Cloudstate

# AISAAC

## INDUSTRIAL AI

IN A SERVICE OF

YOUR COMPANY

# IMAGE CLASSIFICATION IN INDUSTRY

**Based on advanced image analysis possible thanks to Artificial Intelligence, we are able to:**

- Improve the quality control process
- Decrease number of human mistakes and frauds
- Increase effectiveness of production process
- Significantly reduce production costs

# CLOUD & AI CAPABILITIES

**AI**

- Dependencies detection
- Image analysis
- Sound analysis
- Anomaly detection
- Predictive maintenance

**C**

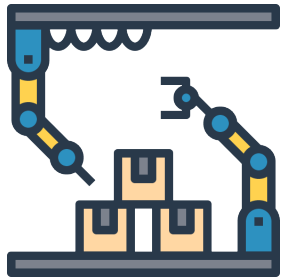
- Ability to create scalable systems
- Model training using large computing power
- Ability to transmit the trained model to external devices

# HOW DOES IT WORK?

## PHASE I: **Gathering the data**

In order to train the Artificial Intelligence, we need to „feed it” with data on which it will learn to detect dependencies.

1

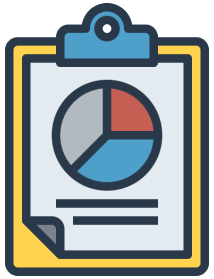


### Problem Identification

What kind of categories should AI recognize? Examples:

- Good vs damaged items
- Fresh vs gone bad food
- Different material classes
- People identification

2

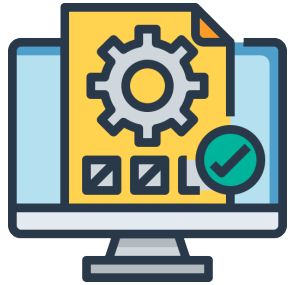


### Documenting

Gathering named photo sets can be managed through a special mobile application that can be easily installed on the smartphone.

Every photo needs to be properly categorized by choosing it’s category manually.

3



### Archiving

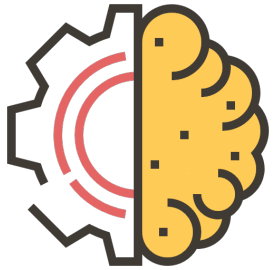
After documenting, each photo is sent to the archive in the cloud where our algorithm will use them to learn to classify chosen objects.

# HOW DOES IT WORK?

## PHASE II: **Training**

Process of training the artificial intelligence model based on the collected data

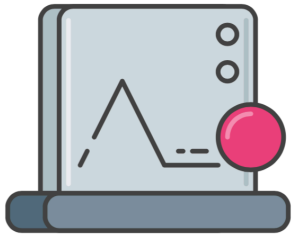
1



### Choosing the right architecture of convolutional neural network

Choosing the right CNN architecture is crucial to be able to get the best results to recognize images.

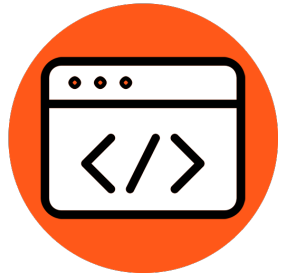
2



### Adjusting model's hyperparameters

Choosing proper hyperparameters to a given CNN architecture and adjusting them to get the best results.

3



### Testing on data that wasn't used for training

This allows to test in the conditions that will be present later while being able to control the results and adjust steps 1 and 2 if needed.

# HOW DOES IT WORK?

PHASE III: **Deployment & integration with existing solutions**

Deployment process of the trained model and integration with existing systems and devices

1

## Implementation of the model in the cloud or on the edge devices

The model with it’s API can be can be implement as a container or web service in the cloud, or on a mobile device that supports Docker technology.

