



OKI Group AI Principles

Koichi Takeuchi

Satoshi Ikada

On September 30, 2019, OKI established the “OKI Group AI Principles” (hereinafter referred to as AI Principles) to guide all corporate activities related to AI¹⁾.

The principles are based on OKI’s philosophy to “contribute to the improvement of the quality of life for people around the world,” and clearly specify what AI technologies and products the company will offer to build better relationships with customers and stakeholders.

This article describes the AI Principles’ content, background of the establishment, positioning, aim, and establishment process. In addition, it will explain the meaning and thoughts contained in each principle and future prospects.

Background of Establishment

The development of AI technology has been remarkable, and its applications are spreading. As a result, these innovations have solved problems that were once thought insoluble and have enormous potential to enrich our lives. At the same time, the development of AI has just begun, and the technology has its issues and limitations.

Although it is not necessary to fall into excessive pessimism, inappropriate development and/or utilization of AI technology could lead to legal or ethical problems, or even safety issues. To address these concerns, guidelines and principles for creating a human-centric AI society have been published not only by many countries, including Japan, but also by various companies and organizations^{2), 3), 4), 5)}.

OKI aims to be “a corporate group that supports safer and more convenient social infrastructure.” Through the leveraging of OKI’s AI technologies, the company seeks to help solve the problems faced by society. Specific examples were introduced in the OKI Technical Review Issue 233, a special issue on “AI for Human-centric Society.”⁶⁾

There is growing recognition that not only technological development, but also legal and ethical aspects of AI must be strongly considered in order to provide AI technology safely to society and to be accepted by people⁷⁾.

OKI Group-wide Project Launched

Based on this background, the OKI deemed it necessary to reinforce its internal system and rules for the effective and safe use of AI and to do so, the overall AI function primarily under the management of R&D was expanded, and in May 2019, OKI launched a group-wide project where the company promoted its internal AI-related environment. In this project, five main themes of ethics/principles, contracts, product quality, human resource development, and data management/utilization have been selected, and working groups (hereinafter abbreviated as WGs) have been set up to study each theme taking into consideration the perspectives from various divisions (R&D, sales, business management, corporate planning, risk management, legal affairs/intellectual property, public relations, human resources, etc.).

From the perspective of AI, each theme is related to each other, so it is necessary to share the content of each WG study as needed. Thus, the arrangement of members and information sharing across WGs were carried out to prevent studies from becoming individualized. Among the WG themes, ethics/principles theme in particular is the basis of OKI’s basic stance related to both corporate activities and relationship building with people and society. Since it should be referenced in the activities of the remaining four themes, its work proceeded ahead of the others and one result is the AI Principles.

Process of Establishment

The AI Principles were drafted by a WG composed of representatives from related internal divisions as described above and an outside expert, and was established after discussions with management. In establishing the principles, existing AI ethics and development principles were analyzed after clarifying the positioning and purpose of the AI Principles.

Based on OKI’s “Charter of Corporate Conduct” and “Code of Conduct,” discussion was carried out to determine what should be presented as AI Principles. This

was followed by the principle selection process and the wording of the principles.

The establishment process is described below.

(1) Positioning and aim of AI Principles

At the early stage of the study, it was determined that the AI Principles should be based on “OKI Group Charter of Corporate Conduct” and “OKI Group Code of Conduct,” which together serve as the basis of OKI’s approach to fulfilling its corporate responsibility. From the perspective of achieving a harmonious co-existence of humans and AI, especially in developing products and businesses that utilize AI technologies, the AI Principles will be positioned as guidelines for the R&D of AI technologies, the sale and provision of AI products, and any other corporate activities related to AI. It is necessary to comply with related laws and regulations. However, the current laws are not yet fully prepared for AI, and the AI Principles serve to supplement them. For example, as result of the following AI features, parts of the “Charter of Corporate Conduct” and “Code of Conduct” needed to be considered in more detail, and they are reflected in the AI Principles.

● **Problems with statistic behavior and data bias**

Current AI (especially those applying deep learning technology, which is the mainstream) learns behavior from data. Therefore, an AI system does not always perform the same behavior according to a predetermined logic, but instead behaves in a flexible manner based on statistic calculation. This flexibility is a feature of AI, but the output cannot be guaranteed to be 100% accurate, and things need to be considered on the assumption that AI may sometimes be wrong or behaves unpredictably. Furthermore, it should be noted that the learning data may contain errors or be biased, regardless of whether there is any malicious intent, resulting in unfair output. This may possibly cause problems such as discrimination and privacy infringement that negatively affects an individual’s life.

