2024

Enterprise Informatization Statistics

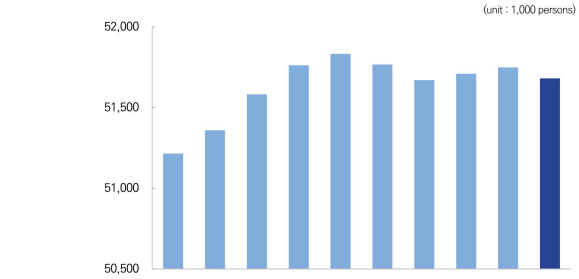
Republic of Korea

Ministry of Science and ICT

NIA NATIONAL INFORMATION SOCIETY AGENCY

Korea's ICT Statistics at a Glance

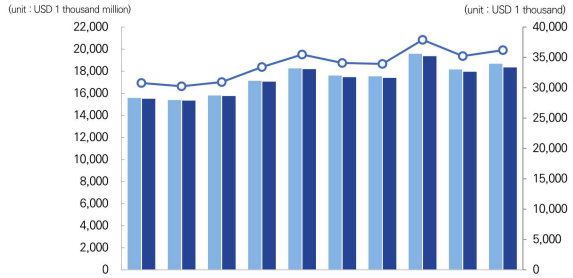
Population



classification	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Population	51,218	51,362	51,585	51,765	51,836	51,770	51,673	51,713	51,751	51,684

※ Source : Statistics Korea
※ Note : Data is estimated future population, reflecting data of each factor of population change (birth, death, international moving, etc.) based on 2022 Population and Housing Census.

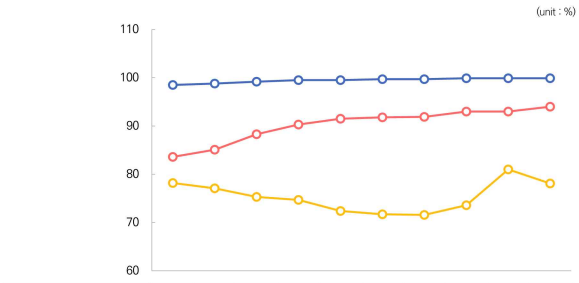
GNI and GDP



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
GNI (at current prices)/ left axis	15,629	15,431	15,850	17,171	18,309	17,649	17,588	19,620	18,204	18,717
GDP (at current prices)/ left axis	15,557	15,385	15,795	17,104	18,240	17,506	17,444	19,415	17,987	18,394
GNI Per Capita/ right axis	30,798	30,247	30,946	33,431	35,494	34,094	33,929	37,898	35,229	36,194

※ Source : Bank of Korea (BOK)
※ Note : 1) GNI and GDP have been revised due to the change in base year into 2020 by Bank of Korea.
2) GNI per capita have been changed due to the population's change based on 2020 Population and Housing Census by Statistics Korea.

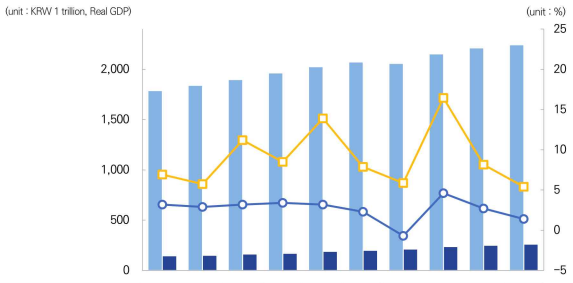
Access to and use of ICT by households and individuals



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Proportion of households with Internet access (Including mobile internet)	98.5	98.8	99.2	99.5	99.5	99.7	99.7	99.9	99.9	99.9
Proportion of households with a computer	78.2	77.1	75.3	74.7	72.4	71.7	71.6	73.6	81.0	78.1
Proportion of individuals using the Internet in the last 12 months	83.6	85.1	88.3	90.3	91.5	91.8	91.9	93.0	93.0	94.0

※ Source : Ministry of Science and ICT (MSIT), National Information Society Agency(NIA), 'Survey on Internet Usage', December 2023

ICT and GDP Growth Rate

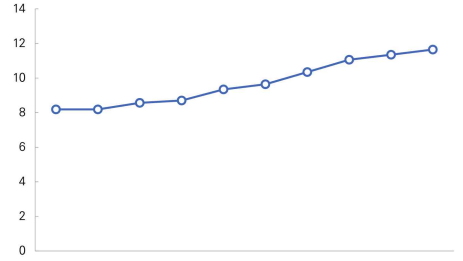


classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
All Industries' GDP/ left axis	1,788	1,840	1,899	1,964	2,026	2,073	2,058	2,153	2,212	2,243
ICT Sectors'GDP/ left axis	146	151	163	171	189	200	213	238	251	261
GDP Growth Rate/ right axis	3.2	2.9	3.2	3.4	3.2	2.3	(0.7)	4.6	2.7	1.4
Growth Rate of ICT sector/right axis	3.7	2.8	8.0	5.1	10.7	5.6	6.6	11.8	5.5	4.0

※ Source : Bank of Korea (Economic Statistics system)
※ Note : 1) The 12th revision of the reference year of national accounts(from 2015 to 2020) was reflected.
2) Data is based on the OECD ICCP(Committee for Information, Computer, and Communications Policy)'s 'information and communications industry' classification.
3) The ICT sector includes manufacture of ICT apparatuses(office appliances, semiconductors and other ICT appliances) and ICT service(broadcasting, software, and computer-related service).

Share of ICT Industry in GDP

(unit : %)

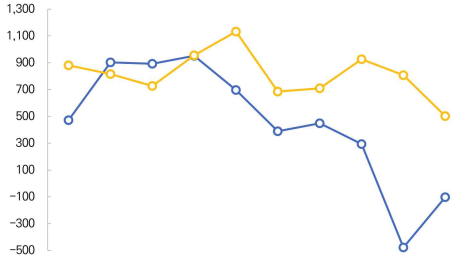


classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Share of ICT Sector in GDP	8.2	8.2	8.6	8.7	9.3	9.6	10.3	11.1	11.4	11.6

※ Source : Bank of Korea (Economic Statistics system)
※ Note : 1) The 12th revision of the reference year of national accounts (from 2015 to 2020) was reflected.
2) The ICT sector includes manufacture of ICT apparatuses(office appliances, semiconductors and other ICT appliances) and ICT service(broadcasting, software, and computer-related service).
3) The share of the ICT sector in GDP is based on Real GDP.
4) Real GDP is the value of GDP that considers price fluctuations (and is calculated by using the base year's prices).

ICT and Balance of Trade

(unit : USD 1 hundred Million)

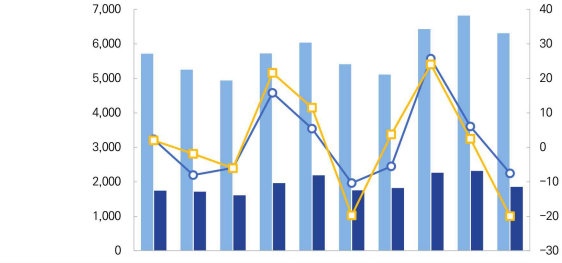


classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
All Industries' Trade Balance	472	903	892	952	697	389	449	293	-478	-103
ICT Industry's Trade Balance	881	815	727	955	1132	685	709	926	807	502

※ Source : Ministry of Trade, Industry and Energy (MOTIE), 'IT Export/Import Trends', National IT Industry Promotion Agency(NIPA), 'Statistical Indicators of Information and Communications Industry', 2023
※ Note : The ICT industry is divided into the information and communications equipment (core ICT) industry and the information and communications application equipment (broad ICT) industry according to the OECD's ICT industry classification system (revised in 2013).

Export Trends of All industries and ICT Industry

(unit : USD 1 hundred million) (unit : %)

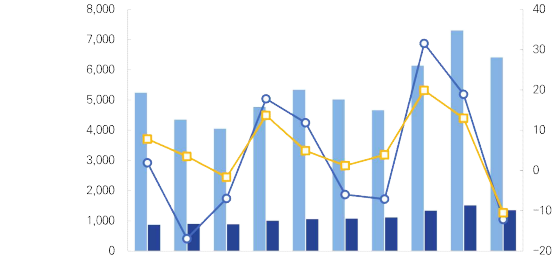


classification		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
All Industries	Exports	5,727	5,268	4,954	5,737	6,049	5,423	5,125	6,444	6,836	6,322
	% Change	2.3	-8.0	-5.9	15.8	5.4	-10.3	-5.5	25.7	6.1	-7.5
ICT Industry	Exports	1,762	1,729	1,625	1,976	2,203	1,769	1,835	2,276	2,332	1,867
	% Change	2.0	-1.9	-6.0	21.6	11.5	-19.7	3.7	24.0	2.5	-19.9

※ Source : Ministry of Trade, Industry and Energy (MOTIE), 'IT Export/Import Trends', National IT Industry Promotion Agency(NIPA), 'Statistical Indicators of Information and Communications Industry', 2023
※ Note : The ICT industry is divided into the information and communications equipment (core ICT) industry and the information and communications application equipment (broad ICT) industry according to the OECD's ICT industry classification system (revised in 2013).

Import Trends of All Industries and ICT Industry

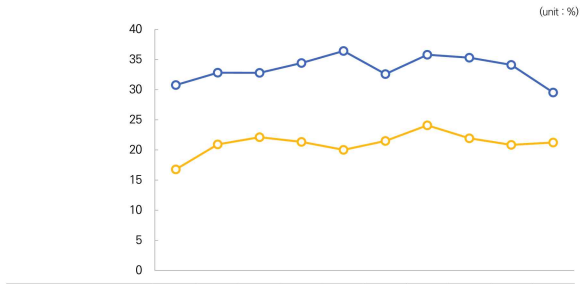
(unit : USD 1 hundred million) (unit : %)



classification		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
All Industries	Exports	5,255	4,365	4,062	4,785	5,352	5,033	4,676	6,151	7,314	6,426
	% Change	1.9	-16.9	-6.9	17.8	11.9	-6.0	-7.1	31.5	18.9	-12.1
ICT Industry	Exports	882	913	898	1,021	1,071	1,084	1,126	1,350	1,525	1,365
	% Change	7.8	3.5	-1.6	13.7	4.9	1.2	3.9	19.9	13.0	-10.5

※ Source : Ministry of Trade, Industry and Energy (MOTIE), 'IT Export/Import Trends', National IT Industry Promotion Agency(NIPA), 'Statistical Indicators of Information and Communications Industry', 2023
※ Note : The ICT industry is divided into the information and communications equipment (core ICT) industry and the information and communications application equipment (broad ICT) industry according to the OECD's ICT industry classification system (revised in 2013).

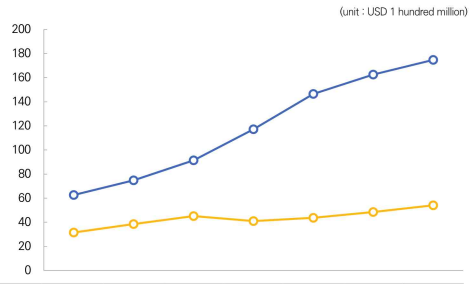
ICT Industry's Export/Import Share



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ICT Industry's Export Share	30.8	32.8	32.8	34.4	36.4	32.6	35.8	35.3	34.1	29.5
ICT Industry's Import Share	16.8	20.9	22.1	21.3	20.0	21.5	24.1	21.9	20.9	21.2

※ Source : Ministry of Trade, Industry and Energy (MOTIE), 'IT Export/Import Trends', 2023
※ Note : The ICT industry is divided into the information and communications equipment (core ICT) industry and the information and communications application equipment (broad ICT) industry according to the OECD's ICT industry classification system (revised in 2013).

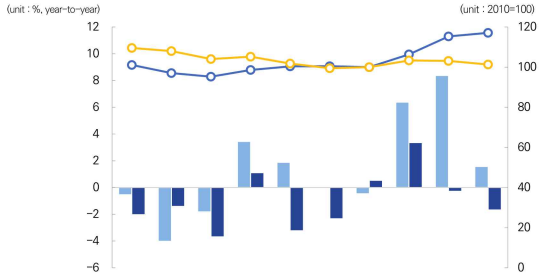
Online shopping turnover - By Transaction Type



classification	2017	2018	2019	2020	2021	2022	2023
online	63	75	91	117	147	163	175
on/offline	32	39	45	41	44	49	54

※ Source : Statistics Korea, 'A Survey of Shopping Trends on Online', 2023
※ Note : 1) The latest figures in the statistics in the body(2 months) contain a provisional value(p), which can be corrected later.
2) Sample revisions are implemented to reflect recent changes in the online shopping market and provided in isolation from past time series data prior to 2016.

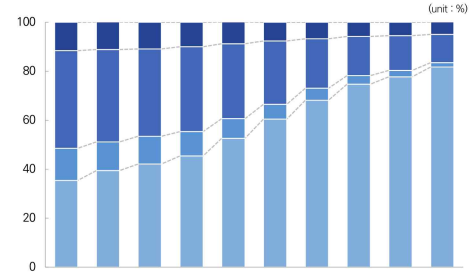
ICT and Producer Price Index(PPI)



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
PPI Growth Rate/ left axis	-0.5	-4.0	-1.8	3.4	1.9	0.0	-0.5	6.4	8.4	1.6
PPI/right axis	101.1	97.1	95.3	98.6	100.4	100.5	100.0	106.4	115.3	117.1
ICT sector PPI Growth Rate/left axis	-2.0	-1.4	-3.7	1.1	-3.2	-2.3	0.5	3.4	-0.3	-1.7
ICT sector PPI Rate/ right axis	109.6	108.0	104.1	105.2	101.8	99.5	100.0	103.4	103.1	101.4

※ Source : Bank of Korea (BOK), 'Producer Price Index', 2023
※ Note : The base year for PPI and ICT sector PPI is 2020(=100).

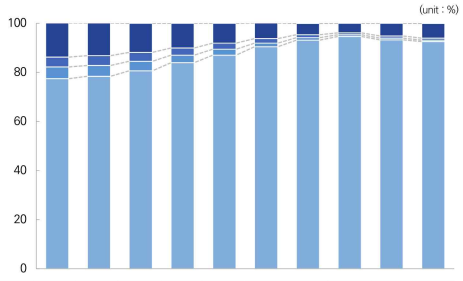
Share of Financial Transactions by Delivery Channel - Deposit/Withdrawal Transactions -



classification	2014. 12	2015. 12	2016. 12	2017. 12	2018. 12	2019. 12	2020. 12	2021. 12	2022.12	2023.12
Internet Banking	35.4	39.4	42.1	45.4	52.6	60.4	68.1	74.7	77.7	81.7
tele-banking	13.1	11.7	11.3	9.9	8.0	6.1	4.9	3.5	2.6	1.8
CD/ATM	39.9	37.7	35.7	34.7	30.6	25.8	20.2	16.0	14.2	11.5
Teller	11.6	11.3	10.9	10.0	8.9	7.7	6.8	5.8	5.5	5.1

※ Source : Bank of Korea (BOK), 'Payment and settlement Statistics', 2023
※ Note : Data is based on the number of deposit/ withdrawal transactions(deposit, withdrawal, transfer) provided from financial institutions.

Share of Financial Transactions by Delivery Channel - Inquiry Service -

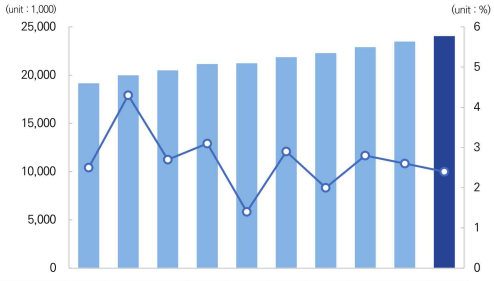


classification	2014. 12	2015. 12	2016. 12	2017. 12	2018. 12	2019. 12	2020. 12	2021. 12	2022. 12	2023. 12
Internet Banking	77.4	78.4	80.6	83.9	87.0	90.4	93.1	94.6	93.2	92.5
tele-banking	4.8	4.4	3.9	3.1	2.4	1.5	1.0	0.7	0.7	0.6
CD/ATM	4.0	4.0	3.6	2.9	2.5	1.8	1.2	0.8	0.9	0.8
Teller	13.9	13.3	11.9	10.1	8.1	6.4	4.6	3.9	5.2	6.0

※ Source : Bank of Korea (BOK), 'Payment and settlement Statistics', 2023

※ Note : Data is based on the number of account inquiries related with financial transactions such as deposit, loan, and credit card transactions, the number of money transfer result inquiries, and the number of inquires of interest rate, exchange rate, and bank check.

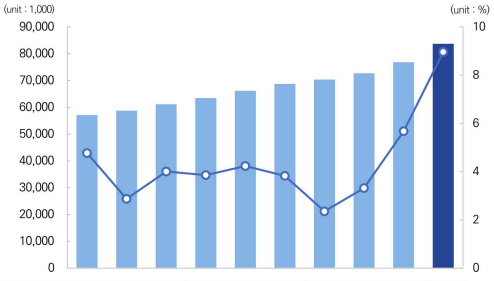
Fixed(Wired) Broadband Subscriptions



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Fixed Broadband subscriptions	19,199	20,025	20,556	21,196	21,286	21,906	22,327	22,944	23,537	24,098
% Change	2.5	4.3	2.7	3.1	1.4	2.9	2.0	2.8	2.6	2.4

※ Source : Korea Communications Commission (KCC), 'Wired and Wireless Communications Service Subscription', 2023

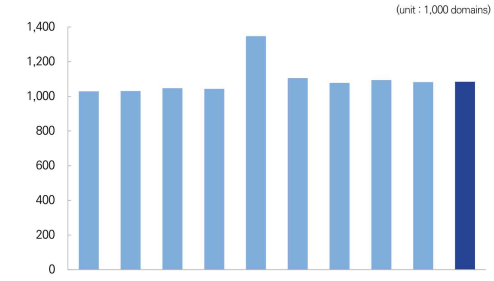
Mobile cellular telephone Subscriptions



classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mobile cellular telephone Subscriptions	57,290	58,935	61,296	63,659	66,355	68,892	70,513	72,855	76,992	83,892
% Change	4.8	2.9	4.0	3.9	4.2	3.8	2.4	3.3	5.7	9.0

※ Source : Korea Communications Commission (KCC), 'Wired and Wireless Communications Service Subscription', 2023

Number of .Kr Domains

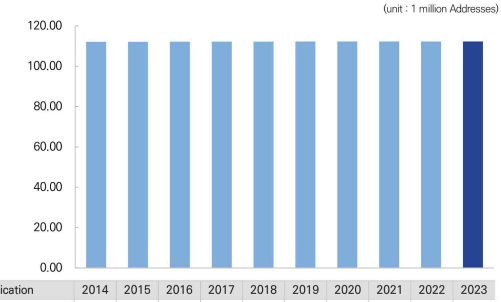


classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of .Kr Domains	1,031	1,033	1,049	1,046	1,349	1,108	1,080	1,096	1,085	1,087

※ Source : Korea Internet & Security Agency(KISA), 'Internet Infrastructure Statistics', 2023

Number of Ipv4 Address

(unit : 1 million Addresses)



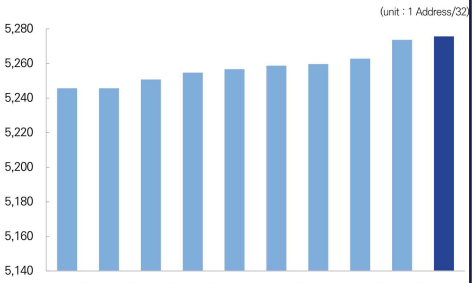
classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Ipv4 Address	112.32	112.38	112.43	112.44	112.46	112.48	112.47	112.49	112.50	112.50

※ Source : Korea Internet & Security Agency(KISA), 'Internet Infrastructure Statistics', 2023

※ Note : Data includes IPv4 addresses directly allocated in Korea by overseas management institutions.

Number of Ipv6 Address

(unit : 1 Address/32)

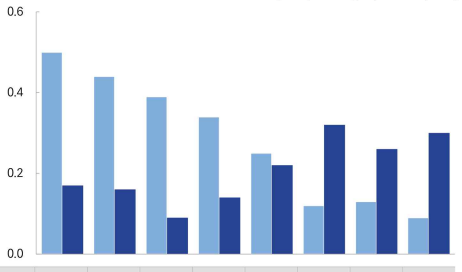


classification	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Ipv6 Address	5,246	5,246	5,251	5,255	5,257	5,259	5,260	5,263	5,274	5,276

※ Source : Korea Internet & Security Agency(KISA), 'Internet Infrastructure Statistics', 2023

Number of Spam Received Per Person Per Day

(unit : spam mails/per person and per day)



classification	2016	2017	2018	2019	2020	2021	2022	2023
E-mail Spam	0.50	0.44	0.39	0.34	0.25	0.12	0.13	0.09
Mobile phone Spam	0.17	0.16	0.09	0.14	0.22	0.32	0.26	0.30

※ Source : Korea Internet & Security Agency(KISA), 'Spam Received Number', 2023

Contents

Appendix

1 Overview of the Survey on Enterprise Informatization

1 Objectives of the Survey

Amid the rapidly changing informatization environment and rising demands for new informatization policies, the survey aims to develop indicators that capture the current status of informatization of enterprises in Korea from various aspects.

The results of the survey, as primary data, are utilized for establishing informatization-related policies and conducting research. Additionally, the survey provides Korea's official statistical data to international organizations such as the OECD and the UNCTAD.

2 History of the Survey

This survey has been carried out since 1999, and the 2024 survey is the 26th annual survey.
The survey will continue to undertake annually in the future by the Ministry of Science and ICT(MSIT) and the National Information Society Agency(NIA) jointly.

- **1999** : 'Survey on the Information Society Statistics' developed and conducted for the first time
- **2001** : Survey scope changed from 'household, business and public sectors' to 'business/public sector' (to prevent duplicate survey efforts from other relevant agencies and in consideration of NIA's own scope of work)
- **2002** : Survey on the 'business/public sector' replaced with the integrated survey on the 'business sector'
- **2003** : Survey by organizational structures added, and comparative survey of central/local governments and other organizations launched
- **2004** : The survey on Information Society approved by the government (No. 12008, July 15, 2004)
- **2005** : OECD's classifications recommendation adopted in defining types and sizes of businesses
- **2006** : Survey scope changed from 'establishments with 5 employees or more' to 'all establishments' and the reference year changed from 'end of June the same year' to 'end of the previous year'
- **2007** : Sample size expanded (Nationwide 11,000 establishments targeted)Supervising organization changed from Ministry of Information and Communication to Ministry of Public Administration and Security
- **2008~2010** : Sample size expanded from '11,000 establishments' to '14,000 establishments'
- **2011** : New classifications(ISIC Rev. 4), which was recommended under the Partnership on Measuring ICT for Development (ITU, OECD, UNCTAD, etc.), adopted in defining industry types
- **2013** : Supervising organization changed from Ministry of Public Administration and Security to Ministry of Science, ICT and Future Planning
- **2016** : Government-designated statistics approval number changed (No. 12008 → No. 120008)
- **2017** : Supervising organization changed from Ministry of Science, ICT and Future Planning to Ministry of Science and ICT
- **2020** : The population and the sample size (12,500) of the survey changed to private enterprises with 10 or more employees
- **2023** : Questionnaire improvements have been made
- **2024** : The title of the survey has been revised

3 Legal Authority

Approved as designated statistics by the government(No. 120008, July 15, 2004) under the Article 17 of the Statistics Act, this survey has been conducted under the Article 66(Indicator research) of the Fundamental Act on Intelligent Informatization and the Article 53(Indicator development and dispersion) of its Enforcement Ordinance.

4 Reference Year

- Reference Date : December 31, 2023
- Reference Period : January 1, 2023 ~ December 31, 2023
- Survey Period : July 29, 2024 ~ October 6, 2024
- Periodicity : Yearly

5 Scope of the Survey

The targeted population of 2024 Enterprise Informatization Statistics is all enterprises with 10 or more employees throughout Korea. 『Statistical Business Registers』 by Statistics Korea indicates that the number of the total enterprises in the target population is 213,266 as of December 2023.

6 Survey Method

The Survey was carried out by interviewers visiting offices of the subject enterprises and writing down the answers from respondents through face-to-face interviews. However, when necessary, the survey was carried out via web, email, and fax in parallel.

7 Contents of the survey

- **Informatization Infrastructure and Usage :** Computer, Internet
- **Application of Informatization :** Website, e-Commerce, e-Government Services, Open Data, Management Information System, Remote Work(Smart work)
- **Utilization of Intelligent Information Technology :** IoT(Internet of Things), Cloud Computing, Data Analysis, Data Transaction, Artificial Intelligence(AI)
- **Informatization Investment & Effectiveness :** Investment in Informatization, Personnel for Informatization, Effectiveness of Informatization

8 Sampling Design

Statistics Korea's 『Statistical Business Registers』of the fourth-quarter of 2023 was used for sampling. As the standard industrial classification was revised, the population for the survey was re-classified by applying Korean Standard Industrial Classifications(KSIC)(Rev. 10) and International Standard Industrial Classifications(ISIC)(Rev. 4), which was recommended under the partnership(ITU, OECD, UNCTAD, etc.) for the international comparison of ICT usage statistics. 19 industry types were re-classified into 16 industrial types, then systematic sampling by regions was done by dividing the size of the enterprises into 4 groups according to the number of employees.

- **Industry (16) :** (1)Agriculture, forestry, fishing(including mining and quarrying), (2)Manufacturing, (3)Electricity, gas, steam and air conditioning supply/water supply and sewage · waste management, recycling raw material, (4)Construction, (5)Wholesale and retail trade, (6)Transportation and storage, (7)Accommodation and food service activities, (8)Information and communication, (9)Financial and insurance activities, (10)Real estate activities, (11)Professional, scientific and technical activities, (12)Business facilities management and business support services, (13)Educational services, (14)Human health and social work services, (15)Arts, sports, and recreation-related services, (16)Membership organizations/repair and other personal services

- **Size (4) :** (1) 10~49 employees, (2) 50~249 employees, (3) 250~999 employees, (4) 1,000 or more employees

Population	■ All enterprise nationwide with 10 or more employees
Sampling Framework	■ Statistics Korea's『Statistical Business Registers』(As of December 2023)
Survey Region	■ 17 metropolitan cities and provinces nationwide
Sample Size	■ 12,500 enterprises
Sample Allocation Method	■ Neyman Allocation
Sampling Method	■ Multi-stage stratified systematic sampling ※ cut-off sampling also applied according to the number of employees

9 Processing & Analysis

Collected data were entered into a computer to create a data file after going through editing and coding. Statistical process has conducted on the data, using SPSS Statistics 25.0.

