

05

AI-based Applications

❖ Concepts

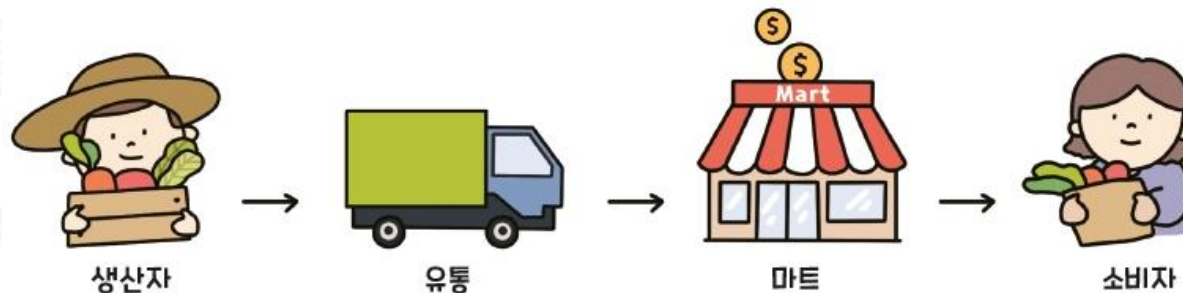
- A medium that connects mass supply with mass demand



❖ Concepts

■ Market

- A market is a broker that connects producers and consumers
- Although products have to go through numerous distribution processes before they are displayed in the market, it eventually provides a place for transactions between producers and consumers
- The market displays the producer's products and receives a fee for the conditions under which the sale takes place



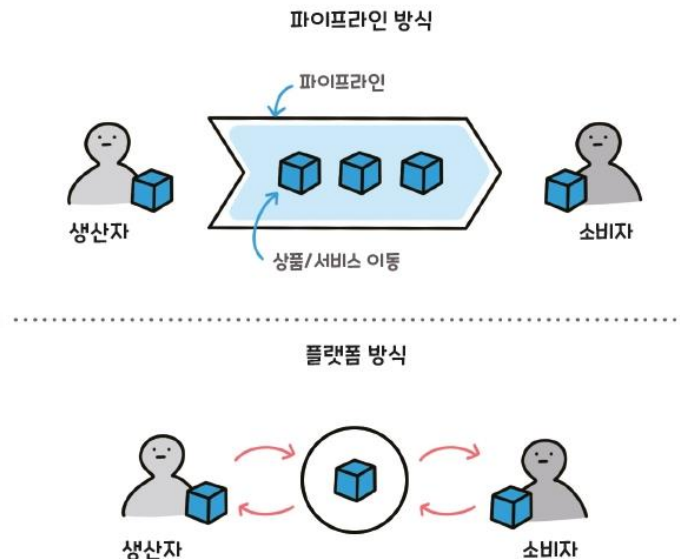
❖ Concepts

■ Pipeline

- Generation and movement of goods and services occur in stages
Producers at one end of the pipeline and consumers at the other end
- Pipelines start with designing products or services
- The system then runs to manufacture, sell, or service the product.
- Eventually, the entire process ends when the customer purchases a product or service
- As such, the pipeline has been concise and fragmented

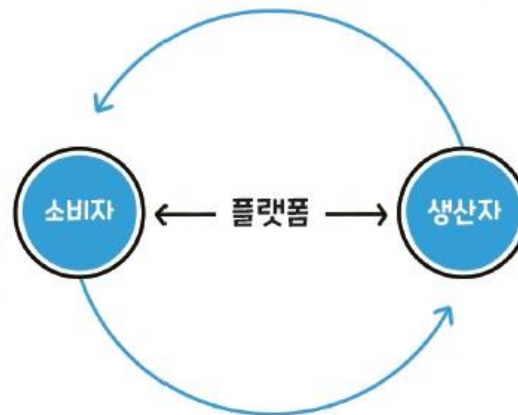
❖ Concepts

- In recent years, enterprise pipelines have changed rapidly to platform structure
- In the platform structure, a company's goods or services are exchanged or consumed in various ways, rather than flowing one-way to consumers



❖ Kinds of platform

- Mediating type, lock-in type, advertising type
- Mediating type
 - A business model that makes a profit on the commission you receive from trading products or content
 - The representative company is Amazon



❖ Kinds of platform

- Lock-in type
 - A model that generates revenue through user loyalty
 - Typically, Microsoft's Windows and Apple's MacOS (MacOS)



