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What is machine learning?

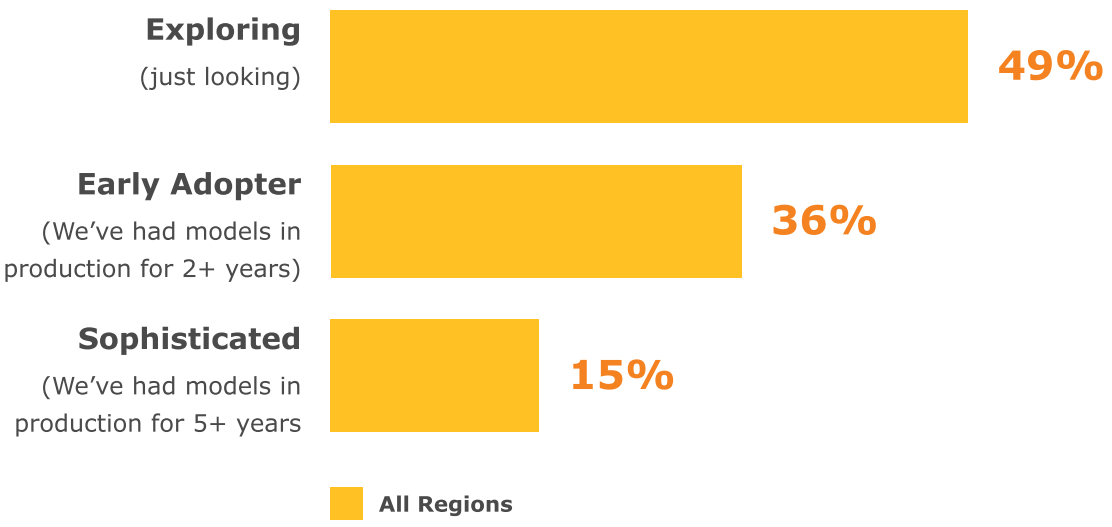
Everything you need to know

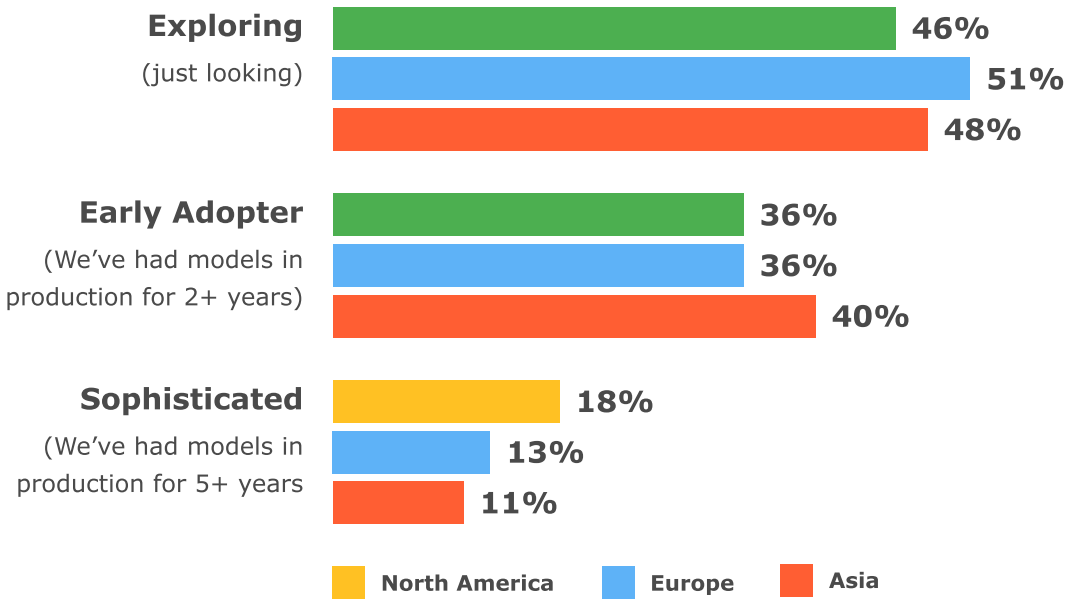
Open the pod bay door, Hal

The term "machine learning" may conjure up images of old science fiction movies like the 1968 Stanley Kubrick classic 2001: A Space Odyssey. Thanks to decades of technological advancements and education, modern day artificial intelligence is a lot less scary now than it was back in the sixties. Today's intelligent computers have the power and potential to transform all industries and improve practically every aspect of our lives.

