

# SUSTAINABILITY REPORT 2021

ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED



# DEFINE THE FUTURE



# " Thriving in a Greener and inclusive Digital World "



## Economy

Revenue from innovation **102 Million Baht**

**180** business and innovation projects joined the program



Enhance capabilities for proactive threat hunting by applying

**AI and Machine Learning**



## Society

**Best Company to Work for in Asia 2021** by Business media international



Expand functionality of Aor Sor Mor app, benefiting **4.58 Mn households**

**"AIS Academy for Thais,"**

enabling **39K people**

to access online learning platform



Support medical work with **5G** and medical solutions during the COVID-19 pandemic, helping more than

**431K people**



Develop online

**Aunjai Cyber** syllabus



## Environment



Install additional solar panels at **2,744 base stations**

Waste generated from operations dropped by **67%**



Collected E-waste

**160,000 pieces**

Reduced paper from

**8.4 Million** e-bill accounts



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## The 7 Strategic Focus

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# Message from Chairman



## Overcoming Crisis and Fostering Growth in the Digital Economy along with Taking Care of Society and the Environment through the 7 Strategies for Sustainable Development

✓ Digital service operations in 2021 faced huge challenges, particularly the prolonged COVID-19 pandemic that has raged on since last year, adversely impacting the economic circumstances and people's way of living. One change was manifest in consumer behavior in the online context where people adapted to deal with the new normal. Digital technology was thus instrumental in driving the economy following the economic fallout of the pandemic. In addition, Thailand has also been in the grip of climate change which poses even graver threats as the nation is one of the top ten countries most affected by the climate crisis amid the climate-related and extreme weather events becoming more frequent and severe. The 2021 United Nations Climate Change Conference or COP26 held in late 2021, has spurred all sectors to come to grips with the climate change challenges. It stands to reason that the next phase for social and economic recovery and development should be geared toward the Build Back Better

“ AIS pledges to continue utilizing its strength as a smart digital life service provider to drive economic sustainability with concern for all stakeholders to create business, social, and environmental value in tune with good governance principles. ”

framework rather than Getting Back to Normal to ensure sustainable long-term growth and resilience. To accomplish the objectives, digital technology backed by a green growth strategy is key to driving economic growth along with caring for society and the environment to contribute to a better quality of life of people at all levels and pass on a livable world to future generations.

As a smart digital life service provider, AIS is poised to be part of a mechanism to push Thailand through the crisis and foster economic growth in the digital era together with contributing to society and the environment. We are committed to operating business in line with a sustainable development approach through the “7 Strategies for Sustainable Development” serving as a compass that enables AIS to drive the digital economy, deliver digital access to society, and sustain the environment. To that effect, AIS has attached significance to both risks and opportunities encompassing the economic, social, and environmental dimensions. The 7 strategic focus includes digital innovation, data privacy & cyber security, human capital development, social inclusion, cyber wellness & online safety, climate actions, and waste management. Major developments in 2021 are as follows:

## Expanding from the Prowess in Mobile Service to Digital Innovation for Social Development and Sustainable Environmental Stewardship



**Driving Digital Economy** AIS continues expanding its 5G network across Thailand with a coverage in key areas of 77 provinces. To further utilize the potential of 5G during the COVID-19 outbreak, AIS employed 5G technology to support medical and public health services. Chief among them included the use of artificial intelligence-assisted CT imaging of the lungs at Chulabhorn Royal Academy, and the development of UVC Moving CoBot in collaboration with Mahidol University, using 5G technology for the remote control of vehicles and for processing via IoT. These 5G-enabled medical solutions help facilitate the work of medical workers as well as minimize the transmission risk of COVID-19 among patients and medical workers. AIS also pledges to expand the network infrastructure and offer digital solutions to accommodate work from home efficiently while supporting the operations of organizations to enable the economic sector to move ahead backed by a cyber security system that meets international standards. Added to this was the enhancement of threat hunting capabilities in response to the significant increase in cybersecurity threats with the focus on pro-active threat hunting to reduce hunting time and allow for faster management of threats.

**Providing Digital Access to Everyone in Society** Through the program 'AIS Academy for Thais, Mission to drive digital society', AIS provides digital access via the online learning platform LearnDi, enabling every Thai to access a wealth of knowledge during the time

when social distancing has made classroom learning challenging. Apart from providing access to online learning materials for young people, the program allows workers as well as educators to develop multiple skills through various projects. For instance, the Educators Thailand and the Tutors programs are dedicated to enhancing the digital skills of educators, empowering them to embed technology in their teaching methods whereas the Digital Library program provides opportunities for students in distant areas to access knowledge via different digital media. On top of this is The Career Development by Aunjai Volunteers, a workshop that provides several occupational training courses for those interested and who can then earn a living during the COVID-19 crisis. Moreover, AIS has continued to develop the Aor Sor Mor online application to support the public health operations during the COVID-19 outbreak efficiently, allowing Thai people to access fundamental health services more inclusively and gain greater access to digital platform as a means to reduce the digital divide in Thai society. In 2021, a total 4.58 million households benefited from the Aor Sor Mor online application.

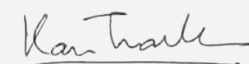
**Making Environmental Commitment** AIS has carried out various core energy efficiency projects. Examples include the use of big data analysis to study customers' usage behavior together with managing channels and energy use in response to customers' usage patterns in an endeavor to deliver excellent service quality. We also resolve to promote the use of renewable energy by installing solar panels at another 2,744 base stations, reducing GHG emissions more than 8,000 tCO<sub>2</sub>c. Realizing that digital technology and smart solution businesses have a role to play in enhancing energy efficiency and reducing GHG emissions, AIS has continued to build on its expertise to develop smart solution services to address the needs of enterprise

clients to shape their new normal at work and manage work processes to maximize energy efficiency as a means to cut GHG emissions.

## Striving to become a Smart Digital Life Service Provider that Promotes Sustainable Mutual Growth between People in Society and the Environment



The relentless commitment to conducting business with sustainability in all dimensions has resulted in AIS being listed on the domestic and international sustainability indices of the Dow Jones' World Index and Emerging Market Index for 2021 in the telecommunications industry category for the third consecutive year, the FTSC 4 Good Emerging Index for the seventh consecutive year, the SET Thailand Sustainability Investment (THSI) list for the seventh consecutive year, and listed on ESG 100 as a registered company showing excellence in environmental, social, and governance work by the Thai Pat Institute for the seventh year. AIS pledges to continue utilizing its strength as a smart digital life service provider to drive economic sustainability with concern for all stakeholders to create business, social, and environmental value in tune with good governance principles and support the Sustainable Development Goals of the United Nations. The objectives are to serve as an outstanding model in the telecommunications industry and support development in all sectors to achieve sustainable growth together.



(Mr. Kan Trakulhoon)

**Chairman of the Board of Directors**

# AN AFFIRMATION OF OUR DETERMINATION TOWARDS SUSTAINABLE BUSINESS



## Global Level

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Member of  
**Dow Jones  
Sustainability Indices**  
Powered by the S&P Global CSA

**Dow Jones Sustainability Indices  
(DJSI) 2021**

**Sustainability Award**  
Silver Class 2022  
**S&P Global**

**World and Emerging Indices  
and Received the Sustainability  
Award Silver Class 2022**



FTSE4Good

**FTSE 4 Good Index Series  
7<sup>th</sup> Consecutive Years**

## National Level

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**Thailand Sustainability Investment (THSI)  
2021 7<sup>th</sup> Consecutive Years**



**ESG 100  
7<sup>th</sup> Consecutive Years**



**SET Awards : Sustainability Excellence**

# Business Overview

Over the course of 31 years of providing telecommunication infrastructure to Thai society, starting in 1990 under collaborative contract or concessionaires, AIS was granted the right to utilize state frequencies under the 25-year Built-Transfer-Operate (BTO) agreement.

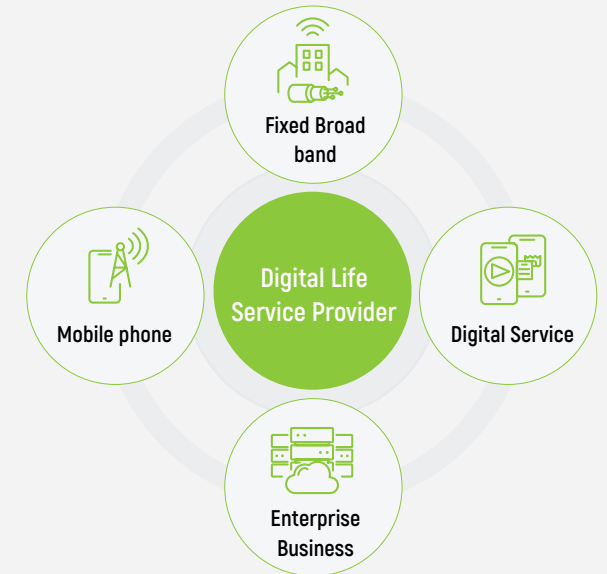
In 2010, the National Broadcasting and Telecommunications Commission (NBTC), the government agency regulating broadcasting and telecommunication, was established and tasked with granting spectrum licenses. The licensing scheme, which is a major turning point for the telecommunications industry in Thailand, supports fair competition as well as the development of new technologies.

## Vision

“ **To become the most-admired Digital Life Service Provider in Thailand** ”

## Missions

- Deliver superior products and services that enrich people's daily lives and improve enterprise capabilities and efficiency.
- Enhance customer intimacy through the best customer experience.
- Drive intrapreneurship and employees' professionalism, and promote a positive, lively and agile work culture.
- Build win-win growth for all stakeholders.



## AIS, the Digital Life Service Provider

We are a "Digital Life Service Provider" operating the following three core businesses:

### Mobile Phone Service



with 5G, 4G, 3G and 2G technology under the brand "AIS" provides a monthly subscription service, top-up service as well as international calls and roaming with network partners in over 229 nations worldwide.

### Fixed Broadband Service



provides high-speed home internet utilizing FTTx fiber optics under the brand "AIS Fibre".

### Enterprise Business service



offers cloud service, data center, cyber security, Internet of Things (IoT), and ICT solutions to corporate clients in collaboration with multiple partners.

### Digital Service



includes mobile phone and high-speed internet services, focusing on creating value-added digital services and serving as a new revenue source in the medium and long term in anticipation of a change in consumer behaviors and technology.

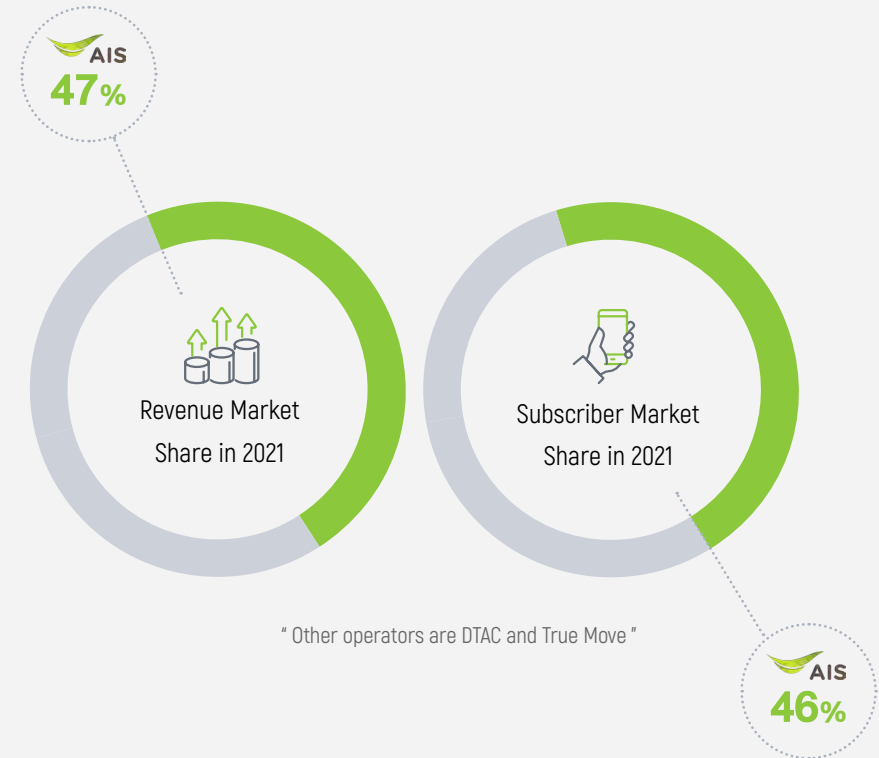
In 2021, AIS's total assets were valued at Baht 356,222 million with a market capitalization of Baht 684,003 million, ranked 3rd on the Stock Exchange of Thailand.



## Leading the Mobile Market

As of the end of 2021, AIS maintained its position as the leading mobile operator in Thailand, with a revenue market share of 47%, and a total of 44.1 million subscribers nationwide. The mobile phone service revenue accounted for more than 90% of total service revenue. AIS provides quality services on 5G, 4G, 3G and 2G networks, using frequency bands of 26 GHz and 2600, 2100, 1800, 900 MHz for a total of 1450 MHz (2x75 MHz on FDD technology and 1300 MHz on TDD technology). The 1450 MHz is under the license granted by NBTC and another 2x15 MHz is under a TOT partnership agreement. Currently, AIS's mobile network covers over 98% of the country's population.

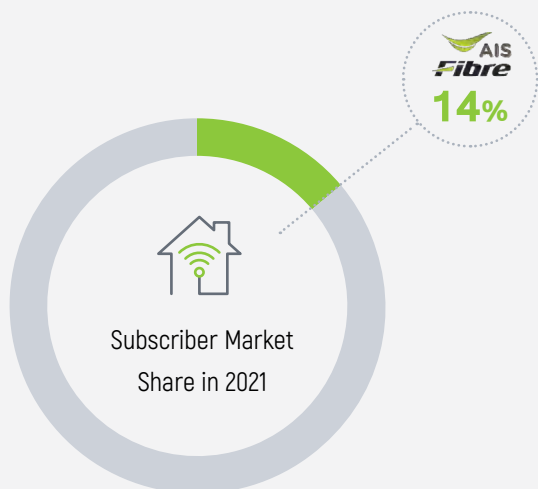
Following the spectrum auction arranged by NBTC in 2020, AIS won the most additional spectrums in the industry, enhancing its potential as the leader in service quality and enabling AIS to offer new 5G-based services which were officially launched in 2020. The Company has since continued to expand its 5G network to cover key areas in 77 provinces. As at year end 2021, the network reached 76% of the total population in Thailand. In the initial phase, the service covered areas with intense demand for data usage with the focus on the industrial estate areas to cater to the diverse application needs of corporate clients.



## Growing in the Fixed Broadband Market



AIS started its fixed broadband business under the brand "AIS Fibre" in 2015 with the intent to increase a new revenue source, building on the existing fiber network for its mobile business and the mobile customer base. Currently, AIS Fibre is available in 77 cities, covering 8 million households. AIS Fibre has penetrated the market using its strength in providing FTTH technology to connect households to the internet and is ready to support existing ADSL users wishing to upgrade to higher quality technology and the superior speed of up to 1 Gbps. Fixed broadband revenue in 2021 accounted for 6% of total service revenue. At present, the total number of subscribers is 1,772,000 accounting for more than 14% of the fixed broadband subscriber market share.



\*The other fixed broadband operators are TRUE, TOT and 3BB\*

## Enhancing Potential in the Corporate Client Business



Building on the enterprise data service, offering mobile phone service and internet links to corporate clients, AIS has expanded the service to small-, medium-, and large-sized businesses. Its end-to-end service encompasses cloud service, data center, cyber security, Internet of Things (IoT), and ICT solutions. In 2018, AIS acquired CS Lox Info Public Company Limited to strengthen its capabilities to provide integrated service to enterprise clients. For 2021, revenue from the Corporate Client Business (excluding mobile phone revenue) accounted for 3% of total service revenue. The distinctive features of the 5G technology has enabled AIS to use this advanced technology to support the services for the industrial sector efficiently through collaboration with partners in various industries. Currently, AIS offers a variety of 5G-enabled services such as 5G Fixed Wireless Access, 5G network slicing, 5G private network, and smart factory development among others.

## Building on Core Businesses with Digital Services



The digital service business involves the development of a diverse range of services incorporating digital technology encompassing networks, platforms, and digital solutions to deliver digital services to customers and corporate clients through the collaboration and

development of a connected business environment with partners to grow together. AIS' digital service focus on three areas, namely, video platform, mobile money, and other platforms such as digital marketing, insurance, digital loans, and the like. The digital service business is expected to play a key role in creating a new revenue source for AIS in the future apart from revenue from data connection and mobile internet fees. This will enable AIS to become an integrated service provider by converging products and services from its four core businesses.

## Operating Under Licenses Regulated by the NBTC



The majority of AIS' businesses, particularly the mobile phone and fixed broadband businesses, operate under the regulation of the National Broadcast and Telecom Commission (NBTC), which is the regulatory authority formed in accordance with the Frequency Allocation Act 2010. AIS, through a subsidiary, was granted a telecommunications business license, including 26 GHz, 2600, 2100, 1800, 900 and 700 MHz spectrum licenses with an average license life of 15 years. At the end of the spectrum license, NBTC will redistribute a spectrum license through auction.

AIS is mandated to pay the license fee, Universal Service Obligation (USO) fees, and numbering fees to the NBTC amounting to around 4% of service revenue per year.

# Material Topics for Business Sustainability (GRI 102-45, GRI 102-46, GRI 102-47)

## Process for Defining Material Topics



### 1 Identification

In 2021, AIS reviewed and reprioritized the material topics, a process carried out every 3 years. The review was based on the material topics identified in 2018 and compared with the changing trends and developments in topics of business sustainability both at local and international levels. Examples included SETTHSI Index, the Dow Jones Sustainability Indices (DJSI), sustainability assessment criteria of investors from different institutions, Sustainability Accounting Standards Board (SASB), Global Risk Report 2021 of the World Economic Forum, and various research studies. Further, topics pertinent to the telecommunications industry and collective opinions of stakeholders were added to a list which was subsequently presented to the Sustainability Development Committee and top managers for consideration and adjustment.

### 2 Prioritization

For 2021, AIS reviewed the material topics through internal and external processes:

- **Internally**  
Organized meetings with executives and top management to collect opinions and receive guidance on short- and long-term material topics at AIS while also setting strategies, objectives and operational plans in line with material topics to sustainability.
- **Externally**  
Collected views from stakeholders including customers, regulatory bodies, community and society, corporate customers, partners, shareholders and investors, via face-to-face discussions and by phone to uncover prioritized topics and expectations for AIS as well as to set operational guidelines for effectively responding to stakeholders.

### 3 Validation

A report of material topics was submitted to executives for consideration and to the Sustainability Development Committee and Board of Directors for approval as well as included in the Sustainable Business Report and online. (GRI 102-32)

### 4 Review

AIS prepared a review process after this report had been publicized to stakeholders so that feedback and recommendations for further sustainability development as well as future reports may be collected.

## Materiality Assessment Results





## Economic Dimension

Aspiration	Challenge	Opportunity	Contribution to UN SDGs
<b>Digital Innovation</b>			
<p>Create products and services through digital innovation that elevate life in Thailand and support the business sector</p>	<ul style="list-style-type: none"> <li>Capability to streamline business in response to the changing technology and consumer behavior in the Digital Era</li> <li>Competitiveness in providing digital services and platforms</li> </ul>	<ul style="list-style-type: none"> <li>Adding value to the digital economy</li> <li>Creating new revenue sources by teaming up multiple strategic partners to develop a diverse range of innovative digital products and services</li> </ul>	
<b>Data Privacy and Cyber Security</b>			
<p>Develop reliable data privacy and cyber security systems</p>	<ul style="list-style-type: none"> <li>Compliance with relevant laws and regulations e.g. the Personal Data Privacy Act, and Cybersecurity Act as well as preparation for compliance with upgraded regulation such as criteria for the retention of computer traffic data by service providers</li> <li>Customers' confidence in the security and reliability of the IT systems and protection of personal data privacy</li> <li>Reputation damage and loss on trading contracts in the event of information security and cyber threat incidents</li> </ul>	<ul style="list-style-type: none"> <li>Revenue growth from consumer confidence</li> <li>New revenue sources e.g. cyber security systems</li> </ul>	



## Social Dimension

Aspiration	Challenge	Opportunity	Contribution to UN SDGs
<b>Human capital development</b>			
<p>Drive and support AIS' human capital to be well prepared for AIS' strategic growth with the focus on digital business</p>	<ul style="list-style-type: none"> <li>Lack of employees with needed skills and capabilities to cater to new digital businesses to foster growth</li> <li>Adjustment to a new work model following the COVID-19 outbreak to achieve a balance between employees' good quality of life and business growth</li> </ul>	<ul style="list-style-type: none"> <li>Enhancing employees' potential and capabilities in response to new business approaches</li> <li>Attracting new employees with new abilities</li> </ul>	
<b>Social inclusion</b>			
<p>Elevate life in communities and reduce inequality through basic infrastructure and digital solutions</p>	<ul style="list-style-type: none"> <li>Responding to Thailand 4.0 policy</li> <li>Digital divide</li> <li>Dispute with communities and rental contract extensions</li> </ul>	<ul style="list-style-type: none"> <li>Fostering closer ties and insights into customers so as to deliver products and services that meet their needs</li> <li>Establishing long-term relationship with customers via digital solutions</li> </ul>	
<b>Cyber wellness and online safety</b>			
<p>Create a brand that promotes appropriate and safe use of the Internet and social media among users</p>	<ul style="list-style-type: none"> <li>Reputation damage</li> </ul>	<ul style="list-style-type: none"> <li>Promoting appropriateness and safety in the Internet and social media use</li> <li>Increase customer engagement</li> </ul>	



## Environmental Dimension

Aspiration	Challenge	Opportunity	Contribution to UN SDGs
<b>Climate action</b>			
<p>Prepare to tackle climate change in terms of GHG emission reduction and adjust to changing business circumstances</p>	<ul style="list-style-type: none"> <li>Compliance with the Paris Agreement on climate change (COP26) and the Net-zero target</li> <li>Conformance with new regulations e.g. Climate Change Act</li> </ul>	<ul style="list-style-type: none"> <li>Creating new revenue sources from cloud business and other products that reduce GHG emissions</li> <li>Creating new revenue sources from IoT e.g. climate change tracking systems</li> </ul>	
<b>Waste</b>			
<p>Reduce and recycle waste from operations, and promote proper disposal of electronic waste among Thai people</p>	<ul style="list-style-type: none"> <li>Compliance with Electronic Product and Equipment Disposal Act</li> <li>Reputation damage</li> </ul>	<ul style="list-style-type: none"> <li>Fostering good relationship and image with customers and society as a whole through environmentally-responsible products and services</li> </ul>	

## Stakeholder Engagement



Stakeholder Group	Channel and frequency	Expectations	Our actions
<b>Community and society</b>	<p>Community relation agencies with multiple communication channels as follows:</p> <ol style="list-style-type: none"> <li>1) Line Official Account: Mitr Chum Chon offers knowledge, news and answers about radio waves and signals from the base stations</li> <li>2) Communicating and providing information about the Aor Sor Mor application through Line Official Account: @aorsormor, Facebook Fan Page, and Hotline number 06 2520 1999 (every day except public holidays)</li> <li>3) Complaint Center via Call Center at 0-2029-555 every day except public holidays</li> </ol>	<ul style="list-style-type: none"> <li>Quality telecommunications services and service channels covering local communities</li> <li>Advanced technologies for the betterment of community life and enhancement of data management systems such as healthcare services via a digital platform, e-commerce platform, and agricultural development</li> <li>Health safety from magnetic fields generated by signals from network towers</li> <li>General support or assistance to communities in the events of disasters or emergencies</li> </ul>	<ul style="list-style-type: none"> <li>A mobile network covering 98 percent of the population, a broadband network covering over 8 million households in 77 provinces and an array of packages at different price points</li> <li>Support for community quality of life and Thailand's public health by providing technological access via the Aor Sor Mor health volunteer program to prevent spreading of the pandemic</li> <li>Support for digital intelligence and skills to enhance online marketing by community enterprises, and promotion of appropriate and safe use of the internet and social media</li> <li>Provision of knowledge and understanding to communities and their leaders on safety from magnetic fields generated by signal towers and setting up a proper complaint fielding procedure</li> <li>Support for communities during times of disaster i.e. floods, cold snaps</li> <li>Addition of online channels to respond to the communities' expectations and making personal calls for coordination on a regular basis during the COVID-19 outbreak when taking part in community activities on-site was not practical</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>AIS Call Center is the core channel for evaluating customer satisfaction, feedback, suggestions and complaints about employees' service provision, using the IVR automated and chatbots (Daily)</li> <li>Complaint Center at 08-0000-9263 (Daily)</li> </ul>	<ul style="list-style-type: none"> <li>Maximum personal data security</li> <li>Network signal quality for both cell phones and home internet as well as service quality for other products and ease of contact and access to service via various channels</li> <li>Transparency and clarity in providing information about the product to customers as regards pricing and promotion. On top of this is personnel are capable of suggesting solutions and follow up until completion of service within a set period along with keeping customers updated on the progress</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of strict policies, strategies, and processes for cyber security and personal data privacy under the supervision of regulatory divisions with transparency. Added to this is training and testing personnel's knowledge on data protection, enabling, them to protect customers' data privacy efficiently</li> <li>Procedure for regular monitoring and measuring of service quality and development of Interactive Voice Response (IVR) to enable fast and efficient customer service</li> <li>Provision of knowledge to call center officers and enhancement of work processes to deliver faster and efficient service and allow customers to view the status of processes via automated system</li> </ul>