❖ Kinds of platform

■ Advertising type

- A model that generates revenue by selling ads after acquiring users
- Typical examples are Google and Meta



❖ Features

- Collapse of the boundaries
 - The platform has no boundaries for borders, but no boundaries between industries
 - e.g. Hyundai Motor's competitors include Google, an IT company, as well as companies that manufacture cars overseas such as BMW and Benz
 - Google has entered the self-driving car industry and is conducting pilot tests
 - In the future, the automotive industry must compete with emerging companies such as Google



(a) 현대자동차의 싼타페



(b) 구글의 웨이모

❖ Features

- Participation of stakeholders
 - The way to increase the loyalty of users is to use a kind of lock-in strategy
 - People often come back to products they're familiar with, which is called a return to familiarity
 - Companies that preempt the platform can lock-in users to their products



❖ Importance of platform selection

- Preemption of the platform means that stakeholders' participation in products and services has been well formed
- Stakeholders voluntarily shape the market, even without the time and effort required to occupy the market for products and services
- This is why global IT companies such as Google, Apple, Amazon, Facebook, and Microsoft are making efforts to preoccupy AI platforms

❖ Amazon

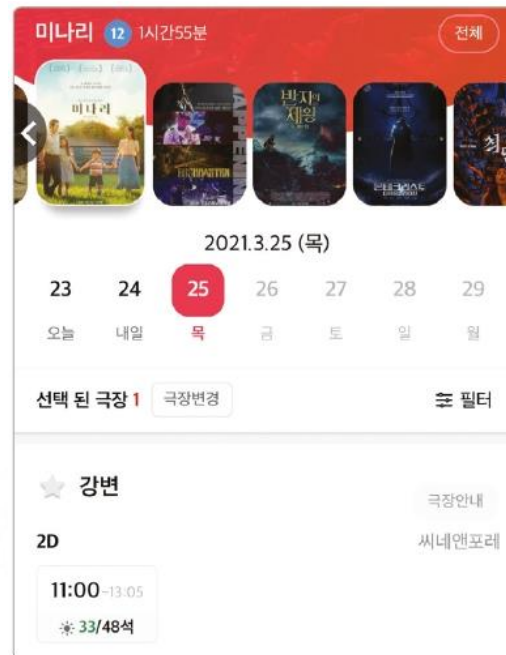
- Amazon becomes an E-commerce company by diversifying its handling products
- Developing Amazon Web Service (AWS), a cloud computing service, makes it a 70% cloud computing marketplace
- Providing AWS with an artificial intelligence platform service called Amazon Lex
 - Amazon Lex provides deep learning technologies such as voice recognition and natural language processing
 - Amazon Lex enables the development of services such as mobile applications, interactive services in the Internet of Things environment, and information retrieval



❖ Amazon

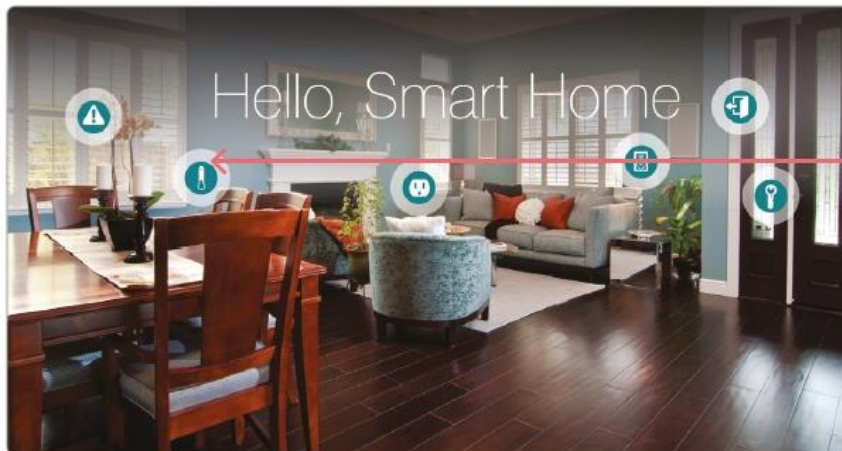
■ Mobile applications

- Using Amazon Rex's voice recognition or natural language processing technology, services such as food orders and ticket reservations can be developed



❖ Amazon

- Interactive services in the Internet of Things environment
 - Internet of Things is attached everywhere in the residential space with smart homes
 - Connecting the Internet of Things to wearable devices or mobile allows users to issue a variety of commands



