

Artificial Intelligence(AI) in the Board Room: (Financial) & Corporate law Perspective

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Overview

I. Introduction

- AI definition?
- Definition from the functional perspective and types of AI

II. AI Landscape in Korea

- Financial Sector
- Corporate Law/Directors of Board

III. AI Corporate Law Issues

- AI Director
- Duty of Directors, Business Judgment Rule
- Liability?
- Technical, Risk Management Committee

I. Introduction

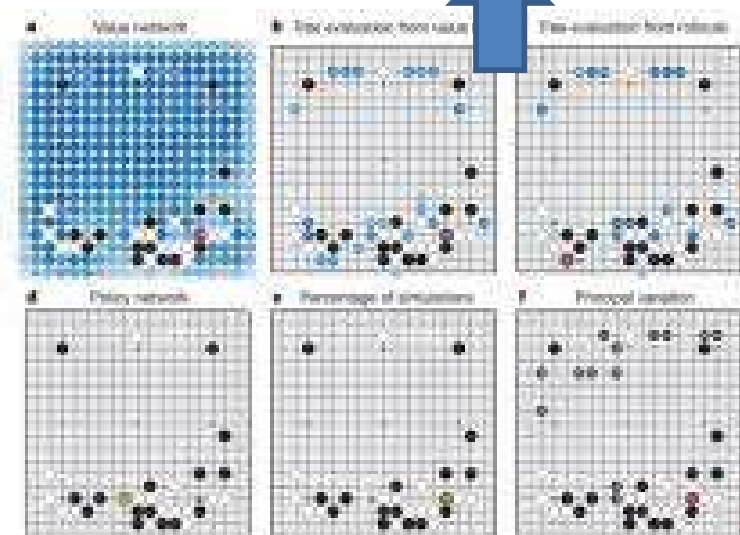
What is AI?

- AI=function

$$f(_) =$$

input variable

output variable



AlphaGo

vs.

Sedol Lee



641 among 8,316



-My Q. was as follows: What kind of questions might be asked during an interview for the candidate for the position of CEO in the Korea Securities Depository?
- A: 5 Questions including "How do you plan to collaborate with other financial institutions and regulators in Korea to ensure that the securities depository industry remains competitive and innovative?"

AI: Definition ?



- Definition: AI is an artificial system performing tasks for which a human would use their brain
- AI= "Artificial Intelligence"
 - John McCarthy et al., A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence, August 31, 1956: "The science and engineering of making intelligent machines, especially intelligent computer programs"
- Intelligent machines that can perform tasks that normally require human intelligence such as perception, reasoning, learning, problem-solving, decision-making, and natural language processing
- AI systems use **algorithms and statistical models** to analyze and process vast amounts of data to learn from it and make decisions based on the patterns they identify
- Broad field that includes subfields such as **machine learning, natural language processing, computer vision, robotics, and expert systems**
- Real-world applications: speech recognition, image and voice recognition, autonomous vehicles, and medical diagnosis

AI: Definition in Korea?

- No general definition under Korean Act
- [Framework Act on Intelligent Informatization](#)
 - Art. 1 (Purpose) The purpose of this Act is to contribute to realizing an intelligent information society, securing the national competitiveness, and improving the quality of life for citizens, by prescribing matters necessary to establish and promote policies related to intelligent informatization.
 - Art. 2 (Definitions) The definitions of the terms used in this Act are as follows:
 - 4. The term “intelligent information technology”** means any of the following technologies or technology that converges and applies such technologies:
 - (a) Technology that electronically realizes learning, reasoning and decision-makings;
 - (b) Technology that electronically collects, analyzes and processes data (referring to all kinds of data or knowledge expressed in codes, letters, voice, sound, image, etc.);
 - ...

AI: functional definition and types

- Types: what roles AI can play in human decision-making?

Type	Decision-making	Role of AI(Assist or Replace human decision-making?)
Assisted AI 	Human	<ul style="list-style-type: none">provide assistance and support to humans in completing a specific task or achieving a particular goalthe AI system acts as a tool to <u>assist human decision-making and does not replace human decision-making</u>
Augmented AI =Weak AI or Narrow AI 	Human with AI	<ul style="list-style-type: none">AI system that uses machine learning and other AI techniques to automate and improve decision-making processesnot autonomous, and require human supervision and input to operate, still <u>requires human intervention for critical decision-making</u>augment or enhance human capabilities by providing insights and suggestions based on data analysis aiming to make decision-making more efficient, accurate, and consistent

AI: functional definition and types(cont.)

