

# TESTWORKS

## The start of AI dataset construction

Testworks strives for the future of crowd-source data collection and processing, high-quality data set construction, customized design consulting and AI service development.

Providing high-quality data for improving AI performance

# Testworks



## Customized Data Consulting

Consulting for the most suitable data type for learning algorithms that clients want to develop



### Data Collection

Collect unstructured data using various collection methods, such as crowd-sourcing through the aiworks platform, direct shooting, securing data using the network of public institutions, crawling tools and so on.



### Automation

Perform auto-annotation using blacklive automation tool and non-identification work for privacy.



### Data Processing

Data processing using the crowd-sourcing platform aiworks and modification of data at each difficulty level through sophisticated data annotation of experts on internal data.



### Data Processing Technical Skills

High-quality dataset construction through continuous advancement of blacklive, our specialized tool that can be used for various data formats and development of customized functions.



### Review and Inspection

Systematic inspection system through data specialists and reviewers.



### Performance and Result Analysis

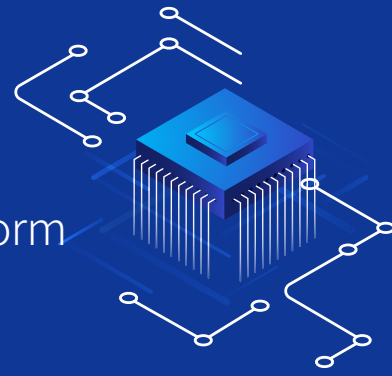
Provide performance and result analysis by recommending AI models suitable for the constructed data set.



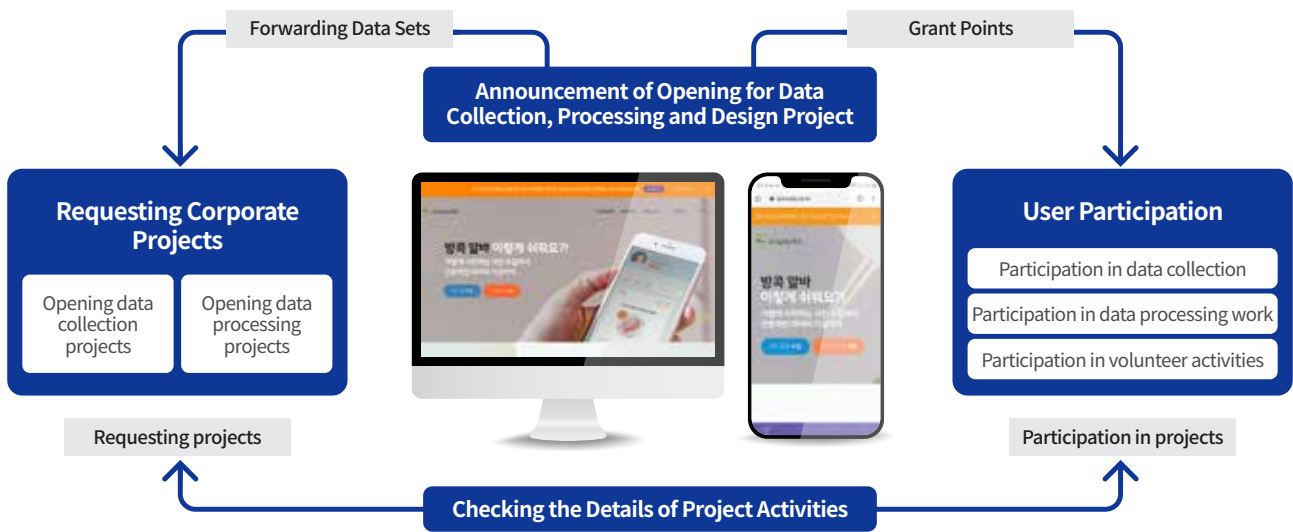
### Customer Service

Processing and maintenance of datasets acquired through the customer development process.