- Completed questionnaire has been verified afterward by telephone, regarding whether the interviewers actually visited, responded correctly, and etc. in order to confirm objectivity and reliability.
- After the first verification of the questionnaires, multiple choice (closed-ended) questions were punched in through survey-craft punching system. Entering errors were also checked.
- The final set of data was confirmed by means of sampling and checking the answers without logical relevance between the questions.
- In the course of analysis, additional verification of time-series comparison with previous survey results was conducted.

Response rate	■ 97.6% (Valid responses : 12,203 enterprises)
Non response treatment	■ Unit non-response - 1st : Re-interviewing - 2nd : Unit non-response was substituted by other enterprises within the same stratum with identical characteristics by the sampling method - Last : Population-based corrective weighting ■ Item non-response - In cases where the enterprises participating in the survey showed non-responses in certain items, additional interviews were conducted to supplement the missing data. - If additional interviews could not address the non-responses, the items were treated as non-responses, or Hot-deck Imputation, one of the imputation methods recommended by UNCTAD, was applied. - This method involves categorizing enterprises that responded to the question with non-responses into analogous groups, recording their responses in a hot-deck table, and then determining which category the non-responding enterprise belongs to in order to use the average response value of the group from the hot-deck table. For non-responses in categorical questions, we used strata such as (industry x size) and substitute strata like computer penetration, internet connection, or website operation, which are closely related to IT, to handle the non-responses by substituting the mode. For non-responses in continuous-type questions, we used the same method to substitute non-responses with the average value of the corresponding stratum.
Parameter estimation	■ Raking Ratio Estimation - To estimate the parameters not only by industry and enterprise size but also by region and types of legal organization, the raking ratio estimation, a post-stratification method, was applied to generate sampling weights, which were then used to estimate the parameters based on the population data.

10 Data Provision

Publication Method	■ Publication ■ Online service via the Internet – Ministry of Science and ICT (http://www.msit.go.kr) – National Information Society Agency (http://www.nia.or.kr) – Korea Statistical Information Service (http://www.kosis.kr)
Publication Period	■ Yearly (Once a year)
Publication Name	■ Yearbook of Information Society Statistics

11 Explanatory Notes For Users

- The questionnaire for the '2024 Survey on Enterprise Informatization' maintains the same structure as the 2023 survey to enhance response convenience and comparability across countries. As a result, the 2023 and 2024 survey results are comparable. However, since the structure differs from surveys conducted prior to 2023, caution is advised when performing time-series analysis or comparing results with surveys before 2023.
- As the figures in this statistical data are rounded off, the sum of individual figures may not equal to total. The reference year is different by topic and is specified on each statistical table.
- Meanings of symbols used in the statistical tables are as follows.

➡ [-] indicates that said value does not exist
➡ [0] indicates that value is 0 or its approximate value

- You may also find this yearbook on the website of Ministry of Science and ICT (http://www.msit.go.kr) and National Information Society Agency (http://www.nia.or.kr).
- You may contact Future Strategy Team Dept. AI Policy in NIA (+82.53.230.1205, jmlee@nia.or.kr) for any inquiries regarding the data shown in this document.

12 Major Findings

- **Findings in Overall**

  Computer penetration rate, internet access rate, and informatization investment rate of the enterprises with 10 or more employees were estimated at 100% as of December 31st, 2023. Regardless of the type of industries and the employment size, these rates remained high, indicating a very solid informatization infrastructure across all industries.

- **Findings By Enterprise Size**

  Across all different types of informatization infrastructures, it is notable that the larger the employment size is, the higher the usage/operation rate is. Particularly, enterprises with 250 or more employees that owned a website(homepage) or used e-Commerce purchases showed a big difference in the usage rate compared to enterprises with 10 to 249 employees.

Informatization Status By Establishment Size

(use : %)

Classification	10~49 Employees	50~249 Employees	250+ Employees	Total (10+Employees)
Computer Penetration	100.0	100.0	100.0	100.0
Employees' Computer Usage (average)	68.0	63.0	64.9	67.3
Internet Access	100.0	100.0	100.0	100.0
Employee' Internet Usage (average)	66.1	60.2	61.4	65.3
Website(Homepage) Usage	69.1	81.8	94.2	71.1
e-Commerce purchases Usage	54.0	63.8	74.8	55.7
e-Commerce sales Usage	23.5	25.1	35.4	23.9
Proportion of e-Commerce sales amount(of total sales amount)	47.8	48.9	48.5	48.0
Internet of Things(IoT) Devices and Services Usage	54.2	59.8	70.6	55.2
Cloud Computing Usage	73.0	80.6	83.0	74.2
Data Analysis and Services Usage	37.6	54.5	67.2	40.2
Artificial Intelligence(AI) Technology and Services Usage	27.4	45.0	63.3	30.3
Informatization Investment	100.0	100.0	100.0	100.0

※ Reference Period : 2024 Survey(Dec. 31, 2023)

※ Base : 1) Computer Penetration / Internet Access / Website (Homepage) Usage / Use of e-Commerce(purchases/sales) / Internet of Things(IoT) Usage / Cloud Computing Usage / Data Analysis Usage / Artificial Intelligence(AI) Usage / Informatization Investment : Establishments with 10 or more employees (Statistical Business Registers, Statistics Korea)
2) Employees' Computer Usage : Enterprises with 10 employees or more in possession of at least one computer
3) Employees' Internet Usage : Enterprises with 10 employees or more with internet access at least once a week.
4) Proportion of e-Commerce sales amount(of total sales amount) : Enterprises that used e-Commerce for sales

※ Note : 1) Employees include both full-time and temporal workers.
2) Due to rounding, the sum of individual figures may not equal to total.

- **Findings By Industry Type**

  Enterprises across all industries showed high computer penetration rate, internet access rate, and informatization investment rate.

Informatization Status By Industry Type

(use : %)

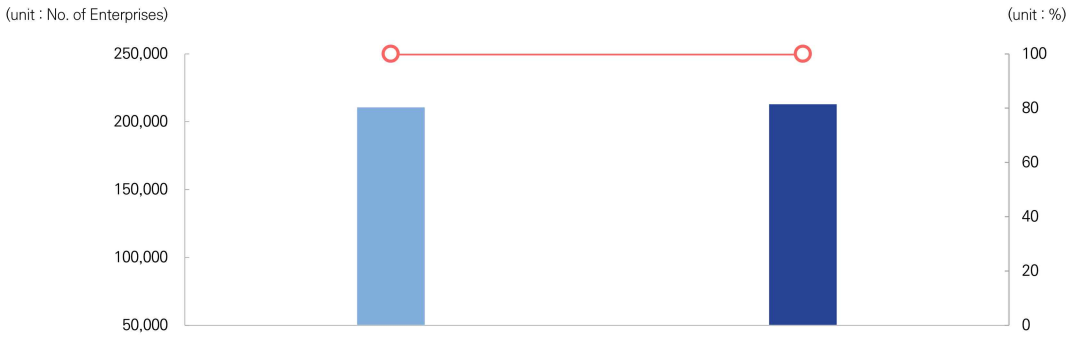
Classification	Agriculture, forestry and fishing	Manufacturing	Electricity, gas, steam and air conditioning supply	Construction	Wholesale and retail trade	Transportation and storage	Accommodation and food service activities	Information and communication	Financial and insurance activities	Real estate activities	Professional, scientific and technical activities	Business facilities management and business support services	Education	Human health and social work activities	Arts, sports and recreation related services	Repair and other personal services
Computer Penetration	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employees' Computer Usage (average)	43.5	55.8	50.4	61.9	75.8	65.0	58.5	98.0	96.3	62.3	87.5	56.3	86.7	85.8	69.1	54.6
Internet Access	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee' Internet Usage (average)	40.0	52.6	47.8	59.0	74.4	69.9	54.0	97.8	96.4	59.3	87.8	52.4	86.1	84.6	69.6	53.0
Website(Homepage) Usage	46.6	70.8	50.8	46.5	72.9	56.9	91.5	97.5	88.5	55.1	71.5	61.3	88.1	97.2	89.2	72.7
e-Commerce purchases Usage	57.6	39.8	39.6	59.0	62.7	48.2	75.6	68.5	62.4	63.1	68.4	49.1	62.0	74.7	77.2	45.1
e-Commerce sales Usage	10.7	15.7	4.6	10.5	31.1	24.5	59.3	39.0	16.7	18.2	22.5	11.3	24.2	50.8	48.8	12.8
Proportion of e-Commerce sales amount(of total sales amount)	45.0	45.9	50.3	51.1	43.8	56.1	48.6	53.1	43.8	48.3	57.7	53.6	46.4	42.3	55.0	66.0
Internet of Things(IoT) Devices and Services Usage	27.0	45.2	28.6	43.0	67.9	57.3	82.7	54.7	65.0	26.8	50.9	50.8	81.4	87.7	71.3	58.4
Cloud Computing Usage	67.0	73.9	72.3	79.3	79.6	66.6	54.6	79.9	84.3	48.4	83.8	78.1	85.0	63.6	58.6	65.2
Data Analysis and Services Usage	30.2	28.6	30.8	55.3	50.6	27.3	47.9	54.7	55.9	25.9	33.3	48.0	62.1	32.4	23.8	43.7
Artificial Intelligence(AI) Technology and Services Usage	19.2	25.4	20.9	32.1	38.6	16.6	33.4	49.5	52.4	19.3	26.6	34.5	48.7	21.4	22.8	34.3
Informatization Investment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

2 Status of Computer Penetration and Usage

A Computer Penetration

- The percentage of enterprises that possess a computer is estimated at 100%.

Computer Penetration



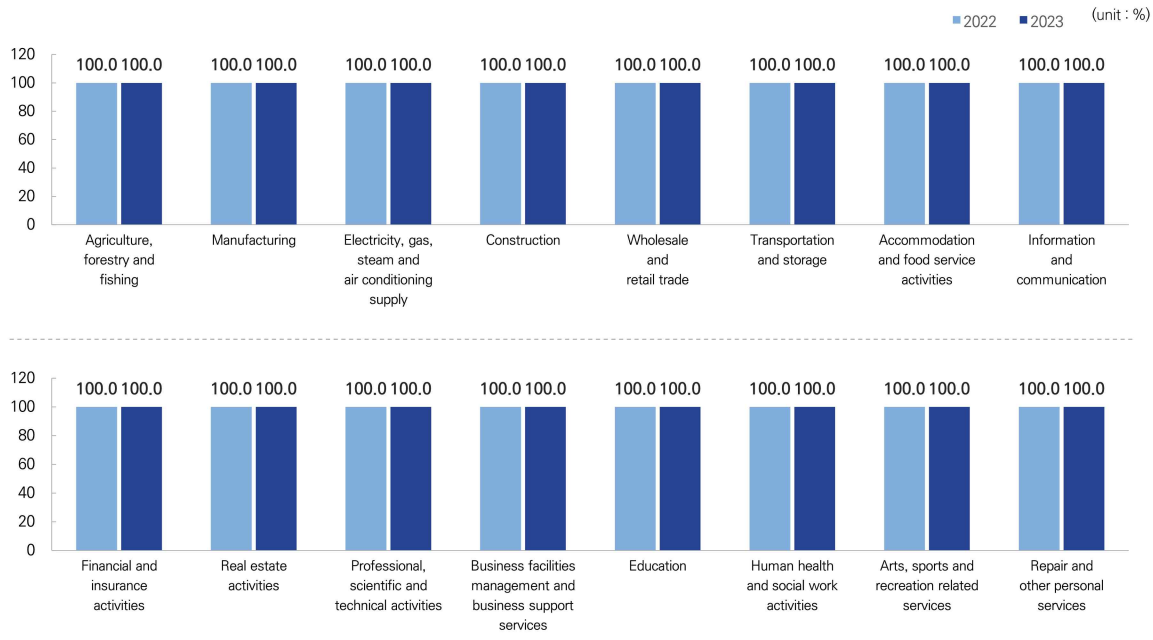
classification	2022	2023
No. of Enterprises With Computers	211,075	213,266
Computer Penetration Rate	100.0	100.0

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Computers include desktop, portable computers like laptop·netbook·tablet PC, handheld devices like smartphone·PDA and server computers.

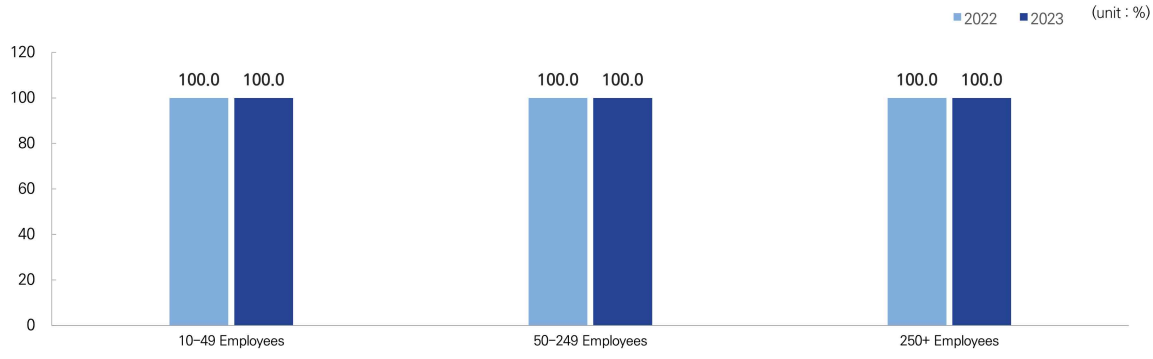
■ Computer Penetration Rate By Industry Type and Enterprise Size

- Computer penetration rate was 100.0% across all types of industries.
- In terms of the size of employment, all enterprises, regardless of their employment size, showed 100% of computer penetration rate.

Computer Penetration Rate - By Industry Type



Computer Penetration Rate - By Enterprise Size

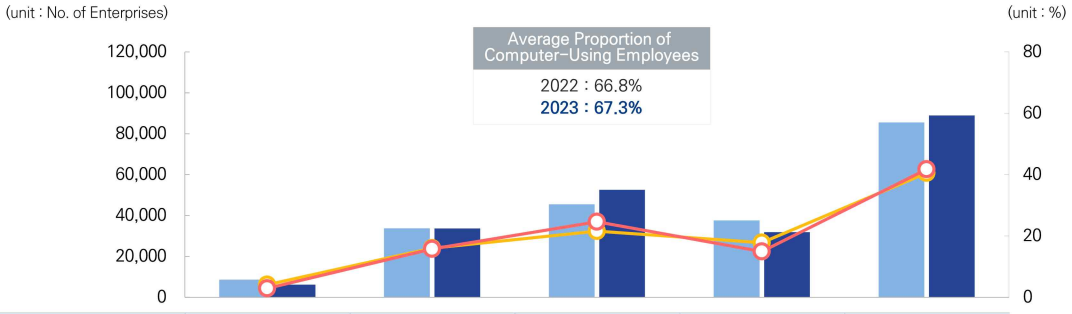


※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

B Employees' Computer Usage

- It is estimated that 67.3% of employees use a computer for business purpose. The number has increased by 0.5%p compared to 2022.

Proportion of Employees Using Computers



classification		Less than 20%	20%~Less than 40%	40%~Less than 60%	60%~Less than 80%	80% and above
2022	No.of Enterprises	8,634	33,747	45,519	37,648	85,527
	% of Enterprises	4.1	16.0	21.6	17.8	40.5
2023	No.of Enterprises	6,185	33,649	52,575	31,896	88,961
	% of Enterprises	2.9	15.8	24.7	15.0	41.7

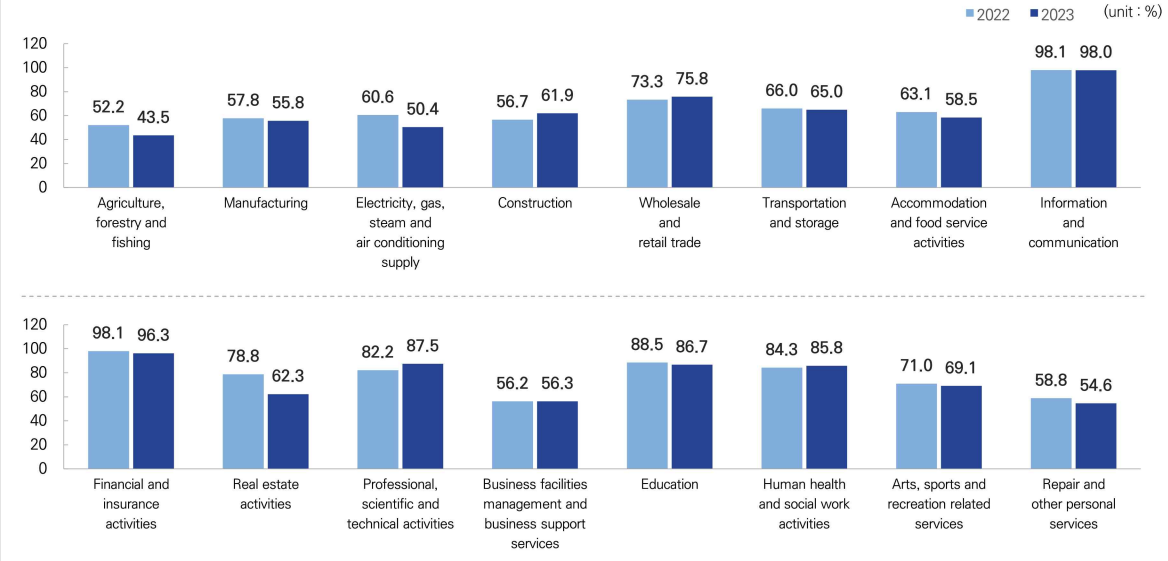
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees that possess at least one computer
※ Note : The proportion of employees who use computer for business purposes is the percentage of employees who have at least once a week used computers to conduct business tasks.

■ Employees' Computer Usage Rate By Industry Type and Enterprise Size

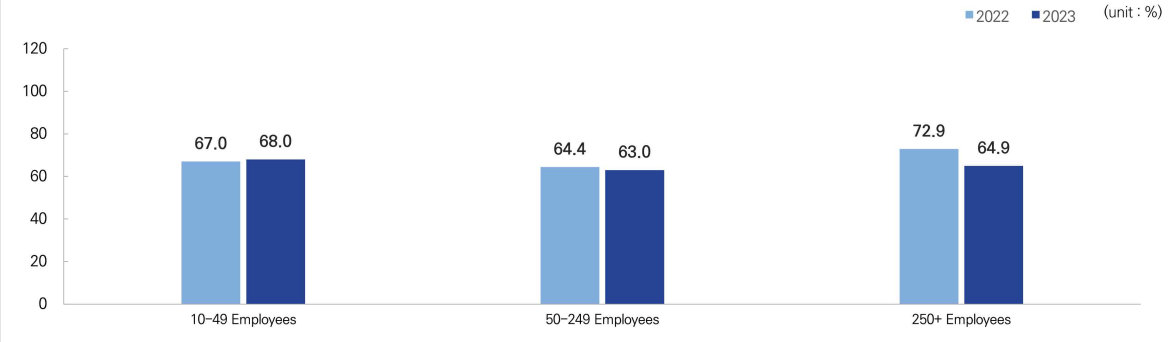
- In regard to the industry types, computer usage rate was highest among employees working in the 'Information and communication'(98.0%) and 'Financial and insurance activities'(96.3%) industries, followed by 'Professional, scientific and technical activities'(87.5%) and 'Educational services'(86.7%). Conversely, computer usage rates in the 'Agriculture, forestry, fishing'(43.5%) and 'Electricity, gas, steam and air conditioning supply'(50.4%) industries were relatively low.

- In terms of the size of employment, enterprises with 10 to 49 employees showed the highest computer usage rate(68.0%), followed by those with 250 and more employees(64.9%) and those with 50 to 249 employees(63.0%).

Employees' Computer Usage Rate - By Industry Type



Employees' Computer Usage Rate - By Enterprise Size



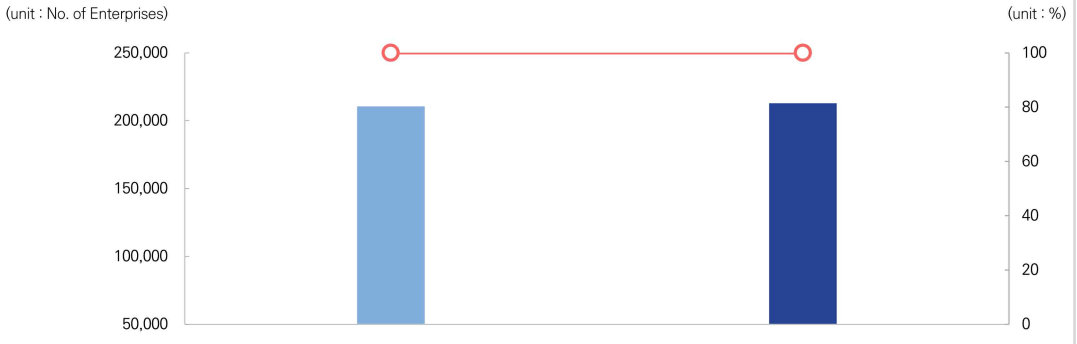
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees that possess at least one computer

3 Status of Internet Infrastructure and Usage

A Internet Access

- It is estimated that all enterprises had access to the Internet.

Enterprises with Internet Access



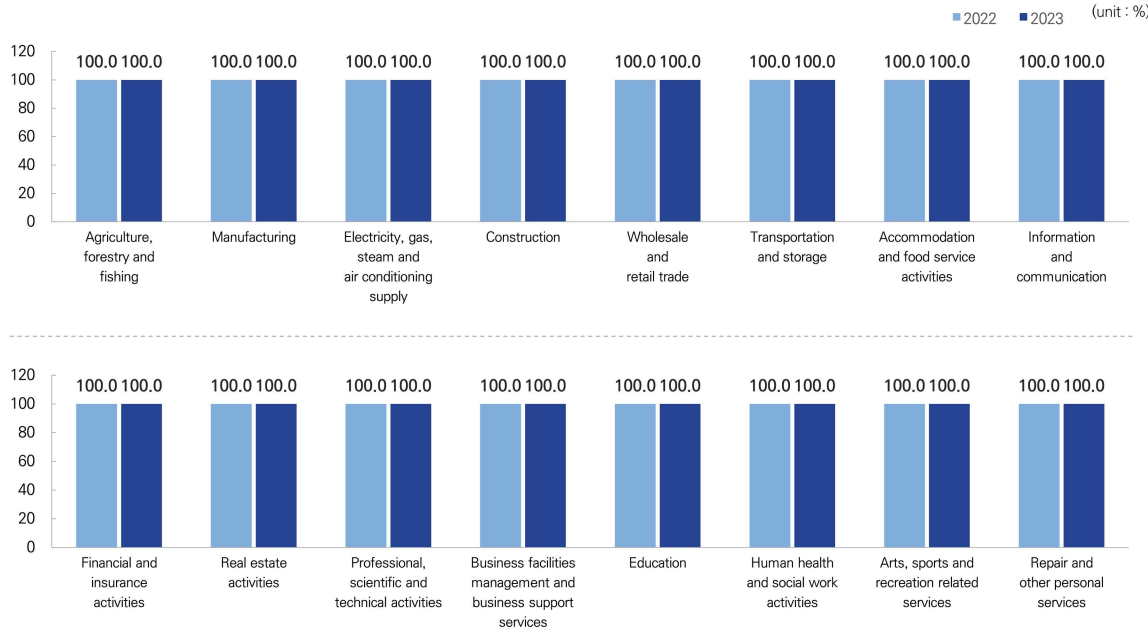
classification	2022	2023
No. of Enterprises with Internet access	211,075	213,266
Internet Access Rate	100.0	100.0

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Internet access refers to capacity to receive/send e-mail, search information, conduct online banking or transfer data files regardless of the type of device.

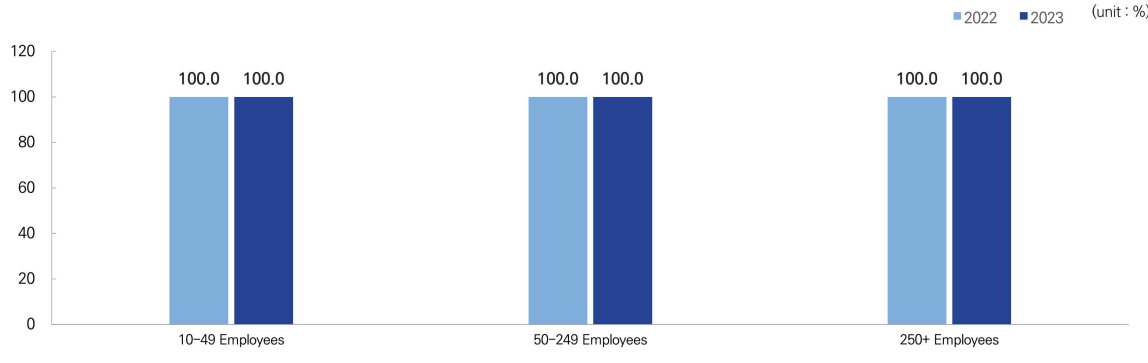
■ Internet Access Rate By Industry Type and Enterprise Size

- Regardless of the types of industries, all enterprises with 10 or more employees possessed access to the Internet.
- In terms of enterprise size, all companies with 10 or more employees exhibited a 100% Internet access rate.

