

Workers' Rights not to be learned for AI: General Legal Framework

Suggested from Japanese Labour Law Context

Yuki OKAMURA¹, Miho IKEDA
(NTT Social Informatics Laboratories)

May 30, 2025

Abstract

The purpose of this paper is to examine the general legal regulatory framework for collecting data concerning the skills and/or traits of workers for creating or enhancing AI which enables companies to conduct their business activities without those workers. Although these skills and/or traits were previously linked to human workers inseparably, this type of AI usage necessarily involves extracting data concerning these skills/traits from these workers and managing these skills/traits independently within virtual space. Thus, this data can be exposed to threats of abuse by not only their employers but also cyber attackers broadly, which necessitates the implementation of appropriate security measures. Therefore, this paper aims to address this threat from a legal perspective and contribute to ensuring security as well as protecting workers' rights or profits.

This paper presents two matrices which are derived from contemplating Japanese labour law as an example. One matrix (hereinafter "matrix 1") consists of two axes: (1a) the worker's cooperation in data collection and (1b) the disadvantage suffered by the worker. The other matrix (hereinafter "matrix 2") consists of (2a) the degree of investment by the employer and (2b) the worker's contribution to skill acquisition. By presenting these matrices, we can draw the following conclusions. Regarding Matrix 1, one can reasonably conclude that actions requiring (1a) significant worker cooperation for data collection, despite (1b) considerable disadvantages to workers, tend to lack legal justification. In the case of Matrix 2, it can be argued that collecting skills acquired through (2a) significant investment by the employer with (2b) minimal worker contribution tends to be legally defensible.

This framework is not limited to Japan, but can prevail worldwide, so this

¹ yu.okamura@ntt.com

framework is expected to be researched to give it a concrete form in the context of each country.

I . Introduction

The purpose of this paper is to clarify the general legal framework for regulating AI especially in the situation where data concerning workers' skills and/or traits is collected and used for creating and/or enhancing their learned models to automatically conduct the economic activities in which the workers have been engaged previously, and then employers replace the workers in pursuit of higher productivity and efficiency. This can be rephrased as the problem of that how the security for economically valuable data collected from workers is protected from a legal perspective.

Nowadays, with the development of advanced information technology, many social and economic activities have come to rely on the use of information by technology. In particular, with the fourth industrial revolution said to be underway, it has been pointed out that the boundary between the physical world and the digital world is rapidly becoming blurred². This makes it common to digitise reality, and reproduce it in the digital space, and then sometimes to output this result to the real world interactively. In this situation, tasks previously carried out by humans with certain skills and/or traits are being conducted by automation technologies symbolised as AI³. How well AI functions for this purpose depends upon the amount and diversity of data used for making the learned model. This is especially true given that AI produced through deep learning techniques tends to require a large amount of data during the learning process⁴ and hence the demand is robustly stimulated for deriving the necessary data concerning the skills and/or traits for learning from workers⁵.

However, to meet this demand which the management side may have can threaten the status of these workers whose competitive power in the labour market is guaranteed by these skills and/or traits⁶. This is the reason why AI created through this

² World Economic Forum (2016).

³ Acemoglu and Restrepo (2020).

⁴ For example, in the context of large-scale language models (LLM), it is often discussed under the name of the scaling law (Jared Kaplan et al. (2020)).

⁵ Refer to James Manyika et al (2011) for the point where the data has economic usefulness and improves productivity.

⁶ In particular, it is analysed that high-skilled workers, such as those envisaged in this

learning process can substitute for them and diminish their economic/contractual advantages, in particular given that employers might conduct their business activities without them and effectively release these activities from the time and workload constraints imposed by a flesh and blood human workforce⁷. This possibility which can be materialised by using these techniques can disincentivise workers to enhance their skills and/or adjust their traits for the business activities of their employer since their efforts to stay employed may be in vain due to this type of automation. This situation therefore suggests that securing workers' information concerning their skills and/or traits is crucial for sustainable development of the economy, which is composed of the accumulated activities relying upon the workforce. This is the reason this article focuses upon the problem of protection of data collected from workers⁸.

To conduct this study, Japanese labour law is useful to pick as a source of material since it does not yet contain any specialised legislation but stipulates general rules which have a wide scope of application that includes the above-mentioned problem. Thus, the mission of this paper is to examine how AI should be regulated under Japanese labour law, and from this, to derive suggestions for a general legal framework for globally acceptable AI regulation.