# Crowd-sourcing data collection and processing platform aiworks

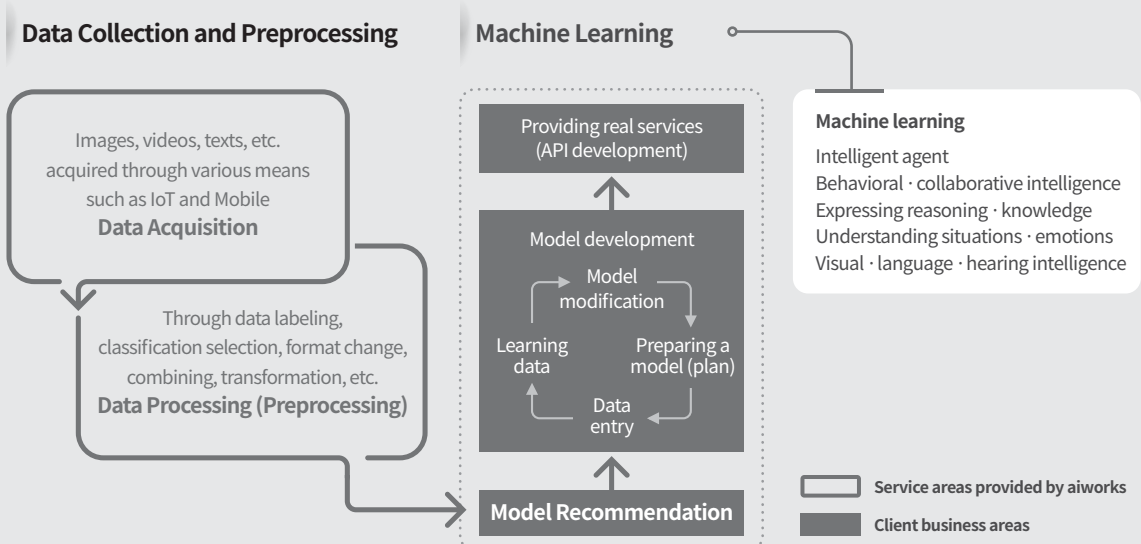


A crowd-sourcing method that collects and processes high-quality training data for AI.  
**Platform Specialized for Data Service**



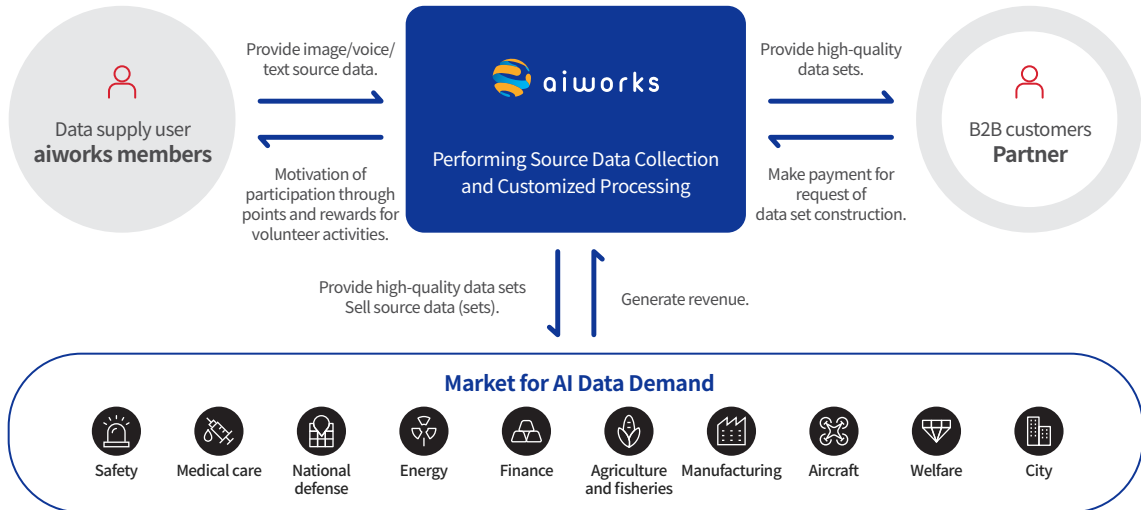
**Participation of the users by crowd-sourcing method**