Stakeholder Group	Channel and frequency	Expectations	Our actions
<b>Corporate Customers</b>	<ul style="list-style-type: none"> <li>Channels for fielding complaints and suggestions i.e. AIS Call Center, AIS Business Website (Daily)</li> <li>Evaluation of customer satisfaction via channels such as the corporate clients' sales department, AIS Call Center, ICT Solution, ICT Service Desk (technical guidance) and other online channels i.e. E-Business Portal (1 time per month)</li> <li>Evaluation of customer satisfaction on Enterprise Digital eService (1 time per month)</li> </ul>	<ul style="list-style-type: none"> <li>Quality of products and services i.e. network coverage, stability, and speed of data connections, various business solutions that enhance operational business efficiency, after sales service, efficient resolution of problems</li> <li>Various services meeting different client demands, responsiveness to New Normal, ability to enhance business efficacy and facilitate adaptation to changing contexts</li> <li>Facilitation of service access via Enterprise Digital eService: eBill, eReceipt, online payment, and appointing AIS as an e-withholding tax agent</li> <li>Strict data privacy protection that meets the standards</li> </ul>	<ul style="list-style-type: none"> <li>Constant development of the 4G network, regular evaluation of signal integrity, introduction of 5G technology in 2020, and development of fiber internet for high speed service</li> <li>Development of new cloud, ICT, cyber security, and IoT services in response to demand for greater business flexibility and security to enhance energy efficiency and contribute to a better environment</li> <li>Worthwhile promotions and applications, solutions and equipment for New Normal business operation, privileges for corporate clients including product and service discounts from AIS and partners, free trials and cost reductions under the Biz Up program</li> <li>Development of digital channels supporting faster, more efficient sales and customer service including online product and service sales, eBill, eReceipt, online payment, and appointing AIS as an e-withholding tax agent</li> <li>Establishment of the 24x7 Cyber Security Operation Center (CSOC) with services certifying customer data security standards i.e. ISO 27001 Information Security Management System (ISMS), and PCI DSS (Payment Card Industry Data Security Standard)</li> </ul>
<b>Partners</b>	<ul style="list-style-type: none"> <li>Trade Partner satisfaction evaluation (1 time per year)</li> <li>Representatives of personnel who contact customers (Daily)</li> <li>Distribution channels, applications, and websites (Daily)</li> <li>Annual meeting with trade partners (1-2 times per year)</li> <li>Interview (1 time per year)</li> </ul>	<ul style="list-style-type: none"> <li>Expanding alongside AIS to reach greater array of customers</li> <li>Fair business dealings by AIS</li> </ul>	<ul style="list-style-type: none"> <li>Support for partners to enhance their ability to distribute products through various channels by promoting online training via the learning digital platform LearnDi to enhance their potential and increase their revenue</li> <li>Creation of standards for effective cooperation, a fair and just remuneration structure</li> <li>Development of a platform for more efficient connection between AIS and its partners</li> </ul>

Stakeholder Group	Channel and frequency	Expectations	Our actions
Shareholders and investors	<ul style="list-style-type: none"> <li>Shareholder meeting (1 time per year)</li> <li>Operating result announcements such as analyst conferences, investor meetings both domestically and internationally, SET opportunity day, and SET Digital Roadshow (5-6 times per quarter)</li> <li>Investor relations website, Email investor@ais.co.th, Line@ contact phone number (Daily)</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable business growth</li> <li>Consistent dividend payments</li> <li>Good corporate governance, transparency, and trustworthiness</li> <li>Equal access to information</li> </ul>	<ul style="list-style-type: none"> <li>Maintaining leadership in the mobile phone business, retaining high growth in home internet and enterprise client businesses along with expansion into new services to spur growth such as video business, digital finance, insurance, etc</li> <li>Setting policy to pay out 70 per cent of dividends two times a year</li> <li>Thai Institute of Directors Corporate Governance Report score in the "Excellent" range</li> <li>Regular release of quarterly performance via all channels with timely and comprehensive disclosure of key data via appropriate channels to investors/shareholders</li> </ul>

# The 7 Strategies for Sustainable Development

1



## Digital Innovation

Create products and services through digital innovation to improve the quality of life of Thai people and elevate the competency of the Thai business sector.

3



## Human Capital Development

Nurture and develop AIS human capital to support business growth particularly digital business.

6



## Climate Actions

Reducing GHG emissions through high efficient business operations and utilization of renewable energy



Economy



Society



Environment

2



## Cyber security and Customer Privacy Protection

Develop a reliable system for cybersecurity and customer privacy protection.

4



## Social Inclusion

Uplifting community well-being and decreasing social inequality through digital infrastructure and solutions.

5



## Cyber wellness

Striving to establish a brand that promotes safe and appropriate use of the internet and social media

7



## Waste

Reducing and recycling waste from operations and promoting proper e-waste disposal among Thai people

## Targets for Sustainable Development



### Economy

#### 1. Digital Innovation

- Generate 150 million baht in revenue from digital innovations by the year 2024

#### 2. Cyber security and Customer Privacy Protection

Target 2024

- Operate in adherence to applicable laws and regulations including the Cyber Security Act and Personal Data Protection Act
- Continually enhance cyber security capabilities both in terms of technology and personnel readiness to protect basic infrastructure, systems and new services.
- Enhance cyber security efficacy and capability and personal data protection using Machine Learning and Artificial Intelligence to augment monitoring, analysis and threat assessment, use Automation to speed up and streamline processes.
- Become a leading Cyber Security Operation Center (CSOC) for corporate clients. Enhance capabilities in providing the service and further develop consulting services for data protection.



### Society

#### 3. Human Capital Development

Target 2024

- Acquire enough staff with new abilities in digital technology to support business growth
- 85% of talent pool is retained
- 85% of Talent on Critical Role staff undergo new Ability training in digital technology

#### 4. Social Inclusion

- Improve the wellbeing of 700,000 people through our digital platform and collaboration by 2023

#### 5. Cyber wellness

Target 2023

- Become Thailand's number one telecommunications brand, trusted for cyber wellness and online safety.
- Promote cyber wellness and online safety at 1,500 schools and protect 290,000 Thai users from cyber threats.



### Environment

#### 6. Climate Actions

Target 2023

- Reduce GHG emissions intensity as calculated from the ratio of direct and indirect emissions to data traffic by 90% compared to the baseline in 2015
- Increase renewable energy usage to 5% of total energy consumption

#### 7. Waste

Target 2023

- Collect 360,000 units of obsolete mobile and related electronic waste for proper recycling
- Reduce non-recyclable E-waste from AIS services and operations from 5% of total waste in 2018 to 3%
- To be Thailand's No. 1 telecommunication service brand that is also trusted for its environmental responsibility in terms of electronic waste, promoting awareness among the Thai people about proper recycling of E-Waste.



# Economy

- Digital Innovation
- Data Privacy & Cyber Security

## Digital Innovation

Create products and services through digital innovation to improve the quality of life of Thai people and elevate the competency of the Thai business sector.

### Target for 2024



Generate 150 million baht in revenue from digital innovations by the year 2024

### Significant Achievements in 2021



- Established AIS Digital Life Company Limited to achieve a flexible management structure conducive to digital life business development and to diversify substantially from a mobile network and fixed internet service provider into new markets by forming a joint venture with Siam Commercial Bank (SCB) Public Company Limited under the name AISCB to offer digital financial services starting from digital lending.
- Allying with business partners to develop and translate innovations into value-added products ready to be launched onto the market by applying 5G technology, such as Smart Manufacturing, to enhance factory capabilities, including assembly line operations and warehousing, and ultimately pave the way for Industry 4.0.
- Won the first prize in the S-Booster 2021, a space-based business idea contest organized by the Japanese government in collaboration with the University of Tokyo and a myriad of partners to adopt IoT technology in the construction of a forest fire detection system able to issue warnings to the agencies involved in a timely manner and ultimately to safeguard the lives of officials and community members and mitigate the loss of forest, a resource vital to the absorption of carbon dioxide from the atmosphere.

## Challenges & Opportunities [GRI 103-1]



In 2021, the COVID-19 pandemic was a major challenge faced by the global community. This has inevitably catalyzed greater reliance on digital technology in various dimensions, such as the moves toward a cashless society, remote offices, and online learning, and the development of medical advances integrating 5G networks for data transmission that better and more instantly respond to ever-changing COVID-19 situations, especially in terms of symptom monitoring, data storage and retrieval, and medical resource utilization. Such a tendency toward digital reliance has both afforded opportunities and posed challenges to smart digital life service providers, including AIS. To thrive, AIS needs to pioneer and put in place various types of digital technology to enable its customers to efficiently connect to the online world.

Apart from the COVID-19 pandemic, the effects of changes in market structure and competition intensity on income generation capacity have necessitated adaptation by service providers. Among others, they have to innovate products, services, and digital businesses responsive to the ever-changing needs of the consumer in their personal and professional life.

AIS can seize this opportunity by developing digital technology to drive the business forward and advance its competitive advantage while creating value for consumers and society as a whole. Essentially, AIS strives to align its business operations with consumer behavior in the digital era, engage in economic and social development, cause low environmental impacts, and offer products, services, and solutions that serve various industries, such as smart city solutions, transportation and logistics solutions, public health solutions, and property solutions. AIS benefits from a favorable digital business environment as ICT ecosystem development is already underway in Thailand thanks to the government's Thailand 4.0 policy.

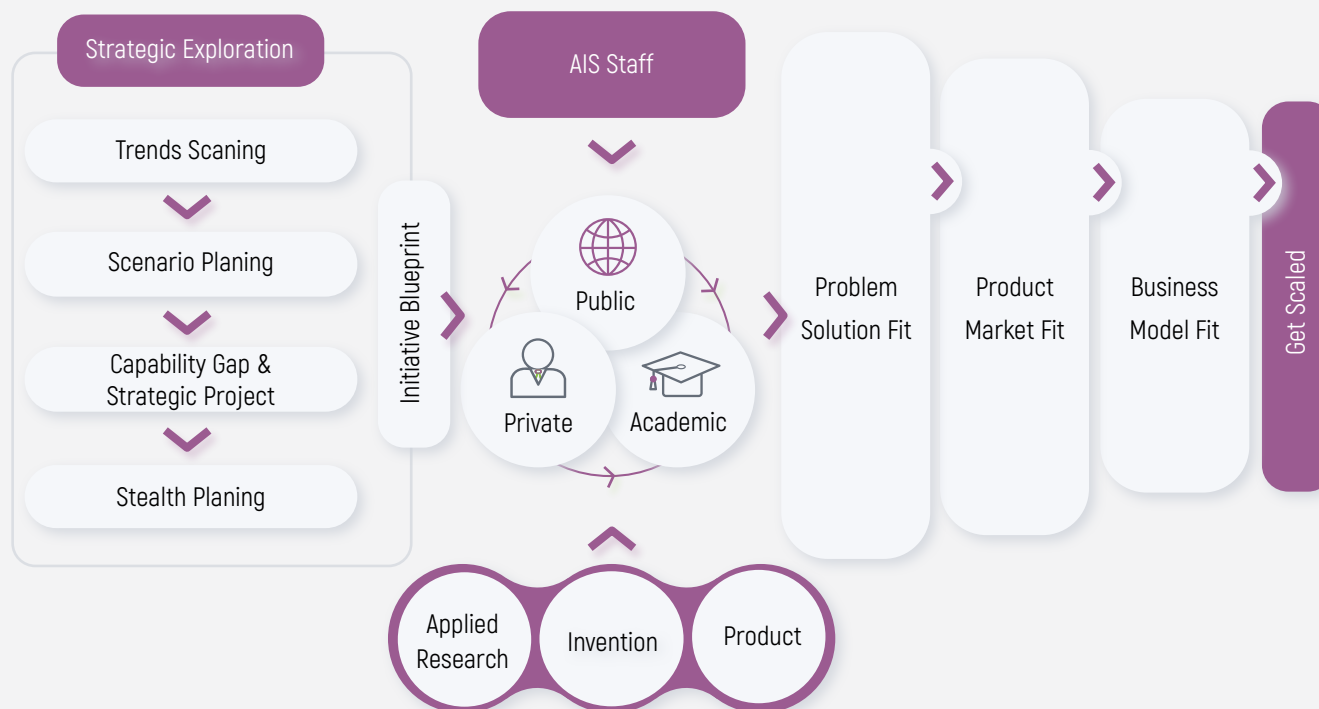
Over the years to come, the global community, Thailand included, will continue to encounter various uncertainties, be they post-COVID-19 economic recovery, fast-paced development and intensifying competition in the digital industry, the need to satisfy varied consumer needs through personalized services, and socially and environmentally responsible consumption trends. As a result of such challenges and opportunities, entrepreneurs in all business sectors will need to stand shoulder to shoulder in coming up with innovations for the economic survival and growth of the country.

## Management Approach [GRI 103-2]



AIS is determined to create innovations to deliver products and services that better the quality of life of Thai people and promote capacity development and business growth. AIS seeks to become a leader in innovations for sustainability by raising its adaptability in response to dynamic challenges and opportunities and building an ecosystem conducive to innovation in line with the AIS Open Innovation Framework. Aiming to achieve a flexible management structure that supports new business development and set out guidelines for driving and promoting innovation compatible with AIS's business goals and future direction based on the body of knowledge of both internal and external sources, the AIS Open Innovation Framework comprises the following elements.

## AIS Open Innovation Framework



AIS sets strategic projects and analyzes the capacity gap to respond to the demands of the digital era and foster both medium- and long-term business growth. Based on analysis of the current situation, market tendencies, and global circumstances, short-term projects and a framework for long-term innovation are determined. In addition, the strategic projects provide guidelines for directing, selecting, and building upon new business ideas to be pursued through internal capacity and collaboration with partners in the public, private, and educational sectors. To appropriately allocate resources, provide support, and ensure flexibility and timeliness, the management of and support for each business idea are divided into three phases according to start-ups' development cycles, namely Problem-Solution Fit, for ideas requiring problem-solving, Product Market Fit, for product and service prototypes that need to be trialed and refined, and Business-Model Fit, for products and services ready to be launched onto the market on a wide scale.

The pursuit of innovation in line with the AIS Open Innovation Framework follows four operational strategies as follows.

### ➤ Establishment of Business Units to innovate Digital Life Products and Services

AIS established AIS Digital Life Company Limited to achieve management flexibility contributing to AIS's expansion from its strong connectivity business into innovation development to derive new income generation sources from digital life business in line with consumer behavior and industry development tendencies in Thailand in the digital era. AIS also constantly collaborates with a multitude of partners to develop products and services for markets closely connected to its business and other markets. The digital life business categories of special interest to AIS include services relating to digital financing, digital lifestyle, and digital marketing.

### ➤ People and Culture Transformation

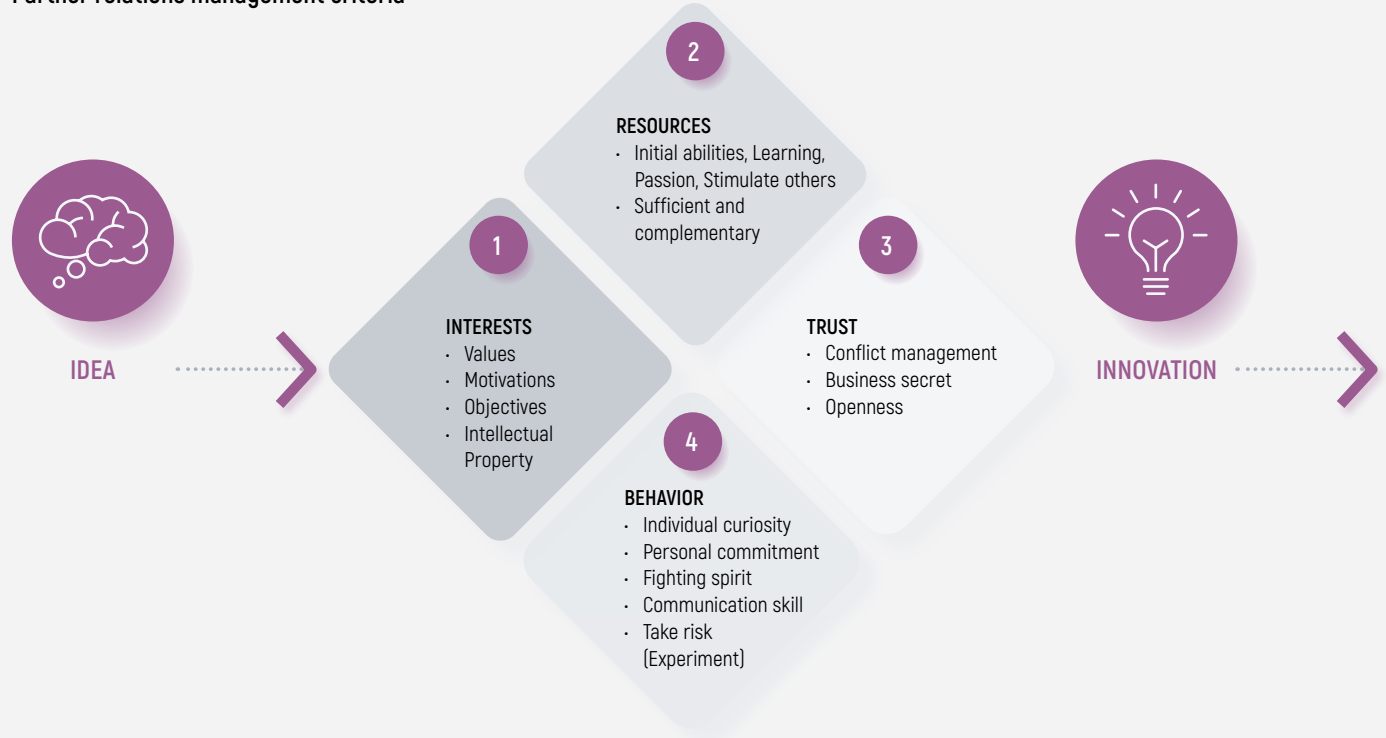
AIS aspires to become an innovative organization, setting up an innovation development unit to take the lead in driving cultural transformation and an innovative mindset at the organizational level and continually promoting internal innovation through activities and training programs that aim to sharpen the knowledge and skills related to innovation of employees. With such a process, AIS is able to reinforce innovation strength both internally through its own people's potential, knowledge, and capacity, and externally through its collaboration with partners to more efficiently garner resources.

### > Innovation Ecosystem Development

Since the development of an efficient and practical innovation ecosystem requires the collaboration of relevant parties, AIS strives to join forces with partners in the public, private, and educational sectors to share knowledge and technologies and to jointly innovate solutions from product and service prototypes and launch products and services onto the market. As a result of this, AIS successfully built a partnership platform serving as a center for producing and promoting end-to-end solutions and services that fully integrate advanced technology, tools and equipment, and software to effectively respond to consumer behavior trends and market demands both at present and in the future. Furthermore, AIS channels efforts into creating an innovation space that aids in the capacity development of start-ups, developers, university students, and those interested in innovation development, whom AIS regards as potential business partners that will grow together with the company from the collective involvement of all in devising solutions responsive to new market demands.

Placing great emphasis on partner relations management, AIS applies the 'collaboration diamond' principle in determining the criteria and designing the procedures for establishing partnerships, from the formation of a common understanding based on a goal that will benefit all the parties involved in terms of resource utilization and trust building processes to the promotion of management and innovation collaboration over the long run. Consequently, AIS has earned the confidence of 21 universities, 9 public agencies and non-government organizations, and 7 private enterprises, which have come on board to collectively develop innovations that will help lay the groundwork for a digital economy.

### Partner relations management criteria



#### Academic



#### Public



#### Private





### ➤ Technology and Body of Knowledge Development

AIS relentlessly develops technological platforms to elevate the edge of its digital solutions soon to be launched, such as the 5G IoT Artificial Intelligence (AI), augmented reality (AR), virtual reality (VR), blockchains, and robotic platforms, to name but a few. Realizing the vital role of systematic research in innovation development, AIS supports and promotes R&D to advance its technology and body of knowledge to prepare for future circumstances, as exemplified by its investment in the R&D to promote the growth of the ICT industry's ecosystem over the medium and long run and other forms of resource support, such as the organization of idea sharing and knowledge transfer sessions and the provision of IT equipment. In 2021, AIS made an investment of over THB100 in total in the R&D of various innovations centering on IoT, smart industries, and micro-service systems.

## 2021 Progress



### Establishment of business units to innovate digital life products and services

Following its establishment of AIS Digital Life Company Limited in 2021 to achieve a flexible management structure providing impetus for digital life business development, AIS has pressed ahead with the expansion into new markets other than mobile network and fixed internet service provision. For instance, AIS, in partnership with SCB, formed AISCB Company Limited to invest in the digital financial service business setting out on digital lending. Thanks to AIS's status as a digital technology leader with ubiquitous service networks nationwide and SCB's financial service experience and expertise,

the joint venture has gathered considerable momentum, playing a prominent role in offering more convenient financial services to Thai people in line with the current modern world evolving toward a digital economy and warranting financial inclusion for underserved consumers.

### People and culture transformation

#### ➤ Jump Bootcamp

In 2020, AIS achieved significant success in the implementation of the AIS InnoJump project to provide its employees the opportunity to propose innovative business ideas. Realizing the value of the project as a driving force of innovation development, AIS has continued its promotion of internal innovation through activities and training programs held to cultivate innovation knowledge and skills. For instance, in 2021 AIS partnered with the Stanford Thailand Research Consortium (STRC) to organize an entrepreneurial and innovation skill development training course entitled 'Jump Bootcamp', attended by 144 employees.



### ➤ Progress of internal innovation projects

In 2021, AIS ran the 'School Van Clever' project to prevent fatal incidents connected to being trapped in a school van. The working group, AIS employees, designed a simple yet effective system comprising an application on the teachers', parents', and drivers' mobile devices receiving physical motion, vehicle location, and velocity data transmitted in real-time from the video camera and sensors in the school van. The system also keeps sending notifications to the driver upon the detection of motion inside the cabin while the engine is in the off mode until it is opened for inspection. In addition, AIS has made progress on four other innovation projects which are in the last stage of development and scheduled to be launched within the first quarter of 2022. These involve the gig economy, or the utilization of digital platforms to connect freelancers with customers in order to provide short-term or asset-sharing services, the tourism industry, social commerce, and lifestyle services.

#### ➤ Process improvement

As AIS applies a wide variety of technologies and innovations for process improvement, such as DevSecOps to enhance software development tasks, robotic process automation (RPA) to streamline team collaboration, and AI chatbots and IVR speech recognition to provide more comprehensive customer services and reduce the wait time, it has been able to develop and launch products and services onto the market more speedily while sustaining the highest safety standards, trimming the number of hours required for routine work, and dedicating more time to innovation development.

## Innovation ecosystem development

AIS has joined hands with various partners to develop technology and ecological systems for innovation. Some of AIS's major projects are listed below.

### > Ari Innovation District

AIS, in collaboration with the National Innovation Agency (NIA), initiated the 'Ari Innovation District' project, involving over 20 partners in Ari, Phaholyothin, and Saphan Kwai areas in transforming Ari into a digital platform hub showcasing sandbox solutions awaiting commercialization operated with AI, robotic and immersive technology, and IoT, and a sustainable innovation ecosystem comprising the public, private, and educational sectors, entrepreneurs, and communities under the 'Ari 2025: Towards a Smart City Responsive to Modern Lifestyle' vision.



### > Trials of 5G services to enhance opportunities and capacity for the Thai industrial sector

AIS, together with its partners, developed and trialed 5G technology prototypes and created a basic infrastructure to achieve a sustainable 5G ecosystem. The most exceptional achievement in 2021 was its utilization of 5G technology through the Smart Manufacturing solution to enhance plant capabilities from assembly lines through warehousing in order to revolutionize the manufacturing industry into Industry 4.0, including the following.

- Autonomous mobile robots. With built-in advanced mapping protocols and sensors and through private 5G networks, autonomous mobile robots can quickly collect area data, analyze the data, and generate the best possible transportation routes.
- Layout-free production lines. Lay-out free production lines can readily and flexibly adapt to production demands, facility conditions, and other constraints to meet various production line requirements.
- Proactive remediation. Assembly line and machinery data are visually recorded using high-speed sensors or high-resolution cameras and further processed with AI to analyze and forecast production anomalies.

### > IoT satellite wildfire early warning detection system

In 2021, AIS developed the IoT satellite wildfire early warning detection system, able not only to predict weather conditions but also to detect fire hazard probabilities and transmit data through NB-IoT technology to mobile phones and through low Earth-orbit satellites to areas outside mobile network coverage within 15 minutes from the three to six hours previously required for such a task. The technology yields two real benefits: 1) timely warnings leading to more effective forest fire management, reduced damage to life and property, and greater protection of officials' lives, and 2) mitigation of the loss of forest, a resource vital to the absorption of carbon dioxide from the atmosphere, and particle pollution caused by forest fire. This innovative project won the first prize at the regional space-based business idea contest S-Booster 2001, held by the Japanese government in collaboration with the University of Tokyo and the Geo-Informatics and Space Technology Development Agency (GISTDA), which will potentially beget further collaboration and cultivation of the body of knowledge.



### ➤ Thai speech emotion recognition system

AIS collaborated with the Artificial Intelligence Association of Thailand to develop a Thai speech emotion recognition (Thai SER) system drawing on AI technology that can recognize, parse, and process acoustic signals into angry, sorrowful, happy, irritated, or neutral feelings at an accuracy rate of 70% on average. Upon the completion of further development to achieve greater accuracy and adaptability in real-world application, the technology will immensely assist the business sector in evaluating customers' emotional states and raising their customer service standards. Thai SER owns the third largest acoustic dataset globally, only after its English counterparts compiled by Podcast and YouTube.