II. Typical Cases to be Subject to Legal Study: Digital Copy of Workers' Skills and/or Traits

This chapter specifies typical cases which this paper deals with so as to make the legal analysis more understandable. In this way, by observing examples of what is happening in the real world and categorizing them in anticipation of later analysis, three problem cases can be found.

i) Highly Skilled Workers Trained *Outside* of Employer

paper, will be able to exert their negotiating power in wage decisions and other areas based on their skills (Pierre Cahuc et al. (2006)).

⁷ Acemoglu and Restrepo (2019).

⁸ In relation to this, although there is an analysis of the stakeholders surrounding AI in Tabassi (2023), the perspective of protecting the skills and characteristics of workers is not clearly articulated.

The first case is highly⁹ skilled workers who acquired their skills not in their current work (which is recognised as performing duties under their employment contract with their present employer) but outside of it, for example, in school or previous jobs¹⁰. These workers are targeted to collect data for learning to create well-functioning AI models, which can enable their employers to conduct their economic activities more effectively without the workers themselves. For instance, AI can be learned to control industrial machinery through the data from operators¹¹ or generate documents¹² or contents through the data from clerical workers or designers¹³.

In the conventional situation where the relevant skills are internalised by the human workers, the amount of work that can be performed is limited by the workers' physical constraints, e.g., one worker can control only one machine. However, once the data has been collected, it can be used to control multiple machines. In this sense, the collection of data removes the physical constraints and enables employers to improve their organisations' productivity.

This type of data collection may require the workers' involvement or cooperation, for instance, in the case of controlling machines, an employer may introduce a wearable device and/or motion capture to take the information concerning the operator's skills acquired in school for effectively processing materials into digital space such as 3-D vector and then use this as training data for deep learning¹⁴. To provide another example, an

⁹ In this paper, we will be looking at cases where the copying of workers' skills becomes more serious, so we will be focusing on workers with high-level skills, but AI-based labour substitution can occur regardless of the level of their skill (Acemoglu and Restrepo (2017)).

¹⁰ In the context of acquiring skills in this way, Germany is famous for its public vocational training (Baethge and Wolter (2015)), but in other countries too, it is common to attend graduate school or change jobs while still in the middle of one's career, making use of one's skills.

¹¹ For one example, there is a service that uses image recognition to collect information on the skills required to bake a cake well - skills that are usually thought to be acquired externally by artisans at cooking schools, etc. - and uses this information to control a cooking robot that bakes cakes (<https://theo-foodtechers.com/en/>).

¹² In this respect, it has been observed that large-scale language models have a significant impact on a wide range of workers, as they can replace the work of creating documents using language (Caragnano(2025)).

¹³ According to Abbott and Rothman (2023), the emergence of generative AI has made it possible to automate creative work.

¹⁴ See Matulis and Harvey (2021).

employer may tell office workers to install keyloggers on their PCs to make robotic process automation (so-called RPA)¹⁵ tools or tell doctors to register the diagnosis results of patients' CT images in a system to create a dataset for supervised learning¹⁶.

In contrast, employers can do this without their employees' involvement or cooperation. For instance, if past records of surgeries that surgeons performed as part of their regular duties, which are often recorded for future verification, are used as learning data to create a dataset for controlling surgical robots¹⁷, AI can be created without requiring additional data. The same is anticipated when operation logs which are automatically collected daily for machines that use robot arms to process materials in square boxes are utilised for creating AI¹⁸.

ii) Highly Skilled Workers Trained *Inside* of Employer

The above problem can also arise when the worker has acquired the skills in question through vocational training, specially arranged training opportunities, or through guidance in their daily work (called On-the-Job Training, hereinafter "OJT") even though the acquisition of these skills is regarded as work (i.e., the lawful performance of their duties under their employment contract)¹⁹. OJT is a major factor in Japanese employment customs, i.e. most Japanese companies have placed OJT at the centre of their human resource development. More specifically, the standard Japanese employment model among major companies is to hire university graduates regardless of their university major by judging their potential rather than their current knowledge and skills concerning working, and then to cultivate their ability to perform their duties while paying them a salary under an employment contract²⁰.