Internet Access Rate - By Industry Type



Internet Access Rate - By Enterprise Size



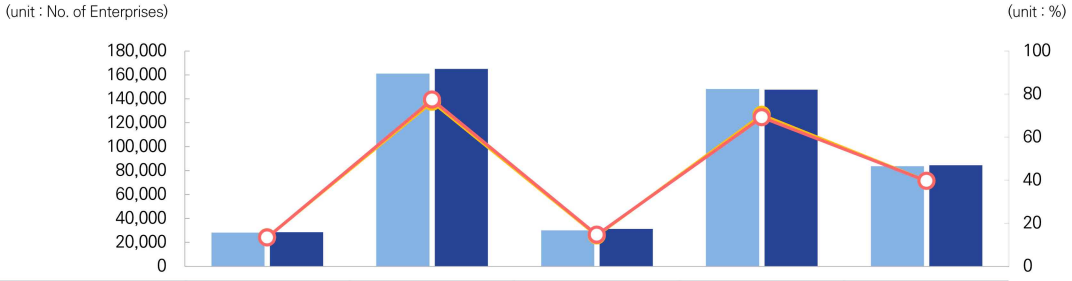
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

B Internet Access Method (Multiple Responses)

- In terms of the method of Internet access, 'Optic LAN'(77.4%) was the most popular means of getting internet access followed by 'Wireless LAN'(69.2%), 'Mobile Internet'(39.6%), 'Leased line'(14.6%), and 'Cable modem'(13.4%).

- 'Optic LAN/FTTH' usage was slightly increased by 1.0%p compared to last year, whereas 'Wireless LAN' usage was decreased by 1.1%p respectively.

Internet Access Method



classification		Cable Modem	Optic LAN/FTTH	Leased Line	Wireless LAN	Wireless Internet on mobile phones
2022	No.of Enterprises	28,230	161,186	30,072	148,295	83,720
	% of Enterprises	13.4	76.4	14.2	70.3	39.7
2023	No.of Enterprises	28,485	165,000	31,235	147,588	84,458
	% of Enterprises	13.4	77.4	14.6	69.2	39.6

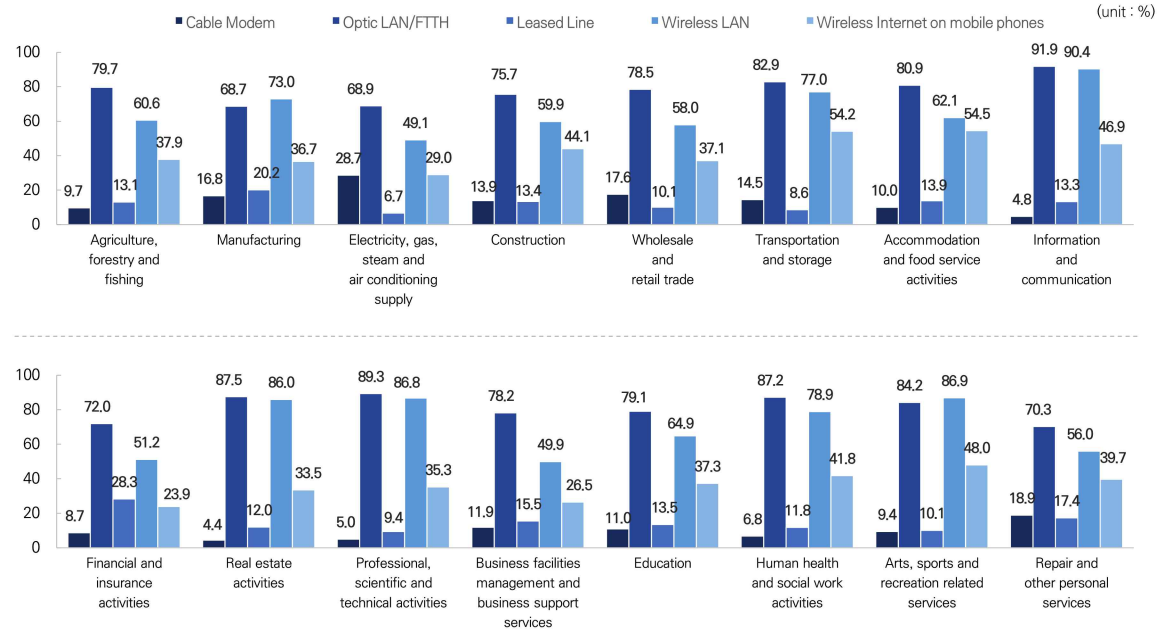
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access
※ Note : The above numbers for each internet access method are based on multiple responses.

■ Internet Access Method By Industry Type and Enterprise Size

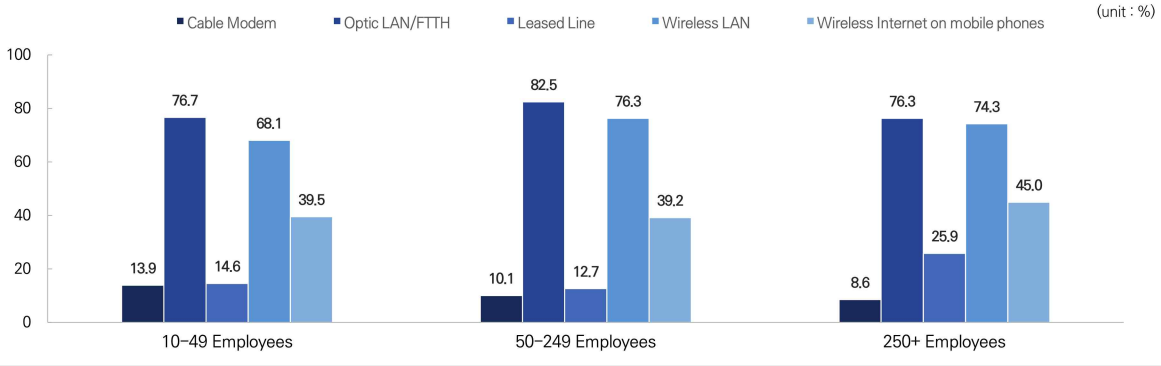
- With regards to industry types, the usage rate of 'Optic LAN' was relatively high in 'Information and communication'(91.9%), 'Professional, scientific and technical activities'(89.3%) and 'Real estate activities'(87.5%) industries, while 'Wireless LAN' had a high usage rate in 'Information and communication'(90.4%), 'Arts, sports, and recreation-related services'(86.9%), and 'Professional, scientific and technical activities'(86.8%) industries.

- Regarding employment size, 'Optic LAN'(82.5%) and 'Wireless LAN'(76.3%) had the highest usage level among enterprises with 50 to 249 employees, while 'Leased Line'(25.9%) and 'Mobile Internet'(45.0%) were most widely used among enterprises with 250 or more employees.

Internet Access Method - By Industry Type



Internet Access Method - By Enterprise Size

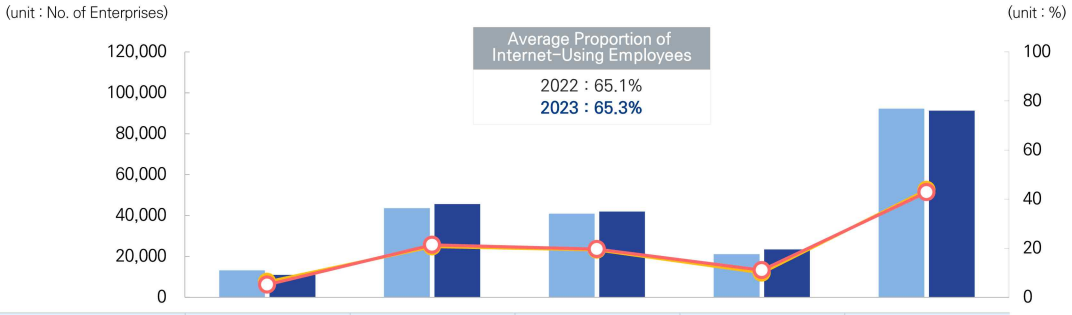


※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access

C Employees' Internet Usage

- The average proportion of employees that used the Internet for business purposes was 65.3%, maintaining a similar level compared to 2022.

Proportion of Employees Using the Internet



classification		Less than 20%	20%~Less than 40%	40%~Less than 60%	60%~Less than 80%	80% and above
2022	No.of Enterprises	13,188	43,613	40,906	21,115	92,253
	% of Enterprises	6.2	20.7	19.4	10.0	43.7
2023	No.of Enterprises	10,969	45,556	41,958	23,480	91,304
	% of Enterprises	5.1	21.4	19.7	11.0	42.8

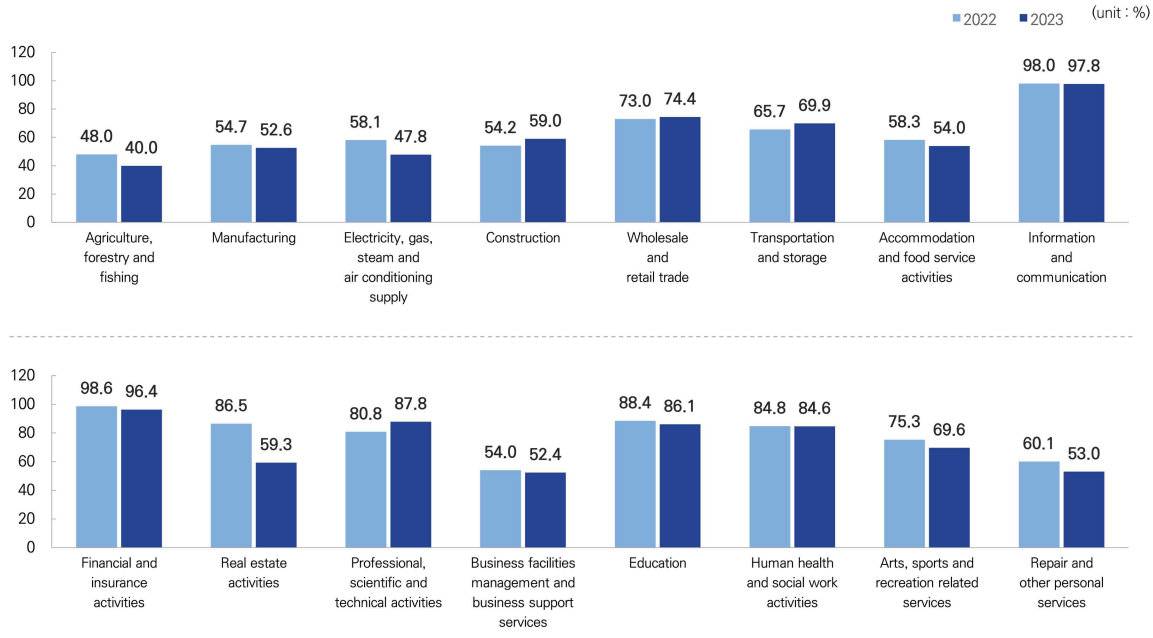
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access
※ Note : 1) Using the Internet for routine work means using the Internet at least once a week.
2) Employees refer to all personnel working for the business/organization and include regular and non-regular employees.
3) Internet usage rate refers to the proportion of Internet-using employees among all employees in Enterprises having access to the Internet.

■ Employees' Internet Usage Rate By Industry Type and Enterprise Size

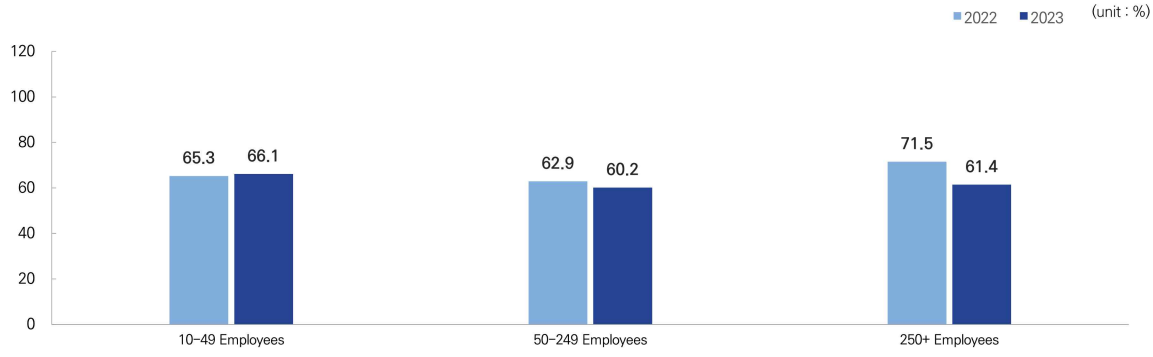
- In regards to the industry types, the highest Internet usage rates were observed in ‘Information and communication’(97.8%), ‘Financial and insurance activities’(96.4%), and ‘Professional, scientific and technical activities’(87.8%). Conversely, the ‘Agriculture, forestry, fishing’(40.0%) and ‘Electricity, gas, steam and air conditioning supply’(47.8%), and ‘Business facilities management and business support services’(52.4%) industries displayed relatively lower Internet usage rates.

- In matters of the enterprise size, the Internet usage rate among employees was highest in enterprises with 10 to 49 employees(66.1%).

Employees' Internet Usage Rate - By Industry Type



Employees' Internet Usage Rate - By Enterprise Size



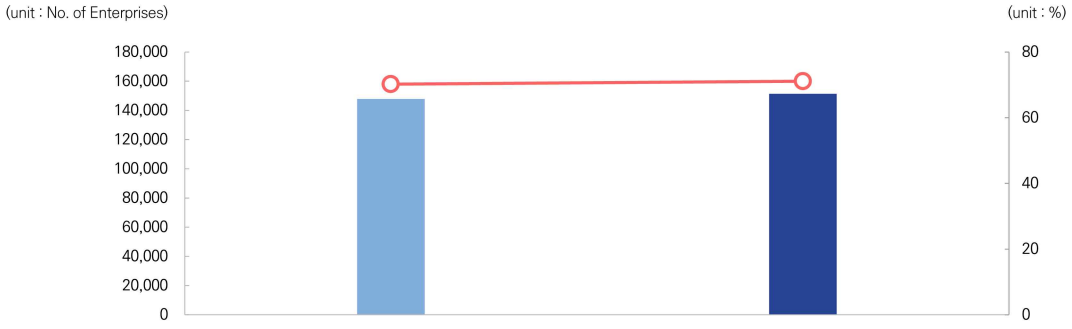
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access

4 Status of Website(Homepage) Usage

A Website(Homepage) Usage

- 71.1% of enterprises used a Website(Homepage). The number has slightly increased by 0.9%p compared to 2022.

Website(Homepage) Usage



classification	2022	2023
No. of Enterprises with website(Homepage) operation	148,157	151,682
Website(Homepage) Operation Rate	70.2	71.1

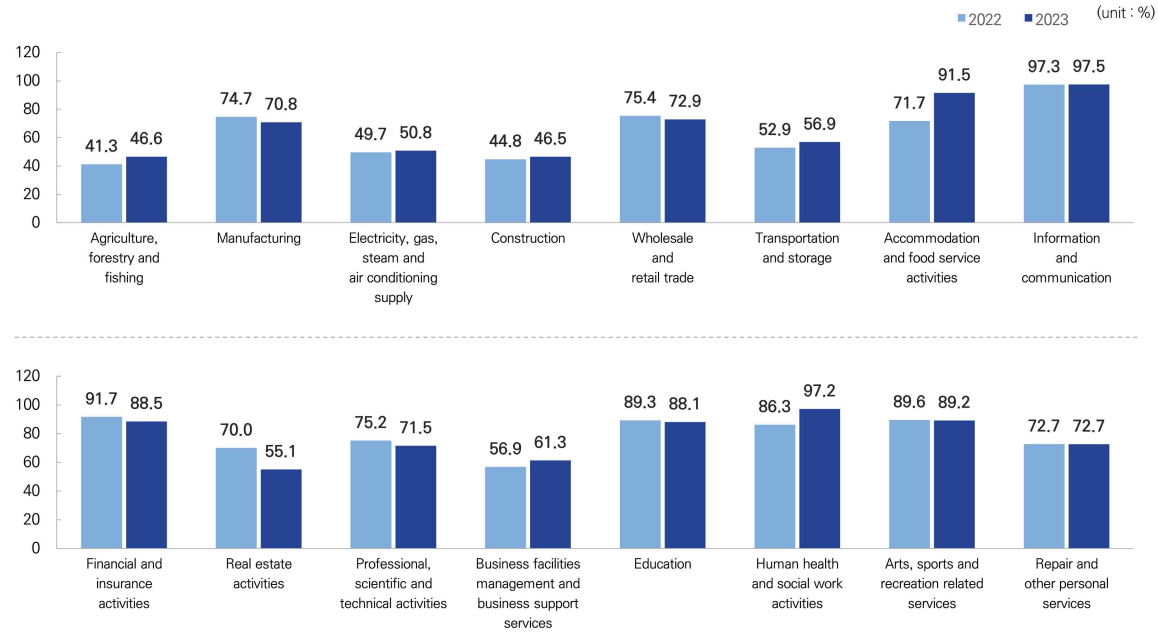
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) It includes the business website, Website(Homepage) or a third party's site (including a related business) where the business has substantial control over the content of the site/page. It excludes a listing in an online directory and advertising on a third party's site.
2) It includes the utilization of e-commerce platforms (such as Gmarket, Auction, 11th Street, Coupang, Naver SmartStore, etc.) and video platforms (YouTube, Kakao TV, CHZZK, etc.) as means for promoting and advertising our products and services.

■ Website(Homepage) Usage Rate By Industry Type and Enterprise Size

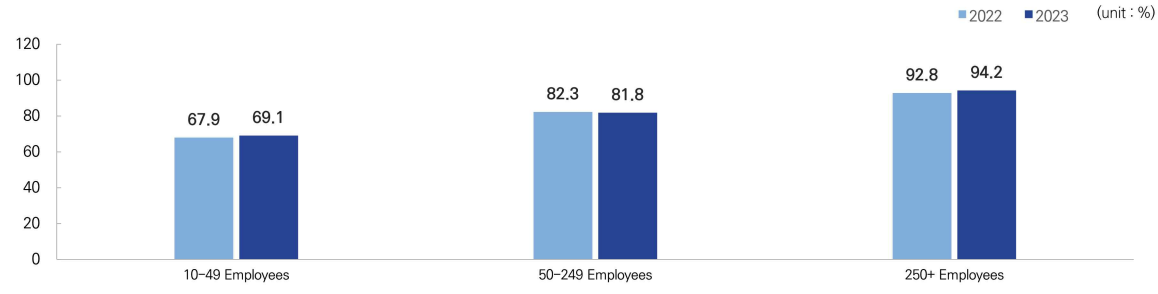
- In terms of the industry types, the website usage rate was high in 'Information and communication' (97.5%), 'Human health and social work activities'(97.2%), and 'Accommodation and food service activities' (91.5%). Conversely the 'Construction'(46.5%), 'Agriculture, forestry, fishing'(46.6%), and 'Electricity, gas, steam and air conditioning supply/water supply and sewage · waste management, recycling raw materials' (50.8%) industries showed relatively low website usage rates.

- Looking at the employment size, 94.2% of enterprises with 250 or more employees used a website(homepage), whereas 69.1% of enterprises with 10 to 49 employees used a website, indicating a significant gap between different sizes of enterprises.

Website(Homepage) Usage Rate - By Industry Type



Website(Homepage) Usage Rate - By Enterprise Size

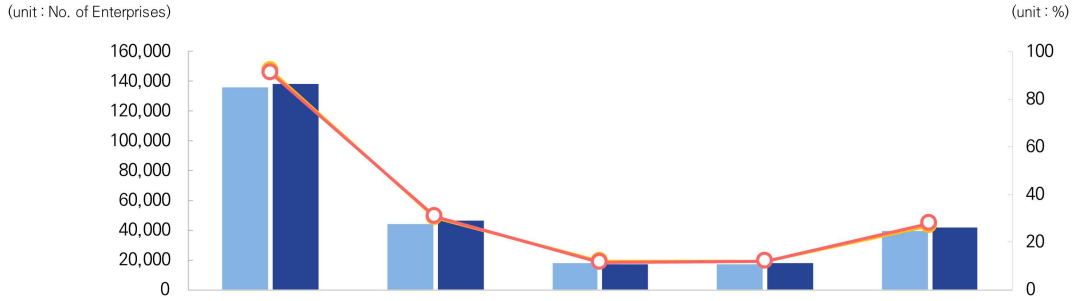


※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

B Types of Website(Homepage) Usage(Multiple Responses)

- Concerning the types of website, 'Homepages'(91.2%) was the most popular type used by an enterprise followed by 'Social Networking Service'(30.7%), 'e-Commerce platform'(27.6%).
  Operation rate of 'Homepages' and 'Mobile Application' was slightly decreased, whereas 'e-Commerce platform' operation rate was increased compared to the previous year.

Types of Website(Homepage) Usage



classification		Homepages	SNS	Mobile Application	Video Channels	e-Commerce Platform
2022	No.of Enterprises	135,977	44,416	17,640	17,381	39,737
	% of Enterprises	91.8	30.0	11.9	11.7	26.8
2023	No.of Enterprises	138,360	46,522	17,294	17,851	41,845
	% of Enterprises	91.2	30.7	11.4	11.8	27.6

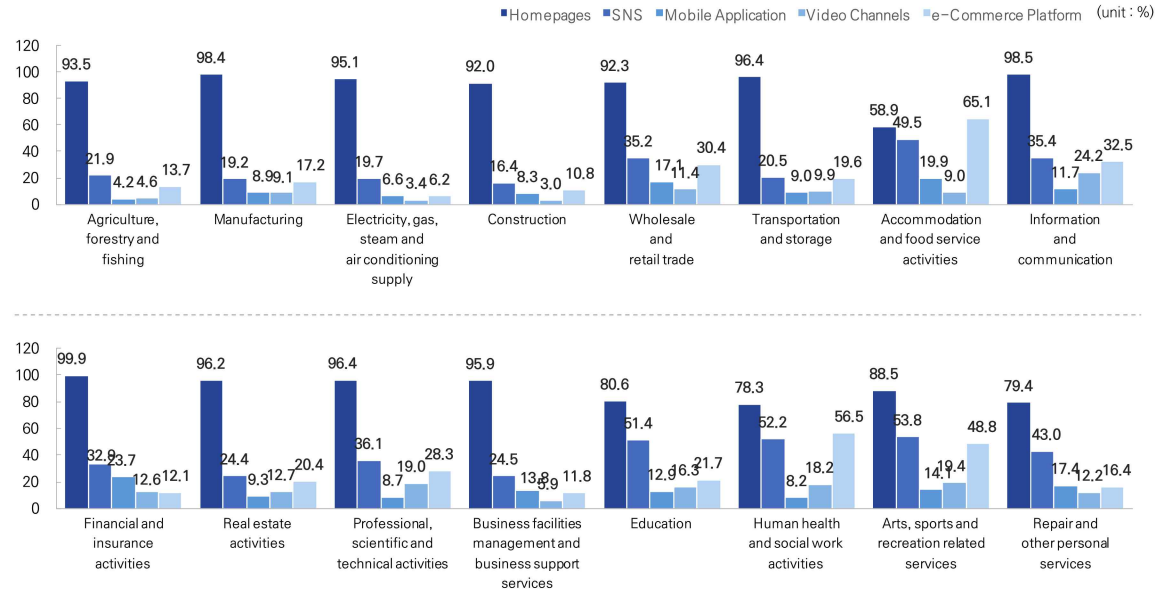
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees(Census on Enterprises, Statistics Korea) using website(Homepage)
※ Note : 1) It includes the business website, Website(Homepage) or a third party's site (including a related business) where the business has substantial control over the content of the site/page. It excludes a listing in an online directory and advertising on a third party's site.
2) It includes the utilization of e-commerce platforms (such as Gmarket, Auction, 11th Street, Coupang, Naver SmartStore, etc.) and video platforms (YouTube, Kakao TV, CHZZK, etc.) as means for promoting and advertising our products and services.

■ Types of Website(Homepage) Usage By Industry Type and Enterprise Size

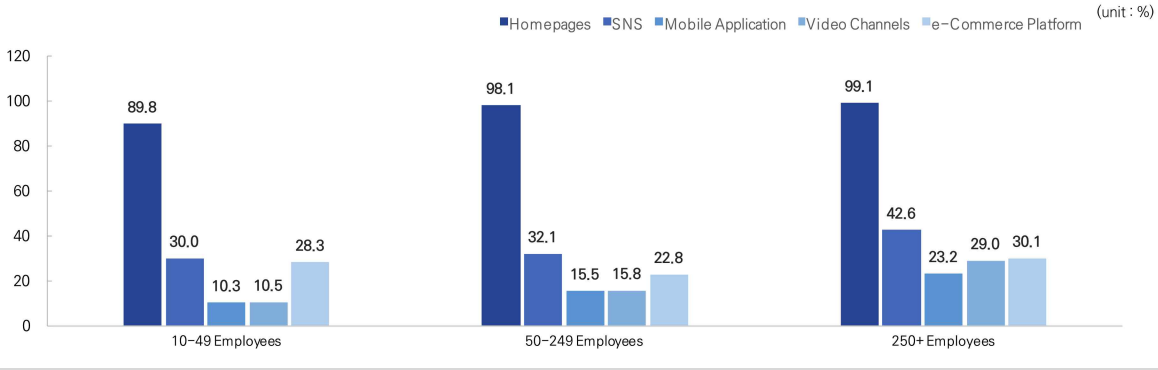
- Concerning the types of website, 'Homepages' turned out high in the 'Financial and insurance activities'(99.9%), 'Information and communication'(98.5%), and 'Manufacturing'(98.4%), while 'Social Networking Service' was used the most widely in 'Arts, sports and recreation related services'(53.8%), 'Human health and social work activities'(52.2%), and 'Educational services'(51.4%).

- The larger the employment size, the higher the usage rate of each type of website(homepage), except for 'e-Commerce platform'.