### ➤ Extension of the collaboration under the AIS IoT Alliance Program

The AIS IoT Alliance Program (AIAP) aims to promote the knowledge and skills of a range of industries and public and private sectors, including equipment manufacturers and software developers creating IoT solutions to meet the needs of such industries and enhance the potential of the country, serving as a platform for technological and information exchanges targeted at the development of products, services, and solutions. AIS has extended the collaboration under the AIAP and thereby successfully launched novel products and services onto the market, such as DEVIO Beacon, a solution enabling SME entrepreneurs to connect their businesses to customers through messages sent via Line OAs, reach target groups unerringly, run differentiated promotional campaigns across branches, and communicate effectively with customers.



### ➤ AIS Playground

AIS has built AIS Playground, a space for incubating innovation, by providing the necessary infrastructure, technology, and resources to university students, developers, and start-ups wishing to carry out technical trials of their prototypes, connect to AIS's application program interfaces (API), including SMS, online payment, and privileges for customers, in order to optimize their commercial ability, and obtain technical advice from experts. From the existing AIS D.C. The Emporium and AIS Playground@CMU Learning Space, under the collaboration with Chiang Mai University, AIS in 2021 inaugurated AIS Playground at four other locations, namely Kasetsart University Sriracha Campus, Mahidol University, Mahasarakham University, and Suranaree University of Technology.



### ➤ Jump Thailand: Air Inno Hack

From its successful implementation of the AIS InnoJump project to promote business idea innovation in 2020 and its awareness of the importance of the project as a pivotal mechanism advancing innovation development, AIS has initiated the 'thinking above and beyond for Thai people' project to engage both its own employees and the general public in its efforts to push ahead with innovation by affording them the opportunities to make use of its technological platforms and running training programs and workshops to educate and inspire them. In 2021, the participants brought forward over 180 business and innovation proposals and landed cash prizes worth THB300,000 in total. The winning team presented a solution to air pollution and soil degradation caused by slash-and-burn agriculture comprising such incentives as the collection of carbon credits in exchange for carbon coins redeemable for cash, accepted as loan collateral, and exchangeable for agricultural equipment, and the sales of excess hay to biofuel and biomass power plants facilitated by the team to generate additional income for farmers.



## Technology and Body of Knowledge Development

To ensure continuity and sustainability, AIS has prepared the ground for technology and body of knowledge development by laying down R&D guidelines and allocating funds for such a purpose. In 2021, AIS injected THB100 million into R&D projects. Additionally, AIS joined the STRC, the most recent collaboration between the South-East Asia Center and leading private enterprises, to conduct research pertinent to Thailand in four areas: 1) training for the capacity development of Thai people, 2) technology development to boost the Thai economy, 3) the improvement of the quality of life of Thai people in a sustainable manner, and 4) environmental and sustainability awareness, focusing on projects involving data analytics and the utilization of 5G in the industrial sector. For instance, AIS carried out the 5G ONF with IMS study in collaboration with the Open Network Foundation to develop 5G technology for specific contexts, such as manufacturing plants and disaster areas. AIS also united with the STRC to pursue research on the effects of training on employees' skill development and mindset formation.

### ➤ From Robotic Labs to Robot Smart Retail



In 2021, AIS built upon its 5G robotic labs and 5G robotic platform to launch new value-added products onto the market that would further its expansion into new digital life services. One example was its Robot Smart Retail, a shop assistant robot able to greet and entertain customers, give directions precisely, and provide information on the promotional campaigns of participating stores. The innovation met with extraordinary success thanks to AIS's collaboration with its business partners specializing in robot and software development and the trust in the technology of customers, such as Siam Paragon and the H&M store at Central World.

In 2022, AIS plans to further develop innovative products and services in line with the AIS Open Innovation Framework, and gear towards launching these products and services on to the market in order to increase AIS business value and pave the way for Thailand to enter the digital economy. Furthermore, AIS plans to inject additional THB100 million into R&D projects to develop IoT business and collaborate with business partners in improving the work process and efficiency.

## Performance table



Topic	Units	2018	2019	2020	2021
Business partners <sup>1)</sup>	Number of partners	72	89	80	77
New products and services <sup>2)</sup>	Number of launches	49	37	39	108
R&D investment	Million THB	91	159	162	100 <sup>3)</sup>
Revenue from innovations	Million THB	N/A	70.3	75.8	102

<sup>1)</sup> Partners on the AIS Partner Platform delivering products or services to the market

<sup>2)</sup> Products or services that were launched or whose functionality was developed in the past one year

<sup>3)</sup> Budget for R&D only, excluding CAPEX for new products and services.

## Economic Performance Table (GRI 102-7, 201-1)



	Topics	Unit	2018	2019	2020 <sup>1)</sup>	2021 <sup>1)</sup>
<b>Economic value generated</b>	Total assets <sup>(102-7)</sup>	Million Baht	290,505	289,669	350,171	356,222
	Total revenue <sup>(102-7)</sup>	Million Baht	169,856	180,894	172,890	181,333
<b>Economic value distributed</b>	Operating cost	Million Baht	103,456	111,899	110,848	121,453
	Employee wage and benefits	Million Baht	8,108	10,760	9,800	9,807
	Payment to government	Million Baht	26,259	16,696	37,595	31,016
	Community investments	Million Baht	12	144	25	27
<b>Payment to providers of capital</b>	Dividend payments	Million Baht	21,852	21,050	20,219	22,869
	Finance cost	Million Baht	5,148	4,777	5,917	5,626
<b>Economic value of AIS Group</b>	Net profit	Million Baht	29,682	31,190	27,434	26,922
	EBITDA	Million Baht	73,792	78,710	89,398	91,408

### Note

<sup>1)</sup> The numbers are based on TFRS'16

# Cyber Security and Customer Privacy Protection

Develop a reliable system for cybersecurity and customer privacy protection.

## Target 2024



- Operate in adherence to applicable laws and regulations including the Cyber Security Act and Personal Data Protection Act
- Continually enhance cyber security capabilities both in terms of technology and personnel readiness to protect basic infrastructure, systems and new services.
- Enhance cyber security efficacy and capability and personal data protection using Machine Learning and Artificial Intelligence to augment monitoring, analysis and threat assessment, use Automation to speed up and streamline processes.
- Become a leading Cyber Security Operation Center (CSOC) for corporate clients. Enhance capabilities in providing the service and further develop consulting services for data protection.

## Major Achievements in 2021



### **Compliance with the Laws, Rules, and Regulations.**

Reviewed newly passed acts and/or notifications to ensure that AIS's business operations and policy implementation comply with the relevant laws, rules, and regulations, such as the Supreme Court President's Directive on Electronic Procedure Code 2563 B.E., the Electronic Transactions Commission's Notification on Cloud Computing Service Use Guidelines 2562 B.E., and the Ministry of Digital Economy and Society's Notification on the Standards for Personal Data Security 2563 B.E. and Notification on the Criteria for Service Providers' Electronic Traffic Data Storage 2564 B.E.

### **Technology and Process Improvement.**

Expanded channels for accessing the Company's operational systems with the aim of safeguarding AIS's employees during the COVID-19 pandemic through remote work arrangements while effectively regulating, monitoring, and protecting the security of the operational systems and employees' personal data from external access by integrating such protocols as multi-factor authentication, conditional access authorization, confidentiality classification, data encryption, and data and mobile access rights, including the Microsoft Office 365 cybersecurity tool, referred to as AIS Information Protection (AIP).

### **Threat Hunting Capacity Development.**

Adopted the practice of proactively seeking out cyber threats lurking undetected in the Company's networks to minimize threat detection and combat time through the collaboration of the security vulnerability inspection team, data analysis team, and threat counter team.

## Challenges & Opportunities [GRI 103-1]



Information technology is progressing at a rapid pace in the modern world with both personal and corporate communication methods changing. Informational transactions online have increased greatly and take place constantly across the globe. As a result, users are now at a higher risk of cybercrime and the matters of cyber security and personal data protection have become an important issue among administrative agencies worldwide, which have issued increasingly stringent laws and regulations in the interest of improved protection. Thailand began enforcing two laws, the Cyber Security Act of 2019 and the Personal Data Protection Act of 2019, resulting in continuing improvements in our process to align with the laws and restrictions. In addition to regulatory changes, operators are facing the evolving complexity of technologies and technological development. Emerging technologies such as IoT or 5G require new approaches to cybersecurity to ensure data privacy, cyber security and resilience. Meanwhile, advanced technologies, particularly cognitive technologies e.g. Artificial Intelligence, Machine Learning have been leveraged by cybercriminals. The full scope of the threat posed by such cognitive technologies has not yet been realized, with there being ever more sophisticated threats. The rapidly evolving landscape of cyber threats has introduced new skill requirements in cyber security and could lead to a deficit of cyber security skills.

AIS, as a digital service provider, manages massive amounts of data, both from its operations and from its customers, and is compelled to work in adherence to laws to protect against the leakage of personal data as well as to reduce risks to its finances and reputation. Moreover, AIS sees an opportunity in creating and developing complete cyber security services, which would address its operational requirements and enhance its capability to service clients. Thus, beyond carrying out its own cyber security and personal data protection, AIS is seeking to build a body of knowledge on those two areas relevant new technologies such as the National Blockchain, Hybrid Cloud, IOT and financial and insurance mechanisms. AIS also place value on building staff capability and knowledge to be ready for technology advancement.

## Management Approach [GRI 103-2]



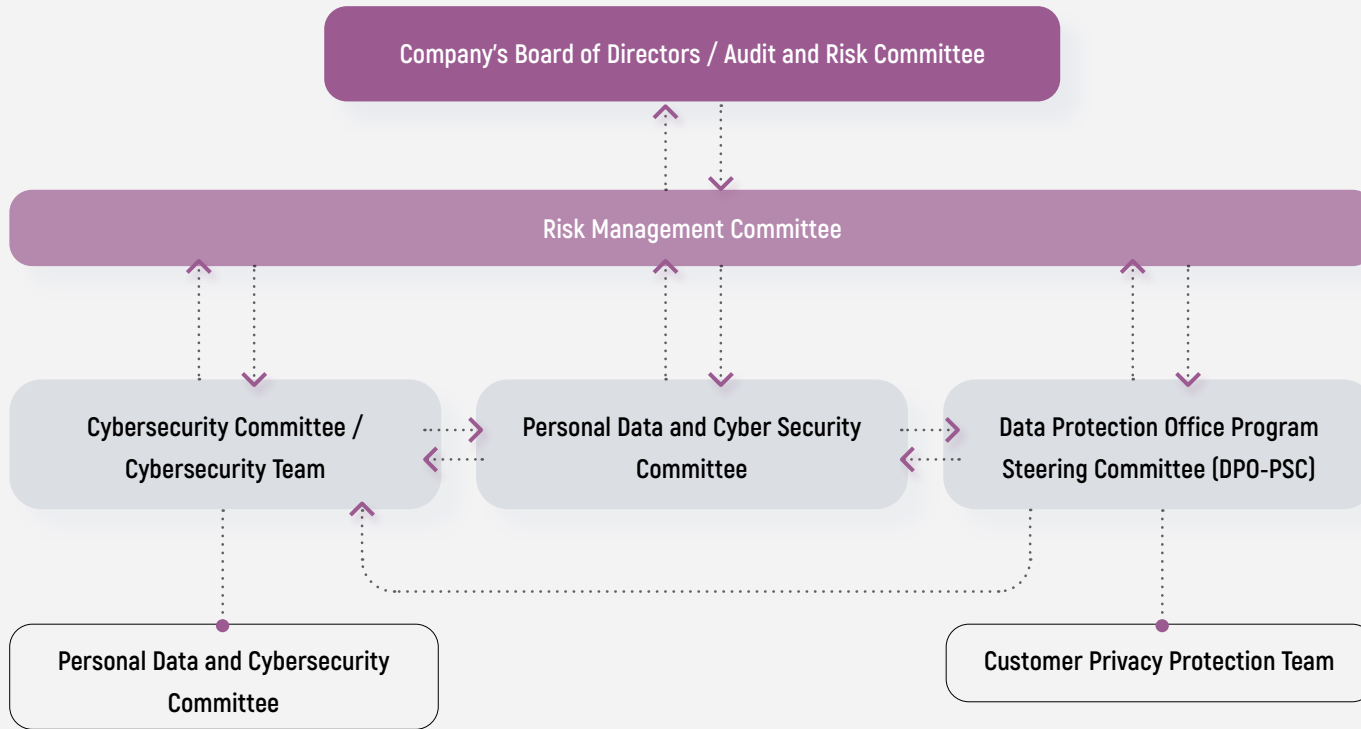
AIS oversees, determines, and implements policies, procedures, and administrative systems for all offices corporate-wide to secure trust from its customers in the transparency of its information and customer privacy protection operations. AIS also incorporates cybersecurity and customer privacy protection in its risk management under the direction and regulation of the Audit and Risk Committee. Moreover, AIS has established committees to devise policies, strategies, and guidelines in order to ensure efficiency in cybersecurity and personal data protection, such as the Cybersecurity Committee, chaired by the Chief Executive Officer (CEO), the Personal Data and Cybersecurity Committee, headed by

the Chief Information Officer (CIO), and the Data Protection Office Program Steering Committee, led by the President, all of which are required to report their operating results on a quarterly basis to the Risk Management Committee, which, in turn, reports directly to the Company's Audit and Risk Committee and Board of Directors. At the administrative level, policies and strategies for cyber security and personal data protection are decided by the Cyber Security Committee and Data Protection Office, which must report to the Board of Directors and Audit and Risk Committee on a quarterly basis.

AIS's CIO is appointed to be in charge of cybersecurity and customer privacy protection, undertaking such duties as policy determination and oversight, consultation, and threat prevention and combat. The CIO also receives reports from the cybersecurity team and customer privacy protection team, scheduled to take place at least once a month, prior to relaying the information on a quarterly basis through the Cybersecurity Committee and the Risk Audit and Oversight Committee to the Company's Board of Directors.

AIS imposes the cybersecurity and customer privacy protection policy on all offices corporate-wide and external organizations affiliated to the Company as well as constantly conducts internal audits to ensure that its cybersecurity and customer privacy protection operations comply with its policy, standards, and framework.





- Devises a policy for cybersecurity standards.
- Oversees compliance with the policy and plans.
- Constantly monitors and detects anomaly and takes corrective/preventive action.
- Raises cybersecurity and customer privacy protection awareness corporate-wide.

- Formulates a policy and guidelines for customer privacy protection in accordance with the relevant laws, rules, and regulations.
- Acts as the intermediary in matters relating to customer privacy.
- Coordinates with the offices involved to contend with privacy violation through the Incident Center.

To ensure business continuity during a crisis, AIS has appointed the Crisis Management Committee, comprising the C-suite, i.e. the Company's executive-level managers, and heads of business units, which reports directly to the President and CEO. The Crisis Management Committee is charged with the responsibility and granted the authority to make decisions during a crisis, including crisis response, mitigation, and follow-up as well as compensation consideration, in order to sustain business operations, cushion impacts on the customers, and preserve the Company's image and reputation through the Crisis Communication Team, which disseminates the necessary information both internally within AIS and externally to government agencies and related organizations in an appropriate and timely manner.

## Privacy Protection [GRI 103-3]



AIS maintains a Data Protection Office, which acts a central hub for the protection and monitoring of the personal data of customers. The office provides guidelines and policies to maintain compliance with relevant laws and regulations for both AIS and group companies as well as advice on data storage and usage to other offices within the Company to enhance business operations, competitiveness and pave the way for new businesses. With commitment to legal compliance, AIS undertakes the following actions and processes to enhance its data privacy:

**Indicate Customer Data Privacy Protection Guideline** for users to inform them of its regulations and practices concerning personal data protection e.g. objectives of data collection, measures to secure customer data, rights of customers, contact information.

**Data Life Cycle Management** in the interest of protecting personal data is conducted as follows:

### Collection, Storage and Utilization



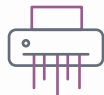
- Personal data is collected and stored purposefully and with restrictions in a lawful and fair manner and is done so only within the limitations of providing service.
- Personal data is collected and stored in accordance with terms of service and/or customer consent and is done only for the purposes notified to customers with no utilization beyond purposes accepted/consented by the customer.
- Appropriate data privacy protection measures are implemented in alignment with personal data confidentiality, to protect against loss and unauthorized or unlawful access, destruction, utilization, altering, amendment or disclosure as well as to protect against unauthorized application of personal data in accordance with the AIS Group Cyber Security Policy
- Personal data is collected within limited time frame according to the purposes notified to customers and contracts and legal proceedings.

### Disclosure



- Personal data disclosure is done in accordance with terms of service and/or customer consent and is done only for the purposes notified to customers with personnel, company operatives and partners overseen to prevent utilization/disclosure beyond the purposes notified to customers and in accordance with legal compliance policies, the National Broadcast and Telecommunications Commission Notification on the Rights Protections of Telecommunication Service Users in Relation to Personal Data Privacy and Freedom to Communicate via Telecommunications and other laws relevant to personal data.
- Guidelines are provided to partners on the collecting, storage, utilization and disclosure of personal data requiring that they put in place measures to adequately protect personal data via a cyber security policy that at least must be equal to AIS Group standards.

### Destruction



- A clear policy is provided on the time period for personal data collection and storage based on data collection and storage purposes or the contract or legal relation period alongside a policy for the deletion or destruction of personal data or rendering of data to remove personal identifiers.

**Limiting access to sensitive information** and applying a range of data protection techniques covering storage, utilization and transmission to safeguard against personal data leaks or breaches.

**Incorporating the privacy by design and privacy by default** principles into its services and products as necessary.

**Utilizing the data protection impact assessment: DPIA** to identify and mitigate data privacy risks in new services.

- Evaluate risks in daily operations to protect against leaks and implement measures to mitigate such risks.
- Started implementing a Standard Contractual Clause: SCC both internally and with partners in need of access to customer data protecting against the forwarding or transmission of private customer data.
- Started keeping a Record of Processing for private data both internally and with partners to confidently utilize, process and disclose private data and to allow for the tracking and risk assessment of private data processing.

**Setting specifications for the data flow process and communicates** with relevant agencies to ensure compliance with said specifications.

**Promoting awareness, knowledge and understanding on customer data protection to all personnel and partners** in the interest of operations that adhere to policies, laws and relevant new regulations AIS promotes personnel awareness of data classification and provides the necessary tools for classification throughout its structure as well as promotes awareness among personnel and trade partners on Data Life Cycle Management.

**Setting a framework for systematic reviewing of personal data protection** in the interest of customer confidence in Company operations, the Internal Audit Team plans comprehensive and systematic reviews throughout the year with frameworks based on the principles and requirements from the Personal Data Protection Act, approaches for personal data protection provided by government agencies, universities and expert organizations and business operations, with the focus on activities with risks and that involve personal data.

**Determination of disciplinary action in the event of a personal data breach.** The Company has clearly detailed in its Employee Guidelines the procedure for disciplinary action in the event of a personal data breach and the classifications of disciplinary action proportional to the magnitude of severity. Such provisions are applicable to AIS's affiliates and subsidiaries.

**AIS maintains an Incident center that serves as a central office for responding to cyberthreats arising from leakages or breaches related to personal data.**

The center comprises offices including Data Protection, Cyber security and Information Resilience, Customer Complaints, Technical Support, Human Resources, Public Relations, Legal, Business Relations and Customer Services. Customers with issues or queries can notify the center by phone or by Email.



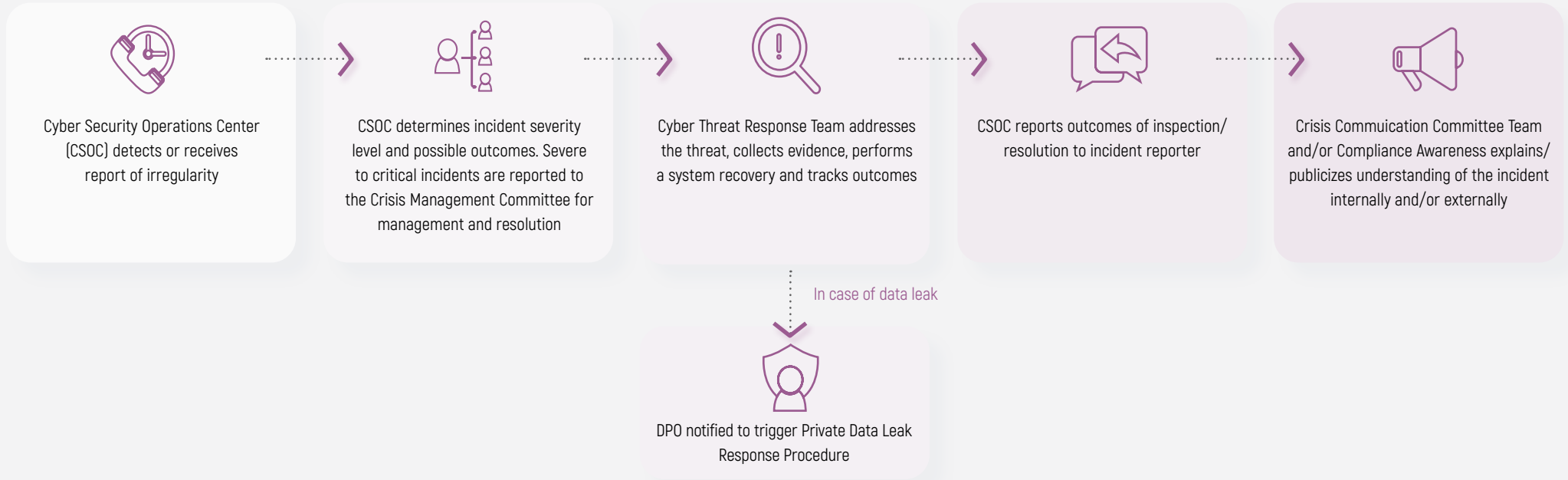
Tel. 08 000 9263



complaint\_center@ais.co.th

The threat response process is as follows

### Cyber Threat Response Procedure

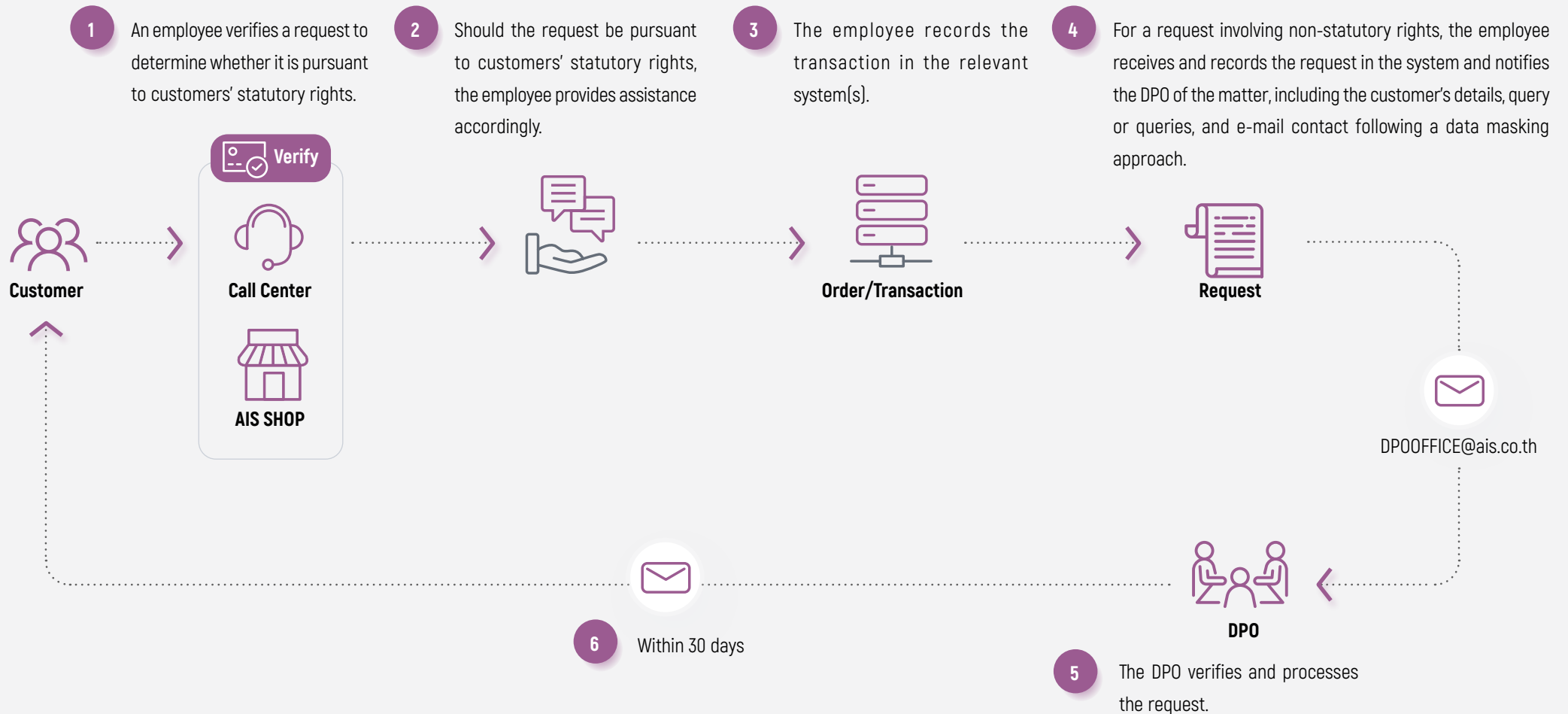


### Private Data Leak Response Procedure



## The Procedure for Processing Customers' Requests.

Customers are entitled to claim their rights within the duration specified in the Personal Data Protection Act by contacting AIS through one of its various communication channels, including the AIS Call Center and AIS Shops. For statutory rights, such as call detail record (CDR) requests, certain criteria and guidelines have been put in place. For non-statutory rights, the DPO has been delegated to receive and process requests within 30 days.