The same as in the first case, there are cases where the cooperation of the worker

¹⁵ As an example of how to automatically record and analyse the work content of a human PC and create RPA, see <https://www.sap.com/products/technology-platform/process-automation/what-is-rpa.html>. Other than that, because RPA requires humans to define the rules for processing, active human involvement is necessary (See <https://www.ibm.com/think/topics/rpa>). This may be done by the development vendor, or by employees to tune a standardised product for their own company.

¹⁶ See <https://health.google/health-research/imaging-and-diagnostics/>

¹⁷ See <https://hub.jhu.edu/2024/11/11/surgery-robots-trained-with-videos/>

¹⁸ See https://www.japan.go.jp/kizuna/2025/01/ai_in_manufacturing.html

¹⁹ Hamaguchi (2024), Sugeno (1992).

²⁰ Pejović (2016), Hamaguchi (2024) and Sugeno (1992).

is required and cases where it is not, but the difference is that the skills acquired through OJT can be seen as a result of investment and evaluation on the part of the employer. In other words, because workers who have freshly graduated from university do not have sufficient job performance skills, they are unable to generate revenue that matches their salary, but the company not only pays their salary but also invests in their future earnings by covering the cost of their training and education programs²¹. This is made possible by Japan's long-term employment practices²². Nevertheless, it should be noted that, unlike installing a program on a machine, even if OJT is carried out at the expense of the employer, the skills will only be acquired if the worker is mentally and physically involved²³.

iii) Workers whose Innate Physical Traits have Economic Value

In addition, unlike the above-mentioned skills, which are acquired after birth, the physical traits that workers are innately born with such as their voice, appearance, and so on are considered to be essential elements in their performance of their contractual obligations, and there are cases where employers make use of these traits to conduct their business activities. Typical examples of this would be stage actors employed by theatrical companies and TV newsreaders²⁴.

Since these traits usually involve the output of labour in the process of performing contractual obligations, it is thought that the worker will often contribute to creating learned models without additional burden, but it is also possible that such a burden can be imposed to further improve the accuracy of the AI model. For example, when creating an AI that reads out news reports, it is assumed that learning data could be created by making newsreaders pronounce specific combinations of vowels and consonants, or that the physical characteristics of actors could be precisely digitised by using 3D scanning or motion capture²⁵.

Of course, employers may also invest in the development of these workers' abilities by providing opportunities for training or gaining practical experience in the

²¹ Barron (1989).

²² Kusano (2018).

²³ Sugeno (1992), Tsuchida (2024).

²⁴ Although this is not an employment type, but a freelance type, the case of actors going on strike in opposition to the learning for and use of generative AI is something that is fresh in our memories (See <https://www.bbc.com/news/articles/c4ngy53qyq8o>).

²⁵ As actual case, See <https://venturebeat.com/ai/hollywoods-strike-battle-over-ai-and-3d-scanning-has-been-decades-in-the-making/>, and as technics for it, See Lu (2024).

workplace to further improve these traits, but this does not change the fact that the economic value which these workers have is mainly derived from their innate traits.

III. Overview How to Regulate Data Collection from Workers for AI under Japanese Labour Law

On the basis of the above case types, this chapter will examine the content of labour law in Japan so as to consider how the data collected from workers should be legally protected. As will be discussed in more detail below, in Japan, general regulations with a wide scope of application are provided for in the Civil Code, and the above case types are already possible to regulate in accordance with these regulations, so the problem of the absence of legislation does not emerge. This is common to many countries that belong to the continental legal system, such as Germany and France, but stands in contrast to the Anglo-American legal system in which the scope is limited in accordance with the relevant facts in a concrete individual case. An examination of Japanese law is useful in providing interpretative suggestions for the former system and in indicating the direction of legislation in countries that belong to the latter system.

i) Overview of the Need for Labour Law

In modern capitalist societies, the relationship between one person providing labour under the direction and orders of another is understood to be based on a legal relationship of mutual obligation through a labour contract²⁶. Here, the general contract law principle, which is based on the doctrine of private autonomy and freedom of contract in which the occurrence, modification, and extinction of rights and obligations are governed by the agreement between the parties to the contract, plays a crucial role²⁷.

However, while general contract law assumes that each party is on an equal footing, in the case of labour contracts, workers are in a position of inferiority to employers in terms of information and bargaining power²⁸. And then, if general contract law is applied without

²⁶ Sugeno and Suwa (1997).

²⁷ Oda (2021).