Types of Website(Homepage) Usage Rate - By Industry Type



Types of Website(Homepage) Usage Rate - By Enterprise Size



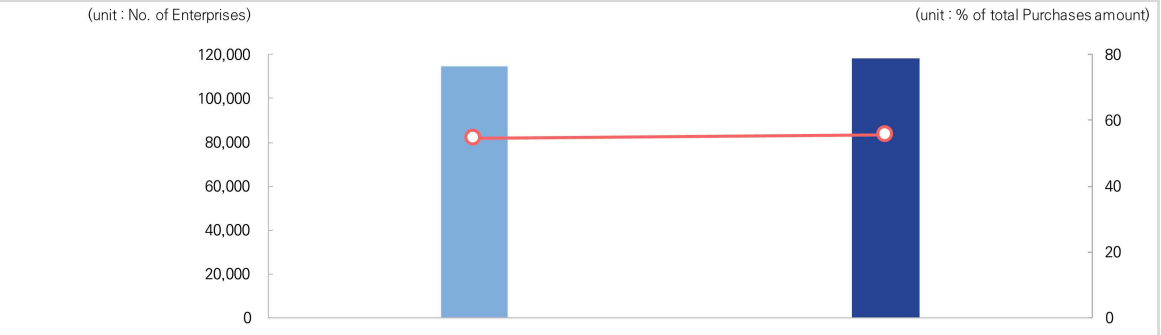
※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees(Census on Enterprises, Statistics Korea) using website(Homepage)

5 Status of e-Commerce Service Usage

A e-Commerce Purchases

- During the year of 2023, the number of enterprises that have made purchases via e-Commerce for products and services is estimated at 55.7%, increased by 1.2%p compared to last year.

e-Commerce Purchases



classification	2022	2023
No. of Enterprises with e-Commerce Purchase amount	115,072	118,698
e-Commerce Purchase amount Rate	54.5	55.7

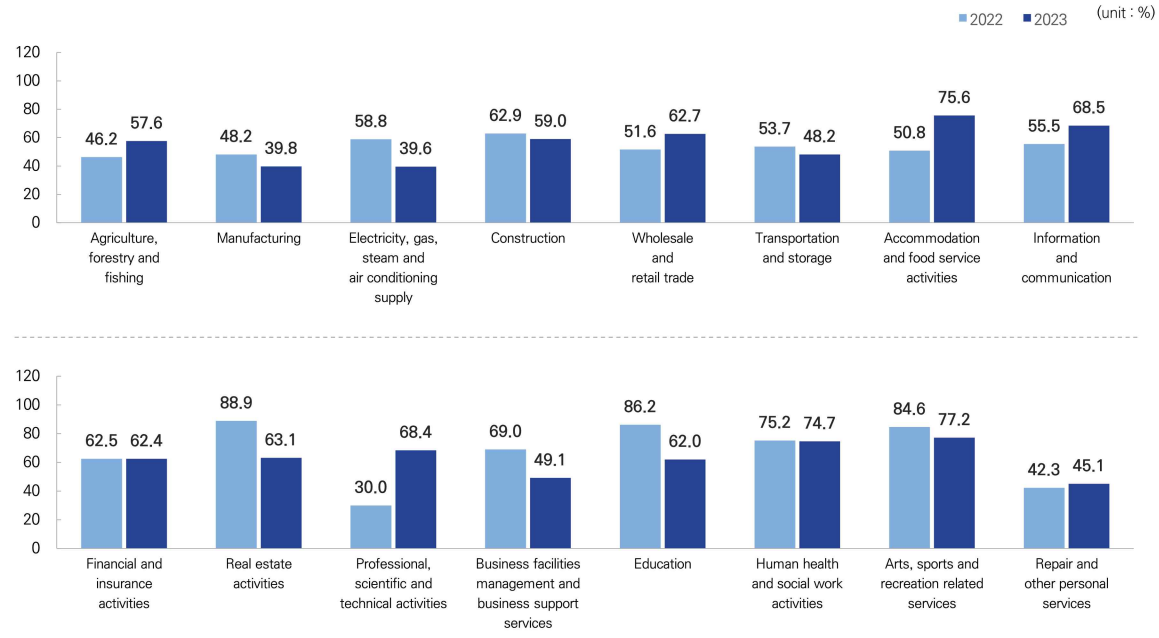
※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) In this survey, 'Electronic commerce(e-Commerce)' refers to 'the sales (order) or purchases (order) of products or services, made via computers and networks (including mobile commerce)'.
2) Internet-based cell phone (mobile commerce and etc.) is included, but selling or purchasing products and services using traditional phone calls, fax or common email is not included. The survey did not consider whether payments were made online or not, and it excluded transactions that were not completed or canceled.

■ e-Commerce Purchases Rate By Industry Type and Enterprise Size

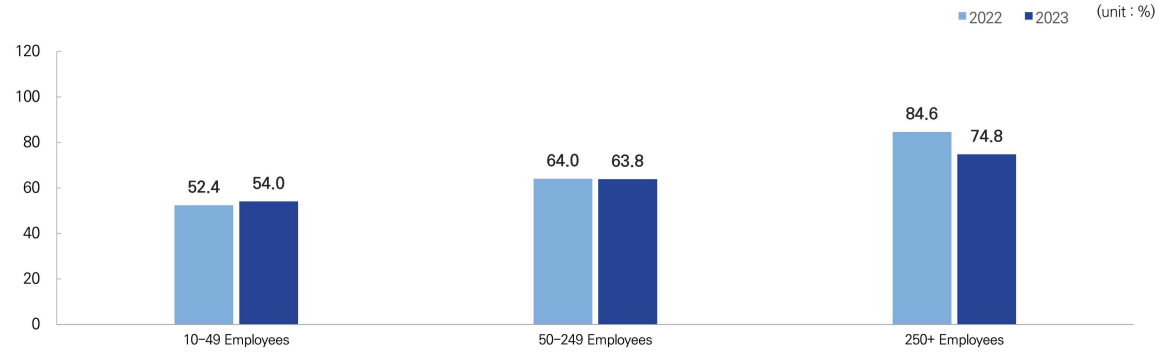
- The e-Commerce purchase rates were notably high in 'Arts, sports and recreation related services'(77.2%), 'Accommodation and food service activities'(75.6%), and 'Human health and social work activities'(74.7%). In contrast, the 'Electricity, gas, steam and air conditioning supply'(39.6%), 'Manufacturing'(39.8%), and 'Repair and other personal services'(45.1%) industries exhibited relatively lower e-Commerce purchase rates.

- The e-Commerce purchase rates tend to increase with the size of employment. Specifically, enterprises with 250 or more employees exhibited a notably high e-Commerce purchase rate of 74.8%.

e-Commerce Purchases Rate - By Industry Type



e-Commerce Purchases Rate - By Enterprise Size

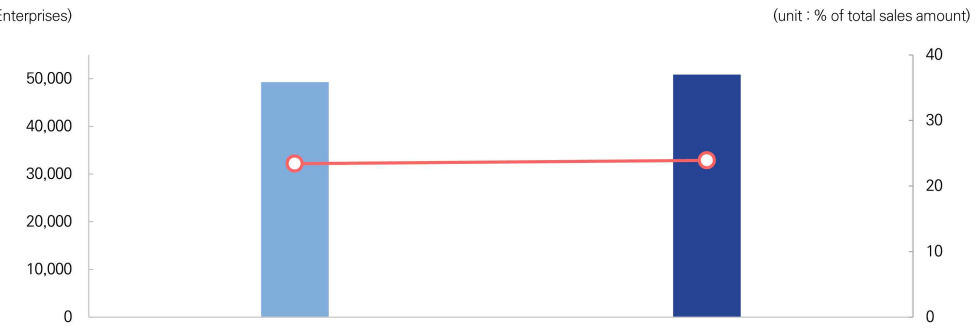


※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

B e-Commerce Sales

- During 2023, the number of enterprises that made sales via e-Commerce for products and services among all enterprises is estimated at 23.9%, slightly increased by 0.5%p compared to last year.

e-Commerce Sales



classification	2022	2023
No. of Enterprises with e-Commerce Sales amount	49,387	50,998
e-Commerce Sales amount Rate	23.4	23.9

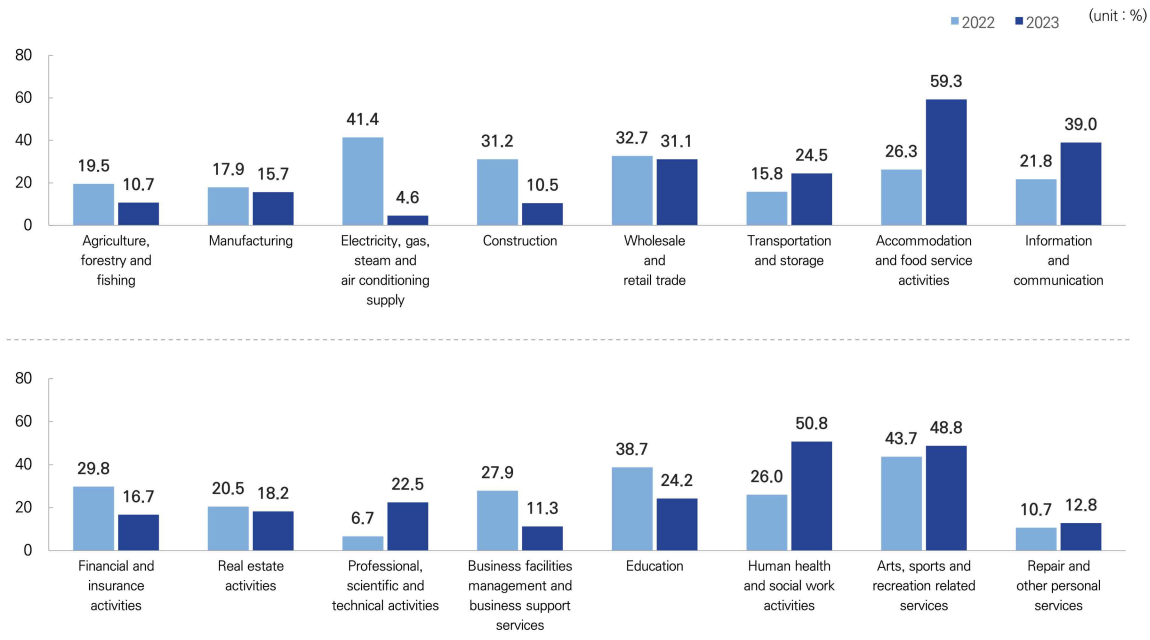
※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) In this survey, 'Electronic commerce(e-Commerce)' refers to 'the sales (order) or purchases (order) of products or services, made via computers and networks (including mobile commerce)'.
2) Internet-based cell phone (mobile commerce and etc.) is included, but selling or purchasing products and services using traditional phone calls, fax or common email is not included. The survey did not consider whether payments were made online or not, and it excluded transactions that were not completed or canceled.

■ e-Commerce Sales Rate By Industry Type and Enterprise Size

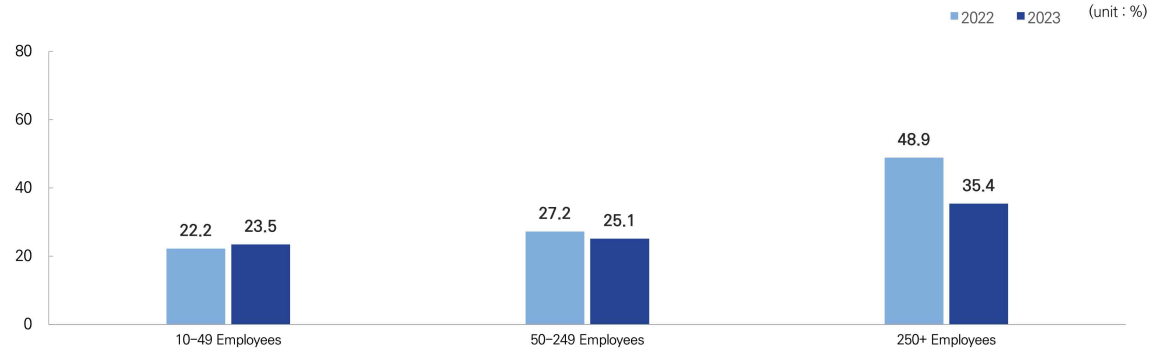
- In regards to the types of industry, the 'Accommodation and food service activities'(59.3%), 'Human health and social work activities'(50.8%), and 'Arts, sports and recreation related services'(48.8%) industries showed comparatively high e-Commerce sales rates. On the other hand, the 'Electricity, gas, steam and air conditioning supply'(4.6%), 'Construction'(10.5%), and 'Agriculture, forestry and fishing'(10.7%) industries displayed relatively lower e-Commerce sales rates.

- The larger the number of employees, the higher the e-Commerce sales rate.

e-Commerce Sales Rate - By Industry Type



e-Commerce Sales Rate - By Enterprise Size

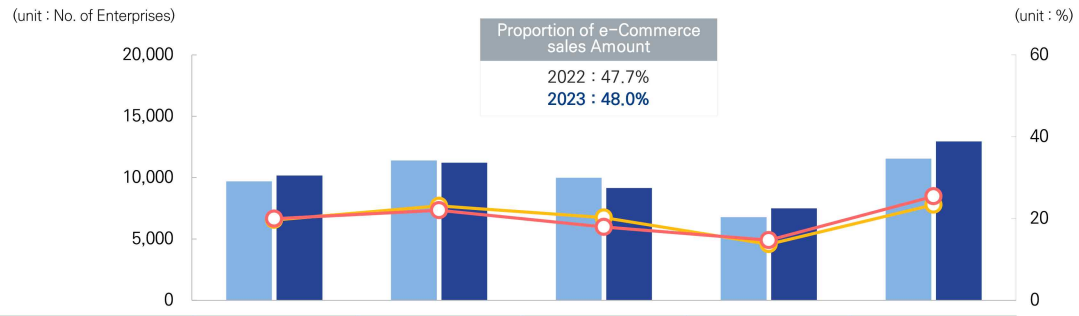


※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

C Proportion of e-Commerce Sales Amount of the Total Sales Amount

- During 2023, on average 48.0% of the total sales amount accounted for the sales amount via e-Commerce, maintaining a similar level compared to 2022.

Proportion of e-Commerce Sales Amount of the Total Sales Amount



classification		Less than 20%	20%~Less than 40%	40%~Less than 60%	60%~Less than 80%	80% and above
2022	No.of Enterprises	9,687	11,401	9,985	6,773	11,541
	% of Enterprises	19.6	23.1	20.2	13.7	23.4
2023	No.of Enterprises	10,174	11,222	9,148	7,498	12,956
	% of Enterprises	19.9	22.0	17.9	14.7	25.4

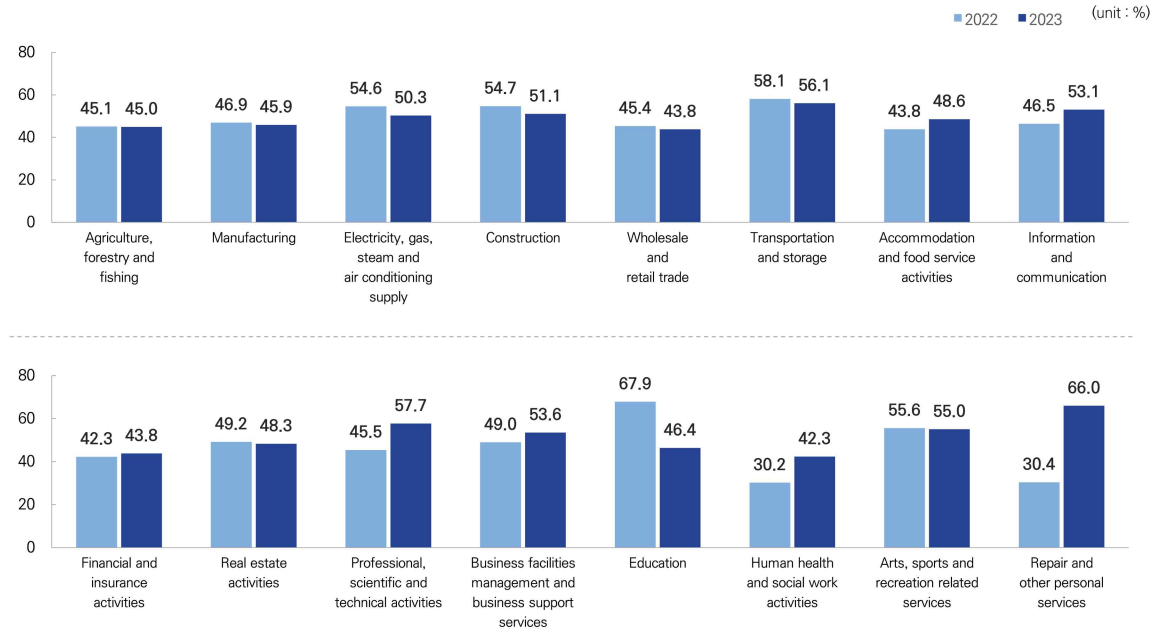
※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises with 10 or more employees (Statistics Korea, Statistical Business Registers) that used e-Commerce for sales
※ Note : In case orders were made on behalf of other enterprises/organizations, only fare and commission are taken into accounted.

■ Proportion of e-Commerce Sales Amount(of the total sales amount) By Industry Type and Enterprise Size

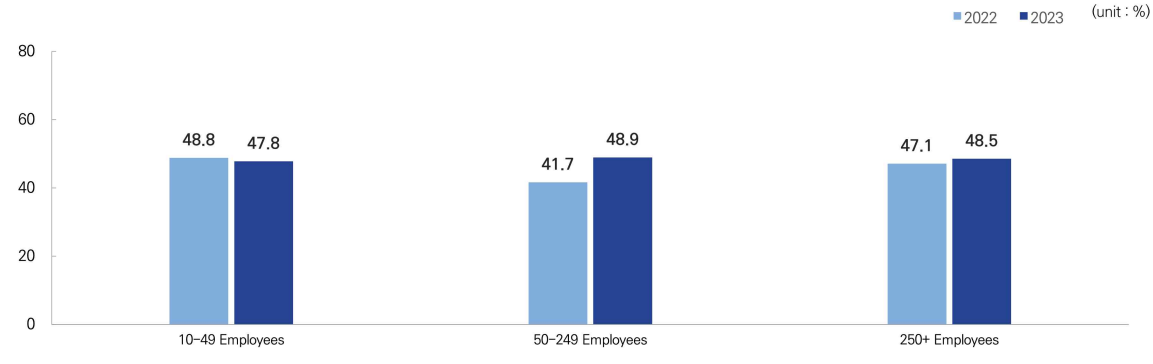
- Looking at the different industries, the 'Repair and other personal services'(66.0%), 'Professional, scientific and technical activities'(57.7%), 'Transportation and storage'(56.1%), 'Arts, sports and recreation related services'(55.0%) industries showed relatively larger sales amounts via e-Commerce.

- On average, the proportion of e-Commerce sales amount among enterprises with 50 to 249 employees was relatively high at 48.9%.

Proportion of e-Commerce Sales Amount(of the total sales amount) - By Industry Type



Proportion of e-Commerce Sales Amount(of the total sales amount) - By Enterprise Size



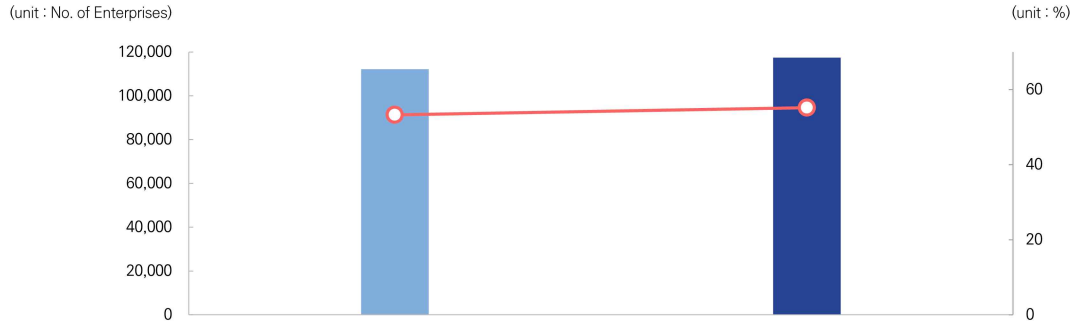
※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises with 10 or more employees (Statistics Korea, Statistical Business Registers) that used e-Commerce for sales

6 Status of Internet of Things(IoT) Devices and Services Usage

A Internet of Things(IoT) Devices and Services Usage

- During the year 2023, it is estimated that 55.2% of enterprises used Internet of Things(IoT) devices and services. This number has increased by 2.0%p compared to the last year.

Internet of Things(IoT) Devices and Services Usage



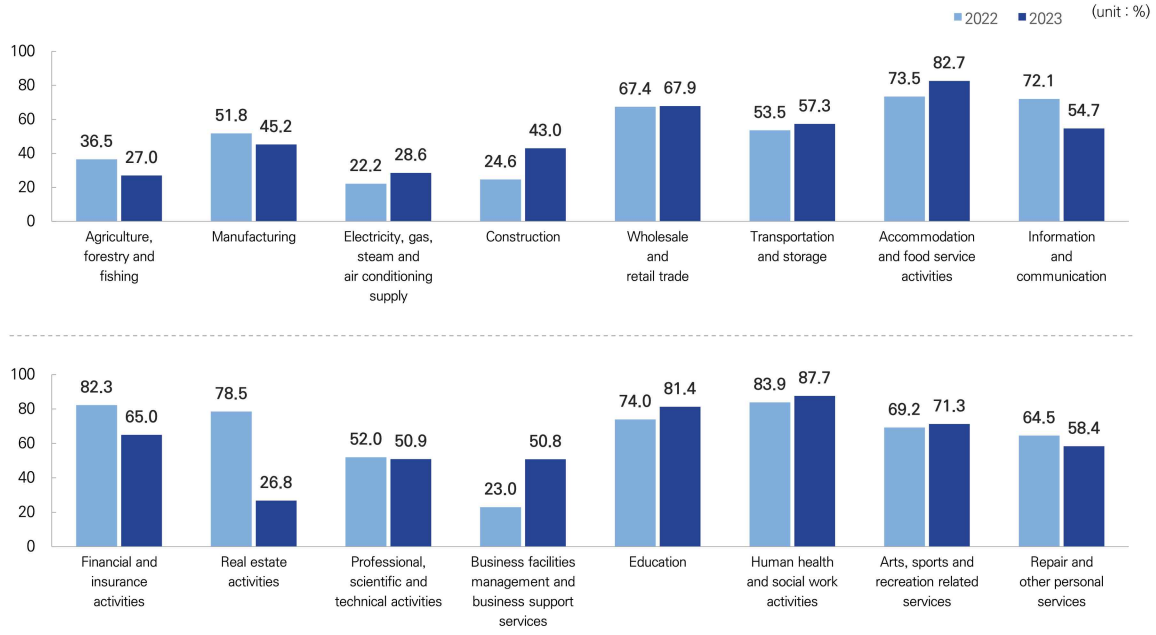
classification	2022	2023
No. of Enterprises using Internet of Things(IOT)	112,390	117,678
Internet of Things(IOT) Usage Rate	53.2	55.2

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Internet of Things(IoT) refers to a technology and service that connects people and objects, objects and objects, and objects and systems through communication (such as the internet), enabling them to interact and share information.

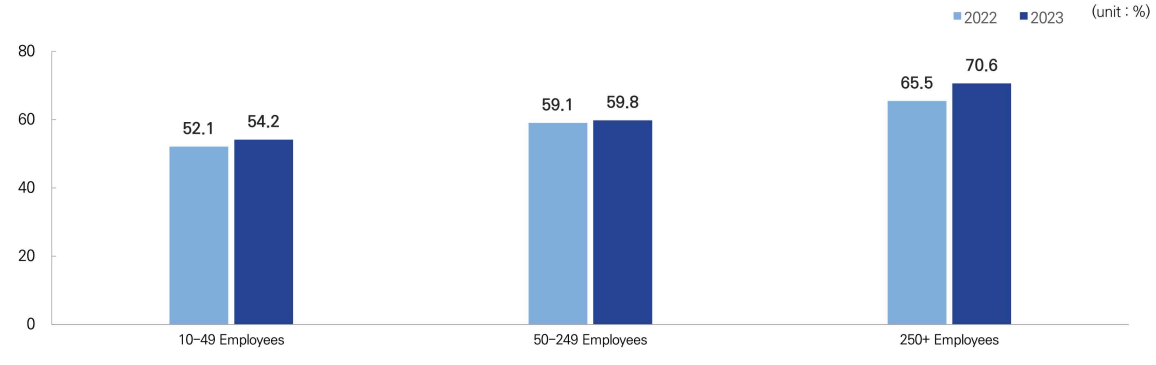
■ Internet of Things(IoT) Devices and Services Usage Rate By Industry Type and Enterprise Size

- Internet of Things(IoT) devices and services were used most widely in the 'Human health and social work services'(87.7%) industry, followed by the 'Accommodation and food service activities'(82.7%) and 'Educational services'(81.4%) industries.
- The larger the employment size, the higher the IoT devices and services usage rate.

Internet of Things(IoT) Devices and Services Usage Rate - By Industry Type



Internet of Things(IoT) Devices and Services Usage Rate - By Enterprise Size



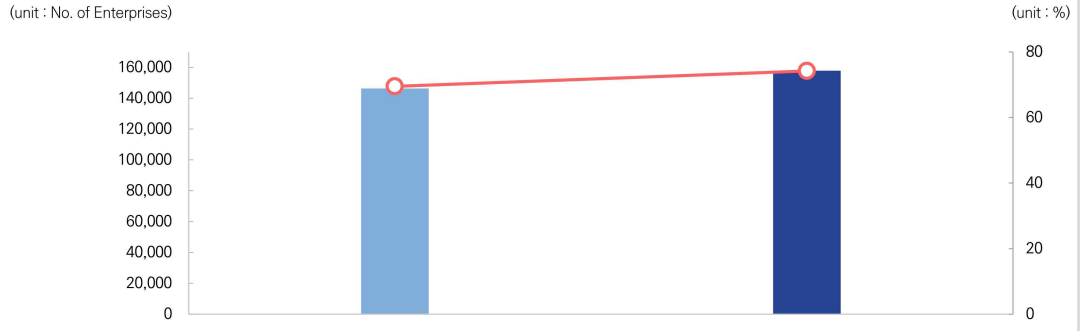
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

7 Status of Cloud Computing Service Usage

A Cloud Computing Service Usage

- It is estimated that 74.2% of enterprises used Cloud Computing service. This number has increased by 4.7%p compared to the last year.

