



A Fundamentally Different Approach to

# Transforming Your Business with Artificial Intelligence



Advances in Artificial Intelligence (AI) technology have caught the attention of executives in nearly every industry. MIT researchers report that 85% of businesses see artificial intelligence as instrumental to their growth and competitive success<sup>1</sup>, and analysts predict commercial investment in AI will increase 50x in the next 10 years<sup>2</sup>.

Enterprises that successfully integrate AI into their products and operations will gain a strong advantage over those that delay.

Many companies, however, will not successfully adopt AI in a meaningful way. They will fail to define a sound AI strategy, be unable to hire experienced AI talent, and struggle to keep up with the rapid pace of technology changes.

Executives and stakeholders can quickly find themselves heavily invested in partial, un-scalable solutions without the budget or resources to course correct and achieve success.

In 2006, Neurala's founders saw the potential for AI in the enterprise. They predicted the need for AI software that could run quickly and efficiently with a small footprint.

Neurala is a leader in AI with over 10 years of experience in the field. Their solutions span use cases, from enterprise-grade applications to everyday consumer smart products, and Neurala's team helps navigate the challenges and pitfalls, ensuring successful AI deployment.

<sup>1</sup><https://sloanreview.mit.edu/projects/reshaping-business-with-artificial-intelligence/>. Reshaping Business with Artificial Intelligence: Closing the Gap Between Ambition and Action By: Sam Ransbotham, David Kiron, Philipp Gerbert, and Marti Reeves. September 06, 2017

<sup>2</sup><https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market>. Artificial Intelligence Market Analysis By Solution, By Technology, By End-use, By Region, and Segment Forecasts, 2014-2025

## Benefits: Lifelong™-Dnn vs. DNN

<b>DNN vs. Lifelong™-DNN</b>	<b>Traditional DNN</b>	<b>Neurala Lifelong™-DNN</b>	<b>Why it matters</b>
<b>Learns after deployment</b>	No	Yes	L-DNN ends up being more precise as it can keep learning vs. static DNN
<b>Learns at the edge</b>	No	Yes	Cloud-only learning requires to keep and shuttle (confidential?) data back & forth
<b>Incremental learning</b>	No	Yes	Knowledge can be added on-the-fly and improved results can be used immediately
<b>Data storage required after deployment</b>	No	Yes	Neurala's tech does not require to keep (confidential?) massive datasets
<b>Training data requirement</b>	1K to 1M per instances per class  Thousands of presentations per instance presentations per instance	10-100 instances per class  One presentation per instance	AI immediately useful, with each presentation 'counting' in increasing the accuracy of the system
<b>Initial training time</b>	Days-Weeks	Seconds	Huge time, energy, and cost savings vs traditional server-bound training



## NEURALA'S AI PLATFORM

Neurala has a proven track record delivering all of the components of a complete AI solution. From requirements-gathering to Brain training to deployment with the Neurala SDK, Neurala delivers solutions that customers can deploy to start seeing value.

## CUSTOMER SERVICE AND WORKFLOW

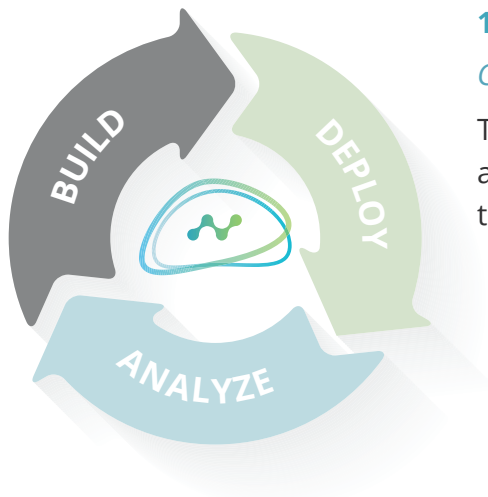
Neurala is committed to delivering best-in-class client service along with our groundbreaking AI solutions. Not only does Neurala strive to provide a complete and customized solution during your Build phase, but the Neurala team gives our customers the confidence to continue working with AI during their Deploy and Analyze phases. To ensure quality, Neurala has implemented a process focused on transparency and communication built around 3 key elements:

1. Build - Gather and tag a robust, complete dataset - Initial training
2. Deploy
3. Analyze

*Your journey starts here.*

*Neurala will be with you throughout the build phase.*





## 1. BUILD PHASE

### *Gather and tag a robust, complete dataset*

The success of the neural network is dependent on the quality and quantity of the data that is used to train it. Good data fulfills the following requirements:

**Variety.** The data must have enough variety to account for all desired use cases. For example...

**Quantity.** The data must be plentiful. A robust neural network can require thousands of input elements for each class being trained.

**Accuracy.** The data must be accurately tagged, a critical, time-consuming process.

Quality data can be entirely produced by the customer, or Neurala can gather the data and tag it based on customer specifications. Neurala is committed to providing feedback straight from the research team throughout the data gathering and tagging process in order to achieve the desired results.

### *Initial Training*

Training a neural network is not as simple as “data in, brain out.” There are many variables the Neurala engineers adjust during the training process to fine-tune the results and achieve optimum performance. This process will happen in conjunction with the data gathering and tagging process to ensure that the brain is performing as expected with the current data inflow.

Depending on the complexity of the Brain, each training iteration may take a few days or even a week or more, and it is a standard approach to build time into the project for multiple iterations.



## 2. DEPLOY

Many customers use Neurala's SDK to integrate the trained Neurala Brain into their applications. But some customers prefer purpose-built software with features or integrations that are unique to their business needs. Neurala will work with you for a personalized timeline that will work concurrently with the brain building process. During this time, hardware specifications may be lined up and we will work with you to build out a design document that will meet your needs.



## 3. ANALYZE

Once your solution is deployed, it will analyze your objects. Neurala software can analyze your objects in 3 ways:

### 1. On Device (edge processing)

In on device analytics, neurala software is deployed on a drone or mobile device and sends a video or image feed to the user to visualize the location and classification of learned objects.

### 2. On Server (post processing)

In on server analytics, neurala software is running on a server and videos or images are sent to the server to be processed. Once processed, the server outputs videos and images visualizing the location and classification of learned objects.

### 3. Combination or Custom

Customers also have the option to customize where their software processes the images. Neurala will have discussed these with you during the Build phase.

As your data are analyzed, Neurala provides Lifelong-DNN™ technology, which allows customers to extract incorrect data, re-tag it, and immediately inject the new information directly into the deployed network. This is where customers will go back to a much faster iteration of the build phase, where images are tagged and inserted directly back into their networks and into deployment faster.

## CONCLUSION

As enterprises begin to recognize the value of AI-enabled technology, executives need to be educated on how to successfully implement AI systems. To ensure best-in-class service, Neurala builds solutions using a three-pronged approach within the Build phase: gathering and tagging a robust, complete data set; initial training; the Deploy phase; and the Analytics phase. By using this targeted work flow, Neurala assures clients that the AI systems we provide are not merely exercises in technological advancement but real solutions that meet tangible business needs.

Think your use case can benefit from the Neurala Brain?  
Set up a call with one of our AI experts today.



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