²⁸ This disparity in information-gathering and negotiation skills is also evident in the introduction of new technologies such as AI on a global scale, and De Stefano (2019) points out the need for labour law protection in this context.

restriction, a structural problem could arise whereby, in effect, employers are allowed to make wide-ranging unilateral decisions, while at the same time preventing workers from making their own decisions. Therefore, legal regulations are required to ensure a substantive relationship of equality between employers and employees by modifying formal contractual freedom and protecting workers, who are in a subordinate position to employers. From this perspective, labour law has established various legal regulations to modify general contract law principles under civil law²⁹.

ii) Applicability of the Above-Mentioned Theory to Cases Concerning Skills and/or Traits Information

Here, I should like to provide a more detailed elaboration on both information asymmetry and disparity in bargaining power.

First, regarding information disparity. With respect to workers' skills and/or traits information, workers themselves possess qualitatively and quantitatively richer information than employers, and in this sense, workers occupy a superior position vis-à-vis employers. However, what is at issue here concerns the background information that underlies orders to acquire and utilise such information or to secure workers' cooperation. For instance, circumstances such as the necessity of improving productivity or the difficulty of recruiting successors due to labour shortages represent managerial considerations that are concentrated on the side of management, which makes managerial decisions. Consequently, the structural disadvantage whereby workers are inferior to employers in terms of information-gathering capacity remains applicable in the scenarios addressed in this paper³⁰.

Next, regarding disparity in bargaining power. Admittedly, information about workers' skills and biometric data is confined within workers' physical bodies, physical coercion against such information is not permitted, and even if such coercion were tolerated, situations requiring active cooperation from workers would be anticipated. Therefore, it might be argued that the workers concerned possess a certain degree of bargaining power. Nevertheless, for workers who depend upon earning through labour for their livelihood, concerns about employers dismissing workers, effecting unwelcome transfers, or making

²⁹ Sugeno and Suwa (1997).

³⁰ Furthermore, employers obtain information about workers' skills to the extent necessary for job performance through hiring interviews and performance appraisals. The data collection discussed in this paper aims to capture and digitize workers' professional competencies, thereby reducing the aforementioned information disparity regarding skills.

disadvantageous changes to wages cannot be disregarded. Consequently, workers may be compelled to cooperate even when they are fundamentally opposed to the collection of such information. These concerns become particularly acute given that the skills acquired by workers often hold maximum value within their current employing company (conversely, they may not be able to realise their full value at other companies) and, in the Japanese context, under the system of lifetime employment, middle-aged and older workers who are presumed to have acquired sophisticated skills receive salaries higher than their market value. Therefore, the fact that workers' bargaining power is inferior to that of employers applies equally to the scenarios addressed in this paper.

iii) Legal Protection of Worker at the Stage of Arising of Obligation

An important example of a regulation that involves a forced intervention in the freedom of contract is the doctrine of abuse of rights stipulated in Article 3, Paragraph 5 of the Labour Contract Act³¹. This stipulates that 'When exercising their rights under a labor contract, a Worker and an Employer must not abuse such right', and it enables the general and flexible protection of workers through an abstract consideration of whether the exercise of the employer's rights constitutes an abuse.

However, such protection is premised on the right existing under the contract and its abuse being prohibited, which means that this article does not regulate the occurrence of the right itself. In fact, there is no explicit provision to regulate this scenario, but rather, the vacant nature of the employment contract affirms here the existence of extensive personnel rights of the employer. As mentioned above, in Japan, there is a long-term employment practice³² in which companies recruit workers on the basis of their potential, not on their current skills, and after entering companies, the workers are trained over a long period of time through OJT³³. Therefore, it is normal for the concrete content of contractual obligations which the worker should perform not to be determined—leaving it a blank slate—at the time of recruitment³⁴. In addition, Article 7 of the Labour Contract Act legally recognises that the work rules unilaterally determined by the employer—which means that these rules are made even without the agreement of the worker, or even if they object to them—are permissible within the content of the

³¹ Kanoh (2021).

³² Araki (2007).

³³ Pejović (2016), Wolff, L. (2010).

³⁴ Tsuchida (2024), Sugeno (1994).

contract³⁵.

The aforementioned employment practices and the provisions of the Labour Contract Act that legally back it up recognise that employers are granted extensive rights to order and direct their employees, which allows employers to unilaterally and freely decide on the content of the obligations that their employees should perform³⁶. Furthermore, it is accepted that employers have control over the physical facilities of their own business premises, and by making full use of both the above-mentioned right to order and direct and this right to control, it is legal for employers to exert a high level of supervision over their workers³⁷.