●..... Constructing a training dataset and presenting a model

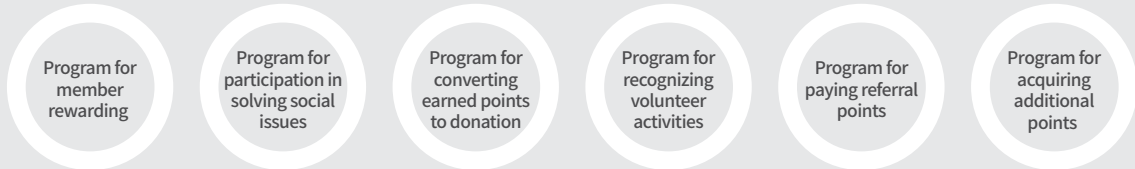


## Creation of Virtuous Cycle Revenue through Sales of Source Data

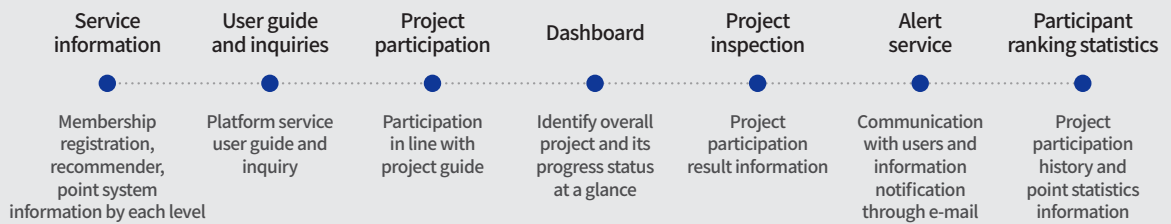
Generate profits by collecting and processing data that meets the purpose requested by client company. Data accumulated by services becomes an asset and can be resold on demand.



### Major programs for aiworks users



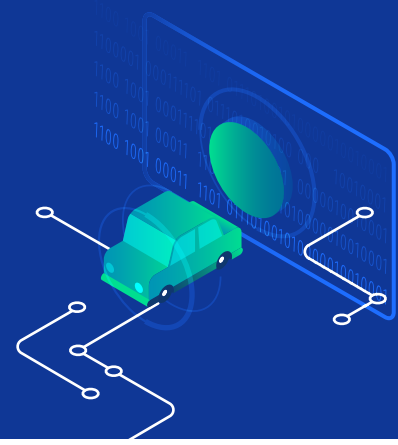
### Major functions of aiworks



## Data application fields through aiworks

Application Category	Data example	Application fields
Autonomous Driving	Collecting and labeling objects such as pedestrians, obstacles and traffic signs in driverless vehicles	Autonomous driving technology
Healthcare	Diagnostic image data	Medical AI
Emotional Recognition	Emotional data	AI interacting with users
FinTech	ID image data	Non-face-to-face user authentication AI
Drone	Road surface image data	Environmental prediction AI
Interpretation/Translation	Parallel corpus data between languages	Interpretation/translation technology




# AI data processing and management solution blackolive



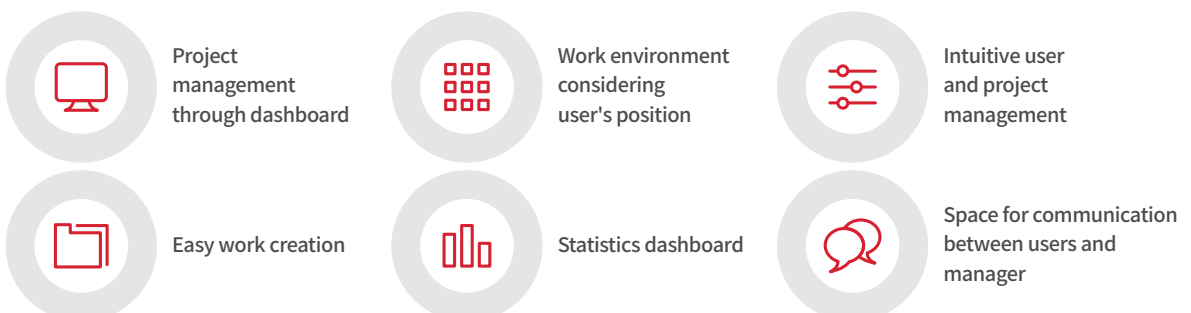
## Optimum Solution for Efficient Data Processing - Management

It is an automation solution that manages AI development projects and supports the entire process from data preprocessing for AI training to AI model learning and evaluation.

