

Study Group 'AI governance and its Evaluation'
Report on the Session #4

1. Introduction

The Japan Deep Learning Association establishes study groups as a forum for deepening knowledge and discussing domestic and international policy trends related to artificial intelligence (hereafter AI) and Deep Learning (hereafter DL). This study group, "AI Governance and its Evaluation," defines "governance" as a system of management and evaluation by various actors, and launched a study group in July 2020 to investigate what forms of governance are possible and conduct a year-long study to help build trustworthy AI systems.

In the first half of the 4th session of the study group, Mr. Kei Kazama of Sompo Japan Insurance Inc. and Mr. Hiroyuki Iritani of the SOMPO Research Institute Inc. talked about "AI and Insurance: Use of Insurance in Smart Factories", and in the latter half, Mr. Tomoya Nagano of Tokio Marine & Nichido Fire Insurance Co., Ltd. gave a presentation on the topic "Insurance for AI Governance".

This report is a reconstruction of the topical presentation and the discussions of the study group participants.

2. AI and Insurance: Use of Insurance in Smart Factories

In the first half of the session, Mr. Kei Kazama of Sompo Japan Insurance Inc. and Mr. Hiroyuki Iritani of the SOMPO Research Institute Inc. presented on the topic of "AI and Insurance: Use of Insurance in Smart Factories".

Technology and Insurance

Insurance products come in a variety of forms, such as being integrated with products and services. They will also be expanded in response to new risks as new technologies emerge.

Among the recent technological developments in the form of IT, digitalization has greatly contributed to the efficiency and optimization of the development of insurance services by reducing the difficulty of quantifying risks and making it easier to prevent and predict risks through risk visualization. On the other hand, digitalization itself is causing the creation of new risks.

In light of this, it is necessary to adopt new risk perspectives and develop insurance services for AI, which has seen remarkable technological development and diffusion in

society in recent years, just as in the case of digitalization.

From the perspective of business operators, AI is obviously an element that will be incorporated into their core business in the future, and will become inseparable from business. Under such circumstances, we have divided the risks associated with AI from the perspective of AI business providers into three categories: "risks related to management strategy", "risks inherent in the development phase", and "risks in implementation use". In this session, we will introduce information on "risks in implementation use," which will be helpful for considering how insurance can respond to new risks that arise as AI is implemented in society, and what scope of risks can be covered by insurance.

Product Liability Insurance and AI

Product Liability insurance (hereafter PL insurance) is an insurance policy that covers the costs of damages and lawsuits that a manufacturer incurs in accordance with the Product Liability Law (hereafter PL Law), etc., when a product defect causes bodily injury or property damage to users or others.

What kind of compensation can be provided by PL insurance for products incorporating AI? In Japan, AI itself is not subject to the PL Law because it is intangible. However, products incorporating AI are tangible and are subject to the PL Law. Defects in products are classified into three categories: "Manufacturing defect", "Design defect", and "Failure to warn (marketing defect)". Defects in AI can be categorized as "Design defect" or "Failure to warn (marketing defect)". However, as the nature of AI is that it is uncertain and opaque to unknown data, it is difficult to judge whether this uncertainty and opacity is a "defect" or not. It is also hard to verify where and when the defect occurred when learning continues after the product is provided. The conventional PL insurance framework provides compensation only when the damage caused by an AI product is identified as a defect in the AI and the AI business provider is legally responsible for the defect, but does not provide prompt relief to victims when the provider is not responsible. In response to this, in order to expedite victim relief, AI business providers could set up predetermined agreements to compensate victims in the case of certain incidents, regardless of whether the provider is legally responsible or not. The financial burden of the AI business provider in this case can be compensated by tailor-made insurance.

Cyber Insurance and AI

Cyber insurance covers damages caused by cyber-attacks, leakage of personal information and invasion of privacy, system malfunctions and network outages.

Although incidents related to the use of AI are also covered by cyber insurance to a

certain extent, the extent to which incidents can be covered by the cyber insurance framework depends on individual cases and is difficult to generalize. For example, cases such as unfair discrimination caused by AI processing and weighted liability caused by guaranteeing the accuracy of AI are generally not covered. In addition, copyright infringement in programs of systems built by AI business provider is subject to compensation to a certain extent, but there are also issues such as whether text and images created by AI are subject to compensation as copyright infringement when they are similar to those of other creators.