● **Black box logic and accountability**

The AI inference logic tends to be difficult for humans to interpret and verify. When a problem occurs, it takes time to identify the cause, and the service disruption and its impact may increase. In addition, AI is increasingly being used in the assistance and execution of decisions that were previously conducted exclusively by humans. Autonomous driving is a typical example, but its application to investment, finance, recruitment, and medical diagnosis is also expanding. Certain accountability is associated

with these decisions and their executions, and there may be significant impact on human life. Furthermore, stakeholders will be diverse and complex. Therefore, depending on the way AI is applied, consideration must be given to accountability and explainability that did not exist in conventional (non-AI-equipped) systems.

Given the new challenges brought about by the AI characteristics, it is necessary to more explicitly present OKI’s basic concept with respect to human rights, transparency, accountability, safety, etc. to the world. The AI Principles and measures based on them will further reinforce the existing “Charter of Corporate Conduct” and “Code of Conduct.”

(2) Items to be included in the AI Principles

In selecting the items to be included in the AI Principles, the study members paid particular attention to the following points.

- OKI’s image as a corporate group aiming to “help create a safe and convenient infrastructure for customers and society as a whole through the key Japanese concepts of ‘Mon-zukuri’ and ‘Koto-zukuri’.”
- Recognition that “AI technologies and products are means, and we should aim for a society where AI implementation and provisioning is human-centric.”

With these as the core and as a company that supports social infrastructures, in showing the basis for delivering AI, it is important to always think from the perspective of the customer and society and determine what principles the AI would need to be based upon for them to achieve a sense of safety and trust.

Initially, the content of discussion was similar to the existing ethics and development principles that were referenced or they were too idealistic without a clear picture on its implementation. However, after repeated discussions, it became clear what OKI wants to present to its customers and society, and work progressed on shaping up the principles and content to be taken up for that purpose. For example, the following suggestions were made.

- To enrich people’s lives, AI must not hinder the lives of customers and other people. Therefore, it is important to continue to respect human rights when providing AI products.
- OKI has been providing safe and convenient products to customers and has supported social infrastructures. This activity is based on honest

interaction with customers, and likewise it is important to provide an honest explanation of AI products from the standpoint of customers and society.

- OKI's technical developments are based on the belief that human-centric society means humans and AI coexist and integrate harmoniously, and OKI will adhere to that belief.

The study members all agreed that these points should be included in the AI Principles and serve as the core principles ("Respect for Human Rights," "Explanation and Transparency" and "Dialogue and Collaboration").

There was an opinion that it was also necessary to address the handling of data, such as personal information and privacy, which is indispensable for providing AI technologies and products. While data analysis developing and/or using AI, such as recognition of people and faces using camera images, profiling with photos and remarks from SNS, and recommendation based on purchasing behavior and history on electronic commerce sites can create useful services, excessive data collection and analysis can lead to legal and social issues. In response to the apprehensions held by the people and society, OKI decided to include in the AI Principles its commitment to collect, manage and use the data in an appropriate manner.

(3) Revising rules according to technology and social acceptance

The content of the AI Principles is based on the current levels of AI technology and social acceptance, but it is expected that this will change in the next few years. For instance, AI-specific issues such as those described in this article are being worked on daily, and the understanding of AI and its social acceptance are also likely to change. In keeping up with such changes, the AI Principles must be revised as necessary.

As described above, the AI Principles announced this time was discussed and created by WGs consisting of representatives gathered from related divisions across the entire OKI Group. However, all OKI employees need to make it their own. For this, the following measures were taken.

- The minutes of the study were published on the company intra-site allowing all OKI employees to view and make comments.
- Newsletters were issued regularly to disseminate the WGs' discussions and related information.
- Interim report on the AI Principles status was made

at the "OKI AI Conference"⁸⁾, an in-house event which shares knowledge and examples on AI, and questions and comments were solicited for feedback into the study.

Through these measures, the established AI Principles was instilled throughout the company and making it possible to capture the opinions of employees for further revisions.

Meaning and Thoughts behind the Five AI Principles

After the afore-mentioned studies and discussions, specific principles and their contents to be included in the AI Principles were determined. This section describes the meaning and thoughts behind each principle.

(1) Respect for Human Rights

Respect for fundamental human rights is a matter of course, and there was some debate as to whether it should be explicitly stated, but consensus was reached that it was also the basis of the AI Principles. In recognition of the discrimination and privacy issues brought on by AI in recent years and the legal compliance in the handling of personal information legislated in each country, it is important to touch upon this topic specifically.