More and more companies are investing in machine learning and artificial intelligence solutions as a way to reduce costs, increase profits, and learn more about their customers in order to make intelligent business decisions. In a recent study conducted by O'Reilly, half of the respondents were in the beginning stages of machine learning adoption while the other half reported moderate to extensive experience.

What is the stage of ML adoption in your organization?





O'Reilly's State of Machine Learning Adoption in the Enterprise. 2018

While it is obvious that most organizations are anxious to jump on the machine learning bandwagon as a way to keep up with competitors, the majority of them are not really clear on exactly how this technology can improve their business.

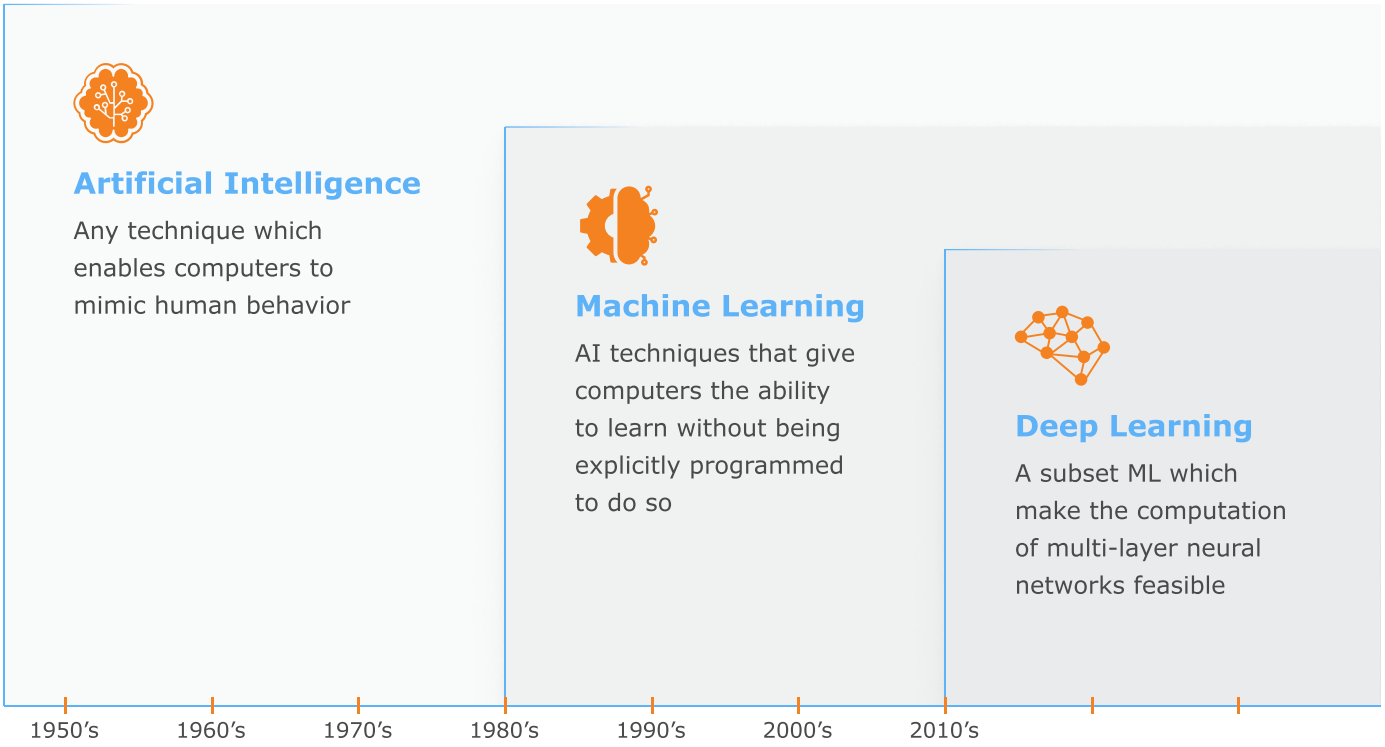
In an effort to better explain machine learning and how smart technology can affect your bottom line in the coming year, this white paper will cover the following topics:

1. **What is machine learning?**
2. **What's the difference between machine learning and artificial intelligence?**
3. **What are some specific examples of machine learning in action?**
4. **Why should you consider outsourcing the development of machine learning apps?**

Machine Learning vs. Artificial Intelligence: What's the difference?