As mentioned above, it is difficult to establish a uniform standard for whether the risks of AI can be covered by the existing cyber insurance framework, and it is necessary to sort out whether the risks are covered according to the stage of use and implementation, as it depends on individual cases. At the same time, the status of coverage will also vary depending on the case, so it will be necessary for AI businesses and insurance companies to discuss and confirm the contents.

Insurance review with AI development vendors

As introduced above, AI risks can be covered to a certain extent within existing insurance frameworks such as PL insurance and cyber insurance. However, there are some AI-related risks that cannot be covered by existing insurance policies. For this reason, a new insurance policy for AI development vendors is being considered.

The insurance for AI development vendors is still under development, and there are many unsettled areas. It is necessary to take steps to gather data on the insurance market, such as risk identification and expected accuracy, and judge each case individually. Therefore, it is necessary to make considerations on a case-by-case basis, and insurance for AI development vendors needs to be tailor-made for each individual case, while providing a common basic coverage.

3. Insurance for AI Governance

In the latter part of the session, under the theme of "Insurance for AI Governance," Mr. Tomoya Nagano of Tokio Marine & Nichido Fire Insurance Co., Ltd. introduced insurance products under development from the perspective of "the need for an insurance approach to implement trustworthy AI". In this context, he presented two positions of insurance: "insurance to support the spread of AI" and "insurance to deal with incidents related to AI".

Insurance to support the spread of AI

In Japan, it is assumed that AI quality assurance will be conducted through non-binding

guidelines rather than legally binding ones. Therefore, he believes that creating incentives for AI business providers to adhere to guidelines and standards for AI quality assurance will support the spread of AI. This insurance is designed for B2B (Business-to-Business).

As an incentive to adhere to the guidelines and standards, quality assurance liability insurance could be used, whereby the AI service provider guarantees that their service is of a certain quality standard and promises to return a portion of the service fee to the users if the service fails to meet the standard. The insurance company compensates the AI provider for the loss. In determining the standards for quality assurance, audit institutions and third party organizations will play an important role. It would be effective to provide insurance services for high-quality AI that meets the quality standards developed by the audit institutions and third-party organizations.

This will allow AI providers and users to use services incorporating AI which is highly uncertain with confidence. This will in turn support the spread of AI. The definition of AI quality is still under discussion, but it is expected that insurance products will eventually be developed in line with the AI guidelines.

Insurance for AI-related incidents

There are three types of insurance, not limited to AI: (1) first-party insurance, such as fire and accident insurance, which pays to protect insured person; (2) third-party insurance, such as liability and warranty insurance, in which the insurance company pays for victim relief when insurance holder is the aggressor; and (3) a combination of the above, such as automobile insurance, which both protects insured person and provides victim relief. Insurance against incidents caused by AI is similar to (2), third party insurance.

Since AI is automated in many areas, it is assumed that the location of liability, such as whether the incident was caused by the negligence of the AI user or the design of the AI, will become unclear. In such a situation, it will be difficult to claim liability under the existing insurance framework, and it will take time to provide relief to the victims. To cope with this situation, insurance products that allow users to use AI services with peace of mind by having insurance companies indirectly support users with insurance even when liability is not recognized are being considered.

For example, automobile insurance is one area where certain measures have been taken within the existing insurance framework. Existing automobile insurance policies have already adopted a system in which insurance companies pay claims regardless of liability, with a view to AI-powered automated driving. As shown in the example above, the concept of "insurance for AI-related incidents" is currently being considered to

incorporate victim relief cost compensation into existing insurance policies for businesses, and this could be used in the future by nursing homes and hospitals that use AI-equipped services to provide their own services.

4. Main comments from the workshop participants

In the fourth session, AI and insurance were discussed and the following questions and answers were raised based on the topics discussed.

Discussion on "AI and Insurance: Use of Insurance in Smart Factories" by Sompo Japan Insurance Inc.