## Data Request Management



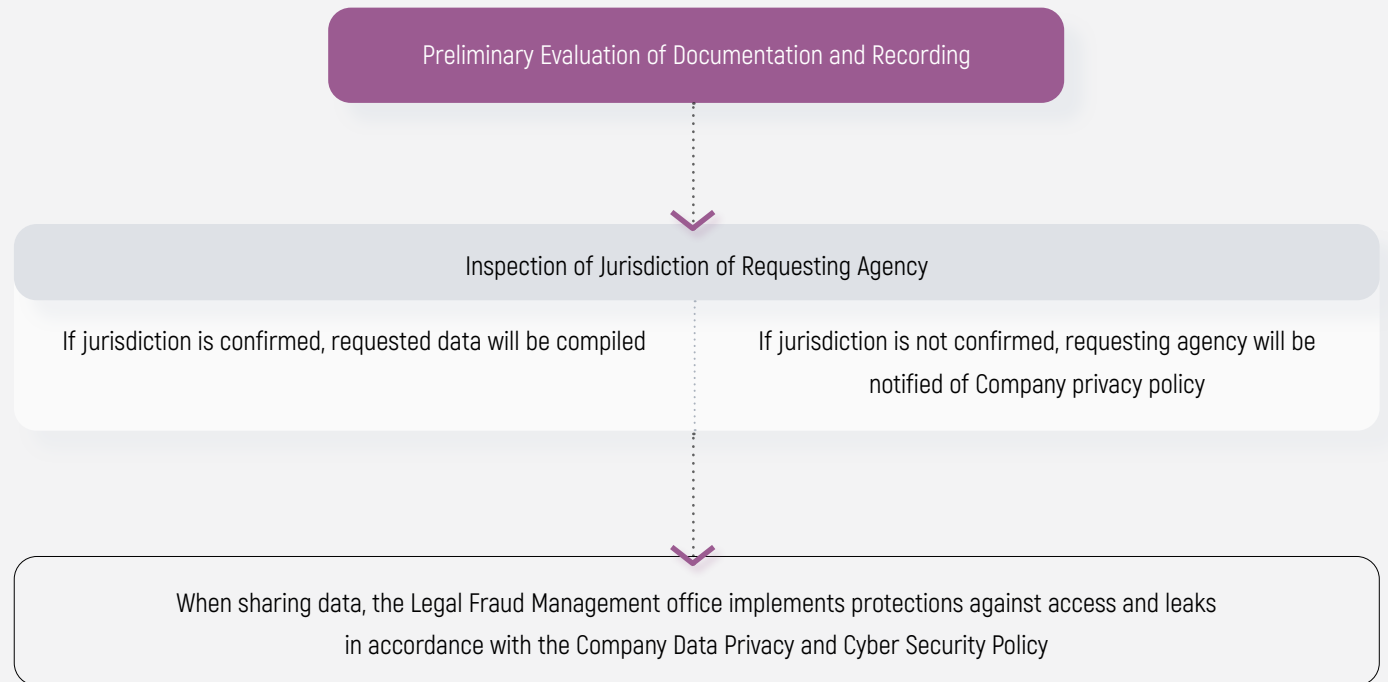
The Company provides customer usage data to government agencies in accordance with legal requirements and upon request by legal authorities such as the Court of Justice, Office of the Royal Thai Police and Anti-Money Laundering Office with the details as follows:

### Managerial Responsibilities for Government Data Requests Oversight

The Personal Data and Cyber Security Committee comprises C suite executives and is responsible for overseeing and setting policies on data privacy protection, assessing risks and responding to cyber threats and designing data privacy and cyber wellness strategies in compliance with the law and encompassing data provided to government agencies upon request.

### Disclosure of Process for Evaluating and Responding to Law Enforcement or Government Data Requests

AIS prioritizes the protection of personal data and has tasked its Legal Fraud Management office with considering the disclosing of private data to government agencies upon request to ensure compliance with the principles set out by National Broadcasting and Telecommunications Commission Notification on the Protection of Telecommunication User Data Privacy and Freedom of Communication through Telecommunication Chapter 1 Clause 4 (1) and Data Privacy Act Article 24 (6). The process and procedure for consideration, which has been authorized by the Chief Corporate Officer, is as follows:



The Legal Fraud Management office concludes government agency requests for personal data into a monthly report for the Chief Executive Officer. In 2021, a total 25,442 requests were made to the office, which processed 70% of the requests.

## Remedy for Victims of Human Rights Violations as a Result of the Company's Data Sharing Practices Incident Investigation and Corrective Action

action is divided into two categories based on legal context as follows:

- **Compensation in Criminal Cases** Compensation in accordance with the Damages for the Injured Person and Compensation and Expenses for the Accused in Criminal Case Act of 2001 can be applied to providing compensation for damages resulting from the actions of others, including the sharing of personal data to the government by virtue of legal authority.
- **Compensation in Civil Cases** Compensation in the event of a civil suit resulting from an illegal violation of personal data privacy will be equal to actual damages incurred.

## Notification of Data Subjects in Case of Data Sharing under Legal Requirements

AIS terms and conditions for personal data are displayed in its Privacy Policy, which can be accessed at <https://www.ais.co.th/privacypolicy/myais/en/>. The Company will only disclose personal data upon the consent of the data subject, when disclosure satisfies company objectives and when disclosure is in compliance with Thai law.

However, personal data may be disclosed to the government during an investigation carried out by government officials such as police or agents of the Anti-Money Laundering Office seeking evidence of wrongdoing. While evidence may or may not be found, the Company will not be able to notify the data subject of the disclosure as requests of such a nature are commonly made for the data of suspects or individuals relevant to the crime and any notification could make the Company an accomplice to the wrongdoing, support the wrongdoing or be detrimental to the case.

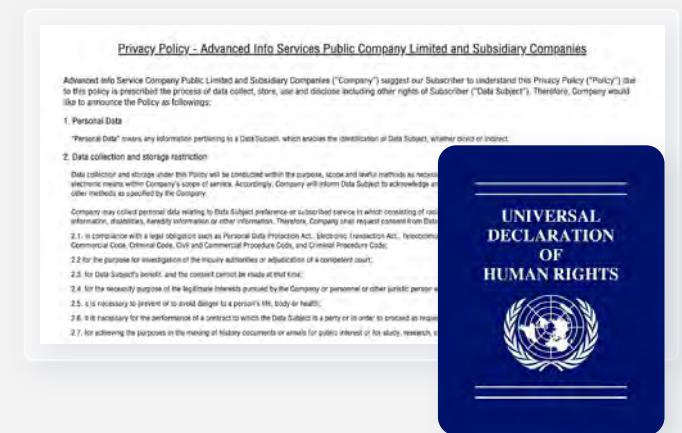
## Respect for Human Rights and Assessment of Risks to Human Rights in Connection to Personal Data

AIS acknowledges the significance of and respects human rights and maintains a Human Rights Policy aligned with the United Nations Universal Declaration of Human Rights (UNDHR) and the Declaration on Fundamental Principles and Rights at Work of the International Labor Organization (ILO). The Company's Board of Directors placed enactment of the policy under the Sustainable Development Committee through its Human Rights Committee, which is tasked with implementing the policy in collaboration with the Risk Management Committee so as to identify risks to human rights including the protection of personal data. The two bodies also identify affected groups to outline remedial measures and prevent human rights violations throughout the business value chain. Details of the effort

can be viewed at <https://sustainability.ais.co.th/storage/respect-to-human-rights/human-rights-risk-assessments-en.pdf>

Furthermore, in 2020, AIS reviewed and improved its data privacy protection policy to display its personal data storage, which is done purposefully, within limitations and in compliance with the law and fairness with consideration towards the human rights of data subjects within legal parameters.

Operationally, AIS designed a Data Protection Impact Assessment (DPIA) to decipher risks to the Company's personal data protection measures. The assessment was designed to result in a document explaining the processing of personal data, calculate probabilities and aid in the management of risks to personal rights and freedoms resulting from the processing of personal data, leading to measures protecting against such risks.



## Cyber Security



AIS has the infrastructure, systems and protocols to manage, test, and monitor cyber security carried out by its Cyber Security and Information Resilience team, a dedicated team responsible for cyber security and building awareness of cyber security within the organization. AIS is committed to protecting its systems from cyber threats and regularly enhances its systems and infrastructure to meet data protection standards, performs security evaluations and tests ahead of launching systems and applications and has software developers perform self-evaluations during their processes. The Company uses automation to enhance the efficacy of its processes so that they are more capable and quick to respond to cyber threats and monitors against threats 24/7 using a central notification system that allows for timely response and the ability to lockdown equipment. The Security Information and Event Management (SIEM) system empowers these capabilities in real-time and works in conjunction with User Entity Behavior Analysis (UEBA), which enhances detection of irregular incidences and the evaluation of cyber threats. Cyber security policies and practices are regularly prescribed and improved to maintain alignment with international practices and relevant regulations.

### Cyber Security Guidelines and Frameworks

➤ AIS utilizes the Cyber Security Framework by the US National Institute of Standards and Technology (NIST) as a guideline for designing its cyber security strategies and process, which

includes the following steps: understand and identify risk for proper risk management, determine protection standard for the organization, formulate processes for risk detection, formulate processes and measures to respond to risk events, and formulate processes and measure for system recovery. AIS also plans to develop further systems and processes based on other relevant standards and protocols to enhance the efficacy of its cyber security and privacy protection.

➤ For responding to cyberthreats and its escalation process, AIS applies the Cyber Incident Response Framework by the National Institute of Standards and Technology (NIST) to its daily operations. The framework involves the following steps for addressing incidents: Preparation, Detection & Analysis, Containment, Eradication & Recovery, and Post-Incident Activity. All internal cyber security complaints are directed through dedicated channels and treated according to their level of severity.

### Cybersecurity Operations Framework



source: National Institute of Standards and Technology



### Cyber Threat Management and Response Framework



source: Computer Security Incident Handling Guide by National Institute of Standards and Technology

➤ **Work-from-Home** In situations where operation from AIS offices is not possible, the Company has provided access channels through which personnel may perform their duties effectively with the emphasis being on security through monitoring and control of information technology systems being utilized remotely and the implementation of policies and conditions such as the Centralized Remote System (CRS) standard and the Mobile Devices, Teleworking and Bring Your Own Device Standard (BYOD Standard). Cyber security has also been enhanced for the Microsoft Office 365 system encompassing usage, protection of confidential company data and mobile device authorization.

➤ **Hybrid cloud system security protection.** AIS has incorporated a hybrid cloud system, a computing environment combining a private cloud with a public cloud that allows data and application sharing between the two, to achieve operational flexibility in response to changes in the workplace landscape resulting from the COVID-19 pandemic, and defined cybersecurity standards and harnessed advanced cybersecurity technology for the utilization of the hybrid cloud system in accordance with the Company's cybersecurity policy and framework.

➤ **Coordination with regulatory bodies and major information infrastructure organizations.** AIS has joined forces with regulatory bodies, public agencies, other Internet and telecommunications service providers, and the Telecommunications Association of Thailand under the Royal Patronage to establish the Thailand Telecommunications Computer Emergency Response Team (TTC-CERT) with the aim of promoting and enhancing the coordination between all the parties, information sharing, and management in the event of a cyber threat to be in line with the Cybersecurity Act 2562 B.E. Thanks to its connection to the Malware Information Sharing Platform (MISP), AIS has been able to effectively share information with the TTC-CERT and its members and thereby secure useful and timely threat alerts in line with the policy to support information sharing both within the telecommunications industry and across industries through the TTC-CERT.



## AIS has won various certifications assuring its determination to attain and uphold the highest data protection standards as follows.



- The ISO27001 Information Security Management System (ISMS) since 2015 with the scope of security operations expanded to CSOC as a service in 2020 and pending expansion to incident response (IR) as a service, scheduled to be completed by the first quarter of 2022.
- The Cloud Security Alliance's Security, Trust, and Assurance Registry Program (CSA-STAR) Certification since 2016.
- The Payment Card Industry Data Security Standard (PCI-DSS) since 2017 with the scope of security operations currently covering merchants and pending expansion to payment service providers, scheduled to be completed in December 2021.



Further information on

- 1) AIS personal data protection policy
- 2) cyber security policy

Please see "Related policies" at <https://sustainability.ais.co.th/en/sustainability-priorities/data-privacy-cyber-security>

## 2021 Progress



AIS achieved its targets of elevating cyber security and personal data protection, with results in 2020 as follows:

### Compliance with Laws and Regulations

- **Reviewed frameworks and policies for alignment with laws and regulations to ensure company operations and policies comply with the law** Reviewed operations and policies for compliance with regulations such as the Personal Data Protection Act 2019 and the Cybersecurity Act 2019 and prepared the Company to accommodate new laws and regulations such as supplementary laws to both acts. Reviewed new declarations and acts such as the Requirements of the Supreme Court President on Consideration of Electronic Cases of 2020, the Electronic Transactions Commission Notification on Guidelines for Cloud Service Usage of 2019, the Ministry of Digital Economy and Society Notification on Standards for Personal Data Security of 2020, the Decree Identifying Agencies and Enterprises in which Controllers of Personal Data are not under the jurisdiction of the 2019 Personal Data Protection Act of 2020, Notification of the Office of Insurance Commission of Regulations on Supervision and Management of Information Technology Risks of Non-Life Insurance Companies of 2020 and the Notification of the Office of Insurance Commission on Regulations on Issuance and Offering of Non-Life Insurance by Non-Life Insurance Companies and the Operations of Non-Life Insurance Agents, Non-Life Insurance Brokers and Banks of 2020.

- **Appointed a Critical Information Infrastructure Officer (CIIO)** The Critical Information Infrastructure (CII) office was established in accordance with the Cyber Security Act with approval from the Company's Information Security Committee.
- **Promotion of public-private partnerships in cybersecurity and personal data protection** through the following.
  - Cooperated with administrative agencies, state offices and internet and telecommunications services providers to establish the Thai Telecommunication Computer Emergency Response Team (TTC-CERT) to respond to cyberthreats against the telecommunications industry.
  - Participate in public hearings and legal and oversight procedure interpretation, promote public sector activities involving the development of cybersecurity skills, and join national cyber exercise programs in order to enhance cybersecurity and personal data protection for society and assess the implications of legal requirements on the Company's business operations.
  - Formulate the procedure for coordinating with regulatory bodies, public agencies, and the TTC-CERT in relation to cyber threat and vulnerability notification as well as software patch updates.
  - AIS worked alongside state agencies in support of drafting the Cyber Security Act while internally promoting an understanding of the role of a Critical Information Infrastructure (CII) organization according to the Cyber Security Act to its executives and managerial level staff involved in operational planning. All attended talks by domestic and international experts in the cyber security technology and legal fields.

### Personnel Knowledge, Skill and Conscience Development

- **For the enhancement of AIS cyber security and data privacy capabilities**, relevant staff underwent over 37 different training courses and certificate programs encompassing Ethical Hacking and Penetration Testing, to allow them to test the security of systems by seeking out loopholes and weaknesses, Incident Management and Forensics, to allow them to handle and manage cyberthreats appropriately and promptly as well as to inspect for digital forensic evidence and Cyber security and Data Privacy.
- **Continual cyber security in mind promotion** for all AIS personnel nationwide on a monthly basis to ensure proper and correct practices online and offline.

#### Courses and Activities

AIS provides online courses that its personnel can access on-demand and organizes activities that provide knowledge on personal data protection, which are also disseminated via online media. Emphasis is placed on data classification and cyber threats. Opportunities are provided for personnel to speak with external experts and exchange knowledge with experts through online and offline channels. Moreover, over 70 emails were sent out to keep constant communication with content covering digital strategies, Personal Data Protection Act, and cyber security practices. The Inseedang Channel was added as another online communication avenue, allowing personnel to access data and discuss cyber threats with the Company's internal experts.

### Aptitude testing

All AIS Group personnel must undergo testing of their cyber security and data classification knowledge. In 2020, 98 percent of total personnel passed such compulsory tests. At the same time, the Company extended testing to outsourced personnel.

### Cyber drills

A total of two drills were undertaken in 2021: 1) Application of the Business Continuity Plan (BCP) in response to a cyber threat crisis to prepare personnel to handle cyber threats effectively with the 2021 drill scenarios being a Ransomware Tabletop Exercise and a stress scenario where the Business Continuity Plan is executed 2) A Phishing Simulation testing the cyber threat knowledge of all Company and outsourced personnel.

## Technology Development and Process Improvement

### ➤ Process Improvement

- Convened committees in charge of cyber threat prevention and personal data protection to determine the necessary guidelines, directives, procedures, and strategies in line with the Company's personal data protection policy and notifications and to enhance the efficiency of cross-functional operations, as displayed in Fig. 1: Structure of the Committees Overseeing the Company's Cybersecurity and Personal Data Protection.

- Applied the Microsoft Office 365 cybersecurity tool, referred to as AIS Information Protection (AIP), to boost the security of personal and corporate data.
- Elevated the security of the information system from external access by integrating such protocols as multi-factor authentication and conditional software, system, and data access authorization corporate-wide.
- Improved and enhanced the efficiency of cyber threat response measures by applying the Security Orchestration, Automation, and Response solution in threat detection and combat processes with 70% of the security operations being automated in 2021 and the 100% target to be reached by early-2022.
- Amended the policy and procedure for coordinated vulnerability disclosure by cybersecurity experts to maximize security standards, data integrity, and overall efficiency with the implementation commencing in 2020 and the process improvement being made in 2021. More information can be accessed via AIS's sitemap.
- Delegated the Call Center to direct vulnerability notifications to the CSOC to accelerate threat responses.
- Improved the process for responding to new forms of cyberattacks, especially ransomware, by laying down guidelines for data backup and recovery and encouraging all offices to

document their work instructions in order to ensure operational and business continuity.

- Improved the Payment Card Industry Data Security Standard or PCI-DSS to cover merchant services and set out on expanding the scope of security operations to payment service providers.
  - Boosted the security standards for the hybrid cloud system in accordance with the Company's cybersecurity policy and universally recognized practices.
- **Cybersecurity policy and framework amendment.** To ensure explicitness, the coverage of both partners and external parties, and compatibility with the digital evolution following the new normal era, such as mobile offices and cloud platform security protection, AIS amended its cybersecurity policy and framework as follows.
- Reviewed and elevated the IT security standards to address security requirements in relation to usage procedures and security baselines, including those involving the cloud platform.
  - Outlined the cloud identity management procedure for cloud platform operators and users.
  - Detailed the operating system log collection guidelines for system administrators to assist cybersecurity teams in analyzing suspicious and/or malicious activities potentially causing damage to the Company's property.

➤ **Personal data protection policy and notification amendment.**

To ensure explicitness, completeness, compatibility with the organization's direction of development, and compliance with the relevant laws, rules, and regulations, AIS:

- Introduced the data retention and archiving standards, covering data asset inventories, asset owners, and retention periods, as well as the guidelines for safeguarding data during retention and archiving in accordance with the relevant laws, rules, and regulations in both electronic and print forms.

➤ **Amendment of the personal data protection standards for employees and external parties.**

AIS amended the personal data protection standards for employees and external parties to accord with the cybersecurity policy and the personal data protection direction, principle, and framework of the Company, and comply with the laws, rules, and regulations in relation to the storage, collection, use, and disclosure of personal data, focusing on efficiency and security.

➤ **Cybersecurity reinforcement.**

In 2021, AIS improved its network security in terms of both protection and inspection by applying cutting-edge technology, upgrading the systems, and enhancing the operational processes from data collection and threat notification to data analysis to identify potential anomaly, the application of AI and machine learning algorithms to proactively,

quickly, and accurately detect advanced persistent threat, and the installation of a network detection and response (NDR) system to increase the ability to spot network visibility and anomaly, particularly a lateral movement cyberattack, and prevent damage in a timely manner. AIS also adopted automation technology to enhance the efficiency of a multitude of its operations, such as hardening and vulnerability assessment, patch management, and software development security inspection.

➤ **The 24/7 cyber security operation center (CSOC)**

After establishing the CSOC with modern detection tools and training personnel to be able to respond to threats effectively 24-hours a day in the previous year, AIS in 2021 expanded the center's services to monitoring against threats to the systems and information technology of its corporate clients. Towards elevating its information protection management systems to meet international standards, the company expanded the boundaries of its ISO 27001 certification to encompass services by the CSOC and Incidence Response service as well.



➤ **Technology, knowledge and experience exchanges with world leading telecommunications service providers.**

Exchanges with companies such as Singtel OPTUS and Globe allowed for model guidelines and practices for the management of data in an efficient and low-risk manner to be set, allowing for data protection and timely response to cyber threats. Exchanges also took place on ways to provide more channels for Work-from-Home while elevating security, control and monitoring information technology system access in accommodation of the COVID-19 situation and the New Normal.

➤ **Auditing**

- In 2021, internal and independent auditors reviewed the Company's information system and customer data protections, evaluating its general information system controls, data security awareness programs, cyber threat response and cloud system operations and security. Overall, AIS did not discover any cyber threats or violations of personal data or loss of data resulting in civil suits or legal fines in 2021.

AIS has set 2022 goals in accordance with its cyber security and data privacy mission as follows:

### Laws, Rules, and Regulations

- Consistently review and evaluate company and group operations in 2021 in terms of compliance with the Personal Data Protection Act and related laws.
- Improve policies and technological standards for cyber security and personal data protection in line with legal developments such as by preparing operations and technological standards to comply with the Cyber Security Act as AIS entered the information technology and telecommunications group, which is part of the Critical Information Infrastructure (CII), and has become obligated to comply with related laws and regulations as well as prepared to accommodate forthcoming laws under both acts.
- Review, assess, and improve the business operations of AIS's affiliates and subsidiaries to be in accordance with the Computer-related Crime Act 2550 B.E. and the Ministry of Digital Economy and Society's Notification on the Criteria for Service Providers' Electronic Traffic Data Storage 2564 B.E.

### Personnel Knowledge, Skill and Conscience Development

- Consistently promote understanding and awareness of cyber security and personal data protection as part of the corporate culture as to ready personnel to effectively identify and respond to cyber threats and protect personal data.

### Technology Development and Process Improvement

- Develop systems and processes of the Cyber Security Operation Center to handle protection, care, response and mitigation of cyber threats in accordance with international standards and prepared to act as a Managed Security Service (MSS) for corporate clients.
- Have executives perform annual cyber threat preparedness and crisis management drills.
- Implement a company-wide classification framework.
- Formulate a checklist to evaluate trade partners, business allies, and suppliers, and ensure that they have sufficient measures to protect customer data and information.
- Communicate and enforce a data privacy policy and a revised cyber security policy with business allies and trade partners.
- Enhance the security of the Microsoft Office 365 tool to encompass data access, confidential data protection, and mobile device authorization, including identity and access management (IAM) and the inspection, assessment, and standardization of the security of the activity directory (AD) to be on par with international benchmarks.
- Modernize the IT security system by adopting the Zero Trust model in identity management, access control, and the protection of networks, computing devices, applications, and personal data.

## Summary of Operating Results <sup>[GRI 418-1]</sup>



Topic		Units	2018	2019	2020	2021
Personal data protection	<b>Number of personal data breach and data loss complaints</b>					
	Complaints from general persons or agencies <sup>1</sup>	Number of cases	131	124	560	7
	Complaints from regulatory bodies	Number of cases	47	47	23	20
	<b>Number of data breach, leakage, theft, or loss</b>	Number of cases	0	0	0	0
	<b>Requests for customers' personal data from public agencies with the power and duty <sup>2</sup></b>	Number of cases	28,270	28,334	24,453	25,442
	% of the total number of requests	%	-	-	92%	70%

<sup>1</sup> In 2021, information about number of complaints can be classified at more granular level. Therefore, only substantiated complaints are reported in 2021.

<sup>2</sup> AIS provides customers' personal data to the public agencies granted the authority by law, such as the Court of Justice, the Royal Thai Police Headquarters, and the Anti-Money Laundering Office.



# Society

- > Human Capital Development
- > Social Inclusion
- > Cyber Wellness and Online Safety

## Human Capital Development

Nurture and develop AIS human capital to support business growth particularly digital business.

### Target 2024

- ✓
- Acquire enough staff with new abilities in digital technology to support business growth
- 85% of talent pool is retained
- 85% of Talent on Critical Role staff undergo new Ability training in digital technology

### Significant Improvements in 2021

✓

Area of development	Unit	2019	2020	2021	Target 2024
Percentage of talent remained in AIS	Percent	98	85	85	85
Percentage of talent on critical role that underwent new ability training	Percent	83	80	85	85

- AIS was recognized as one of the 2021 Best Companies to Work for in Asia for the third consecutive year by HR Asia Magazine of the Malaysia-based Business Media International (BMI). The award demonstrated AIS' excellent human resources management and promotion of the corporate culture dedicated to reading the staff for any emerging changes through the enhancement of employees' knowledge, potential, and skills via the LearnDi digital platform of AIS Academy, elevating capabilities of AIS employees, organization, and society.
- AIS received the Thailand Most Innovative Knowledge Enterprise (MIKE) Award in 2021 for Innovation and Knowledge Management (Gold Class), highlighting it as an organization dedicated to effective innovation management and development.