❖ Amazon

▪ Retrieve information

- Companies should increase productivity by using accumulated information, and what is important is information retrieval
- Amazon Rex (Chatbot) enables information retrieval without developing a search engine



❖ Microsoft

- Microsoft is offering an all-round artificial intelligence platform
- All existing AI-related services are within Microsoft Azure



(a) 음성 인식 비서 코타나



(b) 애저 머신러닝



(c) 인지 서비스



(d) 오피스365

❖ Google

- Google is providing artificial intelligence-related major technologies as a service by installing them on Google Cloud Platform (hereinafter referred to as GCP)
 - Google offers a "cloud artificial intelligence platform pipeline" at GCP that allows developers to handle all stages of data preprocessing, data analysis, and data visualization





❖ Google

- Google also offers a Jupiter Notebook service called Colab
 - In the deep learning field, computer performance is important because there are many mathematical operations, and if you use Colab, you can use Google Cloud's server for free
- The reason Google distributes its cloud server resources for free is to secure customers

❖ IBM

- IBM offers Watson Anywhere to make artificial intelligence easy to use across all clouds
- Watson Anyware breaks away from 'Vendor Lock-in' and can be used in any cloud environment
- IBM has a sales strategy primarily targeted at the enterprise

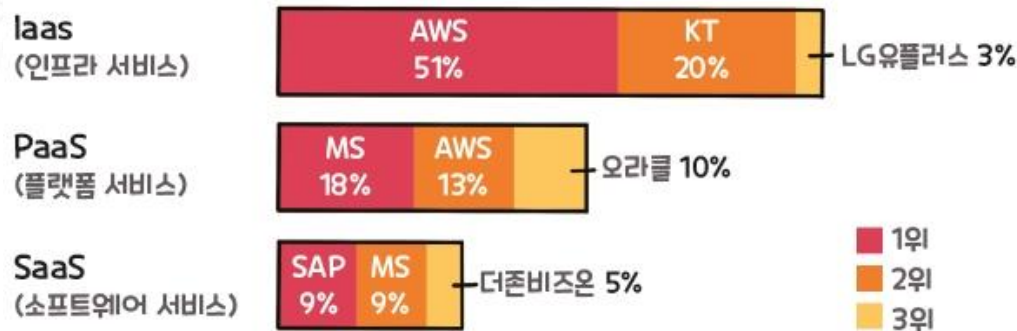


❖ General Electronics

- General Electric (GE) started as a large manufacturer and became a software-driven company
- GE Predix, a cloud-based IoT platform, is the service that reborn GE as a software company
- GE Fredix is a cloud solution that collects and analyzes large amounts of machine-generated data

❖ Cloud computing service

- The strategy chosen by major domestic IT service companies is 'cooperation' rather than 'competition'
- Instead of competing head-to-head with Amazon or Microsoft, they're looking for a way out of consulting business that helps customers take advantage of Amazon, Microsoft, and IBM's services





❖ Cloud computing service

- Naver and Kakao entered the cloud business in earnest by pouring significant quantities into the data center
- By 2030, 70% of companies around the world will use artificial intelligence and contribute to global GDP is expected to reach USD 13 trillion (approximately KRW 1 trillion 4,044 trillion)
- Cloud computing-based services are essential for AI-related revenue

❖ Cloud computing service

네이버와 카카오의 클라우드 데이터센터 비교

구분	네이버	카카오
연도	1호(2016년) 2호(2022년 예정)	1호(2023년 예정)
위치	강원도 춘천시, 세종특별자치시	경기도 안산시
규모	하이퍼스케일	하이퍼스케일
관련 사업 분야	인프라 서비스(IaaS) 소프트웨어 서비스(SaaS) 플랫폼 서비스(PaaS)	소프트웨어 서비스(SaaS) 플랫폼 서비스(PaaS)

❖ Current status of AI platforms in Korea

■ Cloud-based AI services

- Naver has an artificial intelligence platform called Naver Clova, and Kakao has an artificial intelligence platform called Kakao Mini
- Domestic artificial intelligence platforms generally focus on voice recognition and natural language processing
- However, the artificial intelligence speaker market that uses this technology is also losing ground to foreign companies, remaining at 3% of the global market share



