processing of long lines in airports, government services, and other public areas through queue recognition.
 - Improving the efficiency of quality control through visual identification of defects.

Yes, AI is capable of doing all of these things—when it's fully connected and integrated. And it can do so much more, depending on the specific business needs of your organization. Working with employees and stakeholders to identify your specific use cases will help you understand the opportunities that are available to your business. These opportunities are not pipe dreams. Companies that are unifying data architecture, creating a culture that promotes data sharing, and successfully growing their AI programs are turning these opportunities into success stories. They are continuing to develop modern, open and unified AI and data ecosystems, rapidly deploying AI/ML solutions, and consuming AI and data aligned to their operational models.



The Pathway Forward

The as-a-Service model has become incredibly popular across the subsets of digital transformation. Unfortunately, as noted above, many companies are using numerous fragmented programs to jump into their AI journeys rather than embarking upon a well-planned, cohesive journey. That's why it's important to consider strategy at every stage of your digital transformation with AI.

Unifying the data architecture so that you can generate insights from data at any scale is essential in digital transformation. Here are some things you can focus on to get started:

Exploration. I always say curiosity is one of the most important attributes of any individual you hire, and even more so as it relates to data

scientists. That's because exploring, experimenting, and evolving are an important part of the digital transformation process in general and are critically important as it relates to your organization's AI journey. Companies today need to be open to seeing outside the algorithm. Just because an AI technology is designed for one use case, that doesn't mean it can't be applied to more and better use cases further down the road. Can it be tweaked, can we make use of this in a way that will make it (and our organization) more productive, efficient, or help us operate more profitably? These questions and more should always be top of mind. Embracing a state of continuous exploration is key in AI development.

AI Design and Deployment. A well-executed AI program sees multiple platforms and tools working together to create a real-time view of data that is collected from multiple sources. Many companies have processes or infrastructure that hold them back from benefiting the data they collect. Orchestrating data flows, deployment, model builds, and pipeline integration is essential for success. Just as an orchestra is a collection of finely tuned instruments, your AI program should be too.

Companies today need faster automation and orchestration of AI and machine learning for their investments in AI to be useful. That's why agile design processes, DevOps, and proof of value development are so important. By applying agile approaches, companies can help eliminate as much of the trial and error as possible to start benefiting from their AI and ML investments as quickly as possible.

Scale is where AI really starts to pay for itself, and scale is where you need to focus your design efforts. It's where companies start to see the nth degree of their investment, rather than a few saved hours or time or money here and there. But not all companies know how to structure their companies or IT systems so that they are scalable. This isn't something to be ashamed of—it's something that's

The infographic features a dark blue background with a white grid pattern. At the top, the title 'The Pathway Forward' is written in white. Below the title, there are two circular icons. The first icon shows a robot head and a lightbulb, representing exploration. The second icon shows a human head profile with gears and a brain, representing AI design and deployment. Each icon is accompanied by a short paragraph of text. At the bottom left, the Futurum logo is displayed.

The Pathway Forward

Exploration. Exploring, experimenting, and evolving are critically important to your organization's AI journey.

AI Design and Deployment. Orchestrating data flows, deployment, model builds, and pipeline integration is essential for success.

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important to recognize so that you can find the help you need to start benefiting where you'll gain the most.

Just as it's imperative to map the customer journey, considering every touchpoint and how it will

impact them, it's important to map your own journey with AI. To do it well, you need to think about not just where you are now, but also where you want to be, as well as where AI could possibly take you.



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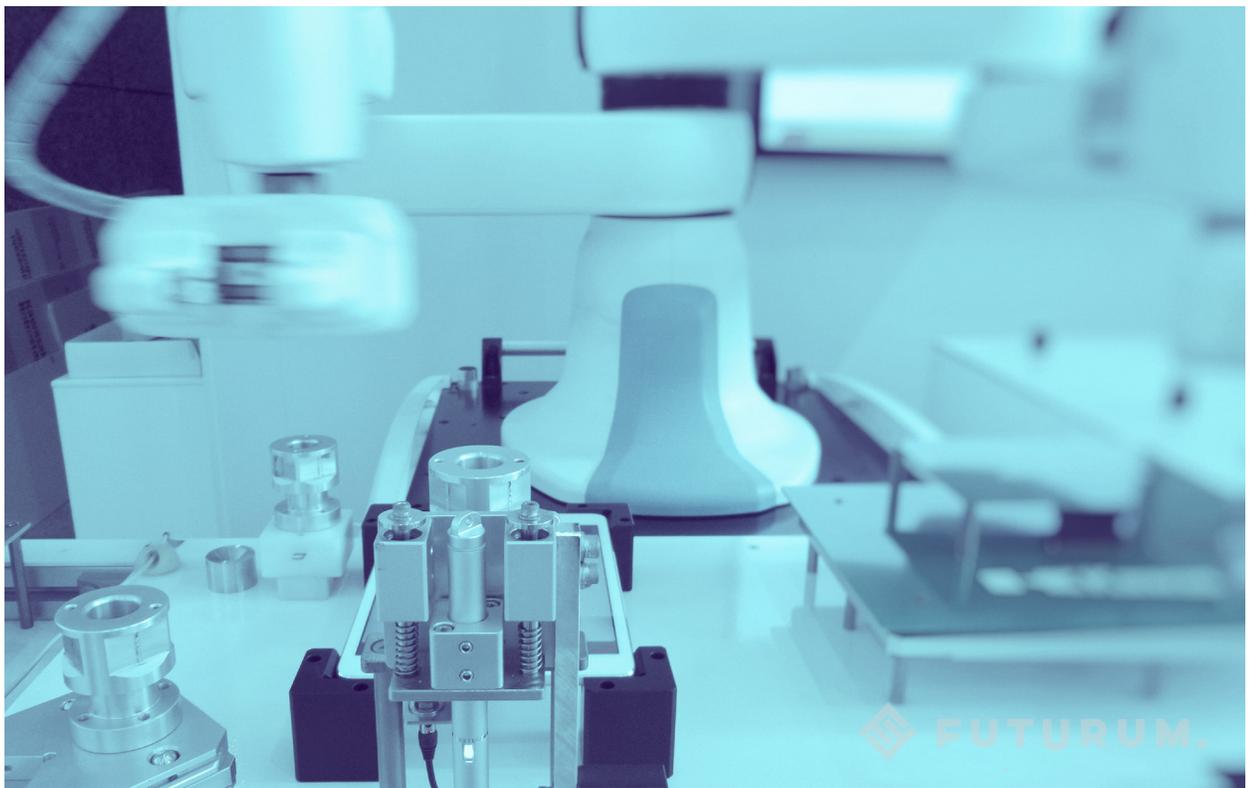
Recommendations