## Challenges & Opportunities [GRI 103-1]



The telecommunications industry has progressed rapidly and definitively into the digital era. Businesses have had to adapt their approaches to the New Normal, especially due to the COVID-19 pandemic. Amid changes in digital technology, AIS has had to transition into becoming a fully functioning digital technology service provider to keep up with varying customer demands and to maintain its leadership in the telecommunications industry. The challenge for AIS has been enhancing its capabilities and preparing itself to progress in-step with rapidly changing business frontiers. Progressing in the 5G age, which has brought with it heightened competition and rapidly evolving technologies, has made it necessary for AIS to seek out employees with new abilities and skills that are ready to expand the Company's business foundation. At the same time, AIS has had to support and enhance its experienced personnel, ensuring they are able to learn new skills in a short amount of time, so they may be equipped to respond to customer needs and maintain AIS as a competitive entity.

Apart from responding to changes in the business context, the New Normal life amid the COVID-19 pandemic has also brought about multiple human capital management challenges such as the global economic trend of The Great Resignation, caring for employees' physical and mental health during the crisis, and adjustment of work arrangements to increase work efficiency. To cope with the challenges, AIS has adopted more flexible work arrangements in response to the situation and taken varying measures to take care of

employees in all areas to retain highly capable employees. On the plus side, however, the crisis has provided opportunities for AIS to revise its human capital management strategies to be more agile, enabling employees to adjust and enhance their digital skills from new work arrangements through an easily accessible online learning channel any time at their own learning pace.

## Management Approach [GRI 103-2]



AIS devotes great importance to human capital management. Its Chief Executive Officer (CEO) oversees operational policies enacted under the supervision of the Chief Human Resource Officer (CHRO), who interprets such policies into strategies and work plans, making sure to comply with relevant laws and with consideration to human rights.

Focus is placed on providing opportunities for employees to fully showcase their abilities and potential for driving the organization forward toward sustainability while fostering an organizational culture aligned to its business practices under the concept "FIT FUN FAIR". Employees are encouraged to develop their skills in response to the digital challenges of the business and the company's future directions and objective. Moreover, AIS has adapted its work arrangements to align with the change in the borderless digital world of work by creating a happy workplace environment in line with the "Work Life Integration" concept, combining a work-life balance that offers flexibility in allocating time for work and life appropriate for each individual.



- Good health, high energy
- Knowledge and skills to meet every situation
- Determination to produce work beyond expectation



- Every challenge is fun for AIS employees
- Happiness in work
- Growth mindset and a positive, can-do attitude



- Equal opportunities for all employees
- Open mindedness and acceptance of differences
- Excellent results and good deeds are rewarded

## The 6Rs Strategy

In 2021, the Human Resources Department reviewed the strategy for human capital management to enhance organizational efficiency and drive employees to apply their full potential to increase the Company's competitiveness through the 6Rs strategy comprising the following:



Developed by AIS Human Resources Department Copy Right 2021

## Non-Discrimination Practice and Zero-tolerance Policy Against Harassment

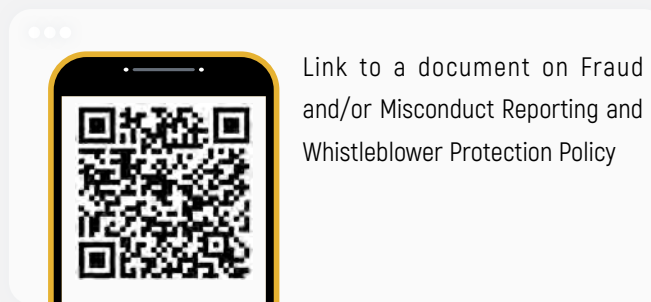
AIS stresses the importance of respecting the human rights of every employee at all levels and of stakeholders regarding physical aspects and differences in views, perspectives, and ideas, which include but are not limited to, race, skin color complexion, religion, gender, nationality, disability, age, and others by adopting non-discrimination practice and zero-tolerance policies against harassment. In addition, AIS carries out business with concern for workforce diversity and the equal rights of employees, opening up opportunities for individuals to join AIS without discrimination against race, religion, gender, and age.

AIS' commitment to respect for human rights has been reflected through its policy to treat employees respectfully without torture, violence, sexual harassment and non-sexual harassment, physical or mental threats, or verbal abuse. In addition to maintaining a good hygienic standard, safety in the workplace, and pleasant working environment, AIS has implemented a zero-tolerance policy to prevent the Company and its employees from violating human rights or rights of other employees in any form such as hiring illegal immigrants, child labor, and abusive, threatening, or coercive treatment of another employee.

The Human Resources Department implements the policy across the Company to ensure fairness and transparency in the areas of recruitment, employment, orientation, training, etc. AIS has also taken due diligence to communicate the policy and treat employees humanely with the focus on educating and training managers and employees in each function to understand the zero-tolerance policy against discrimination and harassment, enabling the employees to

apply the policy and behave accordingly. Moreover, employees are required to complete an ethical survey every year.

Where employees find any violation of the policy, they can report the misconduct via the channels designated in the Whistleblower Policy. The reporting will be kept confidential and the whistleblower will be protected from any act of retaliation. If the employee is found guilty of the misconduct, the Company will follow a proper disciplinary procedure with fairness and non-prejudice. A disciplinary action can take many forms including a verbal or written warning, suspension, and termination of employment without pay. The Company may also take legal actions against the wrongdoer where appropriate.



## Occupational Health and Safety Policy

AIS' human capital management policy covers caring for physical and mental health of employees to benefit the employees and support efficient work. To promote a good workplace environment, the Occupational Health, Safety, and Workplace Environment Committee was set up to promote and support the preparation of occupational health, safety, and workplace environment standards along with overseeing and enforcing applicable laws and policies. On the other front, the Occupational Health, Safety, and Workplace Environment Department is tasked with management,

communication to promote understanding, and control of related operations within the Company. The efforts include:

- Strategy to promote employees' good health
- Annual health check-ups for employees
- Employees' stress relief
- Protection of employees' medical information privacy
- Promotion of workplace safety
- Maintaining safety for contractors and sub-contractors
- Organizing training on occupational health, safety, and workplace environment

## 2021 Progress

✓ In 2021, the Company faced challenges in business operations amid the COVID-19 outbreak, prompting the Human Resources Department to modify the working policy to be more flexible and practical and yet maintain efficiency by adopting the work-from-home policy during certain periods. To cope with the challenges, AIS adjusted its human resources management approach and adopted technological solutions to recruiting potential employees such as advertising positions and receiving applications via QR Code, and holding job interviews via video conference to avoid contact.

For personnel development, AIS supported all of its personnel to undergo training to enhance their ability to respond to challenges and competition, emphasizing new skills needed for modern tasks such as Design Thinking and Data Analytics while also encouraging employees to update their existing skills for the modern context such as by utilizing digital systems to automatically carry out tasks such as filing travel reports (i.e. RPA).

## Talent Attraction, Retention and Succession Plan

In 2021, AIS made preparations to transition itself and employees into the 5G era while retaining quality personnel into the long term. At the same time, the Company made plans to recruit highly capable personnel to join and retain these employees to grow alongside AIS based on the following principles:



### Fair Employment

AIS adheres to fair employment principles and complying with all applicable laws as well as seeing the importance in having a diverse workforce populated by personnel with different bases of knowledge and skills. The Company maintains a policy against employing child and all types of illegal laborers while supporting the employment of disabled persons to work in convenient environment and for them to acquire new abilities in the digital technology industry, and providing funds to the Disabled Persons Support and Quality of Life Development Fund.



### Talent Management

Talented employees are sought out, provided with appropriate positions and duties, and developed and fostered so that they may be retained and grow alongside the Company.



### Digital Skills Hiring

AIS works with leading universities both domestic and abroad to organize activities that introduce itself and open up opportunities for students with functional skills for the digital age such as block chain, AI and data analytics to join the Company and enhance its digital growth capability sustainably.



### Career Development

Employees are provided with data and advice from their superiors so that they may plan their careers and support their own sustainable development.



### Employee Retention

AIS provides incentives both monetary and non-monetary and other benefits to employees such as health insurance and a standard- meeting healthcare center.



### Succession Plan

AIS maintains succession plans for every position throughout its structure, using a criteria and process that transparently and fairly selects the most capable successor for any position with emphasis on leadership capability and readiness to assume the role.

In the recruitment and interview processes, technological solutions were adopted to facilitate and increase efficiency in recruiting new hires. Examples included organizing Virtual Roadshow and Career Fair in conjunction with various universities and carrying out online job interviews to attract competent students to join AIS upon graduation.

### > Performance Appraisal and Remuneration and Benefits

For the talent retention process, AIS attaches significance to fair performance evaluation by setting up the Assessment Center to develop approaches and tools for appraising employees' skills and competency to align with the Company's business operations. In addition to providing tools to help analyze employees' skills appropriate for work in each function, the Assessment Center also provides suggestions to enable the executives to assess employees properly. The performance appraisal is undertaken twice a year, and the appraisal results are communicated to employees for the joint planning of employee development and used in considering remuneration. AIS has put in place a clear remuneration policy defining appropriate remuneration as stipulated by law and comparable to companies in the same industry with emphasis on equality. The appraisal criteria are based on the following framework:

**1) Performance appraisal based on corporate KPIs** which involves managers and employees jointly establishing goals as well as 360-degree feedback assessment including input from supervisors and coworkers. Employees also evaluate their supervisors or managers, contributing to skill and capability development from different perspectives.

2) **Leadership competency** which is the assessment of leadership competencies, strategic thinking, vision to drive change, and the ability to foster relationship with all stakeholders among many other things. The appraisal results in the leadership front help create career development plans for employees.

3) **Compliance with culture and business ethics** which is based on the underlining concept Fit Fun Fair, assessing employees' behaviors in terms of physical fitness and mentality to support happy and efficient performance of work.

## Employee Potential Development through Work Culture and Lifelong Learning

AIS realizes the importance of developing employees skills, starting from the first day of their employment through to retirement. As a result, the Company supports its employees in enhancing their skills and knowledge for growth in their careers and diversification beyond their base skillset in line with the changes spurred by the digital disruption era through lifelong learning. The employee development strategy focus on adopting Ed Tech (Education Technology) to allow employees to learn via online and offline,

empowering them to work creatively. An evaluation system is put in place to assess their performance in training and learning. Furthermore, AIS provides an individual development plan to enable each employee to take part in devising a career development plan in alignment with their skills and AIS' business direction.

### > Employee development and training

To enhance employees' potential, AIS provides various development and training programs with a 70 : 20 : 10 development proportion as follows:



Development Proportion for Employees	Types of Development	Details
70%	Experiential learning	Providing opportunities for employees to get involved and do the tasks necessary to develop innovative thinking and strategic thinking to handle work-related problems and challenges. Employees learn through experiential learning individually and as a team and have opportunities to work with personnel within and outside the Company.
20%	Learning from mentoring	Providing mentorship and review of work performance with supervisors or relevant experts such as mentors, part-time instructors, and business counsels along with encouraging employees to use their creativity to create innovation in business operations.
10%	Learning through training	Supporting employees to learn through training both online and in classroom to promote theoretical and practical knowledge via case studies. Interactive workshops are also organized to allow employees from different functions to work and do activities together.

To support employees in their potential development to enhance work efficiency, AIS organizes courses in accordance with the human capital development plan year round to align with the Company's business operations and encourages employees to learn through the LearnDi and ReadDi applications that allow them to learn anywhere at any time. They feature training courses on digital technology useful for work as well as updates on news and information. The applications also serve as online libraries for convenient learning. The courses are categorized as follows:

Courses	Descriptions
<b>General operations courses</b>	encompass all employees and include orientation, legal compliance, and fundamental skills such as effective salesmanship, English communication, etc.
<b>Managerial courses</b>	focus on developing leaders and include Situation Leadership, First Line Manager and Second Line Manager.
<b>Functional courses</b>	focus on particular operational tracks such as salesmanship and customer relationship building and retention.
<b>Compliance courses</b>	obligated by law include safety training and basic firefighting.
<b>Talent, or high potential executive track employees courses</b>	are organized in collaboration with leading domestic and international universities to ensure responsiveness to the Company's changing context including Harvard Business, University of Manchester and South East Asia Center (SEAC). Courses were developed for 4 Talent groups divided by roles and positions in the Company and were aimed at preparing them for succession or growth toward executive positions.
<b>Technological Skill Development courses</b>	such as micro:bit basic innovation to provide employees basic micro:bit programming skills for equipment manipulation, using an easy to understand method. The course will enable the employees to actually design a program and develop equipment. Technical Knowledge Management (TKM) has continued to develop courses for the development of technological skills.
<b>Succession Plan cours</b>	that include a training period with the outgoing executive in which duties are handed over and understanding is provided in the interest of a smooth transition by the successor.

### LearnDi by AIS Academy

AIS Academy is a hub for learning about technology and innovations through the LearnDi digital platform, a tool that compiles knowledge for easy access anywhere at any time. It is designed to promote a learning culture and prepare for technological changes in the digital disruption era. The platform enables AIS employees to upskill/reskill and are equipped with capabilities and readiness to perform duties amid the constantly-changing circumstances. In 2021, time spent via the LearnDi platform was 32.72 hours per employee.

In 2021, AIS Academy elevated LearnDi online learning platform to a hub featuring a wealth of new knowledge and skills, both soft and hard skills, that supports sustainable human capital development and is appropriate for employees

at all levels. The platform also answers the needs of all generations looking to develop themselves continually to set their own path of advancement through the Company's self-development. This made LearnDi a key learning platform that employees could access knowledge anywhere at any time, especially during the COVID-19 pandemic.

In addition, AIS Academy set online learning paths for use as a tool for designing and charting a learning path from the start through to completion to allow employees to sign up for the courses that can help improve their skills such as Finance & Accounting, Visual Communication, Cloud for Non-technical, Leadership Capability, Big Data & Data Analytics for Non-technical, and more.

### Example of Online Learning Path



### Technical Knowledge Management (TKM)

As a Digital Life Service Provider, AIS realizes the significance of equipping employees with advanced knowledge and skills related to providing new digital services and technologies. TKM was set up to develop technical courses and provide teaching for employees looking to enhance core competencies to cater to AIS' emerging digital businesses and the future trends. Examples include Cloud Competing, 5G Technologies, Artificial Intelligence (AI), Data Analytics, Radio Network Optimization, etc. Every employee is provided with opportunities to learn new technical skills continuously to develop a career growth path designed by themselves. TKM is also tasked with reviewing the certificates necessary for performance of tasks.

#### > Evaluation of the Training Results

AIS adopts the Kirkpatrick Model to evaluate the results of training in 5 levels, starting from Level 1 assessing satisfaction, Level 2 assessing behavioral changes after training to Level 5 assessing return of investment.

#### > Individual Development Plan (IDP)

AIS supports employees in taking part in setting their goals, individual development plan, and objectives with the line supervisors along with developing a competency model, which is joint development planning and analysis among the employees, supervisors, and HR staff to lay the foundations for the skills needed for the performance of tasks and career development.

### A Comprehensive Approach to Employee Well-being

In 2021, AIS and its employees were faced with challenges triggered by the COVID-19 outbreak, prompting the Human Resources Department to take a comprehensive approach to employee well-being. The efforts encompassed improving the working system to be more flexible, providing the necessary equipment to facilitate working, and upgrading safety, occupational health, and workplace environment measures along with taking multiple measures to mitigate the impact of COVID-19. Details are as follows:

#### > COVID-19 Prevention Measures

**A BCP war room was set up** to analyze the local COVID-19 situation, find solutions to the arising problems, receive reports on infections of employees, and keep employees updated on the situation.

**COVID-19 Alerts and Reporting:** AIS created a procedure for issuing alerts and reports on the COVID-19 situation encompassing infections among its own employees. Staff who are diagnosed with COVID-19 are obligated to report the situation to their direct superior and the Company's Emergency Report Center so as to notify executives and relevant units and trigger set measures, which include investigation of close contacts, closure to risk areas for disinfection, notification of the Department of Disease Control and patient monitoring.

### Office Congestion Reduction Measures

AIS implemented a Business Continuity Plan (BCP) divided into 2 phases:

- 1. During the COVID-19 pandemic peak**, 100% of employees worked from home.
- 2. During the COVID-19 cases leveling off**, employees were divided into Team A and Team B and rotated to come into the office every other week to reduce congestion.

For employees required to work on-site, AIS implemented the flexible working hours as deemed appropriate without affecting work efficiency to minimize the risks of contracting COVID-19, particularly when traveling via public transportation during rush hours. Employees had to adhere to social distancing when being on the Company's premises.

### Screening Measures to Elevate Safety and Hygiene Levels on AIS Premises

Highest level health screening and control was implemented across the Company. Thermo-scan machines were installed at all company entrances to check body temperatures and any individual found with a temperature 37.5 degrees Celsius or higher was denied entry. Disinfectant hand gels were placed in key locations alongside signage recommending usage, and air purifiers were placed in different locations.

In 2021, more effective air disinfection solutions were installed in the building such as UV/UVGI air sterilizers, UVC lamps, and UVC hand dryers.

### Measures to Care for and Assist Employees

In 2021, AIS encouraged employees to receive COVID-19 vaccines provided by the government and secured alternative vaccines for their boosters as an option. The Company also provided COVID-19 insurance for employees.

Where an infected employee could not access immediate hospitalization due to a shortage of hospital beds during the peak of the COVID-19 pandemic, AIS took several efforts to assist the infected employee as follows:

1. Coordinating and finding a hospital bed for the employee to receive medical treatment
2. Following up on the conditions of the infected employee until discharge and returning home for self-quarantine
3. Giving guidance to the infected employee about caring and observing signs / worsening symptoms
4. Providing medicines and home isolation kits for infected employees with mild symptoms in home isolation

### Communication with Employees and Adoption of Technology to Support Working

Communicating with employees during the COVID-19 pandemic was more challenging and instrumental to keep employees abreast of accurate and complete information and feeling connected with their colleagues and superiors. To that effect, AIS adopted various technologies to support working such as

online conference platforms, which enabled employees to schedule meetings and work continually, particularly when the Company announced the temporary full-scale work from home policy. Moreover, the Company disseminated information via SMS and internal online media, constantly inviting executives and employees to chat via the Aunjai Station podcast. The efforts kept employees updated with critical information and guidelines to maintain good physical and mental health through a variety of contents on a regular basis.



### > Promotion and Support for Employee Welfare Benefits to Take Care of Employees Comprehensively

Details are as follows:

AIS provides a range of benefits to its employees such as marriage support funding, educational funding for employee children that meet performance criteria, assistance funds for accident victims, patient visitation funding, funeral services assistance funding, natural disaster assistance funding, loyalty rewards, health check-ups, medical care COVID-19 vaccine booking, life insurance, etc. Examples and details are as follows:

### Implementing Flexible Work Arrangement

Realizing the importance of new work trends, AIS has adopted the hybrid work model to allow employees to work from anywhere, both onsite and offsite locations. To support their work, AIS provides efficient technological solutions for employees such as cloud technology, online conference platform, online training, etc. Employees are provided with equipment as well as call and internet packages to facilitate their work, allowing them to utilize applications and online platforms to access work systems, information, announcements, and to learn new courses anywhere at any time efficiently. To modify the workplace to accommodate more flexible work arrangements, AIS has transformed the office into a co-working space with no fixed desks to enable employees to experience different work environments. Employees are also



given opportunities to work with their supervisors to agree on the flexible working hours as a means to increase work flexibility and efficiency as well as allow employees to freely manage their time and responsibility appropriately.

### Support for the Family Unit

AIS acknowledges and supports the family unit as a foundational institution for personal growth and social sustainability, providing assistive funding to employees entering into marriage.

### Maternity and Paternity Leave

Female employees are entitled to 98 days of paid maternity leave as prescribed by law. Apart from that, employees are allowed to take another 10 days' personal business leave with pay. Male employees can take their business leave with pay to take care of the new mothers. In case the male or female employees do not have enough days of leave left, they can further ask for permission to work from home.

### Scholarships for Employee Children

AIS has continued to provide scholarships to the children of its employees, providing 6,000 Baht to primary school students who meet its criteria and 8,000 Baht to secondary school students. Over the past year, the company provided a total 7,914,000 Baht to employee children who met its criteria and displayed academic excellence.

	2018	2019	2020	2021
AIS Staff Children to Receive Scholarships	948	1,004	906	1,052
Scholarship Total (Baht)	6,364,000	6,772,000	6,174,000	7,914,000

### Providing Children Facilities

AIS provides spaces and facilities for children of the employees to learn new things while waiting for their parents to finish work including The Cultivation, Co-working space, and Chillout zone, allowing the children to learn, play, and do homework. They can also use their own computers or mobile phones to access AIS' LearnDi and ReadDi online platforms.

### Employee Engagement

AIS conducts an Employee Engagement Survey every two years to collect the opinions of its personnel for analysis and synthesis into administrative improvements and better human resources management. Due to the COVID-19 pandemic in 2021 however, the Company adjusted to survey employees' opinions, suggestions,

and ideas about developing workplace environment in the New Normal through AIS Organization Climate Survey 2011, allowing the Human Resources Department to use the results to adjust work arrangements and activities to match employee needs.

### Emergency Assistance

In the past year, Thailand faced severe flooding in several provinces. This was compounded by a massive fire at a polystyrene foam factory in Bang Phli which dealt a severe impact on communities surrounding the factory. In response, AIS provided assistance to employees, coordinating for employees living within the affected areas to evacuate to a safe place, and providing financial support to mitigate hardship.

## > Employee Well-Being

During the COVID-19 pandemic, AIS rolled out the AIS Wellness program to promote employees' good health throughout 2021.

### Activities to Promote Good Health

A variety of exercise activities were held online in which participants were awarded token points redeemable for products and services. On top of this was an E-Sports event to win cash prizes.



### Providing Knowledge on Health Care

AIS provides knowledge on health care to employees and their families through the Aunjai Station podcast. Throughout 2021, doctors and experts were invited to join the program.



## Annual Health Check-up

AIS provides an annual health check-up for employees at least once a year. Employees can choose a health check-up program and a hospital from the list of contract hospitals.

### Occupational Health, Safety, and Workplace Environment

In 2021, AIS formulated an occupational health, safety, and workplace environment plan with an emphasis on compliance with occupational health, safety, and workplace environment and other relevant laws, which applied to AIS' trading partners and contractors. The efforts included taking measures to prevent the spread of COVID-19 and ensure safety in the building, monitoring and assessing health and safety risks of employees involving with high risk activities, devising risk control and safety measures, and communicating the message to the target employees to encourage them to strictly comply with the safety measures. Further, the safety committee in each area organized a monthly meeting to listen to problems and give opportunities for related functions to suggest measures to elevate safety in the workplace and work process.

On top of this, AIS carried out the "Safety Control of Contractors" project, organizing the AIS Safety Passport training program year round. As part of the program, it was mandatory that all contractors who were classified according to risks associated with their work undergo the AIS Safety Passport program prior to starting work in the designated areas. The Company's safety efforts also extended to providing training on occupational health, safety, and workplace environment to new hires, training on safety according to risk levels to employees, and basic fire fighting and

evacuation fire drill training. To that end, AIS Fire Drill Application was used to manage information about fire drills including checking names and total number of participating employees, reducing registration time to join a drill, searching for those who did not register, processing fire drill results, and reporting the outcome to the relevant departments accurately and rapidly.



## Diversity and Inclusion

Support for diversity is key to empowering AIS to have a corporate culture that promotes innovation. Over the past several years, AIS has provided employment opportunities to people of different backgrounds in education, races, religions, beliefs, genders, ages, and physical abilities. Employees are given equal opportunities to develop their skills, take part in driving the Company, and advance in their careers without prejudice against different backgrounds.

Realizing the benefits of diversity in driving innovations and ideas, AIS encourages employees with differing experiences and skills to work together and exchange ideas to enhance innovations, operations, and service capabilities. The focus is on highlighting the strengths of employees through presenting creative ideas and developing design thinking.

Additionally, AIS supports employees to take part in activities that they are passionate about. For its part, the Company provides budget and opportunities for employees from all functions to join the activities such as Pride Parade to promote equality of the sexes. Training on diversity and inclusion are held for human resources staff to promote respect for human rights and understanding about diversity of their fellow employees. AIS also resolves to create workplace environment and activities that promote solidarity among its staff.



**Kantima Lerlertyuttitham**  
Chief Human Resources Officer

|| AIS believes that a diverse workforce is a key to success and has made being open to diversity a cornerstone of its human capital management during this transitional period. A diverse makeup drives AIS as an organization and business while simultaneously fostering sustainable social growth ||

### > Report on internal discrimination and harassment cases



**Discrimination cases in 2019 - 2021**

0 cases



**Harassment cases in 2019 - 2021**

0 cases

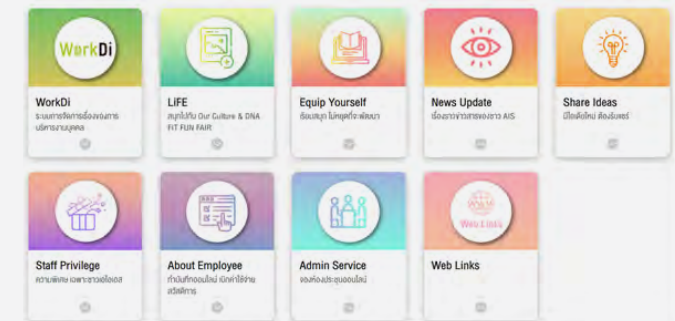
### Application of Technology to Human Capital Development

AIS has put digital technology into use, developing applications and web-based solution that accommodate employees' diverse needs and allow them to access from any location at any time. The move helps enhance efficiency of human resources management, increase accuracy and work flexibility, elevate information privacy, reduce expenses, and allow for the use of information for analysis to chart an appropriate and efficient management approach. Chief among the applications include:

- WorkDi (or Workday) – An Enterprise Resource Planning (ERP) system that enhances capabilities in storing employees' information, both individually and as a whole systematically,

allowing the Company to carry out in-depth analysis in various facets. Examples are analysis of employees' leaves, relocation of employees, analysis and management of employees' remuneration and wages, and performance appraisal. WorkDi also helps reduce complexity and increase accuracy in information management for Human Resources Department and line supervisors, allowing employees to effectively manage their personal information.

