



InData Labs

Prepare your organization for smooth AI adoption

4 barriers you are likely to face while navigating your
company through change

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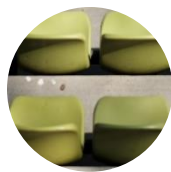
Introduction

AI technologies, particularly machine learning and deep learning are being widely adopted by both enterprise and smaller organizations. Some companies, like [Airbnb](#), [Spotify](#) and [Uber](#) are using in-house R&D to develop machine learning models, others are employing external consultants to obtain the technology.

However, there is still much confusion in the business world around AI technology. This sort of confusion often leads to faulty decision making when it comes to adopting new technology.

The more heavily regulated the industry is, the harder it is to make changes in its fundamental approaches. Convincing a huge financial institution to replace a credit model they've been using for over a decade takes a lot of effort.

Some companies think about their data strategy from day one, others perceive it as a logical step in their evolution. Regardless of the type, they all have to overcome a certain number of barriers trying to figure out the best ways of leveraging the AI technology to their benefit.



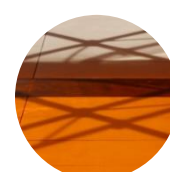
1. Absence of the right data for a desired outcome.



2. Absence of the right data infrastructure and security concerns.



3. Willingness to test and experiment.



4. Business processes that don't implicate innovation.



1. Absence of the right data for a desired outcome.

Many companies are collecting and managing the data with little to no forethought. And just as planning is key to any strategic business project, forethought is utterly important when dealing with data.

A key to successful machine learning development is to use large amounts of good quality data. But in order to get it, a lot of work has to be done at the first stages of project's evolution. All the elements of the development process must be purposeful and aligned closely with business goals. In order to do this company should answer the following questions: what is the business problem we are trying to solve and what will the AI system do? Planning a data strategy at the early stages helps answering these questions and ensuring that the data collection process goes smoothly. In case the company does not have a data science team in place they can always get professional advice from the companies providing [data strategy consulting services](#).

In many cases data scientists are brought to projects too late and can't answer the questions that they are being asked, because the right data was not collected. There can be not enough tracking and instrumentation or it often turns out that the data was stored in the database that is not suitable for future tasks.

For example, when InData Labs started [working with Flo](#) (a mobile app using neural networks to predict women's menstrual cycle), the project started from the migration of the app from Parse platform, which provides no ability to conduct analytics, while the analytics was supposed to become the key competitive advantage of the application.

However, the situation can be completely the opposite, which brings us to the next barrier.



2. Absence of the right data infrastructure and security concerns

There are also cases when data scientists are brought to the projects too early. One of the first members of LinkedIn's data team Monica Rogati encourages companies to give more thought to what a data scientist needs to be successful. She outlines the problem associated with common perception of hiring a data scientist to "sprinkle machine learning dust over data to solve all the problems". There are many cases when data scientists are brought to companies with no necessary infrastructure to perform the tasks or simply data access is not granted.

Often, data is housed on multiple servers, which creates challenges for engineers to integrate data so that it may be analyzed properly. Data processing is a challenge as special hardware and a lot of preparatory data engineering work is required to crunch massive data sets.

Although most companies investing into machine learning projects own and store a lot of data, the data is not always ready to use.

Companies may be ready for working with processing systems or performing data aggregation, but while performing the data extraction process it may turn out that their data includes a lot of personal or "sensitive" information. This brings us to data security

issues. Such data may need to go through an encryption process before being put into a machine learning model, and this may turn out to be a time consuming process.

In their [data science blog](#) Airbnb could not emphasize more the importance of such process. They've even built an encryption service called Cipher to address the technical challenges and enable engineers to encrypt data easily and consistently across Airbnb infrastructure. Cipher abstracts away all of the complexities that come with encryption, like algorithms, key bootstrapping, key distribution and rotation, access control, monitoring, etc.

Another way of avoiding those technical challenges is to store personal and sensitive data separately from the rest of data. Such approach can minimize security risks and reduce the need for data protection. Rest of the data is anonymized and ready for a cross-team use. This allows for faster testing and experimenting with data while working on proof of concept projects.



3. Willingness to test and experiment

Companies that are only starting their data science and AI journey will soon find out that testing and experimenting are an essential part of the technology. In order to prove each algorithm's efficiency it has to be tested against the real data. It is the only approach that makes it possible to measure the business impact of the technology.

For example, data scientists have created models and analyzed data in a way that has worked in the past, it doesn't necessarily mean that it will work the same for another company with the peculiarities of its data. In order to overcome this barrier and ensure the smooth adoption of AI, companies should foster an experimental culture and provide the infrastructure to support it.

One of the best modern technics used to facilitate an experimental culture is *isolation* using sandbox software. Isolated sandboxes are security mechanisms for separating running programs. They are commonly used for experimenting as such infrastructure allows to execute new, previously untested code without risking to harm the whole operating system. Sandboxes are providing a highly controlled environment.

Such an approach allows for the creation of a real testing environment, whereby different tools and methods can be tested and compared against each other to ensure the best one goes into production.

One of the most important things is to define the key metrics for each model in order to measure the results after each experiment.



4. Business processes that don't implicate innovation

It goes without saying that companies have to be flexible and fast in this data-driven world. Organizations that have significant data, yet lack the initiative to take steps to derive value from that data, are losing their businesses opportunities.

By not analyzing data to get real-time insights and deliver personalized customer experiences, companies are not able to effectively market to customers, which results in churn and lost revenues. In order to perform the transformation this organizations often have to change their mindset - from the very top down.

According to experts from [Silicon Valley Data Science](#) "successful data teams are agile and cross-functional". AI technology cannot appear and exist in the company without breaking the habitual rules and processes and agility is there to help overcome the challenge. AI technology is new, it does not guarantee success from the beginning and involves experimentation. By ensuring agile and flexible business processes, companies will be able to spend less time, effort and money on hypothesis testing.

Conclusion

Keeping these barriers in mind, organizations will be in an advantageous position to ensure the right technology is in place, data is available, that they are timely enrolling new talent letting them experiment, and that they are embracing agile processes. Willingness of people at companies to embrace the risk of radical change will always remain the biggest barrier. AI adoption represents a major change to any company, but it brings the benefits that are worth the effort in making that change. And in case something doesn't go as planned there are always [data science consulting companies](#) to turn to for professional help.



About InData Labs

InData Labs is a data science & AI consulting company.

We use machine learning tools and algorithms to help organizations of all sizes build AI-driven products and solutions that act human like. Our team has profound knowledge and experience in designing, implementing and integrating Artificial Intelligence solutions within the customer's business environment.

Our projects have helped our customers create robust big data infrastructure, adopt advanced analytics, and add mission-critical features to their products.

For more information, please visit www.indatalabs.com

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