Type	Decision-making	Role of AI(Assist or Replace human?)
Autonomous AI = Artificial General Intelligence (AGI) or Strong AI	AI	<ul style="list-style-type: none">• <u>operate independently of human intervention</u>• capable of learning, reasoning, and making decisions on their own, without human input or supervision• <u>replace human decision-making</u>

Real World Application: the Use of AI

- AI algorithms have undeniably made significant advances in recent years
 - Improved algorithms, bigger data sets, and more powerful computers have combined to give machine learning strategies ever-growing capabilities. In the last decade alone,
 - machine learning-based computers beat the world's best Jeopardy contestants
 - accurately identify breast cancer from pathology slides
 - drive cars around the streets of Phoenix, Arizona
 - Financial institutions, intrigued by the potential of machine learning, have begun to explore how to incorporate AI into their own businesses
 - large investment banks have hired away talented experts to head up machine learning divisions
 - Fintech startups have created credit rating models and fraud detection algorithms based on AI
 - high-frequency traders, quantitative hedge funds, and robo-advisors are implementing AI into their businesses
- AI will likely take on increasing importance in near future

II. AI Landscape in Korea

AI in Korea: Financial Sector

- Financial Services based on AI
 - Robo-advisor
 - Chat-bot
 - Customized financial product referral
 - Fraud detection system (FDS)
 - etc...
- Credit Information Use and Protection Act:
 - MyData Service providers have been approved in the financial industry(August 2020)

AI in Korea: Financial Sector

- [Enforcement Decree of Financial Investment Services and Capital Market Act](#), Art.2 (6): [Automated Investment Tool, Robo-advisor \(2019\)](#)
- "Electronic Investment Advisory Device" refers to an automated computer information processing device that meets all of the following requirements:
 - A. Depending on the type of business used, it must meet the following requirements:
 - 1) In the case of [managing collective investment asset](#): it must be managed according to the investment purpose, investment policy, and investment strategy of the collective investment vehicle.
 - 2) In the case of [performing investment advisory or entrusted investment business](#): it must analyze the investment tendency of the investor considering the investor's investment purpose, property situation, investment experience, etc.

AI in Korea: Financial Sector

- [Enforcement Decree of Financial Investment Services and Capital Market Act](#), Art.2 (6): Automated Investment Tool, Robo-advisor (2019)
- "Electronic Investment Advisory Device" refers to an automated computer information processing device that meets all of the following requirements:
 - B. It must establish a system to prevent infringement accidents and disasters(pursuant to Article 2(7), Paragraph 7 of the "Act on Promotion of Information and Communications Network Utilization and Information Protection") and establish a system to prevent damage spread, recurrence prevention, and prompt recovery in the event of an infringement accident or disaster.
 - C. In addition, it must meet the requirements set forth by the FSC for investor protection and maintaining sound trading practices.

AI in Korea: Financial Sector

- **FSC(Financial Services Commission)**, PLANS TO PROMOTE THE USE OF ARTIFICIAL INTELLIGENCE IN FINANCIAL SERVICES (Aug. 4, 2022)
 - The FSC announced the Key measures for promoting the use of AI in financial services and ensuring accountability in AI-based financial services
- I. SUPPORT EXPANSION IN THE AVAILABILITY OF BIG DATA
 - a) Build a financial AI data library: Currently, pseudonymized data needs to be discarded after each usage which makes it difficult to build and operate a large data set of pseudonymized data→ Through the financial regulatory sandbox program, building a financial AI data library is possible which will allow pseudonymized data to be reused after data convergence
 - b) Promote collaboration to build an AI big data usable by all financial sectors: Large sets of unstructured and specialized data are needed for AI development but it has been difficult due to significant cost related to obtaining data → Promoting collaboration and cooperation centered on financial industry associations and financial data infrastructure institutions can help build an AI big data accessible and usable by all financial sectors

AI in Korea: Financial Sector

- FSC PLANS > Key Measures (cont.)

II. ESTABLISH LEGAL GROUNDS TO PROMOTE AI USAGE

a) Introduce detailed guidelines for AI development and usage in five specific areas

- Although there is an AI guideline in the financial industry introduced in July 2021, industry officials have called for the need for more functional and service-specific guidelines that they can refer to when actually launching AI-based services
 - The Korea Federation of Banks introduced detailed guidelines for AI development and usage in the five specific areas including credit assessment and evaluation services, robo-advisor services, chatbot services, customized financial product referral services and fraud detection system (FDS) services.

b) Lay grounds to introduce and promote explainable AI (XAI): “for the purpose of ensuring consumer protections from AI’s decision making” ⇒ FSA will prepare an information guideline containing the definition, requirements and best practice scenarios on explainable AI (XAI) in financial sectors

AI in Korea: Financial Sector

- FSC PLANS>Key Measures> (cont.)