- General risks in AI
 - ✓ There are many risks and issues related to AI that cannot be addressed by insurance. For example, among the risks related to AI, risks related to management strategy cannot be covered by insurance, but risks related to product defects and accidental incidents in the course of business operation can be covered by insurance. In addition, there are issues that have never been addressed before, such as how to deal with cases where AI reproduces past discriminatory treatment in insurance covering discrimination in employment, and these issues need to be examined while exchanging opinions with stakeholders.
- Human Responsibility in AI Use
 - ✓ In many cases, AI has been introduced as a tool for optimization and efficiency, so it is individuals and corporations that are currently making the final decisions. Even if AI becomes more automated in the future, individuals and corporations will still be ultimately responsible for their own actions, unless laws are changed to allow AI to take responsibility with its personality. And even if part of the business is replaced by AI, the function of compensating for the liability of AI business providers will basically remain the same, although the content of the risk will change.
- Individuality of AI vendor insurance
 - ✓ The insurance for AI vendors will not be for individual vendors, but for a wide range of basic insurance. Since typical cases are not solidified at present, it is conceivable to start from some basic aspects based on prior cases and follow the vendor practices.
- How to calculate risk for AI vendor insurance
 - ✓ For insurance for AI vendors, what risks will be considered as criteria for calculating premiums has not been determined at present. It is expected that

the criteria will be determined by examining the key risks and taking into account the predictive performance required of AI.

- What types of companies consider AI insurance?
 - ✓ Since the risks involved in the development of AI are highly individualized, insurance will be designed for each individual case. For the time being, it is considered difficult to create ready-made insurance with high versatility. In individual insurance design, AI vendor companies provide the information necessary for the design and build it together with the insurance company. If there is a high degree of uncertainty, the premiums may be correspondingly high.
 - ✓ Individually designed insurance may have an image of being for large companies, but compared to large companies with a large risk tolerance, start-up vendors have a relatively small risk tolerance, and there is a need to use insurance to equalize the risk.

However, due to the nature of AI, it is sometimes difficult for insurance companies to provide 100% coverage. After weighing the cost and compensation, it is quite possible that they will decide not to sign a contract.

Discussion on "Insurance for AI Governance" by Tokio Marine & Nichido Fire Insurance Co., Ltd.

- Insurance Companies and Criteria
 - ✓ Since it is difficult to create insurance for quality assurance without quality standards for AI, we believe it is necessary to communicate with ministries and industry groups to consider a model for promoting insurance along with guidelines and standards.
- Similar framework to the "insurance to support the spread of AI"
 - ✓ At present, there is no case of providing insurance within the framework of quality assurance, but as a reference case, there is a warranty system for housing defects in cooperation with the Ministry of Land, Infrastructure and Transport. In this system, the government provides a warranty system for houses that have passed an audit by an organization that audits the quality of houses, and each insurance company is involved in the framework of the system. The concept of this system is the same as that of "insurance to support the spread of AI," in that it provides a guarantee after quality audits are conducted.
- Differences in insurance issues between services that include hardware and those that provide only software

- ✓ There is no significant difference in the perspective when considering insurance for hardware and software only. However, the case with hardware is closer to the scope of conventional insurance coverage, making it easier to consider insurance for AI.
- Incident analysis from the standpoint of insurance
 - ✓ There are currently no insurance products that specialize in AI, and there are few AI-specific incident cases, so no concrete research has been conducted on the investigation of the causes of incidents by AI. In general, there is no incentive to provide incidents information to third parties, but this is not the case with insurance. If there is a process for insurance companies to systematize AI incidents and reflect them in their quality standards, it may be possible to improve the level of AI regardless of industry.
- Insurance against human rights violations by AI
 - ✓ Among human rights violations, it is possible for conventional insurance to cover some cases such as infringement of personal rights, but there is a need for research on AI-specific issues such as defamation and risk to impartiality, but such research has not yet been conducted. It is expected that these issues will be dealt with based on guidelines for each incident.
- Hurdles to making it an insurance product
 - ✓ In an industry that is highly individualized, it is difficult to generalize coverage, and creating insurance products. For example, when it comes to insurance related to quality assurance, it is challenging to make it into an insurance product because the standards required by SLA (Service Level Agreement) vary from case to case. In addition, there are other hurdles to overcome, such as the need for a certain market size to make a product.

We will continue to discuss AI governance in Japan and abroad through this study group.

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<Outline of the 4th Session of the Study Group>

Date & Time: Monday, October 26, 2020, 17:00-19:00 (Zoom)

Agenda:

(1st half)

- "AI and Insurance: Use of Insurance in Smart Factories" provided by Mr. Kei Kazama (Sompo Japan Insurance Inc.) & Mr. Hiroyuki Iritani (SOMPO Research Institute Inc.)
- Question and answer session / discussion

(2nd half)

- "The potential of insurance from the perspective of supporting the social implementation of AI" provided by Mr. Tomoya Nagano (Tokio Marine & Nichido Fire Insurance Co., Ltd.)
- Question and answer session / discussion