Based on the above conditions, workers do not receive legal protection against threats related to data collection by their employer which concern their skills and/or traits at the stage of the occurrence of rights and obligations. In the cases described above, the starting point is that workers cannot refuse to provide data about their skills as learning data for AI, because they are forced to accept the utilisation of the data that is normally accumulated in the course of performing their work obligations and to cooperate in the collection of additional data through wearable devices, sensing and so on.

iv) Legal Protection of Worker at the Stage of Exercising of Rights

The key here is the aforementioned doctrine of abuse of rights. Whether or not a worker ultimately has an obligation to obey an employer's orders or directions is subject to a two-stage examination. The first stage is an examination of whether or not the employer is recognised as having the right to give orders or directions in the first place, and the second stage is an examination of whether or not the exercise of that right constitutes abuse³⁸. As mentioned above, the first stage of this process is easily cleared, but Japanese courts take a positive and aggressive stance from the perspective of effectively protecting workers in the second stage. For example, in the case of a worker being transferred to a different job from the one they had been doing up until that point, they judge this kind of order to be invalid as an abuse of rights, taking into account the

³⁵ Kanoh (2021).

³⁶ *Ibid.*

³⁷ *Ibid.*

³⁸ Regarding the context of dismissal, see Sugeno and Yamakoshi (2014) and Hamaguchi (2018) for an analysis of the characteristics of the Japanese legal system, in which the exercise of the employer's rights may be assessed as abuse and rendered invalid.

disadvantages to the worker's private life or career³⁹.

However, the question here is what kind of exercise of rights would constitute an abuse of rights, and this question is difficult to interpret and clarify on the basis of the wording of Article 3, paragraph (5) of the Labour Contract Act, which uses abstract language.

IV. Legitimacy of the Data Collection in Light of Substantive Assessment of Abuse of Rights

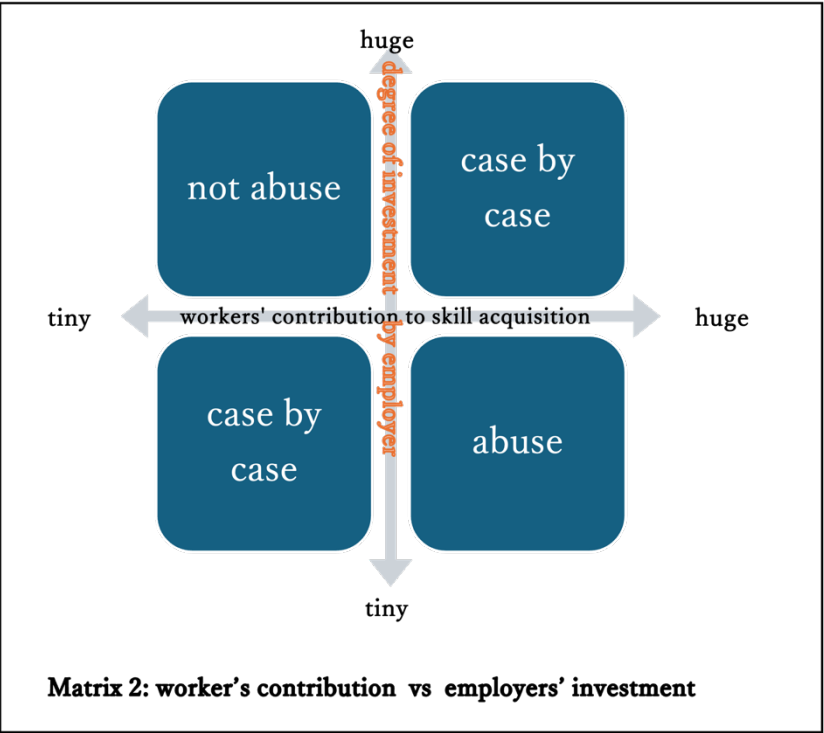
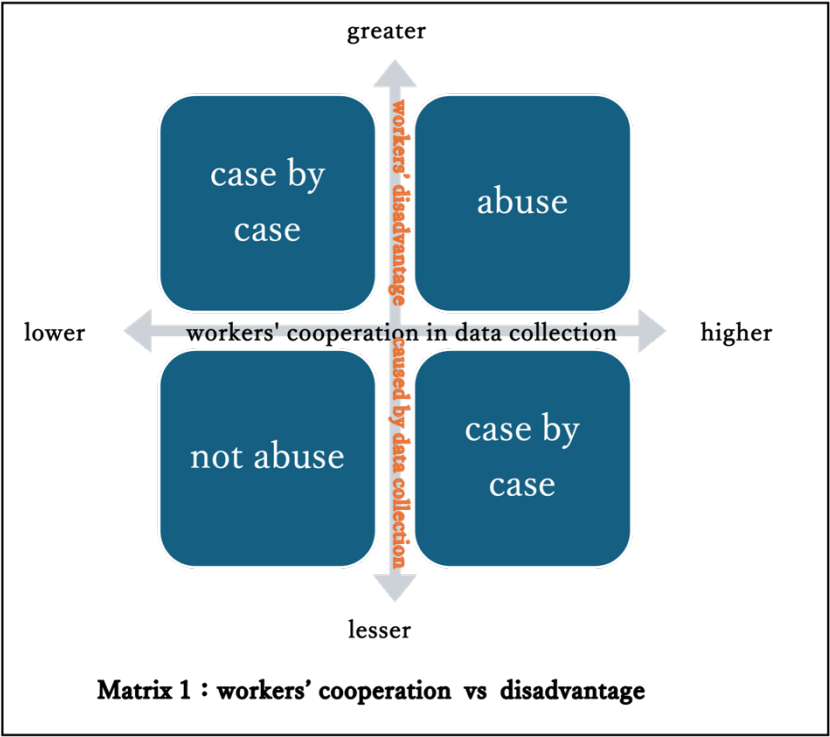
Since the abuse of rights is difficult to interpret in terms of the text, it is necessary to consider the substance of why the act of collecting the data should be prohibited legally and to clarify the scope of what should be considered an abuse of rights⁴⁰. This consideration as mentioned above will be useful globally, across national borders, in that it will provide suggestions for interpreting general regulations in continental legal systems and provide directions for new legislation in Anglo-American legal systems.