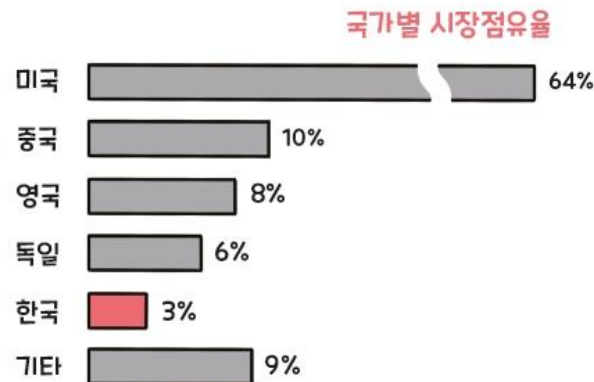
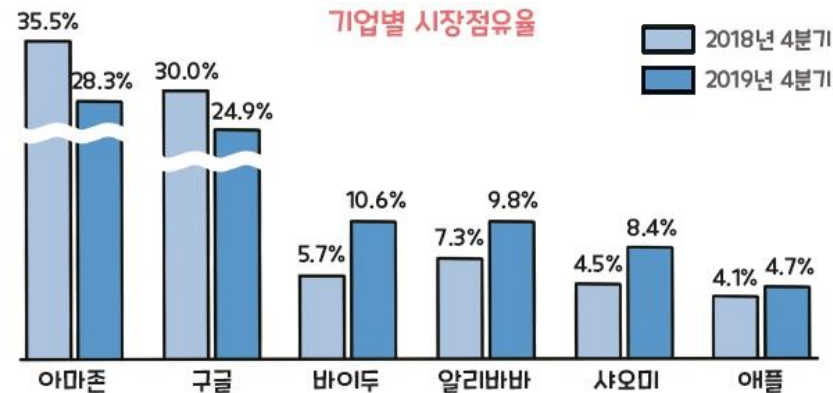
(a) 네이버 클로바



(b) 카카오미니

❖ Current status of AI platforms in Korea

■ Cloud-based AI services



지능형 스피커 시장점유율

❖ Current status of AI platforms in Korea

- AI strategies of Korea's major IT service companies
 - Samsung SDS launched Brity, an interactive artificial intelligence platform
 - Since then, it has been transforming into an artificial intelligence business company by introducing Brightics AI (Brightics AI), an artificial intelligence platform for companies





❖ Current status of AI platforms in Korea

- AI strategies of Korea's major IT service companies
 - LG CNS launches DAP, an artificial intelligence big data platform based on multi-cloud
 - Aibril, an artificial intelligence service based on SK's cognitive computing technology, is a Korean version of Watson introduced in cooperation with IBM

❖ Unmanned store

- Amazon plans to increase its Amazon Go stores to 3,000 by 2021
- It announced that it expects to make \$4.5 billion (about KRW 5 trillion) in annual profits
- Amazon's purpose of going offline is to collect data from customers
- The data collected in this way will be analyzed with artificial intelligence technology and used for future new product development or online stores



❖ Unmanned store

- Convenience stores were the first to introduce unmanned stores in Korea
- E-Mart 24, GS25, and 7-Eleven are piloting unmanned stores for some stores



❖ AI shipping

- The delivery system is currently dependent on people, but will gradually change to the system that robots deliver
- GS Retail introduces a service that delivers products ordered by smartphones directly by robots equipped with AI



❖ AI shipping

- More delivery robots are being developed and released overseas

Domino's Robotics Unit (DRU) of Domino's Pizza

- Four-wheeled DRUs travel at 20 km/h
- Sensors recognize obstacles and deliver pizza to destination



❖ AI shipping

- Delivery robot EAT24 from Marble, a startup in San Francisco, USA
 - This robot is equipped with a camera and LiDAR
 - Recognize your surroundings, identify people or objects through machine learning, and move safely
- Scout, Amazon's six-wheel delivery robot



(a) 마블의 EAT24



(b) 아마존의 스카우트

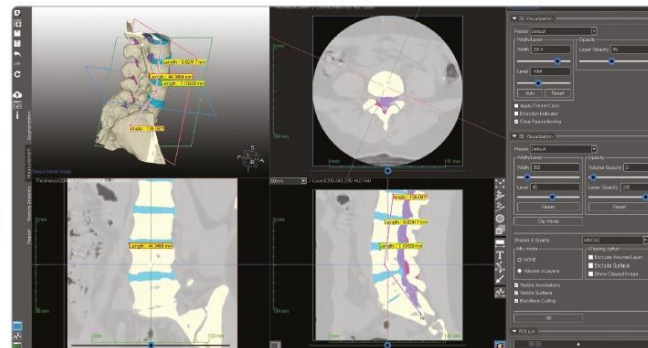
❖ AI shipping

- There are obstacles to commercialization of delivery robots, such as theft and restrictions on areas of movement
- Drone is a delivery robot that has been in the spotlight due to these problems
- The Federal Aviation Administration (FAA) allowed the delivery of medical supplies and protective equipment to Health Medical Centers via drones