III. ENSURE ACCOUNTABILITY IN AI USAGE

- a) Build a testbed for AI in financial services: To verify accuracy and credibility of AI-based financial services, it is important to have a verification process using diverse data sources. → FSA will build a verification data set and a testbed environment enabling various types of AI-based financial services to be tested through financial data infrastructure institutions
- b) Set up a process for verifying AI-based credit evaluation model: There are growing attempts at developing and operating credit evaluation models using various types of non-financial data from financial companies, fintechs and platform service providers and using AI methodologies → Through the personal credit evaluation system verification committee, FSA will establish and operate an AI-based credit evaluation verification system

AI in Korea: Financial Sector

- [FSC PLANS](#)>[Key Measures](#)> (cont.)

III. ENSURE ACCOUNTABILITY IN AI USAGE

c) Prepare a process for verifying the security of AI-based services: There exist various security risks in making use of AI such as personal information breach and algorithmic errors → FSA will set up and operate an AI security verification system through financial institutions' self-verification mechanisms and a third-party verification support provided by the Financial Security Institute

d) Establish an AI-based oversight system to effectively supervise financial services: With the application of new technologies such as AI and big data in financial sectors leading to more automated financial services, the regulatory environment has become more complex and there are growing needs for introducing SupTech(supervisory technology) using AI and big data analytics. ⇒ Authorities will work to make improvements to the system performance of the current AI-based financial regulatory system while continuing to make efforts for innovation in SupTech.

AI in Korea: Corporate law/Boardroom

- AI technology has seen rapid development and has constantly made an impact on corporations
- [Q] Should we attempt to encourage AI, should we try to restrict it, out of concerns about its (un)predictable broader risks?
- To answer these questions, we must first identify the problems that AI poses, and the sources from which these problems come
- As a non-expert in artificial intelligence technology, let's only consider the impact of AI technology on the company's board of directors and legal issues related to corporate law

AI in Korea: Corporate law/Boardroom

- Corporate activities, corporate boardroom, corporate law?
 - Cf. Deep Knowledge Ventures introduced a machine-learning algorithm called Validating Investment Tool for Advancing Life Science (VITAL) into its board of directors to help with corporate decision-making: “Vital” (observer vs. member of Board)?
 - Cf. Academics in Germany, UK, USA: debated over legal issues
 - **In Korea?: neither law nor meaningful debate** (only 2 papers inc. Song’s)
 - Cf. Financial sector: dramatic change and constant response to AI technology
 - Cf. A few financial institution trying to cope with the issues AI systems raise: e.g. In Korea, a bank once pursued the appointment of an outside director who is an IT specialist, but eventually appointed a legal expert. This was because the perception was **that (for the time being) knowledge of corporate law is more important than knowledge of AI at the level of the company's board of directors**
 - Corporate law academics: AI has not been widely discussed

III. AI: Corporate Law Issues

AI : Corporate Law Issues

- Interplay between AI and Corporate Governance
- AI opens up new opportunities and challenges for corporate governance
- The use of AI in the corporate boardroom raises several corporate law issues
- Some of the key issues include:
 - 1. AI director?
 - 2. Impact on director's fiduciary duty & business judgment rule
 - 2-1. transparency and accountability
 - 2-2. Discrimination and Bias: The use of AI in the corporate boardroom may raise concerns about discrimination and bias
 - 2-3. Cybersecurity and Privacy: The use of AI in the corporate boardroom may raise concerns about cybersecurity and privacy
- [Q] Do AI technologies pose challenges corporate law faces?
- [Q] Do corporate law rules match these challenges, or do they need to be adapted?
- [Q] How corporate directors of board respond to these challenges?

AI : Corporate Law-AI director?

- Can AI become a member of a company's board of directors?
- While there is no explicit provision under the Korean corporate law(Korean Commercial Code; KCC), many provisions under the KCC assume that only a natural person(=human) may be a member of board
 - Cf. Germany: Aktiengesetz Art. 76(3) S.1: "Solely a natural person having legal capacity ... may be a member of the management board."
 - Cf. Japan: Companies Act Art.331(Qualifications of Directors)
(1)The following persons may not act as directors:
 - (i) a corporation;...
- → AI cannot become a member of the board of directors under the KCC

AI : Corporate Law-AI director?