While the terms are sometimes used interchangeably, machine learning and artificial intelligence are quite different. In fact, machine learning could not exist without AI.

A great example of the differences between machine learning and AI is this simple graph from Oracle, which also includes a timeline of the evolution of artificial intelligence and smart machines.



Artificial intelligence is the process and knowledge that goes into making a computer program think, act, and perform tasks like a human. Machine learning is simply an application of AI (with deep learning being a subset of machine learning.) Another way to distinguish the two is to remember that AI is powered by automation while machine learning depends on algorithms.

Current examples of machine learning in action

The fastest growing job category from 2012 to 2017 according to LinkedIn was Machine Learning Engineer. Juniper Research reported that spending for AI and machine learning globally will grow to $7.3 billion annually by 2022. This is an increase from $2 billion in 2018.

Just why exactly has machine learning become so important in the last several years?

The most obvious reason is that we are living in a time where we have access to and gather more information than ever before in the history of technology. There is so much "big data" out there that it is impossible for humans to analyze all of it alone. Computers and smart machines are able to process millions of pieces of information in seconds. In order to keep up with a changing business world, companies have to adapt to this new technology if they want to stay relevant.

Pinterest is currently using machine learning to analyze user habits, optimize advertising revenue, and improve search results across its platform. The company actually went so far as to acquire Kosei – a machine learning enhanced recommendation engine-back in 2015. The technology provides Pinterest users with a more personalized browsing experience and has led to an increase in user retention, both on the platform and in email communications.

At Intetics, we are extremely familiar with all things machine learning. We've been on the front lines of developing these types of solutions for quite some time. Here are a couple of examples.

MOBILE WOUND IDENTIFICATION APPLICATION

Intetics developed a mobile and tablet app for use by first responders and medical personnel to help measure, document and analyze acute and chronic wounds.

This particular HealthTech client wanted the app to be able to automatically identify a wound type by comparing it to previously measured and documented wounds.

Our team utilized a vision library containing numerous data points concerning wound types including boundaries, edges, colors, etc. in order to develop the right algorithm. Using machine learning, the algorithm was trained to detect objects on different types of skin and automatically recognize the type of wound experienced by the patient.

The mobile app increased the speed in which medical staff can respond to and treat patients while also increasing the quality of clinical documentation.

VIRTUAL LEARNING PLATFORM

Modlin, an e-Learning provider, wanted to offer a virtual learning experience for schools in South Africa with an emphasis on personalized learning. The product had to be easy for users at all levels – from student to teacher to administrator.

The product we developed was based on a unique algorithm that pinpoints student weaknesses in order to provide a customized curriculum for each and every student. It was a cross-platform solution based on machine learning and data processing. It delivers a diagnostic and intelligent assessment that identifies areas in which a particular student struggles and then creates a personalized learning path best suited for him or her.

This solution is currently being utilized in schools as a supplementary e-learning tool.

These are just a few examples of how machine learning technology is disrupting industries of all types and businesses of all sizes, from startups to enterprises. The fact that machine learning and AI are being used for so many new applications can be intimidating for many business owners. What if you don't have the budget or an IT-team that is well-trained in machine learning development?

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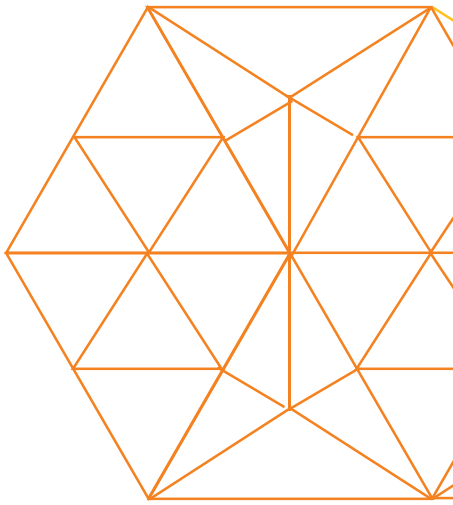
Should you outsource the development of machine learning apps?