i) Introduction to Two Types of Matrixes

In this paper, we would like to present the following two matrices to evaluate whether or not an employer's orders or directions can be recognised as abuse of rights. The first such substantive theory that this paper would like to present is a matrix with two axes. The first matrix consists of the worker's cooperation in data collection and the disadvantage suffered by the worker. The other matrix consists of the degree of investment by the employer and the worker's contribution to skill acquisition. The tables for these matrices are shown on the next page.

³⁹ Toa Paint Case (Decision by the Supreme Court, Second Petty Bench, July 14, 1986), which is explained in HP of Ministry of Health, Labour and Welfare[https://kecc.mhlw.go.jp/pdf/employment-guidelines_en.pdf].

⁴⁰ Tsuchida (2024), Sugeno (1994), Oda (2021).



ii) Matrix 1: Workers' Cooperation vs. their Disadvantage

In Matrix 1, in which the worker's cooperation in data collection and the disadvantage suffered by the worker are facing each other, it is easy to affirm the illegality of actions that require a lot of worker cooperation for data collection despite the disadvantage to the worker being considerable. On the other hand, it was also found that if the degree of cooperation required from workers and the disadvantages suffered by workers are both small, such actions tend to be more often judged as legal in light of the rights of employers to order and direct their employees.

If we apply this to the aforementioned cases, whether the worker acquired skills outside the company, acquired skills through OJT, or has traits which are innate characteristics, if additional cooperation from workers is required to collect learning data for AI, then discussion in the first or fourth quadrant is necessary. Moreover, in considering the issue of the digitisation of human resources and making human workers redundant, it seems that, except in the case where the skills are being passed on to resolve a significant shortage of human resources, the disadvantages to workers are significant⁴¹ and, as depicted in the fourth quadrant, this issue is basically judged to be an abuse of rights. In other words, in the past, skills were transferred through methods such as direct instruction by humans in-person, so there were certain limitations on the scope of the target and distribution. However, in situations where skills are digitised and used to control industrial machinery and so on, it is assumed that they can be easily copied and distributed without the need for humans to act as intermediaries. Furthermore, there is a concern that the value of the skills possessed by workers will decrease, as it is possible to create AI through deep learning that surpasses the skills of the individual workers. In that case, workers may be dismissed as unnecessary personnel after the data has been collected. Furthermore, if AI that surpasses the workers is widely distributed on the market, the economic value of the workers' own skills will decrease, and it is assumed that the workers will have difficulty finding work even if they try to change jobs. In this way, the disadvantage to the workers is great since it can cause the problem of human beings becoming scrap⁴². In short, the workers are likely to suffer significant disadvantage from

⁴¹ The problem of technological unemployment has been pointed out for a long time by such people as John Maynard Keynes, but in recent years technological unemployment has become particularly serious in that the pace of unemployment can be faster than the pace of new job creation and it is also possible that it will lower wage levels in the labour market (Korinek and Stiglitz(2019)).