- AIS DIGI – A mobile application to facilitate employees on a 24x7 basis with emphasis on communicating corporate news and information, connecting to LearnDi and ReadDi learning platforms, reserving a meeting room and more.
- e-memo – The web-based e-memo is designed to cater to the Working from Anywhere arrangement, enabling employees to submit documents to superiors for acknowledgement or approval via the system on a 24x7 basis.



## Performance Table (GRI 102-8, GRI 102-41, GRI 401-1, GRI 404-1)



Topic		Unit	2018	2019	2020	2021
<b>Total employees</b>		Persons	12,314	12,701	13,975	12,909
<b>Breakdown by gender</b>	Male	Persons	4,985	5,141	5,595	5,097
	Female	Persons	7,329	7,560	8,380	7,812
<b>Breakdown by age</b>	50 years old and above	Persons	554	524	671	965
	30-50 years old	Persons	7,024	7,349	8,343	8,023
	Below 30 years old	Persons	4,736	4,828	4,961	3,921
<b>Breakdown by employee type</b>	Permanent					
	Male	Persons	3,999	3,774	4,104	4,031
	Female	Persons	5,049	5,004	5,258	5,043
	Contract employee					
	Male	Persons	986	1,367	1,491	1,066
	Female	Persons	2,280	2,556	3,122	2,769

Topic		Unit	2018	2019	2020	2021
<b>Breakdown by employee level</b>	Top management					
	Male	Persons	11	13	13	12
	Female	Persons	4	3	3	3
	Senior management					
	Male	Persons	114	110	118	116
	Female	Persons	62	61	68	66
<b>Breakdown by nationality</b>	Junior management					
	Male	Persons	1,643	2,235	1,850	1,872
	Female	Persons	1,725	2,567	1,945	1,941
	Operational staffs					
	Male	Persons	3,217	2,783	3,614	3,097
	Female	Persons	5,538	4,929	6,364	5,802
<b>Breakdown by nationality</b>	Thai	Persons	12,312	12,698	13,970	12,904
	Other nationalities	Persons	2	3	5	5

	Topic	Unit	2018	2019	2020	2021
<b>Resignation (Permanent employee)</b>	Resignation	Persons	739	793	573	830
	Total turnover rate	Percentage	8.39	9.03	6.12	9.15
	Voluntary resignation	Persons	701	758	475	755
	Voluntary turnover rate	Percentage	7.96	8.64	5.07	8.32
<b>Other performance</b>	Percentage of employees return to work after maternity leave	Percentage	100	100	100	100
	Maternity leave	Persons	279	256	246	217
	Maternity leave: % of total employees	Percentage	2.26	2.01	1.76	1.68
	Percentage of evaluated employees	Percentage	100	100	100	100
	Employees with Disabilities	Persons	123	112	202	142
	Employees participating in AIS wellness program	Persons	18,336	20,335	7,904	10,981
	On-the-job fatalities	Persons	0	0	0	0
	On-the-job injuries	Persons	1	1	13	2
	Average sick leave	Days per person	2.78	2.60	1.83	2.29
	Employees covered by collective bargaining agreement through Welfare Committee	%	100	100	100	100

	Topic	Unit	2017	2018	2019-2021
<b>Employee engagement</b>	Employee Engagement Score	Percentage	84.00	82.60	NA
		Score	4.08	4.13	

**Remark**

The score did not include ACC Employees. The company did not conduct the survey during 2019 and 2021 due to COVID-19 pandemic.

	Topic	2018	2019	2020	2021
	Total Training Hours	1,332,020	622,144	517,165	422,422
<b>GRI 404-1 Average Hours of Training</b>	Total Average Training Hours/ Person	106 Hrs.	49	37	32
	Breakdown by Gender				
	Male	-	45	32	35
	Female	-	52	40	30
	Breakdown by Employee Type				
	Permanent	-	39	34	36
	Temporary employee	-	71	44	23
	Breakdown by Employee level				
	Top management	-	43	28	20
	Male	-	37	27	21
	Female	-	53	30	18
	Middle management	-	39	40	47
	Male	-	44	41	50
	Female	-	35	40	44
	Operation Staff	-	19	16	17
	Male	-	25	17	20
	Female	-	16	15	15
	Total Costs of Training & Development (Mn. Baht)	156.14	203.30	118.45	125.24
	Total Costs of Training & Development/person (Baht)	12,439	16,006	8,476	9,701

**Remark**

Report limited to AIS employees that participated in AIS Academy

# Social Inclusion

Uplifting community well-being and decreasing social inequality through digital infrastructure and solutions.

## Target 2023

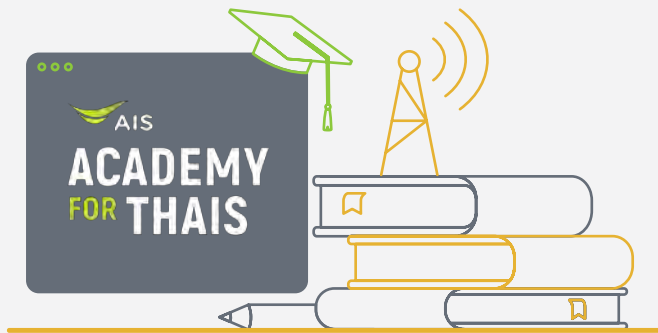


Improve the well-being of 700,000 people through our digital platform and collaboration

## Important Developments 2021



- Supported Village Health Volunteers (VHVs) to monitor and report on the spread of COVID-19 in their areas to prevent a new outbreak, reaching over 395,402 households in 2021.
- Afforded access to mental health evaluations for over 486,665 households impacted by COVID-19 using the Aor Sor Mor Online application, providing post-evaluation guidance to reduce the risk of stress, depression and suicide.
- More than 4.5 million households underwent inspections for Aedes mosquito larvae using the Aor Sor Mor Online Application, reducing the risk of outbreaks related to the mosquitoes, which can transmit Dengue Fever and Malaria.
- Promoted knowledge on health and health security rights among VHVs and served as a medium for information on health security for the public. Used the Aor Sor Mor Online Application to disseminate fundamental information to VHVs on cyber threats so they could immunize their communities from online scams.
- Launched "Mission to drive digital society" using online learning platform "LearnDi" to provide widespread access to knowledge for Thais via projects; The Educators Thailand, The Tutors, Digital Library, and Aunjai Arsa Career Development, reaching 39,131 participants.



## Opportunities and Challenges [GRI 103-1]



With various factors triggering rapid global change, such as a viral pandemic hiking the role of digital technology in work and daily life, adaptation for survival in the business realm has led to increased competition and the need for innovative products and services. In keeping pace with the world, Thailand has had to continually develop its communication technology infrastructure and is now ready to adopt 5G technology, which has the capacity for nationwide coverage to accommodate the lives and occupations of all.

However, telecommunications networks currently cover 98% of the population, a disparity in usage between urban dwellers and remote rural residents still exists. In 2020, the National Statistical Office found that 95% of the population uses mobile phones but only 50 million people use the internet for work and daily life, indicating inequality in access to digital technology with only city dwellers using smart phones and the internet for a wide range of benefits both personal and professional. As urban populations use smartphones and the internet for a wide range of benefits in life and career building. While urban populations use smartphones and internet for various life benefits and career development.

AIS, as a telecommunications service and digital technology provider, understands the opportunities inherent in promoting appropriate access to technology by communities and the use of digital platforms to offer the different demographics of Thailand access to

an array of learning content and formats, especially in the era of the COVID-19 pandemic in which communication technology has become a necessity to daily life. Supporting these areas uplifts quality of life, reduces social inequality, creates opportunities for education, and builds careers, all together benefitting social and economic growth while also fostering a strong long-term relationship between AIS and its community. Promoting its image as a company that drives a digital society, these efforts have helped to expand the AIS customer base and garnered the trust of its users.

## Management Approach [GRI 103-2]



AIS is committed to being a part of bettering life for the Thai people, using its communication technology resources to support developments that keep the Thai people in pace with the digital era. Leveraging its business and human resources for social and community development through a range of policies and projects. In recognition of inequalities in quality of life and opportunities for people in remote areas, in particular in terms of access to basic necessities and education, AIS set policies that mobilize its digital platforms and partnerships to achieve greater equality. Towards its intended achievement, AIS implemented the three following strategies:

### **Expansion of Digital Infrastructure for Maximum Coverage in Support of Efficient Communication and Alignment with National Economic Development**

AIS is committed to developing a quality telecommunications network with nationwide coverage both in urban and remote areas and seeks to continually acquire new technologies to enhance its service capability, in particular to improve the capacity and coverage of 5G technology in satisfaction of demand and in support of the network being used to develop the nation's economy and households. Consideration is also given to the needs of the public telecommunications system.

### **Supporting Public Access to Affordable Digital Communication Devices**

AIS is committed to providing Thai people access to digital technology through the acquisition and offering of affordable digital technological equipment, such as smart phones that accommodate 4G and 5G priced between 1,400 - 3,500 Baht and phone and internet packages for students and migrant laborers. At the same time, it develops sales channels targeted at specific groups as to promote internet access and digital technological know-how in every region.

### **Developing Digital Platforms that Enhance Economic and Social Structures along with Quality of Life**

AIS aims to use its communication technology and digital capabilities to play a part in building tools that better the lives of the Thai people, focusing on connecting communication technologies and digital systems to better public health and education, to reduce inequality, and to promote digital literacy.

### > Public Health

Support and promotion of public health operations through the creation of digital platforms that aid in the efficient work of public health personnel, facilitating proactive efforts to address community health issues in a timely manner and approaches that prevent and mitigate injury and loss across the nation.

### > Education

Creating opportunities for access to education by supporting exposure to knowledge and utilization of communication technology to enhance the capacities and quality of life of Thai people, as well supporting career building through applying innovation and technology for sustainable development.

### > Reducing Inequalities

Creating equal opportunities for underprivileged groups to build careers to sustainably close gaps in social equality by supporting amenities and technologies that accommodate their work.

### > Digital Literacy Promotion

Support access to digital technology knowledge and practice through the provision of necessary resources to develop the capabilities of the Thai people and in support of results conducive to national development.

## Performance 2021



### Development and Expansion of 5G Technology to Nationwide Coverage

At present, AIS operates a network that supports highspeed data transfers using 3G and 4G technology with coverage across 98% of the population, broadband home internet using fiber-optic technology across all 77 provinces of the country and WiFi networks in support of educational institutions and businesses. AIS is currently rapidly expanding its 5G network and has reached 76% coverage across the country, simultaneously carrying out research and tests of 5G technology in cooperation with the industrial and state sectors to uncover the potential of the technology's practical application. Tests include using 5G to support public health efforts against COVID-19, utilizing 5G for logistics in collaboration with the construction industry, and applying 5G to innovations that mitigate environmental impacts and realizing sustainable development goals. These tests serve as a starting point to using digital technology for national development. Concurrently, AIS acquired low-cost 5G smartphones in support of public access to affordable communication devices and supported national development in the following areas:

## Established and Developed Digital Platforms in Support of Technological Access and Improve the well-being of Thai

### > Public Health

#### Aor Sor Mor Online Application Project

The Aor Sor Mor Online Application was launched to communities in 2015 with the objective of serving as a communication tool between sub-district health promotion hospitals and village health volunteers, facilitating the proactive work of local level health service units. The application circulates necessary news and information and sends data from VHVs to sub-district health promotion hospitals and district and provincial public health offices to provide a clearer picture of health situations and to inform appropriate health service planning, enhancing the capability of VHVs through digital technology. Details of Aor Sor Mor Online Application can be found at <http://www.ais.co.th/aorsormor> and at the project's Facebook Fanpage.





### Aor Sor Mor Online Application Development

The Aor Sor Mor Online Application was launched in 2015 to serve as a communication tool for Village Health Volunteers coordinating with public health units at every level as to drive public health efforts at the community level. Thai language menus in the application made it easy to understand and facilitated the sharing of data, pictures, audio, video, messages, and locations. Development of the application through the years was divided into these three phases:



**Launch Phase**  
2015 – 2016

**200-1,500** Users

- Supported greater convenience, speed and efficiency in basic health care at the community level. The application was launched alongside website [www.ais.co.th/aorsormor](http://www.ais.co.th/aorsormor) to serve as a tool for communication and the reporting of data between medical personnel, health promotion hospital staff, and VHV.



**Health Data Collection Development Phase**  
2017 – 2018

**12,000-52,000** Users

- Increased support for the collection of health data for informing more efficient community outbreak and disease management. A map indicating the location of patients was added to the Aor Sor Mor Online Application along with monthly overviews of disease situations. The application was applied to a wider group and extended to use at the district and provincial levels.



**Functionality Expansion Phase**  
2019 - Present

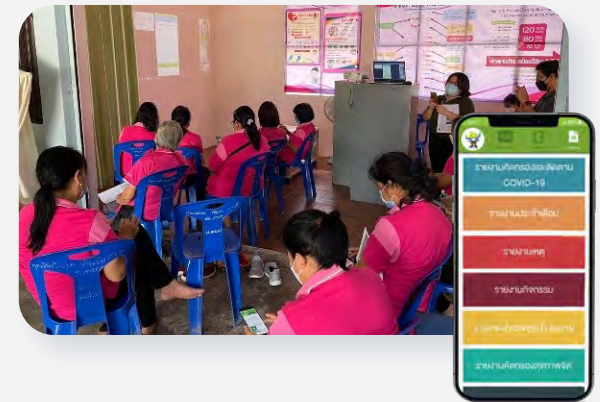
**110K-500K** Users

- Cooperation with the public sector was expanded and functionality of Aor Sor Mor Online application grew beyond basic health to general betterment of quality of life with functions including mosquito larvae survey, agricultural chemical usage survey, mental health screening, evaluation, and the screening and monitoring of COVID-19 patients – a function that was responsive to the COVID-19 pandemic. The addition of these functions significantly expanded the Aor Sor Mor Online user base.
- Supported the dissemination of reliable health news and information and the sharing of experiences in public health service provision. A newsroom function was added for sub-district and village VHV heads to post updates and announcements on activities.

The year 2021 was a major challenge to operations due to the persisting and severe COVID-19 pandemic. AIS turned its focus to safety and promoting use of the Aor Sor Mor Online Application to augment public health work during the crisis through the following ways:

> **1. Digital platforms used to demonstrate use of Aor Sor Mor Online application**

Digital platforms such as Zoom and Microsoft Teams were used as channels to guide, demonstrate, and follow up on usage of Aor Sor Mor Online Application as well as to facilitate exchanges by users in different contexts. The VHV network was expanded to 40,500 people.



## > 2. Social Media used to relay experiences

Primary care units and VHVs in different locations shared their experiences and perspectives on work using the Aor Sor Mor Online Facebook Fan Page, which grew to 80,000 followers.



## > 3. Different channels for explaining and answering questions to do with Aor Sor Mor Online

Enhancing efficiency during the pandemic, different channels were deployed to field queries 24 hours a day.



Hotline Tel. 06 2520 1999  
operating 09.00 – 17.00 hrs.  
(excluding government holidays)



Aor Sor Mor Online Facebook Fan  
Page over 80,000 followers



Line official @aorsormor  
over 11,800 users

## Additional Activities in Support of the Aor Sor Mor Online Application Project



**3 November, 2021**

Signing of the Memorandum of Understanding (MOU) on the integration of data for the evaluation and identification of community members with mental health issues stemming from the COVID-19 pandemic using the Aor Sor Mor Online Application.



**5 November, 2021**

AIS signs onto a Memorandum of Understanding (MOU) with the National Health Security Office (NHSO) on communicating health news and information via the Aor Sor Mor Online Application in support of the health and health security rights knowledge of Village Health Volunteers.



**17 March, 2021**

AIS takes part in supporting reporting skills for VHVs carrying out mental health evaluations of people impacted by COVID-19 in their communities by joining with the Department of Health Service Support and Department of Mental Health to present plaques to primary care units and model VHVs that effectively carried out mental health evaluations using the Aor Sor Mor Online Application at the National Volunteer Day 2021 event.

**Number of People/Households Aided by Aor Sor Mor Online Application per Feature in 2021**

Feature	People	Instances	Households	VHVs
Aedes Mosquito Larvae Survey	-	52,943,977	4,583,641	401,881
Mental Health Screening	1,022,821	2,267,357	486,665	57,533
COVID-19 Screening and Monitoring	1,140,156	2,371,798	395,402	57,825

**Development Approach 2022**

Support consistent work by the VHV network in communities by focusing on planning and strategizing operations aligned with state policies, especially in the area of public health. Cooperate with public agencies to integrate data on Aor Sor Mor Online to inform Ministry of Public Health unit plans for the prevention and mitigation of health issues across the country and better respond to state policies by expanding usage of Aor Sor Mor Online. Aid communities to better access and utilize digital technology and seek out opportunities for AIS partners to join in supporting and developing Aor Sor Mor Online for greater all-round benefit.

**AIS: Connecting to Help Thai People**

Due to the COVID-19 pandemic situation, AIS, as a member of the Thai business sector, announced "AIS: Connecting to Help Thailand". The urgent mission of the project was to apply 5G technology and medical solutions to the crisis through three endeavors:

- 1. **Installation of 5G Networks in Hospitals, Field Hospitals, Field Vaccination Sites, Vaccination Sites, and Isolation Centers**  
 AIS installed 5G networks for medical use at 86 locations to support medical work by allowing for the utilization of innovations, technology and solutions that reduce risks to medical workers while facilitating their care of COVID-19 patients. Additional AIS Fibre and AIS Super WiFi were also provided to enhance management in hospitals and medical service units.

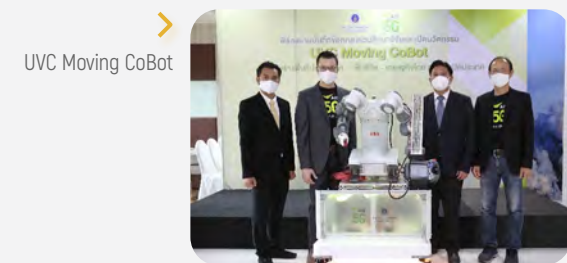


- 2. **Development of 5G Medical Innovations**

AIS collaborated with Chulabhorn Royal Academy to establish connections for the AI AIS 5G AI CT Lung Scan and developed a UVC Moving CoBot with Mahidol University's Faculty of Engineering, a robot able to quickly, accurately, and efficiently disinfect up to 99.99% of viruses and bacteria remotely using 5G technology connected via IoT. AIS also developed a telemedicine system for long distance doctor-patient communication via VDO Call, reducing the burden on medical personnel as well as risks of infection. A total 24 Robot for Care (ROC) robots were delivered to 23 hospitals.



AI AIS 5G AI CT Lung Scan



UVC Moving CoBot

### > 3. Communication Devices and Equipment for Aunjai Volunteers

Support was provided to medical personnel and patients in the form of SIM cards and data packages for patients and tablets, notebooks, and printers for use at field hospitals, field vaccination sites, vaccination sites, and isolation centers.



#### Assistance and support for the Thai people during the COVID-19 outbreak in 2021



**5G, AIS Fibre and AIS Super WiFi**



**86** Locations  
**17,994** Beds

Hospitals, Field Hospitals, Field Vaccination Sites, Vaccination Sites, Isolation Centers



**431,856** People  
Accommodation of Patients



**5G Medical Innovations**



**24** Units  
Robot for care



**Communication devices, Equipment, Aunjai Volunteers**



**13,194** Sets  
SIM and data packages



**1,818** Devices  
Tablets, Notebooks, Printers



**105** People/Day  
Aunjai Volunteers (130 days)

### > Education

#### AIS Academy

In 2021, AIS and LearnDi Co. Ltd. joined hands with partners in the EdTech space to unveil LearnDi, a digital platform for educational equality available for access at anytime from anywhere. Providing opportunities for Thai people to better themselves through the learning of new skills and disciplines, LearnDi was also designed as a platform for complete online education management (details in the graphic below). AIS developed the platform from its own its employee learning portal as part of its "Mission to drive digital society", delivering LearnDi to the Thai people as a sustainable digital learning platform.



## “LearnDi Digital Learning Platform”



## The AIS Academy “Mission to Drive Digital Society”



**Kan Trakulhoon**  
Chairman of the Board of Directors

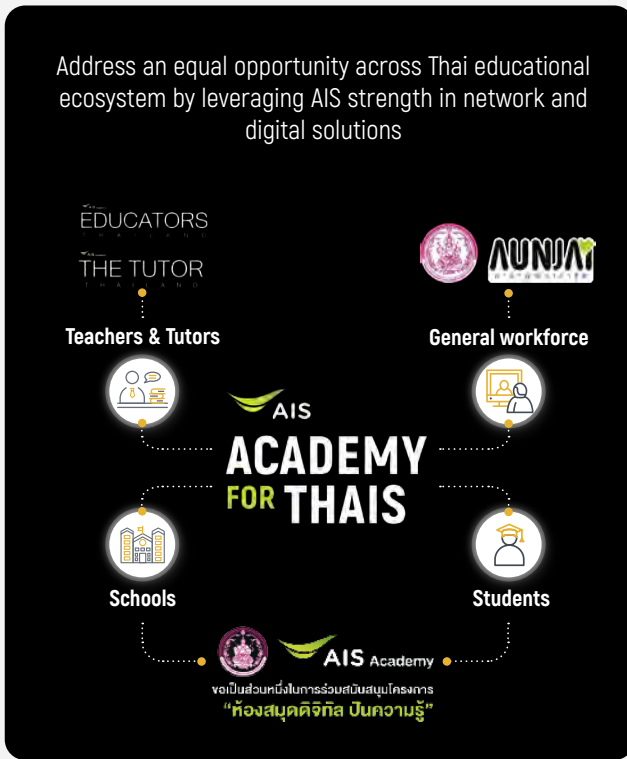
“ The sharing of know-how and expertise from actual professionals improves the exchange of knowledge and is the new concept of learning ”



**Kantima Lerlertyuttitham**  
Chief Human Resources Officer

“ The growth of a sole organization is not sustainable. Strengthening Thai society leads to perpetual growth, this was the catalyst for **AIS Academy**, the spreading of knowledge to the public ”

The aim of "Mission to drive digital society" is to encompass all groups within the education space, from educational personnel to students and the general public. AIS Academy designed each of its programs to respond to the demands and necessities of each learning group:



### The Educators Thailand

AIS joined hands with the Secretariat Office of the Teachers Council of Thailand, Ministry of Education and leading members of the education sector to uplift Thai education with a focus on teaching competency and creating innovations to enhance educators in the digital age. In 2021, some 1,200 teachers from across the country

came together to upgrade their ability to use new technology-based teaching, receiving guidance from leading speakers on designing modern courses that combine both academic knowledge and creativity to achieve lessons fitted to changing learning circumstances. The result of the program was modernized educators able to conceptualize new teaching methods and an avenue for digital teachers to readily and effectively reach students.



### The Tutors

In late 2021, AIS joined hands with the Ministry of Social Development and Human Security to organize "The Tutors Thailand", providing more opportunities for Thai youngsters to learn and better themselves. Using an AIS digital platform, students from the across the country were able to connect with tutors who prepared them to sit for entrance exams to university. Approximately 1,000 students took part in the program. At the same time, AIS held a competition to find Thailand's best tutor with the aim of developing the capacities of all tutors in the new era using digital platforms designed to facilitate online learning. Towards propelling tutors forward through the design of teaching methodologies that meet learner needs and support

to produce online media, the project aided tutors to connect with a large student base online while also providing opportunities for students in remote locations to access a varied learning experiences. The project ultimately benefitted both teachers and students by opening up more opportunities for education.

### Digital Library

The Ministry of Social Development and Human Security and AIS jointly unveiled the "Digital Library" to close social gaps and improve access to media through an e-Learning system and platform for E-Books covering a large variety of study areas. In its initial phase, the project was carried out at 10 schools in remote areas and border patrol police schools while also targeting impoverished students and those in vulnerable groups. A total 4,125 students took part in this phase with internet connections supported by AIS. Now, AIS is dedicated to using the channel to enhance the capacity of youngsters in need, to provide them with the necessary knowledge to prosper in a digital society.

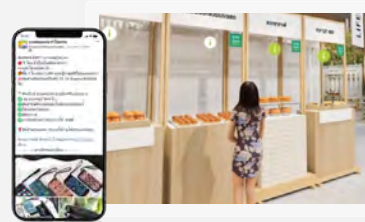


### Aunjai Asa Career Development

Devoting importance to creating careers for Thai people amid COVID-19, in 2021 AIS organized “Aunjai Asa Career Development”, inviting participants to learn work skills they could develop into careers during the COVID-19 crisis. A total 32,892 people took part in the project, comprising both members of the general public and young people in the AIS Good Kids Brave Hearts program. Moreover, AIS Academy for Thais collaborated with Shopee Co. Ltd. (Thailand), a leading online market platform, to further enhance the revenue potential of participants in the Aunjai Asa Career Development program and reduce social inequalities created by the COVID-19 crisis. Workshops were staged on digital skills, storefront page creation, and selling on Shopee to add an online channel for product sales. A campaign was also staged to connect buyers and sellers online.