Cloud Computing Service Usage



classification	2022	2023
No. of Enterprises using Cloud computing	146,694	158,165
Cloud computing Usage Rate	69.5	74.2

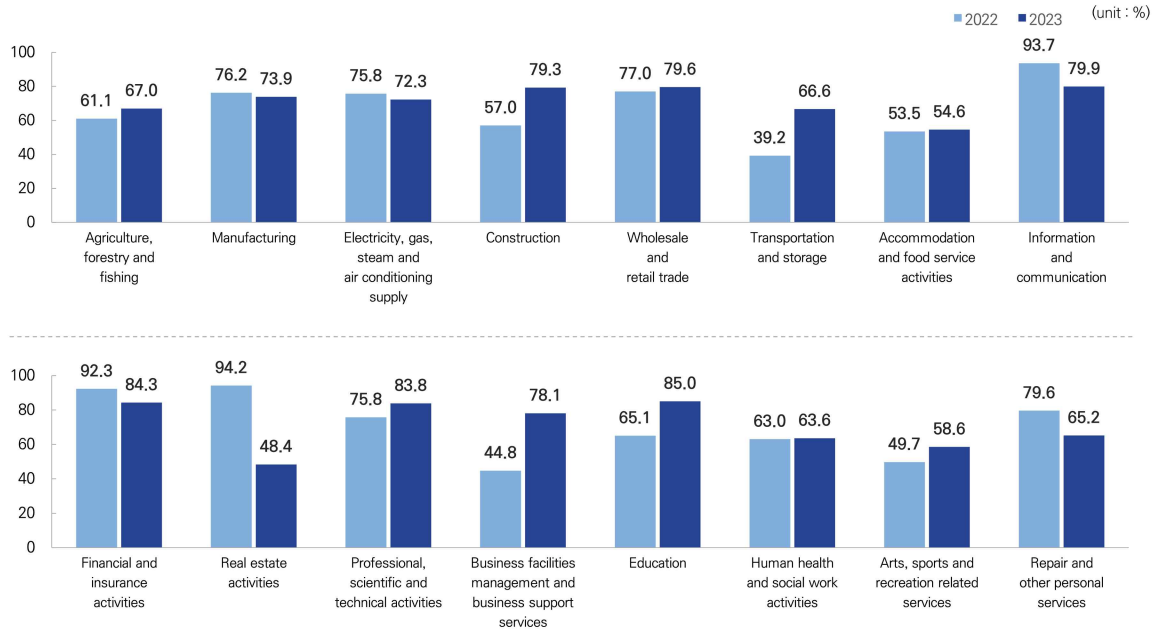
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Cloud Computing Service is a technology that uses ICT resources such as server, storage(storage data volume), database, software(program) to save software and data in data center connected through the Internet and to use them for anytime from anywhere regardless of the type of device. Usage fee is charged based on the number of users or the used data volume.

■ Cloud Computing Service Usage Rate By Industry Type and Enterprise Size

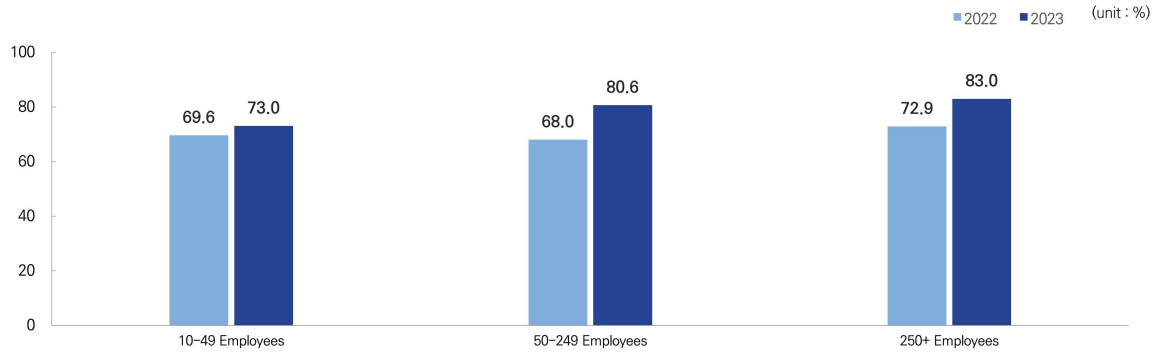
- In terms of the industry types, Cloud Computing services were used most widely in the 'Educational services'(85.0%), 'Financial and insurance activities'(84.3%), and 'Professional, scientific and technical activities'(83.8%) industries.

- The usage rate of Cloud Computing services was highest among enterprises with 250 or more employees(83.0%).

Cloud Computing Service Usage Rate - By Industry Type



Cloud Computing Service Usage Rate - By Enterprise Size



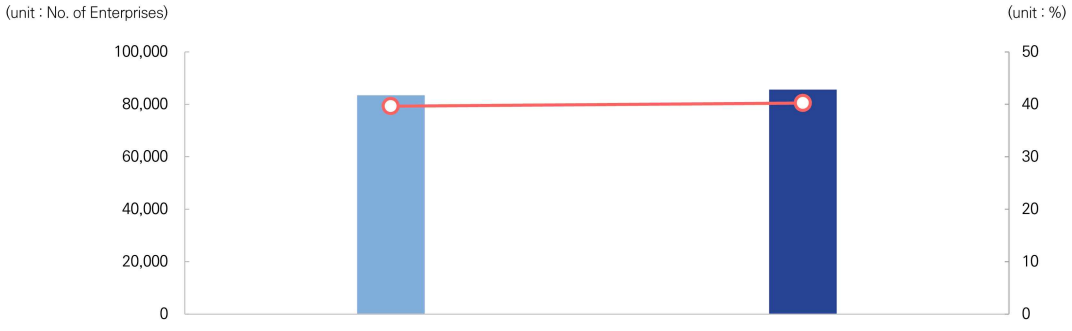
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

8 Status of Data Analysis and Services Usage

A Data Analysis and Services Usage

- During the year 2023, it is estimated that 40.2% of enterprises used Data Analysis and Services. This number has slightly increased by 0.5%p compared to the last year.

Data Analysis and Services Usage



classification	2022	2023
No. of Enterprises using Data Analysis	83,700	85,818
Data Analysis Usage Rate	39.7	40.2

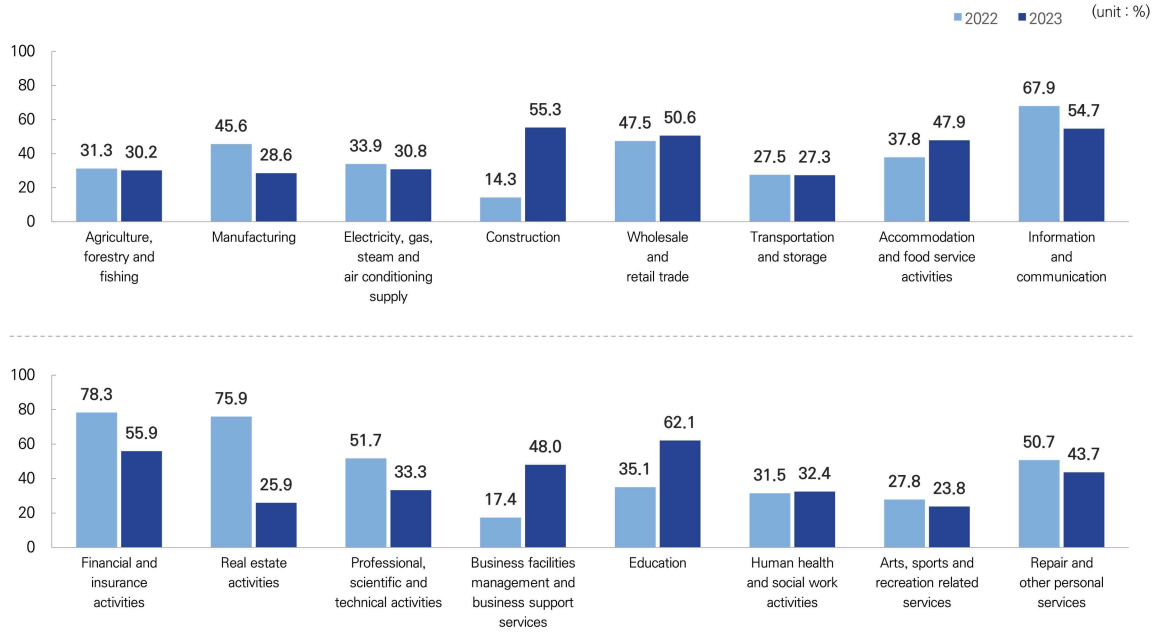
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Data Analysis refers to a service that uses software tools and techniques to support decision-making through the analysis of data patterns and trends.

■ Data Analysis and Services Usage Rate By Industry Type and Enterprise Size

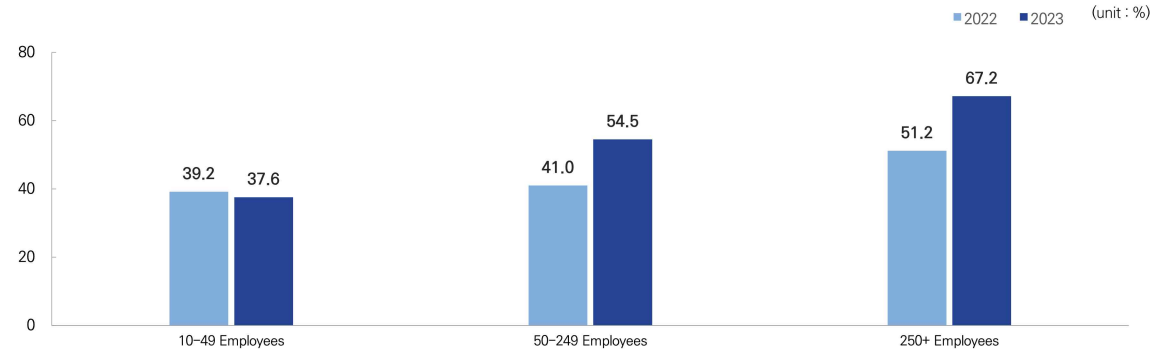
- Concerning the different industries, the usage rate of Data Analysis and Services was high in the 'Educational services'(62.1%), 'Financial and insurance activities'(55.9%), 'Construction'(55.3%), and 'Information and communication'(54.7%) industries.

- The larger the number of employees, the higher the usage rate of data analysis and services.

Data Analysis and Services Usage Rate – By Industry Type



Data Analysis and Services Usage Rate – By Enterprise Size



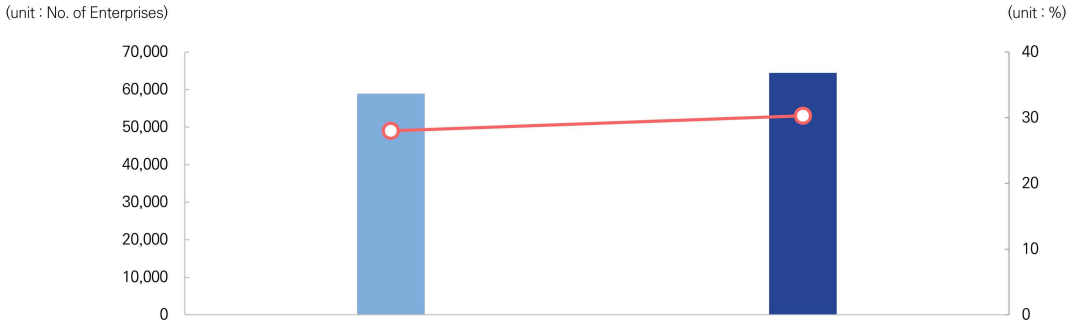
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

9 Status of Artificial Intelligence(AI) Technology and Services Usage

A Artificial Intelligence(AI) Technology and Services Usage

- As of Dec. 2023, it is estimated that 30.3% enterprises used Artificial Intelligence technology and services. This number has increased by 2.3%p compared to the last year.

Artificial Intelligence(AI) Technology and Services Usage



classification	2022	2023
No. of Enterprises using Artificial Intelligence(AI)	59,077	64,587
Artificial Intelligence(AI) Usage Rate	28.0	30.3

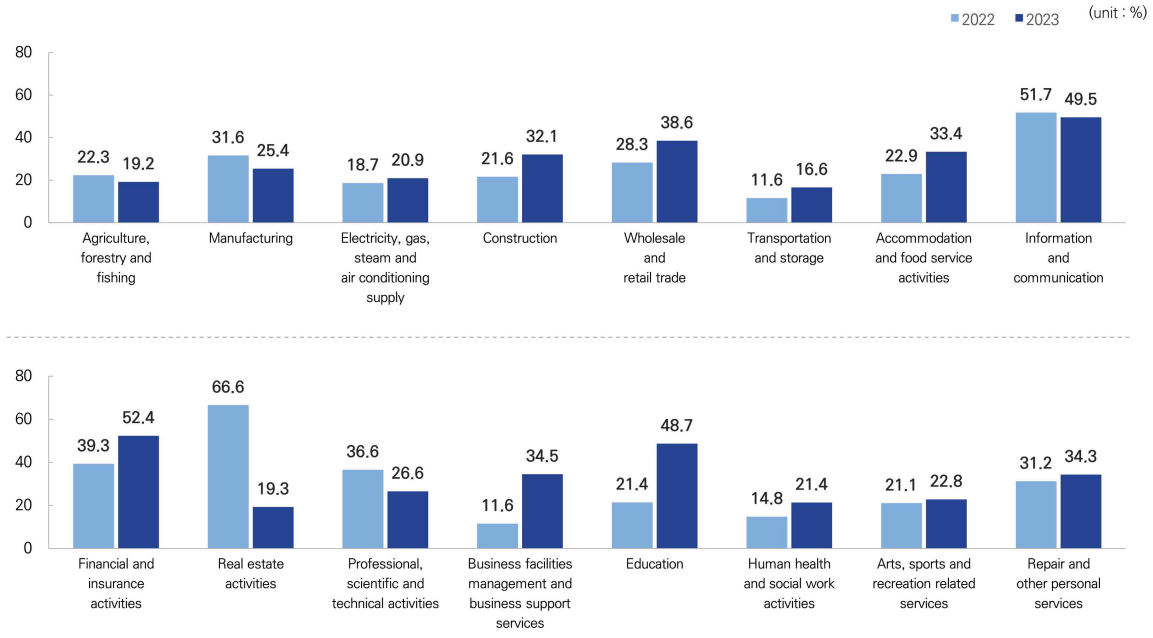
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Artificial Intelligence(AI) refers to a technology and service that collects and utilizes data using techniques such as text mining, computer vision, speech recognition, machine learning, and deep learning to make predictions, recommendations, or decisions.

■ Artificial Intelligence(AI) Usage Rate By Industry Type and Enterprise Size

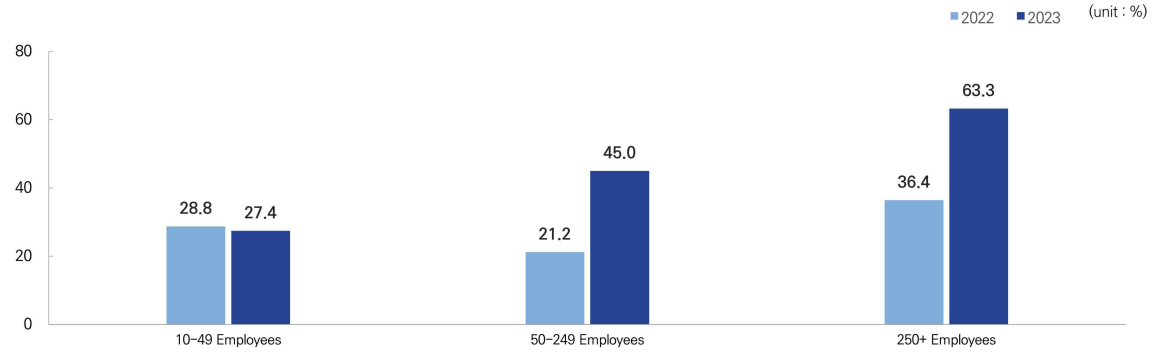
- In terms of the industry types, the usage rate of Artificial Intelligence technology and services was high in the 'Financial and insurance activities'(52.4%), 'Information and communication'(49.5%), 'Educational services'(48.7%), and 'Wholesale and retail trade'(38.6%) industries.

- Concerning the size of employment, the usage rate of Artificial Intelligence technology and services was highest among enterprises with 250 or more employees(63.3%).

Artificial Intelligence(AI) Technology and Services Usage Rate - By Industry Type



Artificial Intelligence(AI) Technology and Services Usage Rate - By Enterprise Size



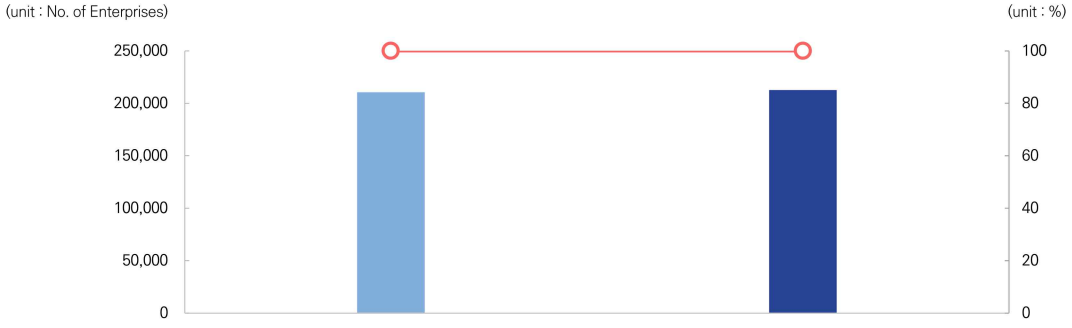
※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

10 Status of Informatization Investment

A Informatization Investment

- It is estimated that all enterprises invested in the informatization in 2023.

Informatization Investment



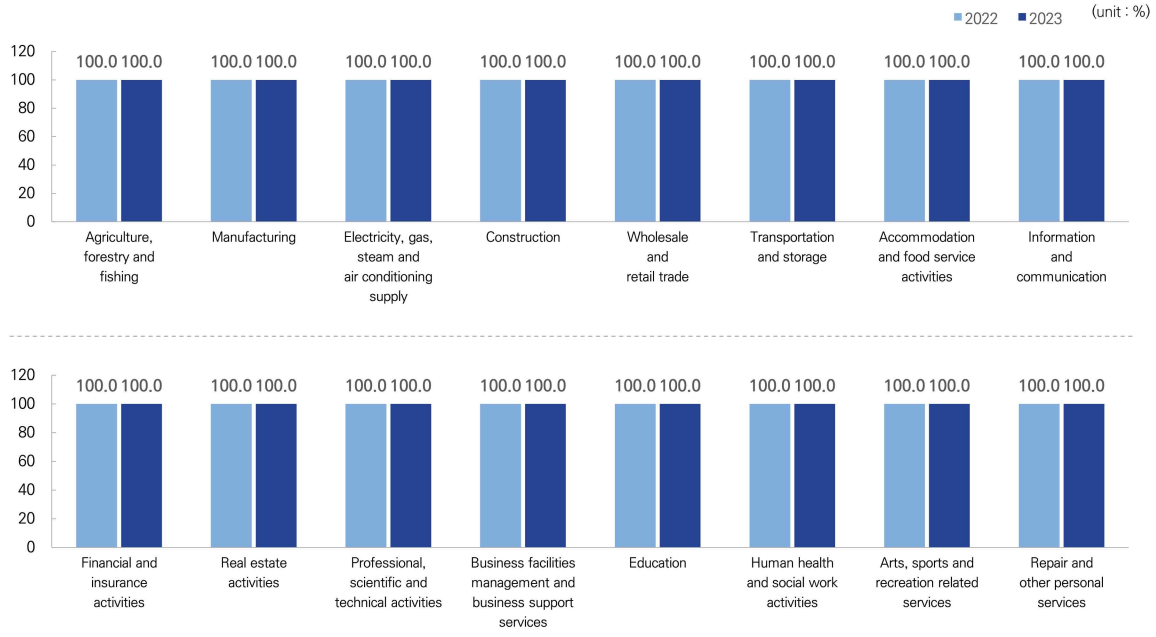
classification	2022	2023
No. of Enterprises with Informatization Investment	211,075	213,266
Informatization Investment Rate	100.0	100.0

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Investment in Informatization includes costs in purchasing, building and maintaining hardware, software and networks as well as labor costs and costs for using communication services.

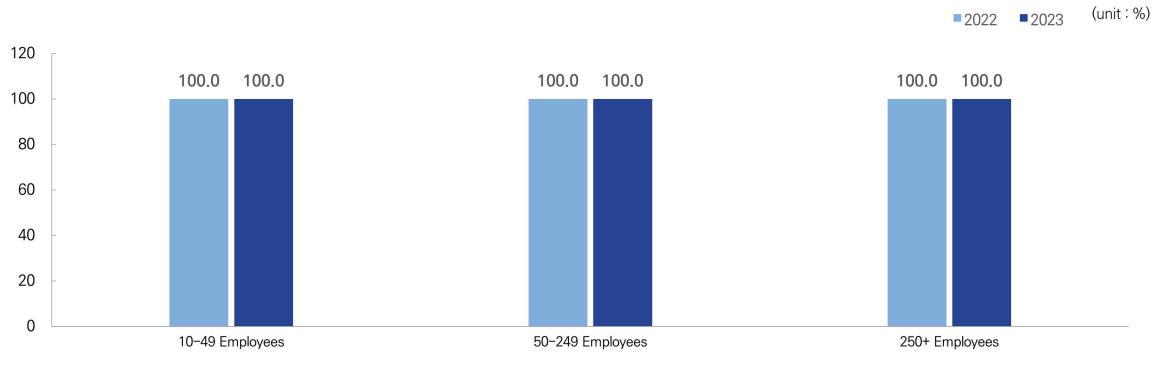
■ Informatization Investment Rate By Industry Type and Enterprise Size

- Informatization investment rate was estimated at 100% regardless of the types of industries and the enterprise size.

Informatization Investment Rate - By Industry Type



Informatization Investment Rate - By Enterprise Size

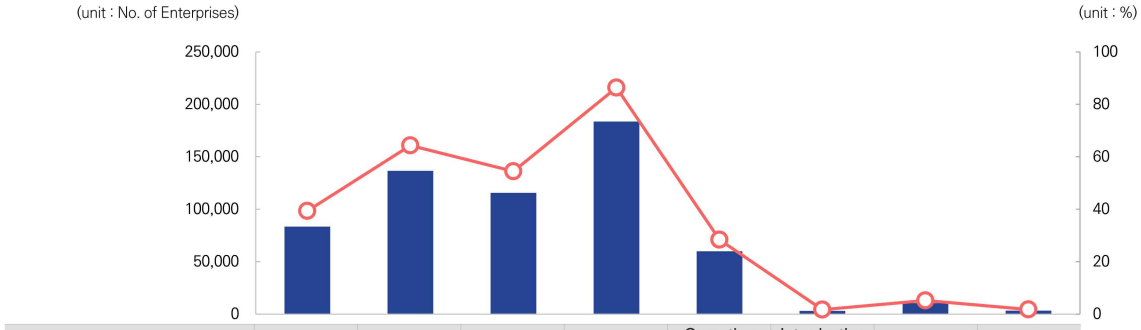


※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)

B Types of Informatization Investment (Multiple Responses)

- The area with the largest number of enterprises invested in was 'Infrastructure operation costs'(86.3%), followed by 'Software-related cost'(64.3%), 'System operation·maintenance costs'(54.5%), and 'Hardware-related cost'(39.4%).

Types of Informatization investment



classification	H/W-related cost	S/W-related cost	System operation·maintenance costs	Infrastructure operation costs	Operating and management labor costs	Introduction and deployment of new technologies	R&D	Technology education and training
No. of Enterprises	83,961	137,125	116,198	184,127	60,542	3,662	11,068	3,770
% of Enterprises	39.4	64.3	54.5	86.3	28.4	1.7	5.2	1.8

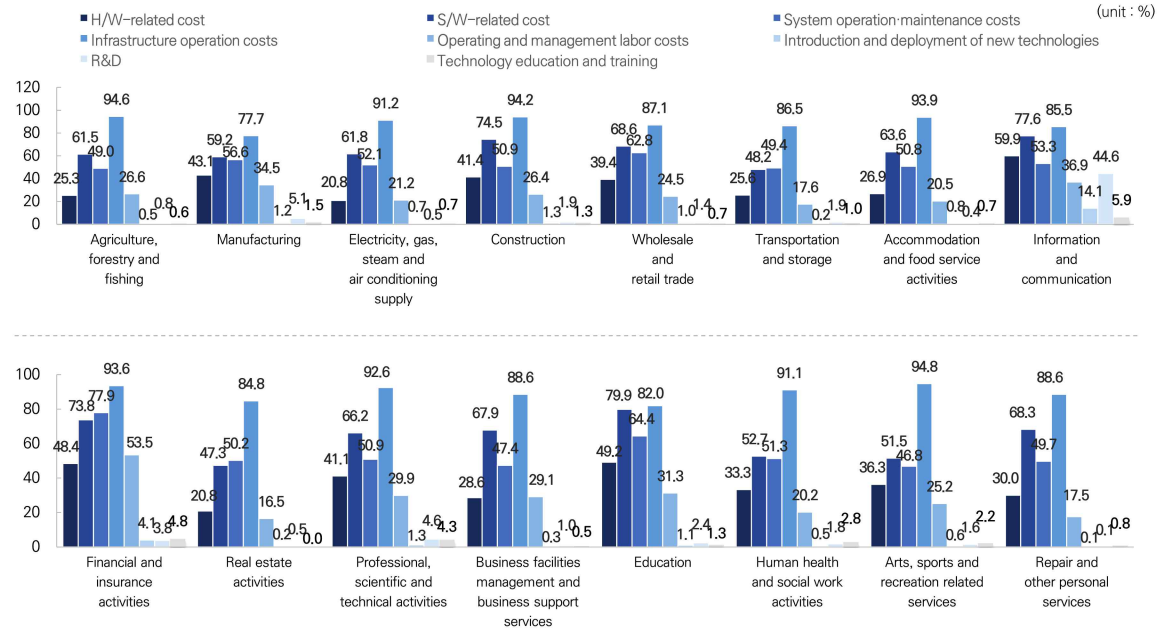
※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises that made an investment in informatization(spending)
※ Note : 1) The above numbers for each types of informatization investment(spending) are based on multiple responses.
2) No time-series comparison is available due to changes in the items compared to the previous year

■ Types of Informatization Investment Rate By Industry Type and Enterprise Size

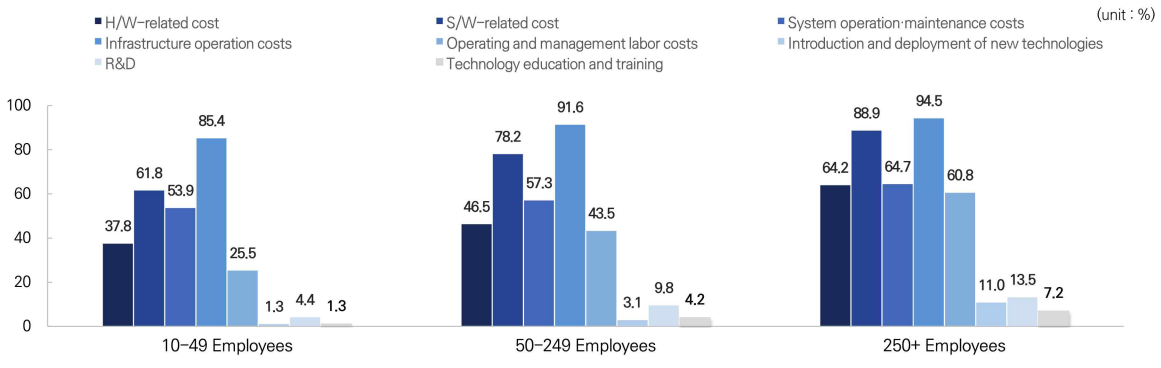
- Concerning the types of informatization investment, 'Infrastructure operation costs' turned out high in the 'Arts, sports and recreation related services'(94.8%) and 'Agriculture, forestry and fishing'(94.6%), while 'Software-related cost' was used the most widely in 'Educational services'(79.9%) and 'Information and communication'(77.6%).