❖ AI healthcare

- Medical IP, a medical image processing software company
 - MEDIP, which implements existing medical images that used to be checked in black and white 2D such as CT and MRI, in 3D colors based on artificial intelligence, is released
- The medical image is divided into each organ and lesion area to be learned by artificial intelligence, and the internal information of the human body is expressed through color 3D images

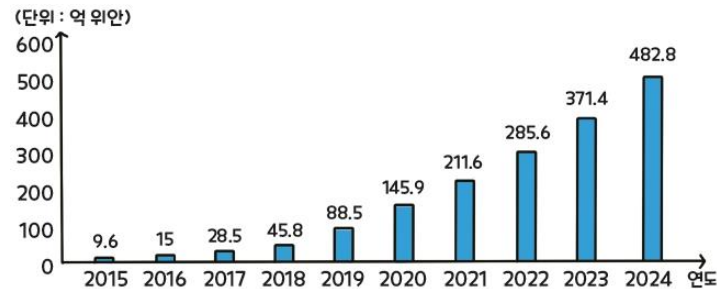


❖ AI healthcare

- AI medical startup Lunit
 - Developed a technology that increases lung cancer diagnosis accuracy by 14% compared to conventional X-ray diagnosis by learning chest X-ray images through AI
 - Lunit has entered the Chinese market in partnership with Alibaba, China, and is actively providing services

❖ AI healthcare

- In Korea, it is also illegal for medical data to be used in the cloud.
- On the other hand, China, which has an artificial intelligence negative policy, has come up with more than 50 policies and opinions at the government level to make the most of medical big data, which has become the basis for wearable device and artificial intelligence development



- Korea also needs to ease related laws for the development of technology and medical benefits

❖ AI accommodation

- In Korea, KT and Hyundai Robotics introduced Nbot, a hotel robot.
- Nbot uses information and communication technologies such as space mapping and autonomous driving to deliver convenient items such as towels and bottled water to the room when hotel guests request them



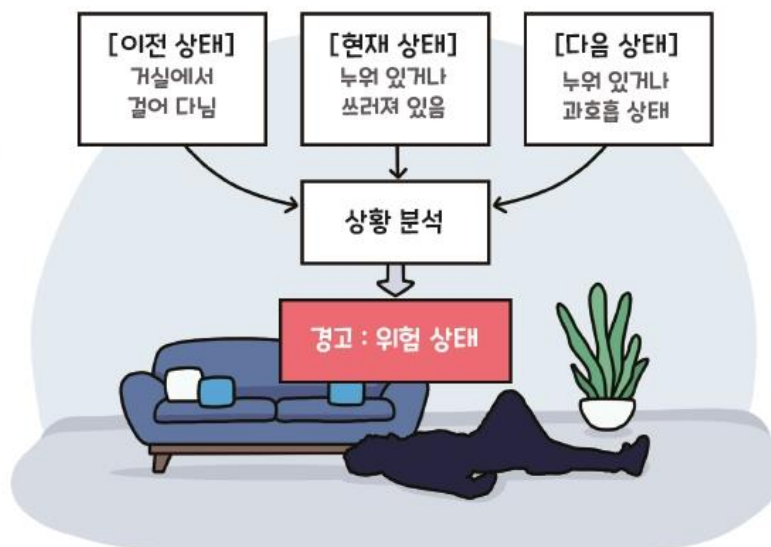
❖ Senior-care AI

- Many domestic and foreign companies launch 'Senior Care AI' for senior customized services
- SKT's AI speaker NUGU
- Operate 'AI care' service
 - Providing high-quality welfare services for the elderly (and later seniors) 24 hours a day



❖ Senior-care AI

- Care Angel in the United States
 - For the first time in the world, voice recognition artificial intelligence is applied to 'senior care service'
- Ecocare of Ecocare Technologies in Israel



❖ A companion AI robot

- A robot that acts as a human companion by recognizing and responding to people using sensors and artificial intelligence technology
- A typical example of a companion robot is Paro in Japan



❖ A companion AI robot

- Torooc's companion robot, LIKU
 - Based on artificial intelligence, collecting surrounding information using sensors and responding
 - Judge a person's feelings by his or her facial expression and tone of voice and respond appropriately

