



CASE STUDY

Improving Recommendation Quality by Using Data Including Machine Learning

AIMING TO BUILD NEW BUSINESS MODEL, INCORPORATING UNSTRUCTURED DATA

Persol Career Co., Ltd. ("Persol Career") has selected Hortonworks Data Platform (HDP®) as Apache Hadoop® distribution and built an AI infrastructure, aiming to improve the quality of recommendations and transform its business by using AI data including machine learning. Use of data with the AI infrastructure will allow the company to make more advanced recommendations. By analyzing unstructured data, Persol Career also intends to build a new business model.

IMPLEMENTATION BACKGROUND

- Cumbersome pre-processing before using existing data in AI
- Lack of data use cases in human resource service industry
- Need for AI infrastructure for machine learning etc.

IMPLEMENTATION EFFECT

- Enable new recommendations based on machine learning results
- Improve employees' awareness of data use
- Potentially build new business model with use of unstructured data

BUILDING AI INFRASTRUCTURE FOR MACHINE LEARNING TO IMPROVE RECOMMENDATION QUALITY

Persol Career, provider of human resource services such as the part-time job hunting service “an” and job transfer support service “doda,” started to work on a business strategy to build new businesses using data, a trend that has been widespread since around 2014.

Takaaki Saito, Manager, data business group, data solutions, data strategy, business strategy, Persol Career, explained the company’s business strategy using data as follows:

“Conventional human resource services have offered recommendations based on several conditions provided by candidates and their experience. To further improve the quality of recommendations, we need to incorporate AI analytics including machine learning. We believe that new data use will change the service quality and business framework itself.”

Only limited case studies are available in the human resource service industry because the data that companies have are mainly candidates’ resumes and CVs, unlike IT companies that can collect data from daily transactions on EC sites and so on. Persol Career had been going through trial and error.

Keiichiro Seida, expert, data engineering group, data solutions, data strategy, business strategy, Persol Career, talked about the unique aspects of data use at the company as follows:

“There were not many cases where employees’ attributes are analyzed using text data written by humans such as resumes and CVs and are used for recommendations. In using AI including machine learning, there was an issue of cumbersome pre-processing of data.”

The company started building an AI infrastructure for solving these challenges and stably processing big data, which are the components of AI analytics, and enabling machine learning and natural language processing.

DECIDED TO ADOPT HORTONWORKS HDP® FOR RICH CASE STUDIES AND FULL AVAILABILITY OF INFORMATION

Persol Career had already started using Spark for data processing and machine learning. But use of Spark alone allows only simple processing. The company reached a conclusion that Hadoop ecosystem distribution is required for full data use. Comparing several solutions, the company selected HDP as a core solution.

“Hortonworks’ products have many case studies in the U.S. and Europe. Full information and support is provided. In addition to HDP, Hortonworks offers diverse products such as HDF, which we could use when expanding the system in the future. That is why we selected HDP,” said Seida.

The solution was implemented smoothly and came into operation. And the benefits were seen immediately. Huge batch processing, for which it had taken nearly half a day, is now completed in a fraction of that time. The company can allocate more time to machine learning.

“The initial purpose was not to reduce the current system workloads, but to expand the processing capacity for diverse data analytics. As it turned out, current workloads were also significantly reduced, which led to more time for data analytics. The results of machine learning through these have improved the quality of recommendations. By leaning similar cases, we can offer recommendations that could not have been possible only with conditions provided by candidates,” said Saito.

This has also changed employees’ awareness of data use.

“All employees, from the management team to those in the field, have growing hopes for data use. They are very positive about using data, thinking what results and services can be attained with certain data. The ultimate goal of data use is to transform business. Building an AI infrastructure is the first step towards changing the quality across the board,” said Saito.

AIMING FOR NEW BUSINESS MODEL COMBINING STRUCTURED AND UNSTRUCTURED DATA

By building the AI infrastructure, the company has seen expected benefits. It is already planning to expand the system.

“Currently, we export data on a regular basis from databases in an existing core system to HDP. Data scientists use Hive to review data. When using data for machine learning, data are pre-processed and sent to machine learning, and the results are returned to the core system. In the future, we will eliminate losses of data transfer. We will change the framework in a way to analyze data within HDP and send required data to the core system when needed,” said Seida.

Persol Career is also exploring new data use.

“To get higher quality output, we need to increase the amount and variation of input. Current data are mainly texts such as resumes and CVs. We will tie these with unstructured data such as videos and sounds,” said Saito.

While paying attention to personal information, the company plans to build a more advanced business model by incorporating sound and video data from candidate interviews in the AI infrastructure and adding personality type tests and personal analyses.

“Our business scope was to offer recommendations to candidates, make hiring decisions, and dispatch them to companies. From now on, we will go beyond that. In other words, we need to think if candidates can truly be successful in that position. For that, we need to analyze diverse elements such as candidates’ personality, suitability with a company, and adaptability to a position, and make pinpoint recommendations. However, we cannot get these elements from text data. We think that we can explore hidden elements by analyzing sound and video during interviews. Expanding storage and accelerating processing capability is required to attain that. Instead of just making hiring decisions, we should essentially aim for a business to ensure candidates’ success,” said Saito.

Persol Career will help both individuals and companies make decisions by offering objective scores combining structured and unstructured data. The company will further promote data use to achieve value-added service and continue business transformation.

SYSTEM CONCEPT CHART



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Persol Career provides workers with diverse growth opportunities and offers a broad range of services contributing to the growth of organizations, aiming to realize an “infrastructure that generates growth for people and organizations.”

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