- All types of informatization investment tended to be higher for larger employment sizes.

Types of Informatization Investment Rate - By Industry Type



Types of Informatization Investment Rate - By Enterprise Size



※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises that made an investment in informatization(spending)

Appendix

Appendix 1. Statistical Tables

Appendix 2. Questionnaire

Appendix 1. Statistical Tables

Table 1. Computer Penetration

	Total no. of Enterprises	In Possession of Computers	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	213,266	100.0
INDUSTRY			
Agriculture, forestry and fishing	1,454	1,454	100.0
Manufacturing	65,282	65,282	100.0
Electricity, gas, steam and air conditioning supply	2,506	2,506	100.0
Construction	30,408	30,408	100.0
Wholesale and retail trade	29,123	29,123	100.0
Transportation and storage	7,663	7,663	100.0
Accommodation and food service activities	10,718	10,718	100.0
Information and communication	11,884	11,884	100.0
Financial and insurance activities	1,468	1,468	100.0
Real estate activities	3,046	3,046	100.0
Professional, scientific and technical activities	14,462	14,462	100.0
Business facilities management and business support services	10,759	10,759	100.0
Education	2,773	2,773	100.0
Human health and social work activities	16,079	16,079	100.0
Arts, sports and recreation related services	1,575	1,575	100.0
Repair and other personal services	4,066	4,066	100.0
SIZE [No. of employees]			
10~49	183,216	183,216	100.0
50~249	25,601	25,601	100.0
250 or more	4,449	4,449	100.0

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Computers include desktop, portable computers like laptop·netbook·tablet PC, handheld devices like smartphone·PDA and server computers.

Table 2. Employees' Computer Usage

	Total no. of Enterprises with computer usage	Less than 20%		20~Less than 40%		40~Less than 60%		60~Less than 80%		80% and above		average usage %
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	
TOTAL(10 or more)	213,266	6,185	2.9	33,649	15.8	52,575	24.7	31,896	15.0	88,961	41.7	67.3
INDUSTRY												
Agriculture, forestry and fishing	1,454	94	6.4	534	36.7	512	35.2	227	15.6	88	6.1	43.5
Manufacturing	65,282	2,057	3.2	14,498	22.2	22,965	35.2	13,008	19.9	12,755	19.5	55.8
Electricity, gas, steam and air conditioning supply	2,506	179	7.1	793	31.7	803	32.1	306	12.2	425	17.0	50.4
Construction	30,408	747	2.5	4,727	15.5	9,984	32.8	6,045	19.9	8,905	29.3	61.9
Wholesale and retail trade	29,123	326	1.1	3,176	10.9	4,769	16.4	4,427	15.2	16,425	56.4	75.8
Transportation and storage	7,663	619	8.1	1,500	19.6	1,452	18.9	699	9.1	3,394	44.3	65.0
Accommodation and food service activities	10,718	336	3.1	2,226	20.8	3,372	31.5	1,958	18.3	2,826	26.4	58.5
Information and communication	11,884	0	0.0	147	1.2	199	1.7	81	0.7	11,457	96.4	98.0
Financial and insurance activities	1,468	4	0.3	23	1.6	26	1.8	19	1.3	1,396	95.1	96.3
Real estate activities	3,046	231	7.6	582	19.1	760	24.9	351	11.5	1,123	36.9	62.3
Professional, scientific and technical activities	14,462	120	0.8	850	5.9	1,376	9.5	920	6.4	11,196	77.4	87.5
Business facilities management and business support services	10,759	1,091	10.1	2,622	24.4	2,572	23.9	1,217	11.3	3,257	30.3	56.3
Education	2,773	0	0.0	126	4.6	319	11.5	142	5.1	2,186	78.8	86.7
Human health and social work activities	16,079	59	0.4	577	3.6	1,902	11.8	1,782	11.1	11,759	73.1	85.8
Arts, sports and recreation related services	1,575	54	3.4	259	16.5	317	20.1	199	12.6	746	47.4	69.1
Repair and other personal services	4,066	270	6.6	1,010	24.8	1,247	30.7	515	12.7	1,024	25.2	54.6
SIZE [No. of employees]												
10~49	183,216	4,449	2.4	27,967	15.3	45,730	25.0	27,631	15.1	77,439	42.3	68.0
50~249	25,601	1,397	5.5	4,896	19.1	6,023	23.5	3,671	14.3	9,613	37.5	63.0
250 or more	4,449	339	7.6	785	17.6	822	18.5	594	13.4	1,909	42.9	64.9

※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees that possess at least one computer
※ Note : 1) Employees refer to all personnel working for the business/organization and include regular and non-regular employees.
2) The proportion of employees who use computer for business purposes is the percentage of employees who have at least once a week used computers to conduct business tasks.

Table 3. Internet access

	Total no. of Enterprises	with Internet Access	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	213,266	100.0
INDUSTRY			
Agriculture, forestry and fishing	1,454	1,454	100.0
Manufacturing	65,282	65,282	100.0
Electricity, gas, steam and air conditioning supply	2,506	2,506	100.0
Construction	30,408	30,408	100.0
Wholesale and retail trade	29,123	29,123	100.0
Transportation and storage	7,663	7,663	100.0
Accommodation and food service activities	10,718	10,718	100.0
Information and communication	11,884	11,884	100.0
Financial and insurance activities	1,468	1,468	100.0
Real estate activities	3,046	3,046	100.0
Professional, scientific and technical activities	14,462	14,462	100.0
Business facilities management and business support services	10,759	10,759	100.0
Education	2,773	2,773	100.0
Human health and social work activities	16,079	16,079	100.0
Arts, sports and recreation related services	1,575	1,575	100.0
Repair and other personal services	4,066	4,066	100.0
SIZE [No. of employees]			
10~49	183,216	183,216	100.0
50~249	25,601	25,601	100.0
250 or more	4,449	4,449	100.0

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Internet access refers to capacity to receive/send e-mail, search information, conduct online banking or transfer data files regardless of the type of device.

Table 4. Internet Access Method (Multiple Responses)

	Total no. of Internet Access Enterprises	Cable Modem		Optic Lan/FTTH		Leased Line		Wireless LAN		Wireless Internet on mobile phones	
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%
TOTAL(10 or more)	213,266	28,485	13.4	165,000	77.4	31,235	14.6	147,588	69.2	84,458	39.6
INDUSTRY											
Agriculture, forestry and fishing	1,454	140	9.7	1,159	79.7	191	13.1	881	60.6	551	37.9
Manufacturing	65,282	10,941	16.8	44,860	68.7	13,171	20.2	47,643	73.0	23,956	36.7
Electricity, gas, steam and air conditioning supply	2,506	719	28.7	1,726	68.9	167	6.7	1,232	49.1	726	29.0
Construction	30,408	4,241	13.9	23,004	75.7	4,074	13.4	18,207	59.9	13,398	44.1
Wholesale and retail trade	29,123	5,127	17.6	22,862	78.5	2,952	10.1	16,883	58.0	10,812	37.1
Transportation and storage	7,663	1,111	14.5	6,352	82.9	659	8.6	5,902	77.0	4,150	54.2
Accommodation and food service activities	10,718	1,069	10.0	8,671	80.9	1,489	13.9	6,660	62.1	5,840	54.5
Information and communication	11,884	566	4.8	10,922	91.9	1,579	13.3	10,741	90.4	5,578	46.9
Financial and insurance activities	1,468	127	8.7	1,056	72.0	416	28.3	752	51.2	351	23.9
Real estate activities	3,046	135	4.4	2,665	87.5	366	12.0	2,619	86.0	1,020	33.5
Professional, scientific and technical activities	14,462	723	5.0	12,918	89.3	1,362	9.4	12,557	86.8	5,100	35.3
Business facilities management and business support services	10,759	1,278	11.9	8,411	78.2	1,667	15.5	5,374	49.9	2,850	26.5
Education	2,773	304	11.0	2,194	79.1	375	13.5	1,799	64.9	1,035	37.3
Human health and social work activities	16,079	1,086	6.8	14,015	87.2	1,901	11.8	12,691	78.9	6,721	41.8
Arts, sports and recreation related services	1,575	148	9.4	1,326	84.2	160	10.1	1,368	86.9	757	48.0
Repair and other personal services	4,066	770	18.9	2,857	70.3	706	17.4	2,278	56.0	1,613	39.7
SIZE [No. of employees]											
10~49	183,216	25,516	13.9	140,489	76.7	26,840	14.6	124,743	68.1	72,417	39.5
50~249	25,601	2,588	10.1	21,116	82.5	3,244	12.7	19,540	76.3	10,040	39.2
250 or more	4,449	381	8.6	3,395	76.3	1,151	25.9	3,305	74.3	2,001	45.0

※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access
※ Note : The above numbers for each internet access method are based on multiple responses.

Table 5. Employees' Internet Usage

	Total no. of Internet Access Enterprises	Less than 20%		20~Less than 40%		40~Less than 60%		60~Less than 80%		80% and above		average usage %
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	
TOTAL(10 or more)	213,266	10,969	5.1	45,556	21.4	41,958	19.7	23,480	11.0	91,304	42.8	65.3
INDUSTRY												
Agriculture, forestry and fishing	1,454	198	13.6	604	41.5	385	26.5	148	10.2	119	8.2	40.0
Manufacturing	65,282	3,270	5.0	21,776	33.4	18,157	27.8	7,844	12.0	14,236	21.8	52.6
Electricity, gas, steam and air conditioning supply	2,506	317	12.6	809	32.3	636	25.4	295	11.8	449	17.9	47.8
Construction	30,408	1,765	5.8	6,667	21.9	7,858	25.8	5,157	17.0	8,961	29.5	59.0
Wholesale and retail trade	29,123	638	2.2	3,925	13.5	4,591	15.8	3,784	13.0	16,185	55.6	74.4
Transportation and storage	7,663	896	11.7	1,056	13.8	992	12.9	523	6.8	4,196	54.8	69.9
Accommodation and food service activities	10,718	658	6.1	3,182	29.7	2,787	26.0	1,370	12.8	2,722	25.4	54.0
Information and communication	11,884	38	0.3	100	0.8	229	1.9	89	0.7	11,428	96.2	97.8
Financial and insurance activities	1,468	10	0.7	15	1.0	24	1.7	35	2.4	1,384	94.3	96.4
Real estate activities	3,046	453	14.9	624	20.5	485	15.9	337	11.1	1,147	37.7	59.3
Professional, scientific and technical activities	14,462	210	1.5	998	6.9	1,032	7.1	788	5.4	11,434	79.1	87.8
Business facilities management and business support services	10,759	1,839	17.1	3,009	28.0	1,722	16.0	911	8.5	3,279	30.5	52.4
Education	2,773	73	2.6	123	4.4	224	8.1	276	9.9	2,078	74.9	86.1
Human health and social work activities	16,079	162	1.0	1,159	7.2	1,594	9.9	1,250	7.8	11,914	74.1	84.6
Arts, sports and recreation related services	1,575	78	4.9	272	17.3	250	15.9	189	12.0	787	49.9	69.6
Repair and other personal services	4,066	365	9.0	1,240	30.5	992	24.4	485	11.9	984	24.2	53.0
SIZE [No. of employees]												
10~49	183,216	8,051	4.4	38,984	21.3	36,111	19.7	20,075	11.0	79,995	43.7	66.1
50~249	25,601	2,347	9.2	5,787	22.6	5,104	19.9	2,897	11.3	9,465	37.0	60.2
250 or more	4,449	571	12.8	785	17.6	743	16.7	508	11.4	1,844	41.4	61.4

※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees with internet access
※ Note : 1) Using the Internet for routine work means using the Internet at least once a week.
2) Employees refer to all personnel working for the business/organization and include regular and non-regular employees.
3) Internet usage rate refers to the proportion of Internet-using employees among all employees in Enterprises having access to the Internet.

Table 6. Website(Homepage) Usage

	Total no. of Enterprises	Using Website(Homepage)	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	151,682	71.1
INDUSTRY			
Agriculture, forestry and fishing	1,454	678	46.6
Manufacturing	65,282	46,228	70.8
Electricity, gas, steam and air conditioning supply	2,506	1,273	50.8
Construction	30,408	14,154	46.5
Wholesale and retail trade	29,123	21,238	72.9
Transportation and storage	7,663	4,358	56.9
Accommodation and food service activities	10,718	9,812	91.5
Information and communication	11,884	11,590	97.5
Financial and insurance activities	1,468	1,300	88.5
Real estate activities	3,046	1,677	55.1
Professional, scientific and technical activities	14,462	10,348	71.5
Business facilities management and business support services	10,759	6,597	61.3
Education	2,773	2,444	88.1
Human health and social work activities	16,079	15,627	97.2
Arts, sports and recreation related services	1,575	1,405	89.2
Repair and other personal services	4,066	2,954	72.7
SIZE [No. of employees]			
10~49	183,216	126,551	69.1
50~249	25,601	20,940	81.8
250 or more	4,449	4,190	94.2

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) It includes the business website, Website(Homepage) or a third party's site (including a related business) where the business has substantial control over the content of the site/page. It excludes a listing in an online directory and advertising on a third party's site.
2) It includes the utilization of e-commerce platforms (such as Gmarket, Auction, 11th Street, Coupang, Naver SmartStore, etc.) and video platforms (YouTube, Kakao TV, CHZZK, etc.) as means for promoting and advertising our products and services.

Table 7. Types of Website(Homepage) Usage (Multiple Responses)

	Total no. of Website using Enterprises	Homepage		SNS (Social Network Service)		Mobile Application		Video Channels		e-Commerce Platform	
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%
TOTAL(10 or more)	151,682	138,360	91.2	46,522	30.7	17,294	11.4	17,851	11.8	41,845	27.6
INDUSTRY											
Agriculture, forestry and fishing	678	634	93.5	148	21.9	29	4.2	31	4.6	93	13.7
Manufacturing	46,228	45,493	98.4	8,866	19.2	4,096	8.9	4,201	9.1	7,942	17.2
Electricity, gas, steam and air conditioning supply	1,273	1,210	95.1	251	19.7	83	6.6	43	3.4	79	6.2
Construction	14,154	13,017	92.0	2,319	16.4	1,173	8.3	423	3.0	1,531	10.8
Wholesale and retail trade	21,238	19,598	92.3	7,466	35.2	3,634	17.1	2,416	11.4	6,455	30.4
Transportation and storage	4,358	4,203	96.4	893	20.5	394	9.0	430	9.9	855	19.6
Accommodation and food service activities	9,812	5,776	58.9	4,853	49.5	1,949	19.9	888	9.0	6,387	65.1
Information and communication	11,590	11,421	98.5	4,103	35.4	1,356	11.7	2,805	24.2	3,764	32.5
Financial and insurance activities	1,300	1,298	99.9	428	32.9	308	23.7	164	12.6	157	12.1
Real estate activities	1,677	1,613	96.2	410	24.4	155	9.3	213	12.7	343	20.4
Professional, scientific and technical activities	10,348	9,974	96.4	3,736	36.1	896	8.7	1,970	19.0	2,927	28.3
Business facilities management and business support services	6,597	6,327	95.9	1,613	24.5	913	13.8	390	5.9	778	11.8
Education	2,444	1,971	80.6	1,257	51.4	315	12.9	399	16.3	530	21.7
Human health and social work activities	15,627	12,236	78.3	8,154	52.2	1,282	8.2	2,843	18.2	8,835	56.5
Arts, sports and recreation related services	1,405	1,243	88.5	755	53.8	198	14.1	272	19.4	686	48.8
Repair and other personal services	2,954	2,346	79.4	1,269	43.0	515	17.4	361	12.2	484	16.4
SIZE [No. of employees]											
10~49	126,551	113,672	89.8	38,019	30.0	13,068	10.3	13,336	10.5	35,802	28.3
50~249	20,940	20,534	98.1	6,719	32.1	3,252	15.5	3,299	15.8	4,784	22.8
250 or more	4,190	4,153	99.1	1,784	42.6	974	23.2	1,216	29.0	1,260	30.1

※ Reference Date : December 31, 2023
※ Base : Enterprises with 10 or more employees(Census on Enterprises, Statistics Korea) using website(Homepage)
※ Note : 1) It includes the business website, Website(Homepage) or a third party's site (including a related business) where the business has substantial control over the content of the site/page. It excludes a listing in an online directory and advertising on a third party's site.
2) It includes the utilization of e-commerce platforms (such as Gmarket, Auction, 11th Street, Coupang, Naver SmartStore, etc.) and video platforms (YouTube, Kakao TV, CHZZK, etc.) as means for promoting and advertising our products and services.
3) Figures are based on multiple responses.

Table 8. e-Commerce Purchases

	Total no. of Enterprises	e-Commerce Purchases	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	118,698	55.7
INDUSTRY			
Agriculture, forestry and fishing	1,454	838	57.6
Manufacturing	65,282	25,956	39.8
Electricity, gas, steam and air conditioning supply	2,506	993	39.6
Construction	30,408	17,928	59.0
Wholesale and retail trade	29,123	18,247	62.7
Transportation and storage	7,663	3,691	48.2
Accommodation and food service activities	10,718	8,106	75.6
Information and communication	11,884	8,142	68.5
Financial and insurance activities	1,468	917	62.4
Real estate activities	3,046	1,923	63.1
Professional, scientific and technical activities	14,462	9,895	68.4
Business facilities management and business support services	10,759	5,286	49.1
Education	2,773	1,720	62.0
Human health and social work activities	16,079	12,010	74.7
Arts, sports and recreation related services	1,575	1,216	77.2
Repair and other personal services	4,066	1,833	45.1
SIZE [No. of employees]			
10~49	183,216	99,027	54.0
50~249	25,601	16,344	63.8
250 or more	4,449	3,326	74.8

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) In this survey, 'Electronic commerce(e-Commerce)' refers to 'the sales (order) or purchases (order) of products or services, made via computers and networks (including mobile commerce)'.
2) Internet-based cell phone (mobile commerce and etc.) is included, but selling or purchasing products and services using traditional phone calls, fax or common email is not included. The survey did not consider whether payments were made online or not, and it excluded transactions that were not completed or canceled.

Table 9. e-Commerce Sales

	Total no. of Enterprises	e-Commerce Sales	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	50,998	23.9
INDUSTRY			
Agriculture, forestry and fishing	1,454	156	10.7
Manufacturing	65,282	10,218	15.7
Electricity, gas, steam and air conditioning supply	2,506	116	4.6
Construction	30,408	3,182	10.5
Wholesale and retail trade	29,123	9,063	31.1
Transportation and storage	7,663	1,878	24.5
Accommodation and food service activities	10,718	6,358	59.3
Information and communication	11,884	4,638	39.0
Financial and insurance activities	1,468	245	16.7
Real estate activities	3,046	556	18.2
Professional, scientific and technical activities	14,462	3,251	22.5
Business facilities management and business support services	10,759	1,217	11.3
Education	2,773	672	24.2
Human health and social work activities	16,079	8,160	50.8
Arts, sports and recreation related services	1,575	768	48.8
Repair and other personal services	4,066	520	12.8
SIZE [No. of employees]			
10~49	183,216	42,989	23.5
50~249	25,601	6,435	25.1
250 or more	4,449	1,575	35.4

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : 1) In this survey, 'Electronic commerce(e-Commerce)' refers to 'the sales (order) or purchases (order) of products or services, made via computers and networks (including mobile commerce)'.
2) Internet-based cell phone (mobile commerce and etc.) is included, but selling or purchasing products and services using traditional phone calls, fax or common email is not included. The survey did not consider whether payments were made online or not, and it excluded transactions that were not completed or canceled.

Table 10. Proportion of e-Commerce Sales Amount

	Total no. of e-Commerce Sales Enterprises	Less than 20%		20~Less than 40%		40~Less than 60%		60~Less than 80%		80% and above		average usage %
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	
TOTAL(10 or more)	50,998	10,174	19.9	11,222	22.0	9,148	17.9	7,498	14.7	12,956	25.4	48.0
INDUSTRY												
Agriculture, forestry and fishing	156	37	23.6	39	24.7	18	11.5	33	20.8	30	19.4	45.0
Manufacturing	10,218	2,550	25.0	2,038	19.9	1,763	17.3	1,353	13.2	2,514	24.6	45.9
Electricity, gas, steam and air conditioning supply	116	28	23.9	11	9.8	29	24.8	23	20.3	25	21.2	50.3
Construction	3,182	379	11.9	574	18.0	930	29.2	521	16.4	777	24.4	51.1
Wholesale and retail trade	9,063	2,246	24.8	2,236	24.7	1,467	16.2	1,070	11.8	2,045	22.6	43.8
Transportation and storage	1,878	163	8.7	494	26.3	306	16.3	278	14.8	638	34.0	56.1
Accommodation and food service activities	6,358	1,009	15.9	1,697	26.7	1,048	16.5	922	14.5	1,681	26.4	48.6
Information and communication	4,638	665	14.3	1,181	25.5	570	12.3	703	15.2	1,518	32.7	53.1
Financial and insurance activities	245	40	16.1	83	33.8	43	17.7	28	11.3	52	21.2	43.8
Real estate activities	556	55	10.0	164	29.6	135	24.3	83	15.0	118	21.2	48.3
Professional, scientific and technical activities	3,251	303	9.3	562	17.3	735	22.6	542	16.7	1,109	34.1	57.7
Business facilities management and business support services	1,217	177	14.6	204	16.8	302	24.8	216	17.7	318	26.1	53.6
Education	672	153	22.8	121	18.0	149	22.2	116	17.2	133	19.8	46.4
Human health and social work activities	8,160	2,237	27.4	1,603	19.6	1,422	17.4	1,405	17.2	1,494	18.3	42.3
Arts, sports and recreation related services	768	91	11.8	152	19.8	170	22.2	88	11.4	267	34.7	55.0
Repair and other personal services	520	43	8.3	62	11.9	61	11.8	118	22.7	236	45.4	66.0
SIZE [No. of employees]												
10~49	42,989	8,778	20.4	9,377	21.8	7,615	17.7	6,290	14.6	10,929	25.4	47.8
50~249	6,435	1,126	17.5	1,477	23.0	1,238	19.2	958	14.9	1,635	25.4	48.9
250 or more	1,575	270	17.1	367	23.3	295	18.7	250	15.9	392	24.9	48.5

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises with 10 or more employees (Statistics Korea, Statistical Business Registers) that used e-Commerce for sales
※ Note : 1) In case orders were made on behalf of other enterprises/organizations, only fare and commission are taken into accounted.
2) Numbers are rounded up, thus their sum may not equal to the total.

Table 11. Internet of Things(IoT) Devices and Services Usage

	Total no. of Enterprises	Using Internet of Things(IoT) Devices and Services	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	117,678	55.2
INDUSTRY			
Agriculture, forestry and fishing	1,454	392	27.0
Manufacturing	65,282	29,535	45.2
Electricity, gas, steam and air conditioning supply	2,506	716	28.6
Construction	30,408	13,066	43.0
Wholesale and retail trade	29,123	19,773	67.9
Transportation and storage	7,663	4,394	57.3
Accommodation and food service activities	10,718	8,862	82.7
Information and communication	11,884	6,501	54.7
Financial and insurance activities	1,468	954	65.0
Real estate activities	3,046	816	26.8
Professional, scientific and technical activities	14,462	7,362	50.9
Business facilities management and business support services	10,759	5,461	50.8
Education	2,773	2,256	81.4
Human health and social work activities	16,079	14,094	87.7
Arts, sports and recreation related services	1,575	1,123	71.3
Repair and other personal services	4,066	2,373	58.4
SIZE [No. of employees]			
10~49	183,216	99,222	54.2
50~249	25,601	15,314	59.8
250 or more	4,449	3,142	70.6

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Internet of Things(IoT) refers to a technology and service that connects people and objects, objects and objects, and objects and systems through communication (such as the internet), enabling them to interact and share information.

Table 12. Cloud Computing Service Usage

	Total no. of Enterprises	Using Cloud Computing Service	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	158,165	74.2
INDUSTRY			
Agriculture, forestry and fishing	1,454	974	67.0
Manufacturing	65,282	48,241	73.9
Electricity, gas, steam and air conditioning supply	2,506	1,812	72.3
Construction	30,408	24,113	79.3
Wholesale and retail trade	29,123	23,174	79.6
Transportation and storage	7,663	5,105	66.6
Accommodation and food service activities	10,718	5,847	54.6
Information and communication	11,884	9,497	79.9
Financial and insurance activities	1,468	1,237	84.3
Real estate activities	3,046	1,474	48.4
Professional, scientific and technical activities	14,462	12,125	83.8
Business facilities management and business support services	10,759	8,406	78.1
Education	2,773	2,358	85.0
Human health and social work activities	16,079	10,230	63.6
Arts, sports and recreation related services	1,575	922	58.6
Repair and other personal services	4,066	2,650	65.2
SIZE [No. of employees]			
10~49	183,216	133,826	73.0
50~249	25,601	20,647	80.6
250 or more	4,449	3,692	83.0

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Cloud Computing Service is a technology that uses ICT resources such as server, storage(storage data volume), database, software(program) to save software and data in data center connected through the Internet and to use them for anytime from anywhere regardless of the type of device. Usage fee is charged based on the number of users or the used data volume.