A recent study showed that some 78 percent of businesses felt they experienced significant or moderate value in their AI investment. That means despite the pain your company may now be experiencing in the mid-point of your AI journey, there is tremendous hope in the value it can bring to your enterprise. Here are a few steps you can take to start improving your AI experience right now.

Bring your teams together. AI is not an IT problem. It's also not a marketing problem or a data problem—it's an everyone problem. The only way to maximize its benefit is to break down silos and bridge the gaps in how you think about your company and business strategy. Start with your data scientists, business development, sales, and marketing teams. Get them to start churning their gears and collaborating to create a cohesive AI strategy that moves the enterprise forward.

AI systems are all-encompassing and require input from all areas of the company. Be sure your CEO and other leaders fully support the discussions and participate as needed. Make it a point to explore and discuss how AI works—and matters—across functions, and be sure to highlight and clearly define each team's role in making the integration of AI throughout the organization a success.

Automate. Whenever possible, automate and orchestrate—that's where AI can really deliver. That goes not just for simple and redundant tasks, but also for things like data flows, deployments, etc. In order to maximize your AI investment, everything needs to be accurate, smooth, and compatible. Wherever there are kinks in the machine, manual processes, or inconsistent data collection, you are eliminating value. Think automation, compatibility, and clean data for the win.



Integrate and consolidate. This goes along with the point above but deserves a second mention. Data that isn't compatible is worthless data. Do not waste time or energy collecting data you can't use—or have no interest in carefully managing. Commit to a solid process of integration and consolidation for your AI journey to be a success.

Organize differently. As noted above, at the most basic level, your company needs to be organized so that data and processes can flow freely through them. It doesn't matter how high-tech your AI services are if your employees still work in silos and aren't working in a data-driven culture. You must make data and AI a priority enterprise-wide for it to make a difference.

Recommendations



- **Bring your teams together.** AI is not an IT problem. It's also not a marketing problem or a data problem—it's an everyone problem.
- **Automate.** Whenever possible, automate and orchestrate—that's where AI can really deliver.
- **Integrate and consolidate.** Commit to a solid process of integration and consolidation for your AI journey to be a success.
- **Organize differently.** At the most basic level, your company needs to be organized so that data and processes can flow freely through them.



Final Thoughts

AI is meant to make our lives easier, our businesses more efficient, our teams more productive, and provide real-time insights that can, and should, drive business strategy and lead to increased growth and profitability. As with most technology implementations, integrating AI throughout an organization is rarely easy. Technology alone is never the answer—the way people adopt and use the technology to drive business results is the determining factor in any digital transformation process. When it comes to AI and a data-driven enterprise, there is tremendous value for those companies who make a commitment to fully strategize and invest in the process of AI for digital transformation, rather than simply investing in AI technology itself. This is especially true for those in the mid-point of digital transformation, when many projects can veer off course or prove less than valuable.

After thoroughly reviewing HPE Pointnext services, we believe their strategy for engaging organizations to support their AI and Machine Learning ambitions enables organizations to get the most out of their AI/data. Our team uncovered strengths in service areas like defining analytics initiatives, assisting with strategy design and helping to test and optimize

their AI and machine learning algorithms to meet business objectives.

In short, we believe strategic partnerships are going to be key for companies to realize their ambitions in the areas of machine learning and artificial intelligence. HPE Pointnext services are designed to help enterprises find a pathway to benefit from the power of AI. There is a tremendous amount that business leaders can do right now to improve the pace and value of their AI journey. This involves things like automating; integrating systems and ensuring they are compatible; ensuring that their infrastructure is optimal for the results they're trying to achieve—now and into the future; and remembering to focus on the important role that culture and leadership continue to play in digital transformation.

Truly, each step of the AI journey relates to the next. But even if your launch or mid-points were less than stellar, you can still evolve to utilize AI that meets your business goals. The great thing about technology like AI and machine learning is that they are always, in the most literal sense, changing. Your data-driven enterprise can, and should, change and grow right along with them.



Learn more about HPE Pointnext Services

HPE Pointnext, the services division of Hewlett Packard Enterprise, is an innovative IT services organization with advisory and operational expertise to help you explore your AI use cases, test and deploy these use cases in your environment and evolve your AI and big data solutions driving rapid digital transformation across your enterprise all on your own terms. HPE Pointnext can help you build and consume big data and AI infrastructure as a service faster and more economically with a pay as you go model, where you pay only for the IT you use on a monthly basis.

With global team of data scientists, technologists, portfolio of focused AI advisory services and broad partner ecosystem. HPE Pointnext Services deliver unique, industry focused solutions across hybrid cloud and edge environments.



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For more info visit:

<https://www.hpe.com/us/en/services/pointnext.html>

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