Moreover, AIS supported sales channels for young people in its AIS Good Kids Brave Hearts program, providing space for 14 shops in the Community Hub Zone of V Avenue and for 57 stores in the “AIS Good Kids Brave Hearts Community” Facebook Group, increasing their visibility online.

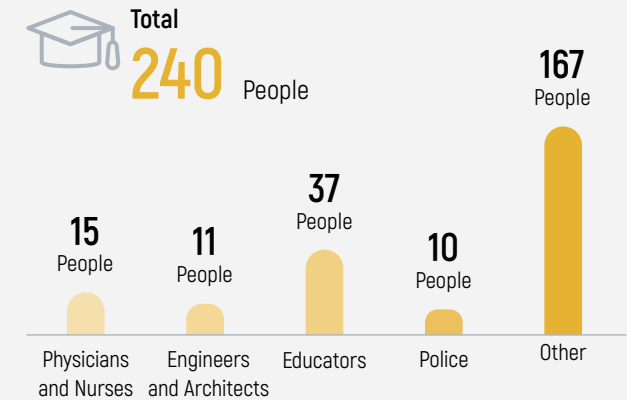


### AIS Good Kids Brave Hearts

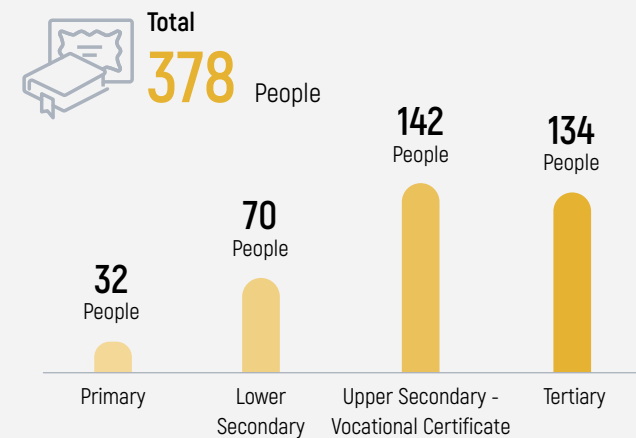
From 2001 to 2021, AIS supported the education of youths in need with the aim of closing social inequality gaps and aiding young Thais to secure careers with which they could support their families in the future. Impoverished students from Primary 1 to Undergraduate level were selected based on their good behavior with an emphasis on their aptitude for science, technology, math, and computer science as to further support economic development in line with the 12th National Economic and Social Development Plan. Assistance was also provided to their families so they could achieve more revenue. Over 21 years of the project, AIS has supported over 960 youths from the primary levels to tertiary education levels.



### Careers Assumed by AIS Good Kids Brave Hearts Participants After Graduation



### At present, there are a total 378 students from primary to tertiary schooling involved in AIS Good Kids Brave Hearts.



## > Reduction of Inequality

### AIS Call Center for People with Disabilities

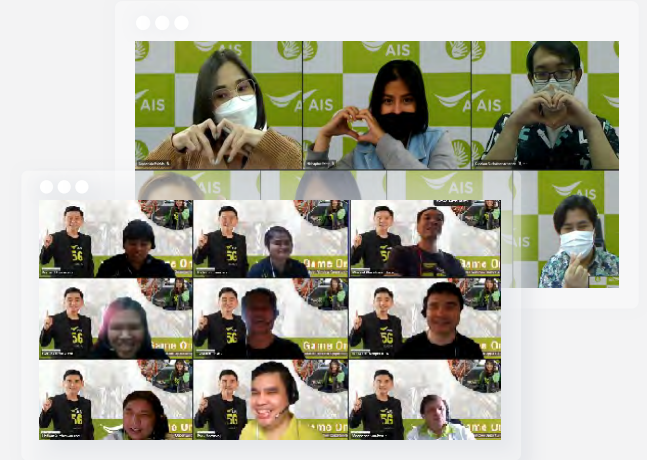
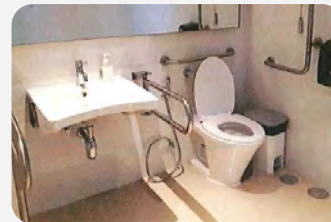
AIS recognizes the need to support human rights efforts and provide equal access to employment, launching a project to create career opportunities for people with disabilities in 2007 focused on using digital technology to augment the capabilities of disabled individuals and employing such individuals in its Call Center. Work environments and equipment were adapted to facilitate safety and convenience for disabled employees and they were provided with equal remuneration and benefits to their able-bodied counterparts. Details of the company's employment of people with disabilities is as follows:

- > 1. 20 Disabled Employees are stationed in Bangkok:
  - 12 visually impaired employees contact customers to present products and services
  - 8 hearing impaired employees operate the AIS Deaf Contact Center, serving hearing impaired customers via LINE Video
- > 2. 86 Disabled Employees are stationed in the provinces and were hired through collaboration with schools and foundations for the disabled with the emphasis being finding them employment near their homes. 40 are visually impaired and 46 are physically disabled.



### Office Amenities for Disabled Employees

- Visually impaired employees are assisted by the PPA (Thai language Text to Speech) program, motion sensor keyboards and screen readers, which allow the employees to efficiently and conveniently operate computers.
- The AIS Deaf Contact Center serves hearing impaired customers via video call with sign language experts evaluating the efficacy of service employees.
- Elevators, lavatories, ramps and hand rails were adapted to facilitate the safe and convenient work of disabled employees.



Through the dedication and well-regarded service of disabled employees at the AIS Call Center and its status as a provider of opportunities for the disabled, AIS Call Center received the Excellent Organization for Supporting Disabled Employment 2021 recognition from the Ministry of Social Development and Human Security, a mark of pride for the organization and its social work.





## > Digital Literacy Promotion

### SDG Lab by Thammasat University & AIS

AIS joined hands with Thammasat University to establish "SDG Lab by Thammasat & AIS" under the concept of integrating 5G and IoT digital technologies to form a foundation for sustainability and to serve as a space for experiments and actualization by creators and inventors, leading to the development of innovations and the adaptation of technologies for addressing various environmental issues with the ultimate goal of elevating Thailand into a SMART City. The lab was also opened to the general public to learn about digital technology and digital solutions and innovation. All of the various projects of SDG Lab are aimed at mobilizing Thai digital technologies and ushering in a digital age. Towards constructive social and national benefits, the scope of the lab comprises:

- > 1. Climate & Environment-Developing environmental sustainability using 5G technology
- > 2. City-Developing transport systems and security systems by adapting 5G technology to accommodate sustainable urban development.
- > 3. Living-Develop sustainable living through energy, natural resource, waste and electronic waste management.
- > 4. Farming-Develop technologies for sustainable agriculture and food security.
- > 5. People-Promote public participation in sustainable development.

A place for the application of 5G technologies to create a sustainable foundation for development, SDG Lab by Thammasat & AIS in 2021 utilized AIS 5G digital technology to develop an Autonomous EV Car. Utilizing the highspeed, low latency AIS 5G network, the vehicle reliably provides transport within its operation area with standards-meeting safety for passengers as well as pedestrians. The Autonomous EV Car is 100% electrically powered and features sensors and computing hardware that enable it to be fitted with software for autonomous operation. Testing of the vehicle began on 20 December, 2021 and it will be officially unveiled for service within Thammasat University grounds in January 2022.



Cooperation to develop the Autonomous EV Car has paved the way to realizing a SMART City, fitting with the global trend towards technology driven cities and spaces requiring digital

competencies. The project has also provided an opportunity for practical trial of technology. The collaboration with Thammasat University that led to SDG Lab by Thammasat & AIS is an affirmation of the AIS commitment to delivering digital services that uplift quality of life, open access to digital technologies for self-betterment and social change, and the creation of social and environmental contexts for mutual sustainable growth.



> The "Autonomous EV Car" is another success of SDG Lab, completing Thammasat University as a SMART City.

## Performance Table



	Topic	Unit	2018	2019	2020	2021
<b>Aor Sor Mor Online Application</b>	Aor Sor Mor Online Application Users	Users	52,000	116,000	528,857	459,950
	Reduction of Paper Usage by Aor Sor Mor	Pages	312,000	3,700,000	10,168,808	60,004,054
	Reduction of Fuel Usage by Local Health Promoting Hospital	Baht	31,200,000	40,368,000	180,342,648	160,062,600

### Remark

In 2021 Aor Sor Mor Online Application Users is slightly dropped, due to the development of personal data protection system for users. Some users are in the identity verification process. As a result, the number of users was slightly reduced. However, the team is continually helping and supporting users to verify their identity and resume to normal operation.

# Cyber Wellness and Online Safety

Striving to establish a brand that promotes safe and appropriate use of the internet and social media

## Target 2023



- Become Thailand's number one telecommunications brand, trusted for cyber wellness and online safety.
- Promote cyber wellness and online safety at 1,500 schools and protect 290,000 Thai users from cyber threats.

## Significant Improvements in 2021



- Joined forces with Department of Mental Health, Ministry of Public Health to define the scope and formulate the Aunjai CYBER program to enhance knowledge and ability in the safe and constructive use of online media and to foster digital skills among Thai users.
- Teamed up with the Faculty of Industrial Education and Technology of King Mongkut's University of Technology Thonburi to develop digital teaching materials and a test for the Aunjai CYBER

course available on the LearnDi for Thais platform. The course was accredited by the Office of the Basic Education Commission (OBEC), and teachers can use the course results to fulfill part of the requirements for progression to a higher academic rank according to the criteria prescribed by the Office of the Teacher Civil Service and Educational Personnel Commission (OTEPC).

- Expanded the AIS Fibre Secure Net service to home internet users, as a result, allowing a total of 142,016 internet users via mobile phone and home internet to enjoy secure internet use.

## Challenges & Opportunities (GRI 103-1)

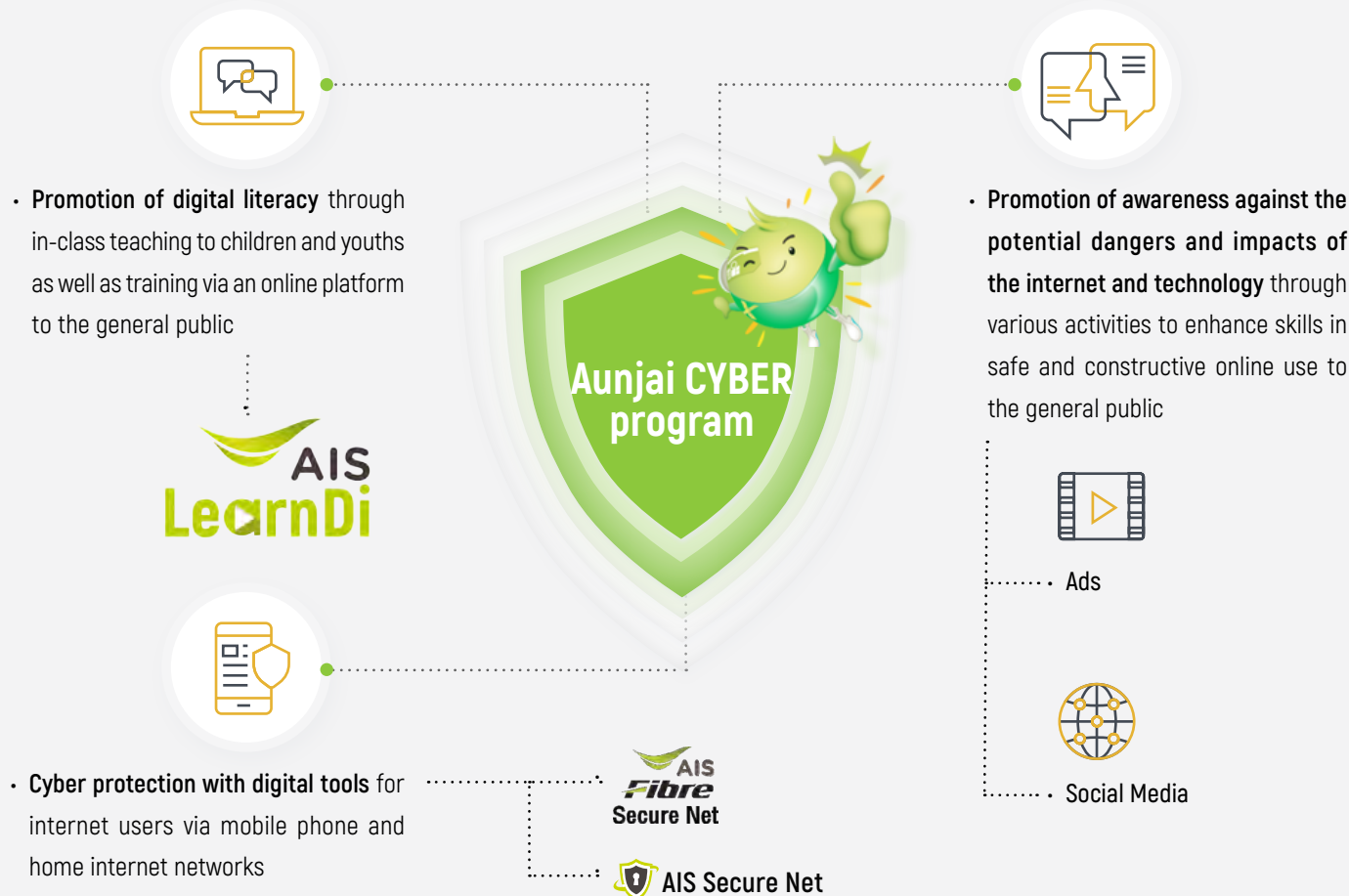


Despite the numerous advantages of the internet to consumers in the realms of education, entertainment, and sports games among many others, the widespread use of the internet has made cyber threats a common issue of concern throughout the world and has played an increasingly vital role in everyday life. Examples include identity theft, internet seduction, internet addiction, and cyber-bullying. Moreover, according to the 2020 Child Online Safety Index conducted by The DQ Institute, Thailand was ranked last out

of 30 countries selected for the project, scoring the lowest points on the list for digital skills and cyber threats. Such challenges have prompted different sectors in Thai society including the government, public health, and digital technology sectors as well as the civil-society sector to focus more intensely on the cyber threat issue. As a digital life service provider socially perceived as a purveyor of digital technology and internet use, AIS has taken ownership over the services delivered to consumers. To that effect, the Company is committed to promoting safe and appropriate use of the internet and social media. It is believed that providing knowledge and building digital skills and cyber resilience would promote the constructive use of digital technology that contributes to the nation's social and economic advancement and enhancement of Thai people's needed skills in response to the digital era. By minimizing online dangers, it can help the telecommunications business to grow robustly, reduce reputation damage risks, and foster strong ties between consumers and the AIS brand. On top of this is the opportunity for AIS to innovate products and services to promote online security for Thai consumers.

## Management Approach [GRI 103-2]

“**Cyber Wellness and Online Safety**” is a significant factor toward business sustainability of AIS. The efforts range from providing knowledge and promoting digital skills to internet users to selecting solutions or technologies as tools for cyber protection that respond to the demand for providing services to customers to ensure the continued development and expansion of operations. AIS is determined to protect Thai people from cyber threats along with promoting online safety and building cyber resilience with the focus on the venerable groups of youths. The three strategies under the **Aunjai CYBER** program are as follows:



## 2021 Progress

AIS expanded upon its cyber wellness and online safety initiative under the Aunjai CYBER program which has continued since 2019. Emphasis was placed on partnerships with the educational sector, relevant organizations, and experts in child and adolescent psychology with the intent to better reach its target audience so as to provide knowledge and build awareness on handling cyber threats effectively. This was accomplished by the promotion of digital literacy, building cyber resilience, and promotion of cyber security, details of which are as follows:

### Promotion of Digital Literacy

AIS in collaboration with the Department of Mental Health, Ministry of Public Health, and the Faculty of Industrial Education and Technology of King Mongkut's University of Technology Thonburi devised the Aunjai CYBER course consisting of online lessons and a test. Available on the LearnDi for Thais online platform, the course is designed to measure fundamental knowledge and promote digital literacy for people of all ages and genders free of charge at <https://learndiaunjaicyber.ais.co.th/>

The lessons and test designed to measure and build digital literacy through 4 skill modules are divided into fundamental level for children and youths, and advanced level for the general public, enabling them to keep abreast of the online world and use the internet constructively. The course was accredited by the Office of the Basic Education Commission (OBEC), and teachers can use the course results to fulfill part of the requirements for progression to a higher academic rank according to the criteria prescribed by

the Office of the Teacher Civil Service and Educational Personnel Commission (OTEPC).

In addition, AIS joined hands with OBEC responsible for the basic education of Thai youths to hold a pilot training project to teach the Aunjai CYBER course online, enabling teachers under OBEC to learn the contents and familiarize themselves with the use of the platform and could utilize it as a tool for teaching primary and secondary school students to foster knowledge and build cyber resilience for Thai children and youths.

In 2021, AIS continued to expand the Aunjai CYBER program dedicated to building awareness and promoting digital literacy to more schools together with inviting public agencies to join the network in the development of the Aunjai CYBER course consisting of lessons and a test on an online learning platform. The goals were to make it a hub for learning and enhancing digital skills for Thai youths and the general public. The course was accredited by the Office of the Basic Education Commission (OBEC), and teachers can use the course results to fulfill part of the requirements for progression to a higher academic rank according to the criteria set forth by OTEPC.

## Cyber Security

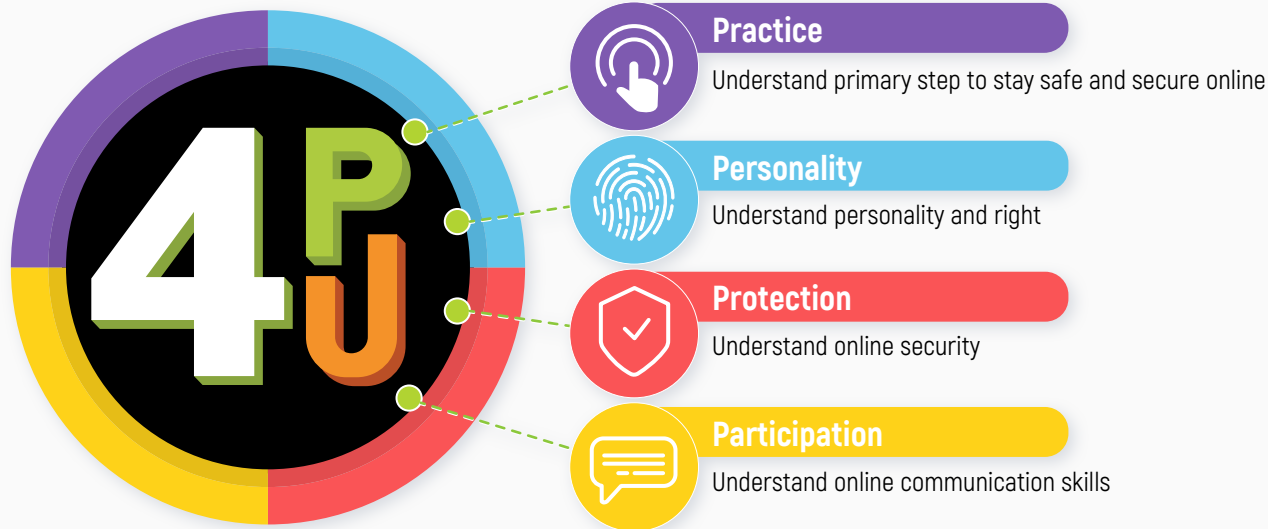
AIS offers the network-based security solutions AIS Secure Net and AIS Fibre Secure Net, which allows AIS to reach customers at risk from cyber threats such as virus-infected websites, malware, fake URLs, and indecent websites more effectively as the service works instantly without the need for an application download. Furthermore, AIS partnered with Google to promote the use of Family Link application, aiding parents in monitoring and training their children on appropriate use of the internet.

### > AIS Secure Net / AIS Fibre Secure Net

#### AIS Secure Net

AIS Secure Net is a protection and notification system against cyber threats such as virus-infected websites, malware, fake URLs as well as an online filter for children and adolescents to protect against pornography, narcotics, gambling, etc. built into the AIS 3G, 4G, and 5G internet networks to avoid the need to download an application. The service is divided into two types based on user requirements, namely, AIS Secure Net for general users and AIS Secure Net Kids for children 5-12 years in age.

## 4 Skill Modules



AIS Fibre Secure Net, a new service from AIS for high-speed home internet users, is a protection and notification system against cyber threats such as virus-infected websites, malware, fake URLs over AIS Fibre network without the need to install any application or program on the devices. It is ideal for smartphone, tablet, PC, laptop, smart TV, and Playbox.

> **Family Link**

Family Link is an application that allows guardians to manage the safe usage of their children's smartphones with cooperation from Google. The application trains children in appropriate smartphone usage with functions such as phone call limitation and reports, new application installment management, website access and location monitoring, all together creating a constructive safety barrier around a child's digital life.

In 2021, there were over 131,195 users of the AIS Secure Net service. Moreover, AIS expanded its cyber security service for mobile internet to high-speed home internet under AIS Fibre Secure Net in April to expand the capability to protect against cyber threats arising from fiber networks. The service was well-received, attracting over 10,821 AIS Fibre Secure Net users this year.

Following the offering of the AIS Secure Net for mobile internet and high-speed internet networks for quite some time, AIS conducted a survey to understand customers' satisfaction levels with the AIS Secure Net and AIS Fibre Secure Net services among 489 customers, or 4% of a total of 142,016 customers. The results were as follows:



**71%**

of the customers surveyed were satisfied and very satisfied with the service



**81%**

were likely to continue using and recommend the service to those close to them.

**The top 3 benefits of the services viewed by the customers included:**

- |                               |              |
|-------------------------------|--------------|
| 1. Secure use of websites     | <b>66.3%</b> |
| 2. Secure use of applications | <b>48.3%</b> |
| 3. Ease and convenience       | <b>27%</b>   |

**54%** of the respondents would continue using the service even when fees are applied. The results demonstrated that customers had demand for the service and were aware of the benefits of cyber security with the focus on secure internet use.

**Promotion of Awareness against the Potential Dangers and Impacts of the Internet and Technology**

To keep customers updated with the online world and constructive usage of the internet, AIS pledged to disseminate information via multiple social media platforms such as Facebook, Twitter, TikTok, etc. to reach users of all ages and genders from any service providers, building digital resilience for a sustainable lifestyle in the digital era. Chief among the efforts included a campaign to raise awareness about stopping cyberbullying. On the Stop Cyberbullying Day 2021, AIS provided an online forum where social media users shared their views and experiences on cyberbullying as well as how to handle cyberbullying, all together to exhibit the power to help stop cyberbullying. Added to this was the production of a video clip suggesting how to deal with cyberbullying with the underlying concepts **"Think before you comment", "Think before you share", and "Stop cyberbullying"**. The clip garnered 287,000 views.





For 2022, AIS plans to continue supporting the Aunjai CTYBER program, introducing it into schools under the Office of the Basic Education Commission (OBEC) across Thailand, giving teachers the tool for teaching primary to secondary school students to promote digital literacy and develop digital skills for Thai youths and the general public. Apart from this, AIS plans to develop a variety of learning materials to cultivate skills and build digital resilience for a lifestyle in the digital era for all Thais.

- Join hands with the Faculty of Industrial Education and Technology of King Mongkut's University of Technology Thonburi to develop digital teaching materials for the Aunjai CYBER course and a test to be disseminated on the LearnDi for Thais online platform free of charge for those interested in learning. The course was accredited by the Office of the Basic Education Commission (OBEC), and teachers can use the course results to fulfill part of the requirements for progression to a higher academic rank according to the criteria prescribed by the Office of the Teacher Civil Service and Educational Personnel Commission.

- Join forces with the Office of the Basic Education Commission (OBEC) to organize training on how to teach the Aunjai CYBER course online, enabling the teachers to familiarize themselves with the use of the platform and could utilize it as a tool for teaching at primary and secondary schools nationwide to foster knowledge and build cyber resilience for Thai children and youths.
- Expand the AIS Secure Net and AIS Fibre Secure Net services to cover more internet users via mobile phone and home internet networks along with promoting cyber wellness and online safety, and introducing the Aunjai CYBER courses into schools in an attempt to promote digital literacy among youths.

## Performance Table



		Unit	2019	2020	2021
<b>Promotion of Digital Literacy</b>	Promotion of Digital Literacy	Students	43,200	35,000	Develop Aunjai Cyber course <sup>2)</sup>
		Schools	378	114	
<b>Digital Tools against Cyber Threats <sup>1)</sup></b>	AIS Secure Net	Users	47,600	124,600	131,195
	AIS Fibre Secure Net	Users	-	-	10,821

**Remarks:**

<sup>1)</sup> Exclusive of Family Link application users

<sup>2)</sup> In 2021, AIS teamed up with the Faculty of Industrial Education and Technology of King Mongkut's University of Technology Thonburi to develop digital teaching materials and a test for the Aunjai Cyber course. The course was accredited by the Office of the Basic Education Commission. Previously, Digital Quotient course was rolled out to schools. Therefore, there is no progress this year.