Table 13. Data Analysis and Services Usage

	Total no. of Enterprises	Using Data Analysis and Services	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	85,818	40.2
INDUSTRY			
Agriculture, forestry and fishing	1,454	439	30.2
Manufacturing	65,282	18,664	28.6
Electricity, gas, steam and air conditioning supply	2,506	773	30.8
Construction	30,408	16,807	55.3
Wholesale and retail trade	29,123	14,730	50.6
Transportation and storage	7,663	2,095	27.3
Accommodation and food service activities	10,718	5,134	47.9
Information and communication	11,884	6,499	54.7
Financial and insurance activities	1,468	821	55.9
Real estate activities	3,046	789	25.9
Professional, scientific and technical activities	14,462	4,819	33.3
Business facilities management and business support services	10,759	5,165	48.0
Education	2,773	1,721	62.1
Human health and social work activities	16,079	5,214	32.4
Arts, sports and recreation related services	1,575	374	23.8
Repair and other personal services	4,066	1,776	43.7
SIZE [No. of employees]			
10~49	183,216	68,870	37.6
50~249	25,601	13,960	54.5
250 or more	4,449	2,988	67.2

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Data Analysis refers to a service that uses software tools and techniques to support decision-making through the analysis of data patterns and trends.

Table 14. Artificial Intelligence(AI) Technology and Service Usage

	Total no. of Enterprises	Using Artificial Intelligence(AI) Technology and Services	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	64,587	30.3
INDUSTRY			
Agriculture, forestry and fishing	1,454	280	19.2
Manufacturing	65,282	16,599	25.4
Electricity, gas, steam and air conditioning supply	2,506	525	20.9
Construction	30,408	9,764	32.1
Wholesale and retail trade	29,123	11,227	38.6
Transportation and storage	7,663	1,273	16.6
Accommodation and food service activities	10,718	3,576	33.4
Information and communication	11,884	5,887	49.5
Financial and insurance activities	1,468	769	52.4
Real estate activities	3,046	588	19.3
Professional, scientific and technical activities	14,462	3,843	26.6
Business facilities management and business support services	10,759	3,714	34.5
Education	2,773	1,350	48.7
Human health and social work activities	16,079	3,438	21.4
Arts, sports and recreation related services	1,575	360	22.8
Repair and other personal services	4,066	1,396	34.3
SIZE [No. of employees]			
10~49	183,216	50,247	27.4
50~249	25,601	11,525	45.0
250 or more	4,449	2,815	63.3

※ Reference Date : December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Artificial Intelligence(AI) refers to a technology and service that collects and utilizes data using techniques such as text mining, computer vision, speech recognition, machine learning, and deep learning to make predictions, recommendations, or decisions.

Table 15. Informatization Investment

	Total no. of Enterprises	Informatization Investment	
		No. of Enterprises	%
TOTAL(10 or more)	213,266	213,266	100.0
INDUSTRY			
Agriculture, forestry and fishing	1,454	1,454	100.0
Manufacturing	65,282	65,282	100.0
Electricity, gas, steam and air conditioning supply	2,506	2,506	100.0
Construction	30,408	30,408	100.0
Wholesale and retail trade	29,123	29,123	100.0
Transportation and storage	7,663	7,663	100.0
Accommodation and food service activities	10,718	10,718	100.0
Information and communication	11,884	11,884	100.0
Financial and insurance activities	1,468	1,468	100.0
Real estate activities	3,046	3,046	100.0
Professional, scientific and technical activities	14,462	14,462	100.0
Business facilities management and business support services	10,759	10,759	100.0
Education	2,773	2,773	100.0
Human health and social work activities	16,079	16,079	100.0
Arts, sports and recreation related services	1,575	1,575	100.0
Repair and other personal services	4,066	4,066	100.0
SIZE [No. of employees]			
10~49	183,216	183,216	100.0
50~249	25,601	25,601	100.0
250 or more	4,449	4,449	100.0

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Private enterprises with 10 or more employees nationwide (Statistics Korea, Statistical Business Registers as of December 2023)
※ Note : Investment in Informatization includes costs in purchasing, building and maintaining hardware, software and networks as well as labor costs and costs for using communication services.

Table 16. Type of Informatization Investment (Multiple Responses)

	Total no. of Informatization Investment Enterprises	H/W-related cost		S/W-related cost		System operation·maintenance costs		Infrastructure operation costs	
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%
TOTAL(10 or more)	213,266	83,961	39.4	137,125	64.3	116,198	54.5	184,127	86.3
INDUSTRY									
Agriculture, forestry and fishing	1,454	368	25.3	894	61.5	713	49.0	1,376	94.6
Manufacturing	65,282	28,132	43.1	38,644	59.2	36,932	56.6	50,703	77.7
Electricity, gas, steam and air conditioning supply	2,506	522	20.8	1,549	61.8	1,305	52.1	2,286	91.2
Construction	30,408	12,604	41.4	22,658	74.5	15,485	50.9	28,645	94.2
Wholesale and retail trade	29,123	11,474	39.4	19,972	68.6	18,275	62.8	25,371	87.1
Transportation and storage	7,663	1,964	25.6	3,692	48.2	3,782	49.4	6,626	86.5
Accommodation and food service activities	10,718	2,887	26.9	6,821	63.6	5,445	50.8	10,063	93.9
Information and communication	11,884	7,124	59.9	9,218	77.6	6,333	53.3	10,166	85.5
Financial and insurance activities	1,468	710	48.4	1,084	73.8	1,144	77.9	1,374	93.6
Real estate activities	3,046	634	20.8	1,442	47.3	1,529	50.2	2,583	84.8
Professional, scientific and technical activities	14,462	5,951	41.1	9,573	66.2	7,365	50.9	13,389	92.6
Business facilities management and business support services	10,759	3,076	28.6	7,301	67.9	5,096	47.4	9,528	88.6
Education	2,773	1,364	49.2	2,216	79.9	1,787	64.4	2,273	82.0
Human health and social work activities	16,079	5,357	33.3	8,474	52.7	8,249	51.3	14,648	91.1
Arts, sports and recreation related services	1,575	572	36.3	812	51.5	737	46.8	1,493	94.8
Repair and other personal services	4,066	1,222	30.0	2,776	68.3	2,021	49.7	3,602	88.6
SIZE [No. of employees]									
10~49	183,216	69,199	37.8	113,139	61.8	98,663	53.9	156,475	85.4
50~249	25,601	11,906	46.5	20,032	78.2	14,657	57.3	23,448	91.6
250 or more	4,449	2,855	64.2	3,955	88.9	2,878	64.7	4,203	94.5

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises that made an investment in informatization(spending)
※ Note : The above numbers for each types of informatization investment(spending) are based on multiple responses.

Table 16. Type of Informatization Investment (Multiple Responses) (cont'd)

	Total no. of Informatization Investment Enterprises	Operating and management labor costs		Introduction and deployment of new technologies		R&D		Technology education and training	
		No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%	No. of Enterprises	%
TOTAL(10 or more)	213,266	60,542	28.4	3,662	1.7	11,068	5.2	3,770	1.8
INDUSTRY									
Agriculture, forestry and fishing	1,454	387	26.6	8	0.5	11	0.8	9	0.6
Manufacturing	65,282	22,555	34.5	769	1.2	3,351	5.1	991	1.5
Electricity, gas, steam and air conditioning supply	2,506	531	21.2	17	0.7	12	0.5	17	0.7
Construction	30,408	8,017	26.4	385	1.3	565	1.9	402	1.3
Wholesale and retail trade	29,123	7,147	24.5	300	1.0	412	1.4	204	0.7
Transportation and storage	7,663	1,350	17.6	13	0.2	147	1.9	79	1.0
Accommodation and food service activities	10,718	2,194	20.5	88	0.8	41	0.4	80	0.7
Information and communication	11,884	4,388	36.9	1,679	14.1	5,302	44.6	700	5.9
Financial and insurance activities	1,468	785	53.5	60	4.1	56	3.8	70	4.8
Real estate activities	3,046	501	16.5	5	0.2	16	0.5	0	0.0
Professional, scientific and technical activities	14,462	4,328	29.9	181	1.3	665	4.6	616	4.3
Business facilities management and business support services	10,759	3,132	29.1	37	0.3	104	1.0	49	0.5
Education	2,773	867	31.3	29	1.1	68	2.4	35	1.3
Human health and social work activities	16,079	3,251	20.2	79	0.5	291	1.8	450	2.8
Arts, sports and recreation related services	1,575	396	25.2	10	0.6	25	1.6	35	2.2
Repair and other personal services	4,066	711	17.5	2	0.1	3	0.1	32	0.8
SIZE [No. of employees]									
10~49	183,216	46,703	25.5	2,368	1.3	7,972	4.4	2,369	1.3
50~249	25,601	11,134	43.5	805	3.1	2,497	9.8	1,079	4.2
250 or more	4,449	2,705	60.8	489	11.0	599	13.5	322	7.2

※ Reference Period : January 1, 2023 ~ December 31, 2023
※ Base : Enterprises that made an investment in informatization(spending)
※ Note : The above numbers for each types of informatization investment(spending) are based on multiple responses.

Appendix 2. Questionnaire

Approval number 120008

[Article 33 of Statistics Act (Protection of Secrets)]

① Matters belonging to the confidential information of individuals, corporations, organizations, etc. that have become known in the course of collecting statistics shall be protected.

② Data belonging to the confidential information of individuals, corporations, organizations, etc. that have been collected for the collection of statistics shall not be used for any purpose other than that of collecting statistics.

2024 Survey on Enterprise Informatization

ID

Ministry of Science and ICT and National Information Society Agency are conducting the survey on Enterprise Informatization to understand the current status of informatization of enterprises in South Korea.

The survey is conducted based on the sample of enterprises with 10 or more employees under the Article 66 of the Framework Act on the National Informatization and the Article 17 of the Statistics Act.

The result of the survey, as an official statistics on informatization section of South Korea, is provided to international organizations such as OECD(Organization for Economic Cooperation and Development) and UNCTAD (UN Conference on Trade and Development), etc.

We kindly ask for your active cooperation to help establish effective informatization policies. All data obtained during this survey will only be used for census and research purposes and will be kept in strict confidence. We greatly appreciate your time and effort and hope that your enterprise will prosper.

Ministry of Science and ICT & National Information Society Agency

| Surveyor | Gallup Korea (TEL) +82 2-3702-2644 (jjmoon@gallup.com)

Region

① Seoul ② Busan ③ Daegu ④ Incheon ⑤ Gwangju ⑥ Daejeon
⑦ Ulsan ⑧ Sejong ⑨ Gyeonggi ⑩ Gangwon ⑪ Chungbuk ⑫ Chungnam
⑬ Jeonbuk ⑭ Jeonnam ⑮ Gyeongbuk ⑯ Gyeongnam ⑰ Jeju

Name of Enterprise

Sample Number

-

Classification

Industry Classification

Size(1~4)

Business Classification(01~16)

Business Type

① Sole Proprietorship ② Business Corporation

Instruction

1. Please answer all questions in order from the first page. (This questionnaire is 23 pages long including the cover page)
2. All questions should be answered to by the computer/information specialist in your enterprise, at the assistant manager level or above. If there is no computer specialist, CEO or administrative manager may respond instead.
3. Please choose only one answer unless there are directions that say otherwise.
4. Unless specified otherwise, the reference date of questions should be as of December 31, 2023.

※ The data of questions based on the recent 1 year (January to December 2023) is specified separately.

| Supervisor | Ministry of Science and ICT | Organizer | NIA | Surveyor | Gallup

※ Please respond based on your enterprise as a whole.

Ⅰ. INFORMATIZATION INFRASTRUCTURE

COMPUTER

◈ This question is to assess the basic level of computer utilization within the enterprises.

- Computers purchased and provided by an enterprise(including long-term rental longer than 6 months) for business use only.
- Personal use devices are excluded, unless the enterprise pays the usage fee partially.

Q1 (For all respondents)

What kind of computers does your enterprise use for business purpose? Please mark all that apply.

Usage	Type	Classification	Explanation (Examples)	Answer
Use Computer	Wire	1) Desktop computer	Personal Computer, Net-top, Workstation, Server PC, etc.	☐
	Wire less	2) Laptop computer	Portable computer that can be used without being restricted by location (Netbook, etc.)	☐
		3) Smartphone/ Tablet PC/PDA/ POS(Point of sales)	Portable devices that are capable of wireless communication, allowing individuals to carry and check information while on the move, as well as exchange data in real-time. (This also includes portable card payment machines and terminals used for electricity and gas meter readings)	☐
	Other	4) Please specify :		☐
Not use computer	Do not use computer			☐

☞ Go to Q2 if Use Computer

☞ Go to Q4 if Not Use Computer

Q2 (Only for those who answered 'Use Computer' to Q1)

What is the total number of employees in your enterprise, and how many of them use computers for their daily work? If it's difficult to provide an exact number of employees, please respond with an approximate proportion of employees.

※ 'Using computer for daily work' means using computer(s) at least once a week at work.

Proportion of employees using computers				Total number of employees		Employees who use computers	
hundreds	tens	ones					
			%	or	employees		employees

Q3 (Only for those who answered 'Use Computer' to Q1)

Does your enterprise have any **computer network (server) established?**

※ Network: Connecting information devices wirelessly or with wires for the purpose of sharing data, resources, and exchanging information.

※ Server: A computer that performs the role of providing services or information to clients through the Internet.

Yes/No	Answer
1) Yes	☐
2) No	☐

INTERNET

◈ This question is to understand the enterprises' internet usage environment and the level of utilization.

Internet: The global computer networks that use computers(devices) which enable e-mail exchange, information search of information, online banking, and data transmission.

Q4 (For all respondents)

What methods does your company use to access the internet for business purposes? Please **mark all** that apply.

Usage	Types	Methods	Explanation (Examples)	Mark
Use Internet	Wire	1) Cable modem	e.g.) Internet service provided by cable operators, SK B Internet Speed, LG U+Prime, etc.	☐
		2) Optic Lan	e.g.) KT Entopia, SK B Internet Optic Lan, LG U+ Optic Lan, etc.	☐
		3) Leased Line	e.g.) E1, E3, T1, ATM, etc.	☐
	Wireless	4) Wireless Lan	e.g.) KT Olleh WiFi, SK T WiFi, LG U+ WiFi, etc.	☐
		5) Mobile internet	e.g.) KT olleh, SK T, SK Broadband, U + ZONE	☐
	Other	6) Other	Please specify : ( ) (specify the name of the service provider and the service.)	☐
Not Use Internet	Do not use the internet			☐

☞ Go to Q5 if Use the Internet

☞ Go to Q6 if Not Use the Internet

Q5 (Only for those who answered 'Use the Internet' to Q4)

What is the total number of employees in your enterprise, and how many of them use the internet for their daily work? If it's difficult to provide an exact number of employees, please respond with an approximate proportion of employees.

※ 'Using internet for daily work' means using internet at least once a week at work.

Proportion of employees using the internet				Total number of employees	Employees who use the internet
hundreds	tens	ones			
			%	or	employees

Ⅱ. APPLICATION OF INFORMATIZATION

WEBSITE (HOMEPAGE, etc.)

◈ This question is to determine whether the enterprise utilizes its own web and app services.

Website (Homepage, etc.): A web site that is confirmed and located with a web address at the World Wide Web (WWW).

▪ The following types are considered as 'Website'.

Types of Website (Homepage, etc.)

- Website: Operating a website accessible through the internet (PC-based).
- Mobile Website: Operating a website built for use on mobile devices.
- Social Networking Service (SNS): Using social networking services like blogs.
- Mobile App: Operating an application built for use on mobile devices.
- Video Channel: Utilizing video channels for marketing, advertising, product/service promotion, etc.
- E-Commerce Platform: Using an e-commerce platform (portal sites, mobile apps, etc.).

Q6 (For all respondents)

Which of the following **types of website (homepage, etc.)** does your enterprise **use**?
Please **mark all** that apply.

Usage	Types	Explanation (Examples)	Answer
Use Website	1) Website	e.g.) http://www.nia.or.kr	☐
	2) SNS (Social Networking Service)	e.g.) Facebook, X(Twitter), Instagram, Tiktok, Naver band, Kakaostory, Line, etc.	☐
	3) Mobile App	e.g.) Providing services by using a dedicated mobile application (manage business information, products information, and online order, etc.)	☐
	4) Video Channels	e.g.) Youtube, afreecaTV, NaverTV, KakaoTV, etc.	☐
	5) E-Commerce Platform	e.g.) Coupang, Baemin, Yogiyo, Kakao Map, Naver Smart Store, Naver Map, etc.	☐
Not Use Website	Do not use website		☐

☞ Go to Q7 if Use Website
☞ Go to Q8 if Not Use Website

Q7 (Only for those who answered 'Use Website' to Q6)

Which of the **following features** does your enterprise's website **offer**?
Please **mark all** that apply.

Features	Explanation (Example)	Answer
1) Providing information	Provide information about products/services and promotion/advertisement e.g.) Business introduction, list of products/services, price information, etc.	☐
3) Online order	Operate functions such as cart, order, booking, payment, and delivery tracking to provide physical/electronic products/services via online	☐
4) Remote business support	Manage customer support service remotely (answer inquires) by using chatbot, etc.	☐
4) Services for the handicapped	Providing subtitles/scripts/sign languages for multimedia (video) contents, voice output/voice recognition features, screen magnification/contrast enhancement features, etc.	☐
5) Foreign language service	Providing contents available in two or more languages	☐

E-Commerce Purchase(order)/Sale(order)

◈ This question is to ascertain whether the enterprise engages in electronic commerce.

Electronic commerce: A method of sale(order) or purchase(order) of products or services online, using computers and networks (including mobile commerce).

- Electronic commerce includes:
  ① Physical goods (online orders, offline delivery via mail, courier, quick service, etc.)
  ② Digital goods (accessing or downloading educational content, online games, videos, music, online finance, stock information, etc.)
  ③ Other services (entertainment, travel, transportation, beauty, medical services, food reservations/bookings, etc.)
- This includes internet-based mobile phone such as mobile commerce, but excludes placing or taking orders for products or services using traditional methods such as telephone, fax, or regular email.
- Payment and delivery can be done by different methods other than online, but this excludes cancelled or incomplete orders.
- In the financial and insurance industries, it refers to purchasing products or services through a network using the internet or selling products, information, and services through an internet marketplace (websites that allow internet banking services).

Q8 (For all respondents)

Has your enterprise **made purchases/sales for goods or services related to your work via e-Commerce (including mobile commerce) in the past 1 year (from Jan. to Dec. 2023)**?

Please **mark all** that apply.

Classification	Mark	
	Yes	No
1) Purchases(orders)	☐	☐
2) Sales(orders)	☐	☐

☞ Go to Q9 **if 'Yes' is selected in Sales**

☞ Go to Q11 **if 'No' is selected in Sales**

Q9 (Only for those who answered 'Yes' to Q8-2)

What **is the proportion (%) of sales (orders) made via e-Commerce** among your enterprise's **total sales (orders) last year (Jan. to Dec., 2023)**?

Proportion of e-Commerce sales(orders)
= (e-Commerce sales(orders) / Total sales(orders)) x 100

hundreds	tens	ones	
			%

Q10 (Only for those who answered 'Yes' to Q8-2)

When categorizing customers to whom your enterprise made sales(orders) for goods or services via e-commerce as below, please specify the proportion(%) of sales(orders) made within the recent 1 year (Jan. to Dec., 2023) for each type. (VAT excluded)

Types of Customers	Share of e-Commerce Sales(orders)	Percentage
1) Households/Individual customers		%
2) Businesses (including related businesses)		%
3) Government/public organizations (including non-profit organizations)		%
Total	100	%

E-GOVERNMENT SERVICES

◈ This question is to assess the level of utilization of domestic e-government services within the enterprises.

E-Government Services: Administrative services provided by the government and other public authorities via the Internet (including mobile).

- This includes online services such as administrative work (complaints), inquiry, and reporting concerning tax, customs, business registration, policing, public health, and environment, and provision of administrative information online.
- Dealing with inquiries and complaints via homepages or portal sites of administrative/public institutions as well as acquiring information are regarded as e-government services. (For business use only, excluding the use of e-government service for personal purposes)

Examples of e-Government services

4 Major Worker's Insurances	▸www.4insure.or.kr	Korea e-Procurement System	▸www.g2b.go.kr
G4B Business Support	▸www.g4b.go.kr	e-Trade Portal	▸www.utradehub.or.kr
National Tax Service	▸www.nts.go.kr	e-customs system of Korea Customs Service	▸unipass.customs.go.kr
NTS Home Tax	▸www.hometax.go.kr	Architecture Administration System	▸www.eais.go.kr
Government 24	▸www.gov.kr	e-People	▸www.epeople.go.kr

Q11 (For all respondents)

Which of the following **e-Government services** has your enterprise used in the **last 1 year (from Jan. to Dec. 2023)**? Please **mark all** that apply. If multiple responses, please provide your primary and secondary services up to the 2nd rank.

Usage	Services	Explanation (Examples)	Mark
Use E-Government Services	1) Information search and retrieval	Information search and retrieval of administrative agencies or public authorities' websites e.g.) Start-up assistance information, tax payments, legislation, recruiting information, and various licensing and public data, etc.	☐
	2) Obtaining (including downloading) forms for administrative services	Download the application forms needed to for various applications, reports, payments, etc. which are provided by the administrative / public institution through the Internet. e.g.) Forms for tax return, tax report, permission application, bidding document, etc.	☐
	3) Filling in various administrative services forms and submitting documents	Fill in various administrative services application forms and submit the documents to the administrative / public institution through the Internet. e.g.) Tax return application, permission application, statistical data, etc.	☐
	4) Online processing of administrative services	Handle administrative / civil affairs work such as application, declaration and payment online which normally involves physical visits to the administrative / public institution. e.g.) Social insurance application, procurement and bidding, trade handling, paying taxes(utility bills) , booking train tickets and public facilities, etc.	☐
Not Use E-Government Services	Do not use E-Government Services		☐

OPEN DATA

◈ This question is to determine whether the enterprise utilizes open data.

Open Data: All types of data that administrative/public institutions process, draft, and obtain as part of their official duties electronically.

With the implementation of the Open Data Act, it has become mandatory to open and provide open data to ensure that anyone can conveniently access it. Open data is available through platforms such as the Open Data Portal (www.data.go.kr), Digital Jiphyeonjeon, Public Nuri, the Information Disclosure Portal, and the Statistics Korea website.

Examples of Open Data Usage

- Public procurement bid announcements, patent information, real-time weather information, and local administrative permit information
- Business registration status, technology bank information, local currency usage data, energy consumption and transaction status, and major commercial district status
- Pharmaceutical recall/approval information, food service industry business data, and agricultural product pesticide residue test results
- Basic parking lot information, public transportation card usage statistics, bus location data, autonomous driving data, and freight fare announcement information
- Air quality data, water quality data, environmental impact assessment information, wastewater treatment facility status, and pollutant/noise & vibration emission facility data
- Eco-friendly certification information, reservoir water level data, crop variety information, agricultural technology videos, and ecological landscape conservation area information
- All laws and regulations, statutory interpretations, legal information for daily life, case law data, probationer status, and probation officer status

Q12 (For all respondents)

Has your enterprise used Open Data in the last 1 year (from Jan. to Dec. 2023)?

Yes/No	Mark
1) Yes	☐
2) No	☐

☞ Go to Q13 if Use Open Data

☞ Go to Q14 if Not Use Open Data

Q13 (Only for those who answered 'Use Open Data' to Q12)

At what level does your company utilize Open Data among the following options? Please mark all that apply.

Level	Mark
1) Basic Level – Data Search and Download	☐
2) Functional Utilization – Primary Analysis and Reference for Work	☐
3) Strategic Application – Advanced Analysis and Decision-Making Support	☐
4) Revenue Generation – Development of Related Services/Products Using Open Data	☐

Management Information Systems (MIS)

◈ This question is to understand the types and methods of utilizing Management Information Systems (MIS) within the enterprises.

Management Information System: Comprehensive system overseeing corporate management information (data storage, information generation, etc.) to support decision-making and more.

Examples of Management Information System

- ERP (Enterprise Resource Planning) : Management of individual or integrated tasks such as production, sales, personnel, and accounting
- CRM (Customer Relations Management) : Collection, integration, processing, and analysis of information related to customers for the purpose of marketing.
- SCM (Supply Chain Management) : Optimization of information flow in the supply chain, including purchasing/procurement, production, sales, logistics, and inventory management.

Q14 (For all respondents)

Which of the following systems or technology does your enterprise operate(use)? Please mark all that apply.

	Systems	Mark
Use MIS	1) ERP (Enterprise Resource Planning) e.g.) Self-developed ERP system External providers' ERP system (SAP Korea, Douzone, Oracle, YoungLimWon, Microsoft, etc.) ERP Open Software (Compiere, ERP5, Openbravo, SQL-Ledger, WebERP, etc.)	☐
	2) CRM (Customer Relations Management) e.g.) Self-developed CRM system External providers' CRM system (Compiere, CentricCRM, OpenCRX, SugarCRM, salesforce, etc.)	☐
	3) SCM (Supply Chain Management) e.g.) External providers' SCM system (SAP, Oracle, JDA Software, Info Global Solution, Emro, etc.)	☐
	4) Other (Please specify : _____)	☐
Not Use MIS	5) Do not use Management Information System	☐

☞ Go to Q15 if Use Management Information System

☞ Go to Q16 if Not Use Management Information System

Q15 (Only for those who answered 'Use Management Information System' to Q14)

Which of the following methods does your enterprise use to operate Management Information System? Please mark all that apply.

Types	Operation Methods		
	Self-developed/built system	Outsourcing (purchase & operation of a provider's solution)	Simultaneous use of self-developed system and outsourcing
1) ERP (Enterprise Resource Planning)	☐	☐	☐
2) CRM (Customer Relations Management)	☐	☐	☐
3) SCM (Supply Chain Management)	☐	☐	☐

REMOTE WORK (SMART WORK)

◈ This question is to ascertain whether the enterprise operates remote work (smart work).

Remote Work (Smart Work): A flexible work style that allows tasks to be performed without constraints on time and location, utilizing ICT.