⁴² Brynjolfsson and McAfee (2011) points that information on atypical jobs is learned

their data being collected for AI.

On the other hand, if the data collected in the normal course of providing labour is utilised and no additional cooperation from the worker is required, then the discussion will be in the second or third quadrant, and there will be little room for use of this data to be judged as an abuse of rights. However, as mentioned above, there are plenty of cases where the disadvantages that can occur to the worker are great, so there are not many cases where the abuse of workers' rights is denied, and it is basically expected to be judged on a case-by-case basis.

iii) Matrix 2: Employers' Investment vs. Workers' Effort

Matrix 2 in which the degree of investment by the employer and the worker's contribution to skill acquisition confront each other suggests that, if their contribution is almost non-existent, it can be evaluated that most of their skills are the result of investment of employer. In this situation, the employer has substantive grounds for receiving the economic benefits derived from the skills and therefore the employer's act of making these skills available for their business is to be justified and their act of ordering their employee to cooperate with the digitalisation of their skills tends not to be evaluated as abuse of rights, which is described in the second quadrant of the matrix 2.

On the other hand, if a great amount of worker effort is required to acquire the skills, it is difficult to judge that the skill is purely the result of the employer's investment. Of course, the employer pays the worker, including for such effort, so there is the possibility that the fact that the worker's effort is required does not contradict the assessment that it is the result of their investment. However, such skills will accompany the worker when they change jobs, and since this in itself is not the subject of a claim for unjust enrichment—a claim that the person who is assessed as having gained a profit without a legal basis should pay back this profit to the person who should originally have it⁴³—, such skills should be interpreted as the result of the individual's efforts made during the course of career development and then such skills should be considered to belong to the individual worker. Therefore, whether the skills in question are acquired through the efforts of the worker or are evaluated as the result of the employer's investment will be the

through deep learning, and that this may lead to unemployment problems. And also Frey and Osborne (2017) suggests that once a job that uses a certain skill has been automated, that job could disappear from the labour market itself.

⁴³ Oda (2021), Balz (2012).

dividing line when considering the abusive nature of the act of collecting such data⁴⁴. If it is assessed as the former, it is considered that the employer's act of collecting data is abusive due to the fact that the employer is depriving the worker of the skills that belong to them, which is expressed in the fourth quadrant of the matrix 2.

In terms of these points, and in particular in relation to the aforementioned cases, if the skills are acquired outside of work, or if the worker's natural physical characteristics are utilised in the course of performing their duty to work, the worker's efforts are considered to be extremely significant, and so it is thought that the existence of abuse of rights is basically affirmed. For this reason, the above discussion is mainly relevant when skills are acquired through work or on-the-job training at the company where the employee is currently employed.

On the other hand, when the effort of the worker and the investment of the employer are both huge (in the first quadrant) or both tiny (in the third quadrant), it is difficult to make a categorical judgement as a general trend, so a case-by-case judgment is required.

iv) Practical Applicability of the Proposed Theoretical Framework: Assessing the Weight of Each Element

The practical issue of above-mentioned theoretical framework is how to measure the weights of each element that constitutes the two matrices. In this chapter, is necessary to consider the specific method for determining the weights of each element for each matrix.

a) Matrix 1

Regarding Matrix.1, there are two elements contained: workers' disadvantage caused by data collection and workers' cooperation in data collection.

The former element –workers' disadvantage— consists of economic interests and personal interests. Economic interests include the difference in wages between the one that the high skilled workers could earn for professional work and the one that they

⁴⁴ In Japan, the validity of an order may be judged using a criterion known as the “general employment principle”, which is whether or not the economic value of the work being carried out is covered by the wages (Tsuchida (2024)). Using this as a reference, the above criteria for judgement can be rephrased as questioning whether or not the cooperation in the collection of data concerning the skills and/or traits is being paid for by wages, that is, whether or not it falls within the scope of general employment principles.

would predict to earn for the reassignment job which does not require their professional skill and therefore of which economic value is lower than the professional work they used to be engaged in⁴⁵.