> ***According to Adobe, there has been a 450% increase in the number of jobs requiring AI and machine learning experience since 2013.***

Two of the biggest challenges for companies looking to implement machine learning into their apps and business processes is overall costs and a lack of skilled developers within their own IT department. Both of these problems are easily addressed by outsourcing. But there are several other vitally important reasons that make hiring an outside software development firm for machine learning applications a wise decision.

Experience

Outsourcing allows you to find a highly experienced team not only for machine learning and AI, but also to help you integrate these technologies with any other types of 3rd party software, applications, or other languages currently used in your solutions.

Safety

Development companies are well-briefed and aware of all the latest regulations and requirements when it comes to AI and machine learning, so you don't have to worry about privacy, security, or hacking concerns.

Certifications

Another level of trust a software development company gains is in the area of certifications. Whether it's AWS, Microsoft, ISO/IEC, or the Global Sourcing Association (GSA), knowing a developer is certified before hiring them to create your machine learning application gives you peace of mind with the knowledge that it will be done according to industry standards.

Trust

Before you hire a development company for your machine learning application, you have the ability to talk with previous clients, read reviews and get detailed information and feedback on other applications the company has developed that is similar to yours.

WHAT DOES THE FUTURE HOLD FOR MACHINE LEARNING?

The rush to develop artificial and machine learning applications is only going to grow stronger in the coming years. It will be rare to come into contact with an app or solution that doesn't feature some type of AI. Businesses and consumers alike will become increasingly dependent on machine learning as it continues to provide them with more efficiencies and an improved quality of life.

Here's where we think machine learning will have the greatest impact in 2019

People will get healthier

Machine learning will continue to make a huge impact in the healthcare industry. With medical wearables becoming more popular and genetic testing applications like 23andMe pinpointing potential health risks, people will take more responsibility and pay more attention to their overall health. This will have a positive impact on the healthcare industry in general and will lead to reduced costs and better care.

The world will be safer

The security industry stands to benefit tremendously from advancements in machine learning. With data obtained from security cameras in major cities combined with the latest crime statistics, police departments will be better equipped to respond to and prevent crimes from happening. Airports and high-risk buildings such as government and financial institutions will implement AI and machine learning solutions with facial recognition technology to increase security and reduce the probability of terrorist attacks.

Smart devices will get even smarter

All of the connected IOT devices we use on a daily basis are going to become even smarter and more efficient thanks to machine learning. Soon, your car will be smart enough to let you know it needs repair and exactly what the problem is long before you ever break down. Newer cars will also feature voice-activated assistants like Alexa and Siri.

Conclusion

Machine learning is no longer simply the subject of science fiction. It's here. It's now. And it's having an impact through numerous applications across all industries. Today's CEOs and CTOs must have a plan in place to implement machine learning sooner rather than later. Otherwise, they risk being outpaced and replaced by newer, more agile startups that are already using this technology to help deliver a better product or service, and in turn, a better bottom line.

About Intetics

Intetics Inc. is a leading global technology company focused on creation and operation of distributed professional teams for custom software development, software testing, systems integration, and data processing. Intetics is the pioneer of Offshore Dedicated Teams®, the inventor of Remote In-Sourcinge®, Predictive Software Engineering framework and Technical debt reduction platform (TETRA™). Intetics has broad industry experience, deep software engineering expertise, an outstanding quality management platform and an unparalleled methodology for talent recruitment, team building and talent retention that guarantee that clients receive exceptional results for their software applications and data processing projects. At Intetics, our outcomes do not just meet clients' expectations, they have been exceeding them for our two decades in business.

Intetics is ISO 9001 (quality) and ISO 27001 (security) certified and Microsoft and Oracle Gold Partner. The company's innovation and growth achievements are reflected in winning prestigious Inc 5000, Software 500, Chicago Innovation, CRN 100, Deloitte Technology Fast 50, European IT Excellence and Best European BPO awards, and inclusion into Top 100 Global Service Providers and Top 100 Outsourcing Companies lists.

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