2

## Administration portal

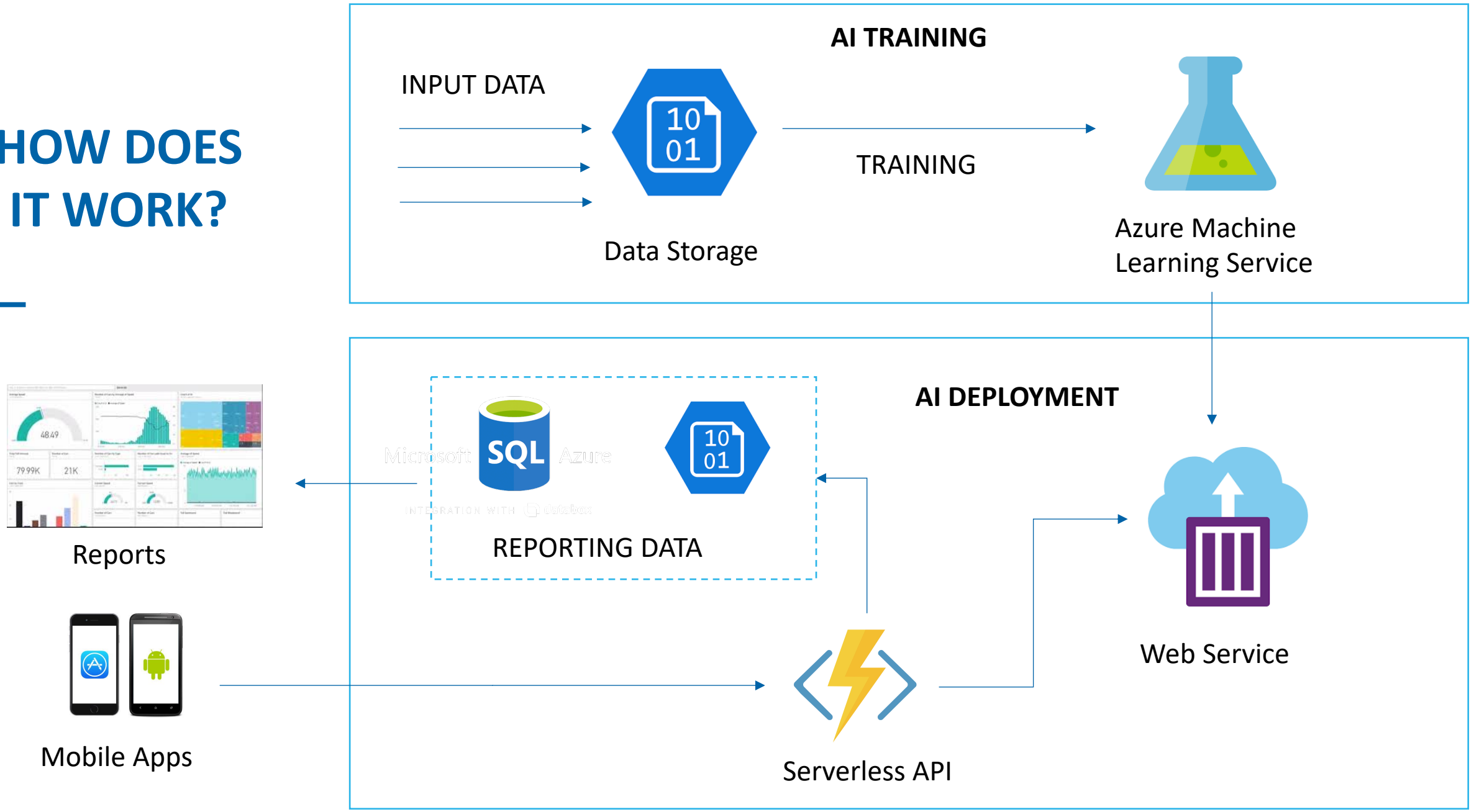
In order to control access, billing, configuration of basic parameters, admins have the ability to manage the mechanism through a web portal.

3

## Integrations

System can communicate with a any chosen software, thanks to the ability to create dedicated integrations.

# HOW DOES IT WORK?



# IMPORTANT BENEFITS

- Increasing quality and reliability of product classification
- Improving standards of quality control
- Cost reduction in manufacturing process
- Better adjusting to customers needs

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# CASE STUDY

- System classifying metal parts based on photographs.
- Recognition with probability of success is over 80%.
- Lower costs due to avoiding mistakes in classification.
- Mobile app that enables to easily use algorithm.