Regarding personal interests, maintaining one's skills or physical characteristics is considered as interest. If collecting data of workers' skills/traits is aimed to make or enhance AI models, this type of data collection can solely constitute a violation of personal interests. If work logs are recorded on a daily basis without special implementation, which can be utilised for creating or developing AI models, this type of data utilization can constitute a violation of personal interests. When one or two violations above would be found, the amount of damage caused by the violations can be calculated based upon the former case-law concerning non-monetary damage. This amount corresponds to workers' disadvantage caused by data collection described in Matrix 1.

The latter element — workers' cooperation — can be evaluated by contemplating whether or not additional workers' involvement for data collection is required. For instance, the employer orders their workers to wear a wearable device in order to collect data for only making or enhancing AI models which is apart from their daily work. Contrastingly, where their daily work leaves logs on the machine they normally use and these logs can serve as data for AI, any implementation for data collecting is not required in addition to their job on labour contract. In comparison with these cases, the degree of workers' cooperation in the former case is higher than in the latter case.

b) Matrix. 2

Matrix 2 is composed of two elements: degree of investment by employer and worker's contribution to skill acquisition.

The former element is calculated by subtracting the benefits that workers provide to employers through their work from the sum of wages paid by employers to workers, which is mainly related to the costs of OJT and the education costs directly incurred for skill acquisition, which is mainly related to the costs of off-the-job training(hereinafter "OFF-JT").

The latter element is calculated by measuring the difficulty of skill acquisition

⁴⁵ In the case of dismissal, the workers' income becomes zero, and then the wages earned from their previous work are calculated in full as the economic loss. And regarding the case of that AI-driven tool is extensively distributed across the world, the value of the worker in the job market can be declined as a consequence of that distribution. The amount of that decline is calculated as disadvantage of worker.

based on the proportion of workers who successfully acquired the skill among all workers who received the same OJT or OFF-JT, and then evaluating workers' effort as greater when the acquisition difficulty is higher.

c) Accuracy of calculation and determination of abuse of rights

As described above, each element can be calculated to some extent. Nevertheless, it might be found that precise quantitative determination of each element is not always feasible. For example, when determining the investment for skill acquisition of workers, it is necessary to estimate the contribution of workers. Even in the case of workers whose contributions tend to be readily quantifiable, such as workers in sales department, there is the issue of how to allocate the contribution of indirect departments (such as the accounting department) that support the sales activities of the relevant workers.

However, in cases involving claims for damages, it is necessary to quantitatively determine the amount of damages, and if this cannot be proven, the claim may be dismissed, which is disadvantageous to the worker. In contrast, in the context of this paper, which deals with abuse of rights, the factual circumstances are different, and such quantitative determination is not required under legal theory because contemplating whether or not abuse of rights is founded is based upon normative judgment. Therefore, adopting the aforementioned approach is legally permissible and contributes to the efficient operation of practical procedures.

V. Concluding Remarks

In this paper, an analytical framework using two matrices has been proposed to determine the legality of the data collection from a substantive perspective, which this can be rephrased as a framework for guaranteeing the rights of workers to learn. The conclusion can be couched in the following.

First, regarding Matrix 1 in which the worker's cooperation in data collection and the disadvantage suffered by the worker are facing each other, it is easy to affirm the illegality of actions that require a lot of worker cooperation for data collection, despite the fact that the disadvantage to the worker is considerable. On the other hand, it was also confirmed that if the degree of cooperation required from workers is small and the disadvantages suffered by workers are also small, it tends more to be judged as legal in light of abuse of rights to order and direct by their employer.

Second, in the case of Matrix 2 where the degree of investment by the employer

and the worker's contribution to skill acquisition confront each other, it is not difficult to deny the illegality of collecting skills that can be acquired through the significant extent of the employer's investment with little the worker's effort. On the contrariwise, it was found that if workers put in a lot of effort to acquire skills, but employers only invest a small amount in human resources, there is a tendency for legality to be denied.

Of course, while these frameworks are useful, there are still grey areas where clear trends cannot be read. Careful consideration is needed for each case, but in any case, it is hoped that this paper, which raises the issue of the worker's rights not to be learned for AI and examines ways to guarantee them from a legal perspective, will be referred to in future discussions.

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