(2) Explanation and Transparency

OKI's stance to explain to stakeholders the effects and impacts of the utilization of AI, as well as the reasons for using AI, and the limitations of AI, and OKI's endeavor to gain their understanding and approval were clarified.

Although there are limits to what can be done using current technologies with respect to the transparency of conclusions reached by AI, OKI will continue to examine the possibility of taking up the subject as R&D themes and find ways of providing information.

(3) Dialogue and Collaboration

Taking into account the features and technical limitations of AI, it was acknowledged that maintaining dialogue with stakeholders is indispensable in order that stakeholders will become more comfortable with using the AI products that OKI provides. OKI's stance to consider the collaboration between human beings and AI so as to realize a better society in which AI will have a role was also clarified. Furthermore, OKI declared its commitment to continue with the study of various issues that arises related to the new R&D topic of Inter-AI cooperative fundamental technology⁹⁾.

(4) Safety and Handling of Data

Many fields where OKI applies AI are related to social infrastructures where strong safety and security are required. OKI also recognizes that data acquired in the edge domain close to the end user requires special consideration in handling. Therefore, OKI will strive to make its AI products safe and ensure the proper acquisition, use, management and security of data.

(5) Development of Human Resources

OKI recognizes that it is essential to have human resources who have a proper understanding of AI to provide and use AI, and this is reflected in the AI Principles. Developing such human resources at OKI would lead to sustainable and correct operation of the AI Principles without turning it into a mere shell.

Future Prospects: Operation System for AI Principles

The established AI Principles have no meaning unless they are put to practical use. Although the ideas based on the AI Principles are already being applied, a continuous development of systems and rules for a more systematic and steady operation is progressing.

In technological development and business promotion, it is necessary to make appropriate decisions in a timely manner while balancing the braking and the acceleration so that the AI Principles do not become a shackle.

Since each of the established AI principles are related to the aforementioned WG themes of the group-wide project, close collaboration with the WGs is necessary for operation.

At present, each WG is continually working on concrete measures such as creating a system necessary for the operation of the five principles and establishing a guideline checklist, so that each principle is continuously operated and does not end up as a mere shell.

For now, the task is to make the AI Principles effective and practical as a base for technologies, products and services that utilize AI through these activities. As stated at the beginning, OKI is aiming to have its customers and stakeholders feel comfortable with the AI products it provides and realize a better society where humans and AI collaborate harmoniously. The entire OKI Group will continue to make efforts to achieve this goal. ◆◆

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Authors

Koichi Takeuchi, AI Technologies R&D Department, Corporate Research & Development Center, Corporate Infrastructure Group

Satoshi Ikada, AI Technologies R&D Department, Corporate Research & Development Center, Corporate Infrastructure Group

OKI Group AI Principles

(1) Respect for Human Rights

AI should be developed and utilized for the realization of a human-centric society. The OKI Group respects fundamental human rights in the promotion of the AI Business, and as part of that, we will strive to prevent any unfair discrimination. Further, we will consider privacy, and will comply with applicable rules including laws and regulations concerning the handling of personal information.

(2) Explanation and Transparency

In the AI Business, the OKI Group will endeavor to gain the understanding of our customers and other stakeholders by explaining the envisaged purposes and methods of use of AI products, etc., as well as the effects and impacts of the utilization of AI products, etc., and their limitations, depending on the nature and utilization situation of the subject AI products, etc. In particular, we will consider the transparency of how AI reaches conclusions with respect to individual AI products, etc. and endeavor to provide information that contributes to an understanding of how AI reaches conclusions. Also, we will continue to examine better ways of providing information from various aspects based on the accumulation of individual examples and the progress of future discussions.

(3) Dialogue and Collaboration

In order to deepen our customers' and other stakeholders' understanding of AI products, etc., the OKI Group will have a necessary dialogue with them, and strive to establish relationships with them whereby they will become more convinced in using AI products, etc. Further, we recognize that there are challenges concerning collaboration between human beings and AI and AI-to-AI, and will continue to consider these challenges so as to realize a better human-centric society.

(4) Safety and Handling of Data

The OKI Group will strive to ensure the safety of provided AI products, etc. for our customers and other stakeholders. Further, with regard to data, while protecting personal information and respecting privacy, we will ensure the proper acquisition, use, management and security of data and will strive not to cause any undue damage to our customers and other stakeholders.

(5) Development of Human Resources

In order to contribute to the improvement of the quality of life for people around the world, the OKI Group thinks that, in the performance of the AI Business, it is essential to have human resources who have a proper understanding of AI technologies and the nature, issues and limitations of AI, and who may appropriately provide AI products, etc. to society. Therefore, we will actively develop diverse human resources that are needed in the era of AI utilization.