Examples of Remote Work (Smart Work)

- **Working from home** : Performing work from home without commuting to the office
  e.g.) Working at home due to childbirth, childcare, or household responsibilities, etc.
- **Working at a smart office** : Conducting work from a remote office hub, allowing for tasks to be performed outside the traditional headquarter offices
  e.g.) Working at a smart work center when physical attendance at the office is not possible due to business trip or meeting, etc.
- **Mobile working** : Executing work without constraints on time and location, utilizing portable ICT devices
  e.g.) Working with laptop, PDA and smartphone for visiting customers, sales activities, parking management, conducting statistical surveys, inspection of food and drug, gas metering, mailing, parcel service, etc.

Q16 (For all respondents)

Which of the following types of **remote work** does your enterprise operate?
Please mark all that apply.

Types		Mark
Use Remote Work (Smart Work)	1) Working from home	☐
	2) Working at Smart work center	☐
	3) Mobile working	☐
	4) Other(Please specify :)	☐
Not Use Remote Work (Smart Work)	Do not use remote work (smart work)	☐

※ In this section, questions about the utilization of intelligent information technology will be asked. Duplicate responses are possible if multiple technologies are used for the same device or service. Thus, please read carefully and answer the questions.

Ⅲ. UTILIZATION OF INTELLIGENT INFORMATION TECHNOLOGY

INTERNET OF THINGS (IoT)

◈ This question is to understand the types and purposes of utilizing Internet of Things (IoT) devices and services within the enterprises.

Internet of things: A technology and service that connects people and objects, objects and objects, and objects and systems through communication (such as the internet), enabling them to interact and share information

Q17 (For all respondents)

Which of the following Internet of Things (IoT) devices and services does your enterprise use? Please mark all that apply.

Explanation (Examples)		Mark
	1) Enterprise Security e.g.) Smart door locks, security cameras (CCTV), smart access control systems (controlling people and vehicle access within a building), alarm systems (fire, theft, gas alarm terminals, warning lights, emergency bells, etc.)	☐
	2) Customer Service e.g.) Kiosks, product location monitoring services, welfare services for vulnerable groups (voice recognition speakers, etc.), monitoring customer activities using cameras and sensors	☐
SAMSUNG pay Pay	3) Payment Systems e.g.) Card payment systems using RFID/NFC (Samsung Pay, Apple Pay, etc.), POS terminals	☐
	4) Production/Manufacturing Process Management (Smart Farm/Smart Factory) e.g.) Production automation, malfunction prediction, abnormal process detection, monitoring services for smart fisheries, crop cultivation, livestock pollution management, cultivation environment, and agricultural product distribution, etc.	☐
	5) Logistics Inventory and Status (maintenance) Management e.g.) Integrated control, real-time inventory management services, monitoring using GPS for logistics tracking and maintenance.	☐
	6) Energy Management e.g.) Integrated energy control (monitoring and controlling power), remote meters, temperature and humidity control devices, lighting, etc.	☐
	7) Smart Building/Office e.g.) Smart devices (remote control), smart lockers, flexible seating systems, video conferencing systems, document management systems, meeting record systems, etc.	☐
8) Other (Please specify :)		☐
9) Do not use any of the above-mentioned IoT devices or services		☐

☞ Go to Q18 if Use IoT devices and services

☞ Go to Q19 if Not Use IoT devices and services

Q18 (Only for those who answered 'Use IoT devices and services' to Q17)

For what purposes does your enterprise use IoT devices and services?
Please mark all that apply.

Purposes	Mark
1) Cost reduction	☐
2) Increased work efficiency	☐
3) Enhanced productivity and information sharing	☐
4) Strengthened information security	☐
5) Improvement of working environment	☐
6) Diversification of work methods	☐
7) Reinforcement of service reliability	☐
8) Reflection of customers' demands	☐
9) Other (Please specify :)	☐

☞ Go to Q20

Q19 (Only for those who answered 'Not Use IoT devices and services' to Q17)

What are the reasons for not using IoT devices and services in your enterprise?
Please mark all that apply.

Reasons	Explanation	Mark
1) Economic cost burden	Concerns about exceeding business budgets due to additional costs for implementation, operation, and maintenance	☐
2) Security concerns	Concerns about information security, including internal data leaks and security incidents (hacking, etc.)	☐
3) Complexity of services (technology)	Technical difficulties and the complexity of analysis that IoT devices and services have inherently	☐
4) Lack of infrastructure and personnel	Lack of infrastructure and skilled personnel for the utilization of IoT devices and services	☐
5) Compatibility issues	Compatibility issues between existing equipment and control/management software for the use of IoT devices and services	☐
6) Other	(Please specify :)	☐

CLOUD COMPUTING SERVICES

◈ This question is to understand the types and purposes of utilizing cloud computing services within the enterprises.

Cloud Computing: A service model where information and communication technology (ICT) resources such as software, storage, databases, servers, etc., are not directly built and operated, but are accessed through a network. Users receive and pay for services in real-time based on their actual usage.

- The main cloud computing service models are IaaS/PaaS/SaaS, differentiated based on the scope of provided IT resources.

※ Cloud computing includes connectivity through a Virtual Private Network (VPN).

Q20 (For all respondents)

Which of the following types of Cloud Computing services does your enterprise use?
Please mark all that apply.

	Explanation (Examples)	Mark
Outlook	1) Email e.g.) Cloud-based services such as Naver, Daum, Microsoft Exchange Online, Office 365, Gmail Enterprise, Gabia, Amazon Simple Email Service, etc.	☐
Office 365	2) Office Software e.g.) Cloud-based services such as Microsoft Office Cloud, Google Docs, Office 365, Evernote, etc.	☐
SAP	3) Financial or Accounting Software Applications e.g.) Cloud-based services such as SAP Business ByDesign, Twinfield, Concur, Netsuite, etc.	☐
DOUZONE 더존비즈온	4) ERP (Enterprise Resource Planning) Software e.g.) Cloud-based services such as ERP software from providers (SAP, Douzone Bizon, YoungLimWon, Oracle, etc.), self-developed ERP system, etc.	☐
salesforce	5) Customer Relationship Management (CRM) e.g.) Cloud-based services such as Salesforce, Oracle CRM on Demand, etc.	☐
	6) Security Software e.g.) Cloud-based services such as Virus protection programs, network access control, etc.	☐
zoom	7) Collaboration Software (Video conferencing, messenger, schedule management, etc.) e.g.) Cloud-based services such as Slack, Teams, Zoom, Webex, Naver Works, Kakao Work, etc.	☐
EDB	8) Database Hosting (Separate hosting for databases, apart from web space) e.g.) Cloud-based services such as EnterpriseDB, Elastra, etc.	☐
OneDrive	9) File Storage e.g.) Cloud-based services such as Google Drive, Dropbox, iCloud, OneDrive, Naver MYBOX, KT Cloud, GitHub, etc.	☐
aws	10) Computing capabilities to run enterprise-owned software e.g.) Cloud-based services such as Amazon Web Services EC2, Microsoft Azure, Google Cloud Platform, Flexiscale, etc.	☐
	11) Application Development, Testing, and Distribution e.g.) Cloud-based services such as Google Colab, Heroku, RedHat OpenShift, etc.	☐
12) Other (Please specify :)		☐
13) Do not use any of the above-mentioned Cloud Computing services		☐

☞ Go to Q21 if Use Cloud Computing services

☞ Go to Q22 if Not Use Cloud Computing services

Q21 (Only for those who answered 'Use Cloud Computing services' to Q20)

For what purposes does your enterprise use **Cloud Computing services**?
Please mark all that apply.

Purposes	Mark
1) Cost reduction	☐
2) Increased work efficiency	☐
3) Enhanced productivity and information sharing	☐
4) Strengthened information security	☐
5) Improvement of working environment	☐
6) Diversification of work methods	☐
7) Reinforcement of service reliability	☐
8) Reflection of customers' demands	☐
9) Other (Please specify :)	☐

☞ Go to Q23

Q22 (Only for those who answered 'Not Use Cloud Computing services' to Q20)

What are the reasons for not using **Cloud Computing services** in your enterprise?
Please mark all that apply.

Reasons	Explanation	Mark
1) Economic cost burden	Concerns about exceeding business budgets due to additional costs for implementation, operation, and maintenance	☐
2) Security concerns	Concerns about information security, including internal data leaks and security incidents (hacking, etc.)	☐
3) Complexity of services (technology)	Technical difficulties and the complexity of analysis that Cloud Computing services have inherently	☐
4) Lack of infrastructure and personnel	Lack of infrastructure and skilled personnel for the utilization of Cloud Computing services	☐
5) Compatibility issues	Compatibility issues between existing equipment and control/management software for the use of Cloud Computing services	☐
6) Other	(Please specify :)	☐

DATA ANALYSIS

◈ This question is to understand the types and purposes of utilizing data analysis and services within the enterprises.

Data Analysis: **A service that supports decision-making through the analysis of data patterns and trends using software tools and technologies.**

- Data can be extracted from internal sources within an enterprise or external sources (e.g., suppliers, customers, government).
- This includes both the independent establishment and operation of data analysis technology or operational environments (such as analysis programs and personnel) and the utilization of external service providers' analysis environments (systems, programs/services, etc.)

Q23 (For all respondents)

Which of the following types of data does your enterprise utilize when using Data Analysis and Services? Please mark all that apply.

Types of Data	Mark
1) Open Data e.g.) All types of data managed by administrative and public agencies in electronic formats, including text, voice, video, etc. ※ Includes all data provided through the open data portal (www.data.go.kr)	☐
2) Transaction Data (Sales records, payment records, etc.) e.g.) Credit/debit card and financial transaction data, retail company data, data collected from ERP and self-built web, etc.	☐
3) Customer Information Data e.g.) Customer product and service purchase information, location, preferences, reviews, searches, data collected from CRM, etc.	☐
4) Social Media Data e.g.) News, social media data (publicly available data such as Twitter, Facebook, Instagram, blogs, etc.), company official social media profiles (personal information, comments, videos, audios, images, etc.)	☐
5) Web Data e.g.) Search engine trends, online price information, online searches, data collected through web crawling such as registration information, etc.	☐
6) Sensor Data e.g.) Data collected by smart devices or sensors such as road/weather/power/machine sensors, RFID tags, barcodes, etc.	☐
7) Location Data e.g.) Data collected from portable devices or vehicles (portable devices that use mobile phone network, wireless connection, or GPS).	☐
8) Satellite Data e.g.) Data collected from an enterprise's infrastructure or services provided externally (AWS Ground Station, etc.), including satellite images, navigation signals, location signals, etc. ※ Excludes location data collected from portable devices or vehicles	☐
9) Other (Please specify :)	☐
10) Do not use any of the above-mentioned Data Analysis and Services	☐

☞ Go to Q24 if Use Data Analysis and Services

☞ Go to Q26 if Not Use Data Analysis and Services

Q24 (Only for those who answered 'Use Data Analysis and Services' to Q23)

For what purposes does your enterprise use Data Analysis and Services?
Please mark all that apply.

Purposes	Mark
1) Cost reduction	☐
2) Decision making support	☐
3) Increased work efficiency	☐
4) Enhanced productivity and information sharing	☐
5) Marketing and sales	☐
6) Development of new revenue models (products and services)	☐
7) Reflection of customers' demands	☐
8) Other (Please specify :)	☐

Q25 (Only for those who answered 'Use Data Analysis and Services' to Q23)

Which operation form does your enterprise use for Data Analysis and Services?

Operation form	Mark
1) Independently build and operate data analysis systems and operational environments	☐
2) Do not independently build data analysis systems and operational environments, but utilize the analysis environment of external service providers	☐
3) Independently build data analysis systems and operational environments while also utilizing external service providers	☐

☞ Go to Q27

Q26 (Only for those who answered 'Not Use Data Analysis and Services' to Q23)

What are the reasons for not using Data Analysis and Services in your enterprise?
Please mark all that apply.

Reasons	Explanation	Mark
1) Economic cost burden	Concerns about exceeding business budgets due to additional costs for implementation, operation, and maintenance	☐
2) Security concerns	Concerns about information security, including internal data leaks and security incidents (hacking, etc.)	☐
3) Complexity of services (technology)	Technical difficulties and the complexity of analysis that Data Analysis and Services have inherently	☐
4) Lack of infrastructure and personnel	Lack of infrastructure and skilled personnel for the utilization of Data Analysis and Services	☐
5) Compatibility issues	Compatibility issues between existing equipment and control/management software for the use of Data Analysis and Services	☐
6) Lack of High-Quality Data	Absence of Usable Data for Analytical Services, Data Quality and Processing Issues	☐
7) Other	(Please specify :)	☐

DATA TRADING

◈ This question is to determine whether the enterprise engages in data trading.

Data Trading: The act of transferring, using, or migrating data between data suppliers (sellers) and data consumers (buyers) through online or offline methods.

- Data Trading through intermediaries (such as data brokers and data exchanges) are also included.
- Data includes not only database tables but also text, voice, video, images, and other types of information.
- Examples of Data:
  - Statistical Data (Market Information, Research Data, and Other Statistics Related to Market Trends)
  - Financial data (credit card spending patterns based on gender, age, residential area)
  - News data (text data from newspapers and broadcasts in the economic category
  - Customer information data (user-recommended nationwide restaurant data, office worker meal voucher consumption data, etc.)
  - Spatial data (data on apartments nationwide and surrounding environment and facility information)
  - Transaction data (purchase data by product from online shopping malls)

Q27 (For all respondents)

Has your enterprise bought or sold data in the past year (from Jan. to Dec. 2023)?
Please mark all that apply.

Type	Trading status	
	Yes	No
1) Data Purchases	☐	☐
2) Data Sales	☐	☐

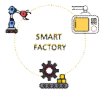
ARTIFICIAL INTELLIGENCE

◈ This question is to understand the types and purposes of utilizing artificial intelligence technology and services within the enterprises.

Artificial Intelligence (AI): Technology and services that utilize technology such as text mining, computer vision, voice recognition, machine learning, and deep learning to collect and leverage data, supporting predictions, recommendations, or optimal decision-making.

Q28 (For all respondents)

Which of the following types of Artificial Intelligence technology and services does your enterprise use? Please mark all that apply.

Explanation (Examples)	Mark
GPT-4 Copilot 1) Document Writing and Information Collection e.g.) [Translation] Papago, Google Translate, DeepL, etc. [Interactive Information Retrieval] ChatGPT, Bard, Notion AI, etc.	☐
 2) Support for Business Process Automation e.g.) Robotic automation in processes and tasks (smart factories, smart farms, etc.), Intelligent RPA and ERP, AI-based assistant services (voice services for call waiting such as KT AI Call Assistant, AI-based customer reception secretary services, AI-based scheduling services, etc.), Interactive AI-based kiosks, etc.	☐
 3) Support for Decision-making e.g.) Analyzing customer purchase history, search records, social media activities for marketing support. Analyzing sales data for demand prediction and inventory management support.	☐
Google Assistant 4) Technology for Converting Voice Language into Machine-Readable Format (Speech Recognition) e.g.) Document writing and summarization through speech recognition (Clova Note, OneNote, etc.), AI assistants (Google Assistant, Apple Siri, Samsung Bixby, Naver Clova, etc.).	☐
DALL·E 5) AI Technology for Generating, Summarizing, and Editing Video, Text, or Voice Language (Natural Language Generation, Speech Synthesis, Video Generation, etc.). e.g.) Customer support services through chatbots, customer response bots, video services using AI humans, automatic subtitle generation services, image creation, etc.	☐
Google Lens 6) Technology for Identifying Objects or People Based on Images or Videos (Image Recognition, Image Processing) e.g.) Image recognition-based information retrieval such as Google Lens and Naver Lens, on-site safety management through monitoring, video editing, risk assessment and detection, text recognition through OCR, AI object recognition (thermal checks, facial recognition, etc.), intelligent security cameras (CCTV), etc.	☐
 7) Machine Learning (Deep Learning) for Data Analysis e.g.) AI grading, AI-based product advising services, R&D (optimization for new product and service development), etc.	☐
Spam Guard 8) AI Technology for Performing Text Language Analysis (Text Mining) e.g.) Spam filtering, customer review analysis, press article analysis, etc.	☐
 9) AI Technology Enabling Machine Physical Movement through Autonomous Judgment Based on Environmental Observation e.g.) Autonomous robots, autonomous driving vehicles, autonomous drones, etc.	☐
10) Other (Please specify :)	☐
11) Do not use any of the above-mentioned Artificial Intelligence technology and services	☐

☞ Go to Q29 if Use Artificial Intelligence technology and services

☞ Go to Q31 if Not Use Artificial Intelligence technology and services

Q29 (Only for those who answered 'Use Artificial Intelligence technology and services' to Q28)

For what purposes does your enterprise use Artificial Intelligence technology and services? Please mark all that apply.

Purposes	Mark
1) Marketing and Sales e.g.) Providing customized services using tools like chatbots, voice prompt service for call waiting, and interactive AI-based kiosks, Providing customized asset management and personalized advertising, Optimizing price through market analysis, etc.	☐
2) Enhancing Productivity or Improving Service Processes e.g.) Product categorization and defect inspection, process optimization and maintenance, assembly tasks through robots, etc.	☐
3) Business Management Process or Management Organization e.g.) Drafting documents, risk assessment, business forecasting, human resource management, etc.	☐
4) Logistics Management e.g.) Logistics sorting with robots, AI-based inventory tracking, etc.	☐
5) Enterprise Security e.g.) AI-based monitoring, AI object recognition (thermal checks, facial recognition, etc.), intelligent security cameras (CCTV), cyber attack detection, etc.	☐
6) Accounting and Financial Management e.g.) Intelligent ERP·CRM, financial analysis, loan assessment, etc.	☐
7) Research and Development (R&D) and Innovation Activities e.g.) Product and service development/improvement, etc.	☐
8) Cost Reduction e.g.) Minimizing losses through measures like workforce replacement, real-time inventory management, etc.	☐
9) Reflection of customers' demands	☐
10) Other (Please specify :)	☐

Q30 (Only for those who answered 'Use Artificial Intelligence technology and services' to Q28)

Which operation form does your enterprise use for Artificial Intelligence technology and services?

※ Please include cases where employees of the parent company or subsidiary companies use AI technology and services.

Operation form	Mark
1) Independently develop and use	☐
2) Modify and use purchased commercial software (or system) internally	☐
3) Modify and use open-source software (or system) internally	☐
4) Purchase and use commercial software (or system) ※ This includes cases where the purchased software or system has already been integrated.	☐
5) Contract with external suppliers for development or modification for the use	☐
6) Other (Please specify :)	☐

☞ Go to Q32

Q31 (Only for those who answered 'Not Use Artificial Intelligence technology and services' to Q28)

What are the reasons for not using Artificial Intelligence technology and services in your enterprise? Please mark all that apply.

Reasons	Explanation	Mark
1) Economic cost burden	Concerns about exceeding business budgets due to additional costs for implementation, operation, and maintenance	☐
2) Security concerns	Concerns about information security, including internal data leaks and security incidents (hacking, etc.)	☐
3) Complexity of services (technology)	Technical difficulties and the complexity of analysis that Artificial Intelligence(AI) technology and services have inherently	☐
4) Lack of infrastructure and personnel	Lack of infrastructure and skilled personnel for the utilization of Artificial Intelligence(AI) technology and services	☐
5) Compatibility issues	Compatibility issues between existing equipment and control/management software for the use of Artificial Intelligence(AI) technology and services	☐
6) Consideration of Legal/Ethical Matters	Difficulties in the use of Artificial Intelligence(AI) technology and services due to regulatory requirements	☐
7) Lack of AI to Meet Demand	Inability to Find Required AI Technologies and Service Solutions	☐
8) Other	(Please specify :)	☐

Ⅳ. INFORMATIZATION INVESTMENT AND EFFECTIVENESS

INVESTMENT IN INFORMATIZATION

◈ This question is to determine whether the company has made investments related to informatization.

Q32 (For all respondents)

For which of the following areas has your enterprise **invested (spent expenses) in informatization in the last 1 year (from Jan. to Dec. 2023)**? Please **mark all** that apply.

Investment Areas		Explanation (Examples)	Mark
1) Purchase · Establishment	1-1) Hardware-related costs (purchase/establishment/lease)	Cost for ICT equipment such as computer-related components and peripherals e.g.) Computer equipment (CPU, mainboard, memory, graphic card, printer, etc.), communications equipment (LAN card, hub switch, router, etc.), wire(less) terminal (smartphone, PDA, etc.), sensor equipment (RFID, sensor, etc.), purchase and lease of AI devices (manufacturing robots, AI speaker, kiosks, etc.)	☐
	1-2) Software-related costs (purchase/establishment/lease)	Software programs such as operating system(OS), word processing, graphic, security, program development, etc. e.g.) Word processor, Excel, Photoshop, virus vaccine, Windows/Linux, Java, C++, and informatization business(projects) service for introducing information system, etc.(contract price, etc.) e.g.) Planning of information system(ISP), consulting, upgrading the current development(change, add-on), etc. to develop work-related programs	☐
2) Operation · Maintenance	2-1) System operation· maintenance costs	Costs for outsourcing for the system operation and maintenance(labor costs for external dispatch staff included), education/training costs e.g.) System operation/maintenance, Web hosting/housing service, DB backup and management, cost of hardware repair, etc.	☐
	2-2) Infrastructure Operating Costs	Usage fee for information communication line and service such as Internet, usage/rental fees for wire(less) communication circuit connected to computer e.g.) Internet and data communication cost charged by telecommunications companies(cable TV, etc.	☐
	2-3) Labor cost for operation· maintenance	Labor cost for internal employees performing tasks related to operation/management of information systems * The outsourcing personnel expense is excluded.	☐
3) Operation expenses	3-1) Adoption and Implementation of New Technologies	Costs for the Adoption and Implementation of New Technologies such as Artificial Intelligence (AI), Data Analytics, and AI Automation Robots Examples: Subscription to generative AI services such as ChatGPT, adoption of industrial AI automation robots, etc.	☐
	3-2) R&D	Costs for Product Development Using New Technologies, Improvement of Existing Products, Research Collaboration, Market Research on New Technologies, and Technology Adoption Studies	☐
	3-3) Technology Education and Training	Costs for Employee Training on Utilizing New Technologies, Participation in Expert Seminars and Workshops, and Acquisition of Necessary Technology Licenses	☐
4) Do not invest (spend expenses) in informatization			☐

Q33 (Only for those who answered 'Invested in Informatization' to Q32)

What **proportion(%) of your enterprise's total sales(budget) in the past year (Jan.~Dec, 2023) has been invested for informatization?**

Informatization Investment Amount		Proportion of investment for informatization = (Amount invested for informatization / Total sales(budget) x 100	hundreds	tens	ones	
_____ KRW	**or**					%

PERSONNEL FOR INFORMATIZATION

◈ This question is to determine whether the company has dedicated personnel for informatization and to understand the nature of their presence.

Q34 (For all respondents)

Has your enterprise had **dedicated personnel for informatization in the last 1 year (from Jan. to Dec. 2023)**? If your enterprise has had an exclusive personnel for informatization, please **mark all** types of employment that apply.

Yes/No	Mark
1) Yes	☐
2) No	☐

Types of employment
☐1) There is a separate, dedicated personnel and structure for informatization within the organization
☐2) The informatization tasks has been performed alongside other organization duties
☐3) Outsourcing to an external vendor (outsourcing)

EFFECTIVENESS OF INFORMATIZATION

◈ This question is to assess the extent of the effects brought about by the informatization of the enterprises.

Q35 (For all respondents)

How would you score the **level of effectiveness of informatization** in your enterprise?

Classification	Explanation (Examples)	Level of Effectiveness				
		Absolutely ineffective	Barely effective	Average	Some what effective	Very effective
1) Improvement of work productivity / efficiency and cost reduction	▪ Simplifying work process and automated processing ▪ Improving work process/production and manufacturing speed/productivity ▪ Reducing use of raw materials purchase/ marketing/logistics/services ▪ Reducing labor cost	①	②	③	④	⑤
2) Strengthening solidarity within the organization	▪ Strengthening internal cooperation between departments within the organization ▪ Improving work satisfaction among employees	①	②	③	④	⑤
3) Improvement of decision making	▪ Improving accuracy/efficiency of decision making ▪ Improving transparency of decision-making process/procedure	①	②	③	④	⑤
4) Reinforcement of cooperation with stakeholders	▪ Enhancing collaboration with suppliers ▪ Enhancing collaboration with customers (or customer service) ▪ Strengthening cooperation with related government agencies	①	②	③	④	⑤
5) New product/service, business (revenue) model development	▪ Development of new product/service ▪ Development of new business(revenue) model ▪ Overseas expansion support	①	②	③	④	⑤
6) Reinforcing and maintaining competitiveness	▪ Increasing sales ▪ Expanding customers ▪ Attracting investments ▪ strengthening competitiveness in the industry	①	②	③	④	⑤

DATA CLASSFICATION QUESTIONS

The data obtained here will be processed and used for classification purpose only and will not be used for any other purpose

D1 Please provide the **number of employees** in your enterprise by gender **as of December 31, 2023.**

Male	employees
Female	employees

D2 What is approximate **sales (budget) of the year 2023** of your enterprise?

Sales (Budget)	KRW

RESPONDENT PROFILE

Address	_____State/Province _____City/District/Borough_____Town Specify :
Name	
Contact Information	Telephone : E-mail : *① Please check the box if you prefer to be provided with the survey result.*
Position/ Department	Position : / Department :

"Thank you for your response "

Record details of interviewer

Survey method	Status of completion of questionnaire
☐ 1) Visit interview survey (Face-to-face interview survey)	☐ 1) A person worked in the field related with ICT
☐ 2) As it was impossible to conduct the survey on-site when visiting the office, the survey has been completed with the visit after the distribution of the questionnaire.	☐ 2) Representative of business
☐ 3) Online survey	☐ 3) Person in charge of general affairs in the business
☐ 4) E-mail or FAX survey	☐ 4) Other (Please specify:)
☐ 5) Other (Please specify:)	

Status of the change of information in the business being a subject of survey	List information	Contents of changes
Name of business		
Business type		
Scale		
CEO		
Telephone		

Survey Date	2024 _____Month _____Date From _____ Hour _____ Minute (Total:)minutes

Interviewer		**ID**		**Editor**	**Field researcher**	**Data check request**

"Please bring the interviewee's business card."

2024

Enterprise Informatization Statistics

Republic of Korea

Ministry of Science and ICT

NIA NATIONAL INFORMATION SOCIETY AGENCY