### Major labeling functions

 <p><b>Image Labeling</b></p>	<ul style="list-style-type: none"> <li>● <b>Bounding Box</b> Capture a specific object in an image (the most common method for data labeling work related to autonomous driving).</li> <li>● <b>Polygon Labeling</b> Minimize errors caused by empty spaces other than the object to be identified according to the AI modeling method.</li> <li>● <b>Polygon Annotation</b> Labeling a specific area using a line with multiple dots (used for division of sidewalk, traffic lanes, etc.)</li> <li>● <b>Point Annotation</b> Labeling work for a specific spot (requiring precise and subtle work such as emotion analysis through facial recognition)</li> <li>● <b>Semantic Segmentation</b> Data labeling that can be used when a lot of data is not available.</li> <li>● <b>Depth Prediction</b> After a stereo camera shooting, depth information is extracted by calibration and used to develop distance (depth) recognition technology.</li> </ul>
 <p><b>Audio Labeling</b></p>	<ul style="list-style-type: none"> <li>● <b>STT (Speech to Text / Speech Recognition)</b> Analyze voice data with AI and label it for easy conversion into text, commands and various types of data.</li> </ul>
 <p><b>Text Labeling</b></p>	<ul style="list-style-type: none"> <li>● <b>TTS (Text to Speech / Speech Synthesis)</b> Data labeling required when converting text data to voice data</li> <li>● <b>NLP (Natural Language Processing)</b> Data labeling such as morpheme and emotion in text data</li> </ul>