- Need to enact/allow AI as a director?
- To answer this question
 - Need to consider two things
 - (1) the role of AI when using the technology
 - (2) to compare and examine the merits/demerits of decision-making by AI
- (1) AI's role
 - 1) in case AI's advisory role in the decision-making of human directors without making decisions on its own, granting status of directors to AI is not necessary: e.g. evaluation of tender offer price
 - 2) how about AI's own decision-making role & human directors' following AI's decision? : but the ultimate decision-making power in the board of directors, including the supervision of AI's judgment, must be held by human directors.

AI : Corporate Law-AI director?

- (2) the merits/demerits of decision-making by AI
 - 1) Pros
 - ① Agility, rationality, and fairness: "AI has advantages in decision-making agility, rationality, and fair judgment. AI can learn from past massive data input into the system and automate complex decision-making processes, enabling it to make more specific decisions quickly and easily based on data and past experience"
 - ② Independence/no conflict of interests: "AI does not make decisions for the benefit of the board of directors or controlling shareholders, so it can avoid making decisions that may raise concerns of conflicting interests with the company."
 - Reduction of cost/agency cost
 - **? But:** It should be noted that above mentioned are right only when AI relies solely on mathematical calculations which make decisions based purely on numerical data

AI: Corporate Law-AI director?

- (2) the merits/demerits of decision-making by AI
 - 2) Cons: What if we consider AI directors that not only rely on mathematical calculations but also make decisions based on value judgments beyond the dimension of AI that merely performs calculations based on mathematical operations?
 - ① **Fair judgement?:** the merit of AI's being able to make fair judgments is based on the assumption that the existing training data that **AI has been trained on is unbiased and error-free**. What if there is inherent bias or error in the existing training data input by humans(so called 'noise')?
→ **AI's judgments will be affected**
 - ② AI may be vulnerable to making risky entrepreneurial decisions
 - ③ How to specify AI's duty for attributing responsibility and liability

AI : Corporate Law-Director's Duty

- **As a prerequisite for utilizing AI: duty of Knowing Your AI**
 - directors have to comprehensively supervise the use of AI, including the selection of robots, algorithms, and whether to use AI in certain tasks
 - To do so, directors should have a basic understanding of how AI operates
 - Ignorance of AI operation cannot be regarded as an excuse to avoid responsibilities, and the mere fact of not knowing may constitute a breach of duty
 - Under the Korean Capital Market Act, if a robo-advisor is used for investment advisory, professional personnel for the maintenance and upkeep of the electronic investment advice device must be equipped. This requires financial investment firms to manage risks related to electronic investment advice devices
 - Such risk management also applies to directors who utilize AI

AI : Corporate Law-Director's Duty

- Duty of Whether or not use AI?
- Directors are to act on an informed-basis, meaning they should have knowledge of the relevant information to fulfill their duty of care
- Could a decision not to use AI constitute a breach of duty?
- Is it permissible not to use AI in the decision-making process due to the cost?
- The duty of "on informed-basis" decision-making may include the duty to obtain predictive analysis results provided by AI
- However, the director's duty to be informed does not necessarily mean a duty to collect all available information
- Some companies may not that rich to use AI due to a massive cost
- A decision-making process should be carried out that compares the cost and time of using AI versus not using AI
- → It can not be concluded that it constitutes a breach of duty simply not to use AI

AI : Corporate Law-Director's Duty

- Making a decision based on AI's advice constitute breach of Duty?
- Unpredictable Black box problem that human doesn't know AI's inside learning process: to verify whether making business judgments based on AI advice constitutes a breach of duty, it is crucial to determine whether the judgments made by AI can be transparently secured
- Directors owe duties to investigate the AI technology to determine whether the decision-making process using AI is in the best interests of the company

AI : Corporate Law-Director's Liability

- Technical errors in AI and the liabilities of directors
- Directors should not use AI systems that involve significant errors
- Are directors using such AI systems held responsible for any errors inside AI?
- It may be unfair to hold directors liable for a non-negligent acting when they had taken reasonable measures and made decisions based on the information available at the time of the decision-making process using AI systems

Korean Companies Response

- The traditional function of corporate law or the board of directors' role: how to solve the agency problem
- In contrast, in the era of AI system, how to cope with problems AI raised, especially knowledge of AI technology, data governance will be important
- In Korean companies, what is the process for preparing and training directors to acquire knowledge about AI?
- To determine whether or not to use AI, directors have to specialized knowledge of managing, selecting, and machine learning related to the data analyzed by AI
- Is it possible for non-IT expert?
- Since specialized knowledge is required for data management, a separate committee with technical expertise, such as a data governance committee, is required within the board of directors
- At the moment, such committees are uncommon, and AI-related tasks are mainly handled by audit committees
- A few financial companies consider risk management committee with a IT specialist, Induction seminar for independent director without AI knowledge is also emphasized

Thank you!!!