### Major management functions

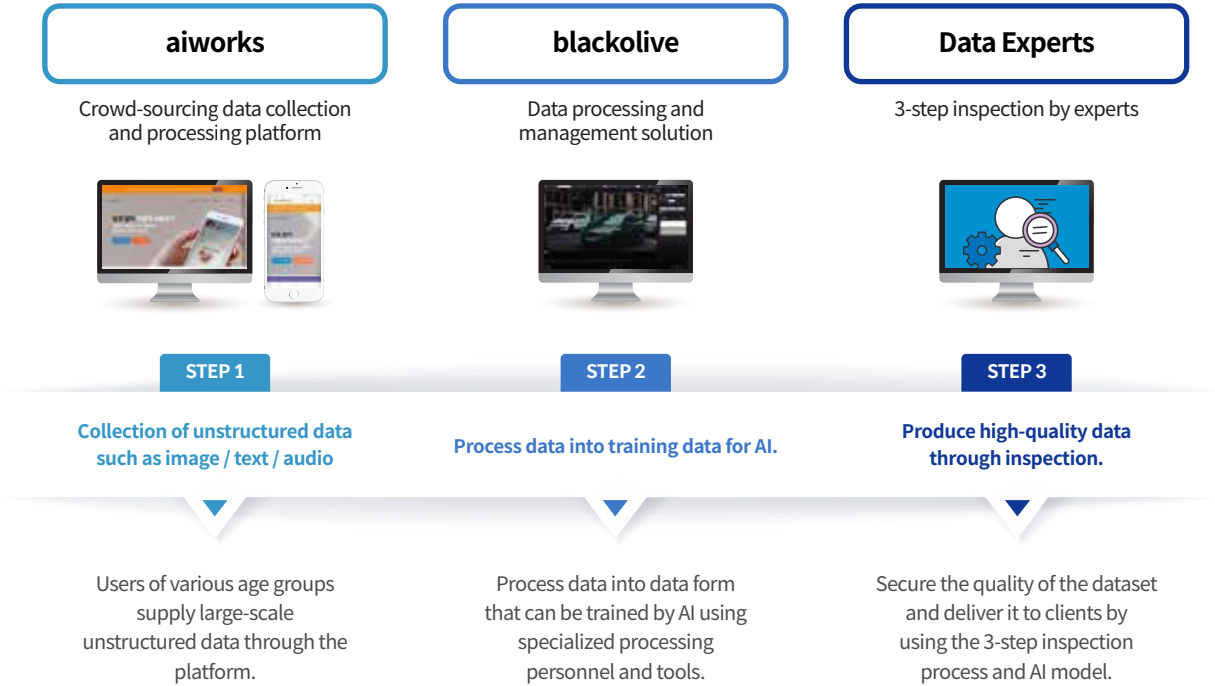


For more improved AI services

# Data Set Construction



High-quality data set construction process of Testworks



## Testworks, clients and shared value creation

**Testworks** pursue change to fair society with people who have been economically and socially marginalized due to long-term unemployment and other various reasons



The disabled



Women on career breaks



Unemployed youth

# Lead logistics automation through logistics mobility and AI services.

## Motion2Ai



Although Motion2Ai had developed a mobility solution for the safety and efficiency of the logistics center environment, there have been many difficulties in constructing a training data set to implement it.



Testworks conducted data automation and precision processing in a short period of time based on blackolive, our specialized tool, and organized a dedicated response team to provide constant feedback on the status of processing operations in line with the guide.

In addition, through a 3-step inspection process, data quality was inspected to construct high-quality data sets. As a result, a total of 110,000 objects were processed in two types such as polyline and 2D B-Box using 7,700 image data in a short period of one month.

“We came to the consensus that it would be very inefficient to hire manpower directly and process data with time and money. Testworks was the best partner with its own processing tools and platform. In particular, we finally selected Testworks because we secured much faster and more accurate data processing capabilities than other companies by using the processing tool, blackolive, of Testworks.”

CEO Choi Yong-deok | Motion2Ai

### The First Half of 2020 Interview with Client Selected for Data Voucher Project

Testworks has the most systematic and active mindset among consulting and alliance partners we have met so far. It was nice to work as one team in preparing for the support project. We look forward to having further collaboration with Testworks in the future.

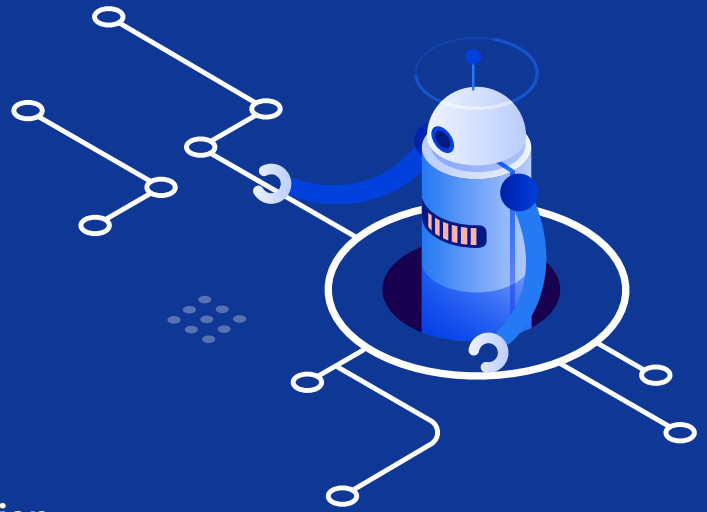
Team Yper | CEO Moon Hyun-gu



Choosing Testworks as a data voucher supplier was an excellent choice. Testworks provided consulting services throughout the entire process of preparing a performance plan, presentation materials, and video evaluation data, so that we could successfully complete the final agreement.

Funzin | General Manager Yim Sung-jun





## Testworks, Clients and Shared Value Creation

Testworks implements the changed values of society by providing equal and fair opportunities to various people.



### Providing Opportunities

Provide opportunities for growth by discovering talented people.



### Growth

Have a high level of understanding in work due to the impact worker's passion for work.



### Stabilization

Alleviate the burden of supporting the livelihood of dependents through the economic income of an impact worker.



### Value Creation

Create shared values, such as realizing a win-win economy through transactions between aiworks and clients and developing local economy.