# Environment

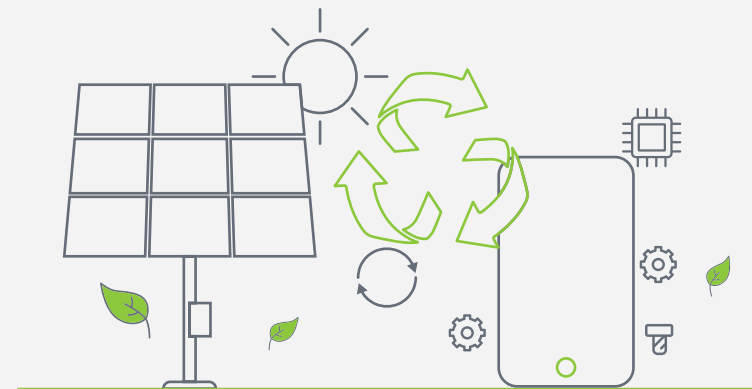
- > Climate actions
- > Waste Management

## Climate Actions (GRI 302, GRI 305)

Reducing GHG emissions through high efficient business operations and utilization of renewable energy

### Target for 2023 (GRI 305-5)

- >
- Reduce GHG emission intensity as calculated from the ratio of direct (GHG scope 1) and indirect (GHG scope 2) emissions to data traffic (tCO<sub>2</sub>e/terabit or ton carbon dioxide equivalent per terabit) by 90% compared to the baseline in 2015.
- Increase renewable energy usage of 5% of total energy consumption.





## Significant Improvements in 2021



- **Increased Energy Efficiency** through the study and analysis of customers' behavior together with adopting power saving features in planning and appropriate use of network infrastructure, reducing energy consumption and GHG emissions by 27,543 tCO<sub>2</sub>e.
- **Increased Utilization of Renewable Energy.** In 2021, another 2,748 solar panels were installed, resulting in the number of base stations, data centers, and switching centers, powered by renewable energy adding up to 5,561 and a reduction of 8,139 tCO<sub>2</sub>e in GHG emissions.
- **Offered Innovative Digital Services to Customers.** Subscribers were encouraged to switch from mailed bills to e-bills and to adopt myAIS Application to reduce paper usage and fuel use in traveling to the service centers. The efforts reduced GHG emissions by 10,459 tCO<sub>2</sub>e
- **Developed Smart Solutions** that significantly helped enhance energy efficiency and reduce GHG emissions for corporate clients.



27,543 tCO<sub>2</sub>e

Network energy efficiency programs



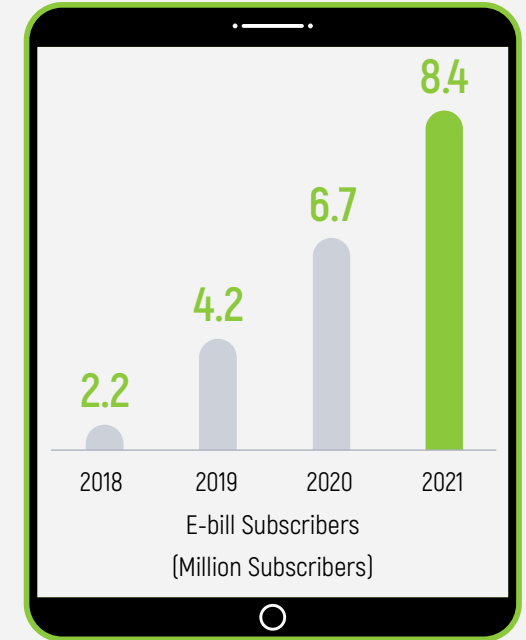
8,139 tCO<sub>2</sub>e

Renewable energy projects from solar power



10,459 tCO<sub>2</sub>e

Reduce paper uses from e-bill and e-receipt services



## Challenges & Opportunities (GRI 103-1)

In recent years, the global community encompassing international, state, private organizations as well as consumers have supported cooperation and attached more significance to the issues of climate change. In 2021, the Intergovernmental Panel on Climate Change (IPCC) released the Sixth Assessment Report (AR6), stating that human activities and business operations contributed to warming across the atmosphere, oceans, and land. By 2040, the average global temperature is expected to rise by 1.5 degrees Celsius above pre-industrial levels unless there are immediate and large-scale reductions in GHG emissions. The report prompted global action to revise the GHG emission reduction target to limit the warming level of 2 degrees down to 1.5 degrees Celsius above pre-industrial temperatures. For its part, Thailand has also taken part in the efforts. At the UN Climate Change Conference (COP26), Thailand pledged to accelerate action to achieve net-zero emissions by 2065 out of the concern that Thailand is one of the top 10 countries most affected by climate change and to join the global community in immediate efforts to fight climate change. Following Thailand's national climate

pledge, the Thai government has proposed a new law on climate change and modified the National Energy Plan to ready the country toward the goal of net zero.

Global warming is caused by GHG emissions by both business and civil sectors. Major contributors of the greenhouse gases include the industrial and transportation sectors, which rely chiefly on fossil fuels in production, transportation, and service provision. Despite not being in the industries directly contributing to global warming, AIS' provision of services requires utilization of electricity produced mainly from fossil fuels including natural gases and coal as there are still limited clean renewable energy sources, particularly in Thailand. However, as a digital life service provider, AIS is well aware of the challenges and risks arising from such issues on the Company's business operations. Aside from the challenges associated with the above-mentioned policy and law, AIS is concerned about the risks from natural disasters which have become more severe and unpredictable, potentially affecting the network infrastructure and

subscribers. The impact will be even greater today when digital technology and communication are key drivers of economy, society, and ways of life. At the same time, AIS realizes that digital technology and smart solution businesses have a role to play in enhancing energy efficiency and reducing GHG emissions. To that effect, AIS has continued to build on its expertise to develop multiple services to address the needs. This runs concurrent with advancing analysis and warning systems for natural disasters to minimize impact and damage from climate change on customers, business, and society as a whole. With a strong determination to be part of the global action to tackle climate change, AIS has studied science-based targets which will guide us in formulating comprehensive plans to reduce GHG emissions. The emphasis is placed on reducing energy consumption, a major culprit of GHG emissions. Added to this are preparation for climate change impacts and developing businesses that help support GHG emission reduction in different sectors. AIS believes that the effects will have positive effects on cost structure while reducing business risks and increasing AIS' profitability in the long term.

### Science-based Target Initiative (SBTi)

SBTi is setting a GHG emissions reduction target grounded in science in line with the main target of the Paris Agreement, which is to limit global warming to below 2, preferably in the best case to 1.5 degrees Celsius above pre-industrial levels.



### Management Approach (GRI 103-2)

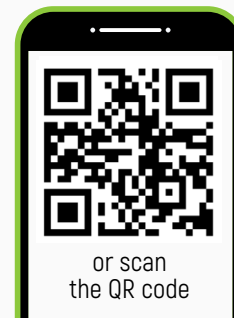
As a digital life service provider, AIS is acutely aware of its responsibility to society to use its capabilities and innovations to aid in remedying the issue of climate change. AIS has committed itself to reducing greenhouse gases, continually improving its energy efficiency and supporting renewable energy both in its operations and products and encouraging its operators, trade partners and equipment manufacturers to play a part in its sustainable business goals. In achieving these commitments, AIS has set short, medium and long term goals for reducing greenhouse gas emissions with the head of its technology executives tasked with carrying out the effort and implementing environmental management across the organization, from its core business to its auxiliary endeavors. A team of environmental experts provides a quarterly report to the

Chief Technology Officer (CTO) to inform actions such as setting indexes for performance. The chief also monitors regulations and measures relevant technological trends to constantly improve the environmental management plan. A report on environmental efforts is presented to the Sustainability Development Committee and Board of Directors at least once a year.

AIS maintains an environmental policy approved by its Board of Directors with the objective to support environmental sustainability.

- Evaluate, control, manage and track results for the purpose of reducing overall impacts on the environment.
- Adhere to laws and regulations concerning the environment.
- Take steps to ensure the network and operations are resilient and will remain in service even in times of harsh weather.

Read more on the Environmental Policy at <https://sustainability.ais.co.th/storage/sustainability-priorities/emissions/ais-environmental-policy-en.pdf>



### 2021 Progress (GRI 103-3)

AIS is committed to its mission to play a role in mitigating global warming, having carried out scores of core projects on energy efficiency, GHG emission reduction, promoting the use of renewable energy, reducing paper use, and developing smart solutions to empower AIS customers to take part in tackling the global warming issue. Chief among them include:

#### Promoting Energy Efficiency

- AIS engineer team studied techniques and adopted multiple energy-efficient technologies in the management of base stations nationwide. Examples included installation of multi-mode station equipment covering 3G, 4G, and 5G, and improving efficiency of rectifiers that helped save energy and reduced indirect GHG emissions from electricity generation by 18,743 tCO<sub>2</sub>e.
- Used big data analysis to study customers' usage behavior as well as managed network channels and energy use in response to clients' phone usage to deliver excellent service quality and maximize power efficiency. The efforts reduced power consumption by 17,503 MWh/Year and GHG emissions by 8,749 tCO<sub>2</sub>e
- For the steadily-growing data centers, AIS put in place a resource allocation plan for the servers to align with clients' usage and opted for high energy-efficient devices, enabling AIS to achieve a saving of 101.4 MWh/Year and a reduction of 51 tCO<sub>2</sub>e

**Alternative Energy Use** Despite the widespread COVID-19 pandemic in Thailand in 2021, AIS continued to expand installation of solar panels under plans that complied with the public health COVID-19 guidance, allowing for solar panel installation at 2,744 base stations and at another 4 data centers and switching centers. Since commencement of the program, AIS has installed and used alternative energy at a total of 5,553 base stations as well as 8 data centers and switching centers, generating 16,282 MWh/year and cutting 8,139 tCO<sub>2</sub>e in GHG emissions.



**Environmental Management System (EMS) Development** – The AIS environmental management system received ISO14001:2015 approval. The system used independent evaluators at two AIS computer data centers and ISO14001 certified environmental experts at all others. The standard was adopted to enhance environmental management at AIS in areas including energy management, water management and waste management in compliance with the relevant regulations and requirements of a sustainable organization.

**Paper Use Reduction** – AIS integrated digital technology into its internal operations, processes involving partners and in service of customers under the Full-E concept, which encompasses the four services of: 1) myAIS, which allows customers to view fees, pay bills, register and monitor packages by themselves, 2) Electronic Bills (E-Bill), 3) Electronic Receipts (E-Receipt) and 4) Electronic Payment (E-Payment). On top of reducing paper usage and the need for travel, these services enhance operational efficiency and convenience for customers. By the end of 2021, myAIS usage reached 8.4 million users, increasing by 3.1%. Moreover, 8.38 million billing accounts switched from mailed bills to E-Bills and 109 million E-Receipts, all together cutting the need for sheets of paper, equivalent to 10,459 tCO<sub>2</sub>e in GHG emissions a year.

**Smart Solution Development** – AIS strived to develop a smart solution service to enable corporate clients to meet needs in working in the new normal and to manage work processes to

enhance energy efficiency as a means to reduce GHG emissions. The digital solutions that support energy efficiency are categorized into two groups as follows:

**> Cloud, Data Center & Mobility**

- 1) Cloud services that cater to the work systems of enterprise clients. AIS Cloud Data Center was designed to be highly energy efficient and feature the latest high energy-efficient devices, making using AIS service more environmentally-friendly than investing in clients' own data centers.
- 2) Hybrid Workplace Solutions feature Smart Meeting, Cloud Contact Center, and the online work system management encompassing 4G, 5G, and fiber. The solutions help reduce travel time for work trips as well as energy consumption and GHG emissions from transportation.

**> 5G & IOT Solutions for improving and transforming business into a modern business model driven by data and information to enhance work efficiency. Examples include:**

- 1) Smart Factory that incorporates 5G, IoT, data analytics, and AI to monitor, track and analyze data to enhance efficiency in production, management energy and resource consumption in the factory, maintain machinery to keep it in good working condition, and minimize waste and pollution from the manufacturing processes.



Machine Monitoring by IoT

Asset Tracking



Wastewater System Monitoring

Turning Data to insights manufacture

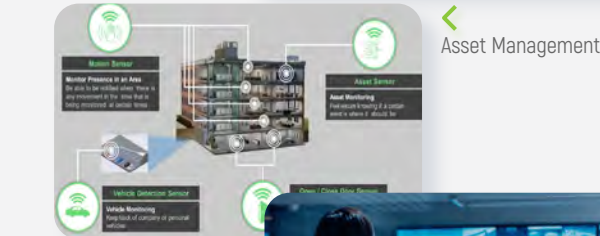


2) Smart Property & Building Management Solution using IoT sensors to manage energy consumption in the building, parking, property, and security systems. The smart solution efficiently cuts unnecessary energy use in the building.



Air Quality Monitoring

Facility Monitoring by IoT sensors

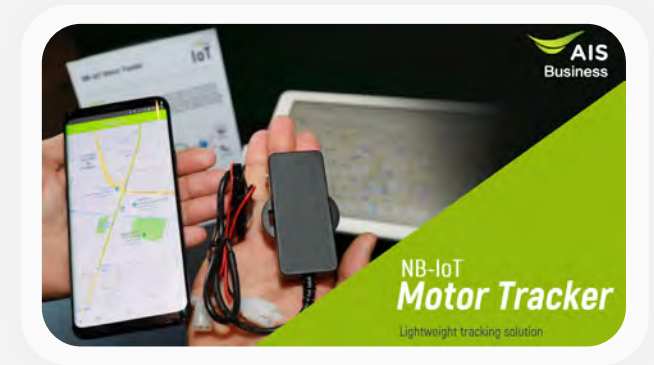


Asset Management

Enhanced CCTV to Intelligent Surveillance by AI-Vision



3) Smart Transportation & Logistics using a tracker to track a vehicle's location, and arrange and control routes which ensures improved vehicle and energy efficiency together with keeping vehicle maintenance scheduling to keep them up and running safely for a long time.



NB-IoT Motor Tracker  
Lightweight tracking solution

Despite its energy usage increasing due to network expansion and growing demand for data, AIS has still been able to limit its GHG emission intensity relative to the amount of data it supplies, underlining the efficiency of its network's design and utilization. Promoting a higher proportion of renewable energy, AIS in 2021 was able to reduce GHG emissions intensity, a ratio of GHG emissions to data traffic, by 89 percent compared to the base year 2015. At the same time, AIS increased its proportion of renewable energy usage to 1.23 percent of total energy used, compared to 0.49 percent in 2020.

In 2022, AIS plans to continue reducing GHG emissions and increasing the use of renewable solar energy across aforementioned projects and to seek partners to generate power from renewable energy apart from investing in installing solar panels on its own to accelerate renewable energy use with lower operational and management costs. The Company also plans to adopt innovative technologies to manage base stations and acquire high-efficiency 5G network equipment to improve energy efficiency and accommodate the growing demand of clients.

At the same time, AIS pledges to offer innovative technologies that enable clients to track and analyze data for planning energy use and reducing GHG emissions. The goal is to become a smart digital life service provider that contributes to the country's economic development and addresses the needs of clients in the digital age with concern for environmental contribution.

## Performance Table



		Unit	2018	2019	2020	2021
<b>GHG Emission</b> <sup>(GRI 305)</sup>	Total GHG emissions (Scope 1 and 2)	tCO <sub>2</sub> e	525,451	615,407	696,883	645,321
	Direct GHG emissions (Scope 1) <sup>(GRI 305-1) <sup>1</sup></sup>	tCO <sub>2</sub> e	10,687	11,177	11,196	8,931
	Indirect GHG emissions (Scope 2) <sup>(GRI 305-2) <sup>2</sup></sup>	tCO <sub>2</sub> e	514,764	604,230	685,687	636,390
	GHG Intensity <sup>(GRI 305-4) <sup>3</sup></sup>	tCO <sub>2</sub> e per Terabit	0.025	0.020	0.015	0.010
<b>Energy</b> <sup>(GRI 302)</sup>	Total Energy Consumption	MWh	919,900	1,082,823	1,220,024	1,318,495
		Terajoule <sup>4</sup>	3,311	3,898	4,392	4,747
	Total non-renewable energy consumption	MWh	919,320	1,081,960	1,214,006	1,302,213
		Terajoule	3,309	3,895	4,371	4,688
	Direct energy consumption: Fuel and other <sup>5</sup>	MWh	35,000	36,706	36,052	29,178
		Terajoule	126	132	130	105
	Indirect energy consumption: Electricity <sup>6</sup>	MWh	884,320	1,045,254	1,177,954	1,273,035
		Terajoule	3,183	3,763	4,241	4,583

	Unit	2018	2019	2020	2021	
Energy from renewable sources <sup>7</sup>	MWh	580.38	862.91	6,017.86	16,282	
	Terajoule	2.09	3.11	21.66	58.62	
% Energy from renewable sources	% to total energy consumption	0.06	0.08	0.49	1.23	
Power Usage Effectiveness (PUE) at Data Centers <sup>8</sup>	Unit	1.61	1.61	1.56	1.51	
Total energy consumption in data centers	MWh	56,611	59,015	70,182	77,261	
% Energy from renewable sources in data centers	% to total energy consumption	0.93%	0.94%	1.02%	1.57%	
Energy cost	Million baht	3,759	4,443	4,853	5,138	
<b>Water</b> (GRI 303)	Total Water Use (GRI 303-1)	Cubic Meters	158,542	191,332	226,528	179,306
	Municipal Water <sup>9</sup>	Cubic Meters	154,933	187,900	222,821	175,958
	Water Stress Area <sup>10</sup>	Cubic Meters	-	-	-	-
	Ground Water <sup>11</sup>	Cubic Meters	3,609	3,432	3,707	3,348
	Water Stress Area <sup>12</sup>	Cubic Meters	3,609	3,432	3,707	3,348

**Remark**

Details of note 1-12 are on page 94-95

# Waste Management

(GRI 306-2)

Reducing and recycling waste from operations and promoting proper e-waste disposal among Thai people

## Target 2023 (GRI 306)



- Collect 360,000 units of obsolete mobile and related electronic waste from customers for proper recycling in 2023.
- Reduce non-recyclable E-waste from AIS services and operations from 5% of total waste in 2018 to 3% in 2023.
- To be Thailand's No. 1 telecommunication service brand that is also trusted for its environmental responsibility in terms of electronic waste management, promoting awareness among the Thai people about proper recycling of E-Waste.

## Significant Developments in 2021



AIS is resolved to establishing policies to ensure environmentally-friendly business operations and attaches significance to contributing to the country's environmental stewardship. Significant developments in 2021 are as follows:

- Property disposed of all e-waste from operations with 0.002% of non-recyclable residue
- Joined the environmental campaign on waste separation organized by the Department of Environment, Bangkok Metropolitan Administration, leading to a more effective management of waste which was used for the production of electricity and organic fertilizer, reducing the amount of waste going to the landfill, compared to the percentage of landfills in 2020.
- AIS Contact Center Development & Training Arena in Nakhon

Ratchasima launched a project to install a food waste composter in December 2021. It is estimated that 10-15 tons of food waste will be reduced each year.

- Carried out the "Thais Say No to E-Waste" project, utilizing full-scale communication strategies with the emphasis on providing convenience for e-waste disposal at home through the "Drop off with the Postman" program in which homeowners could ask the postman to drop off their e-waste for them. AIS also joined hands with public and private sectors to increase over 2,400 e-waste drop-offs across the country. At the same time, AIS strived to promote public awareness about the potential health risks of improper disposal of e-waste to inspire a change in people's e-waste disposal behavior.

## Challenges and Opportunities (GRI 103-1)



Today's constantly-developing digital technology has played a key role in supporting and facilitating people's way of life, especially during the COVID-19 pandemic, as well as developing and driving the digital economy in numerous industrial sectors. The fast-changing technology has brought about the frequent replacement of equipment to keep up with the technology, inevitably adding to the amount of e-waste every year. According to The Global E-waste Monitor 2020 of United Nations University (UNU), global e-waste increases every year. In 2019, there were 53.6 million tonnes (MT) of electronic waste, only 17.4% of which was properly disposed of. In Asia, which generated the greatest volume of waste amounting to 24.9 MT, only 11.7% of the waste was properly managed via recycling.

The United Nations University (UNU) estimated that global e-waste will increase by 75 MT and 111 MT by 2030 and 2050, respectively. In Thailand, according to the Community Hazardous Waste Situation Report of 2020 compiled by the Pollution Control Department, Thailand had 428,000 tonnes of e-waste, merely 18% of which was properly disposed of.

As a Digital Life Service Provider and one of Thailand's major retailers of smartphones and other accessories, which is partly held responsible for generating e-waste, AIS is aware of its responsibility to manage the e-waste associated with the Company's business operations as part of its accountability for society and the environment in reducing and properly disposing of e-waste. To that effect, the Company strives to create awareness and provide accurate knowledge to enable customers to manage e-waste properly, which helps promote an image of a leader in sustainable business operations and boost customer confidence in the use of AIS products and services. The move also allows AIS to prepare for future relevant laws and regulations such as the draft Act on the Management of Waste Electrical and Electronic Equipment and Other End-of-Life Products, stipulating that manufacturers or importers be responsible for proper disposal of electronic waste from their products, services, and operations. Moreover, AIS' commitment to e-waste management will make the public aware of the social and environmental responsibility in its operations in line with the concept of the circular economy to reduce resource consumption, reuse of materials, and realize health and environmental impacts stemming from improper waste disposal.



## Management Approach <sup>(GRI 103-2)</sup>



AIS, as Thailand's largest telecommunications service and mobile phone related device retailer, is dedicated to the proper management of environmentally hazardous waste resulting from its operations. In particular, AIS is determined to develop processes that reduce waste and increase recycling and maintains an objective of promoting widespread understanding toward the danger of e-waste and proper e-waste disposal so that it may enter the recycling process. The framework for waste management at AIS comprises four areas:

### Green Procurement

AIS incorporates its environmental awareness into its procurement policy to create an effective mechanism for resource and energy usage that also reduces waste, pollution, and greenhouse gases. Internal departments are encouraged to understand the criteria and regulations of the Green Procurement policy.

### Operations Waste Management

encompassing network equipment, office electronics, and mobile phones. A committee tasked with amortizing network equipment and resources was set up to decide when to amortize electronic equipment for new replacement with the goal of minimizing the impact of resource use in AIS operations. Obsolete equipment will

be disassembled for reuse or refurbishment. If not practical, they will be sent into the recycling process to recover some components for reuse, using authorized operators capable of properly managing electronic waste. In doing so, the used equipment will be auctioned off to operators with an efficient eco-friendly recycling process capable of recycling as much of the electronic waste as possible with the least non-recyclable residue directed to disposal.

### Office Waste Management

AIS supports maximum waste separation in AIS offices ahead of waste delivery into the recycling process and promoting awareness among personnel on the importance of waste separation and proper waste disposal, seeking environmentally-friendly changes in behavior.

### Promoting Proper E-Waste Disposal to Customers and the Public

The "Thais Say No to E-Waste" project provided receptacles for five types of electronic waste: 1. Mobile Phones and Tablets 2. Charging Cables 3. Earphones 4. Mobile Phone Batteries and 5. Power Banks, so that the waste could be entered into the proper disposal process. The project also sought to promote awareness toward the danger of electronic waste and an understanding as to the need for proper disposal and recycling.

## 2021 Progress <sup>(GRI 103-3)</sup>



### Green Procurement

AIS is dedicated to working with partners while considering the factors significant to sustainability and long term relationship management. AIS policies and strategies for procurement aim to maintain the Company's competitiveness and operational standards while also devoting importance to economic, environmental, and social considerations and good governance throughout the administrative structure of new and existing partners, functioning as a moral clause that agencies that collaborate with AIS must follow.

In 2021, AIS made environmental qualities a mandatory requirement for bidding and a preferred requirement. Plans were made to set Green Procurement requirements to cover all groups of product and service and to communicate the Company's policies on sustainable business operations and development to all suppliers. The plans also extended to implementing the green procurement guidelines and requirements in AIS' procurement process, starting from a request for quotation to selection of goods and services.

### Operations Waste Management

AIS defines e-waste in operations as waste related to network equipment including batteries, generators, base station equipment,

cables and others. The Company's Waste Stewardship Team oversees management of such equipment using a Life Cycle Perspective. In 2021, AIS delivered e-waste into the recycling process, using the Department of Industrial Works' authorized operators with clear processes and disposal locations. The Company's non-recyclable residue proportion this year was 0.002%.

AIS also required that its e-waste recycling vendors compile operational reports every 30 days so that they can maintain start-to-end point monitoring of e-waste management and confirm proper and environmentally-friendly processing.

### Office Waste Management

Over the past several years, AIS has enhanced its waste separation by clearly delineating different types of waste, improving the ease of delivering waste for recycling. More types of waste receptacles have also been added to better facilitate personnel waste disposal at the source.

In 2021, AIS joined the environmental campaign on waste separation organized by the Department of Environment at the Bangkok Metropolitan Administration. The campaign which was a joint initiative between the government and private sectors served as a good model in waste management. 5% of waste, amounting to 567 kilograms, went to the incinerator, and another 15%, totaling 1,814 kilograms, entered the process, turning it into fertilizer.

At the same time, AIS Contact Center Development & Training Arena in Nakhon Ratchasima launched a project to install a food waste composter in December 2021. It is expected to reduce 10-15 tons of food waste per year. Moreover, all the food waste will be turned into fertilizer for use with the building's green space and sharing with the employees and surrounding communities as part of the efforts to utilize food waste, manage waste properly, and reduce GHG emissions. The project was carried out in line with the green building management concept and the commitment to operating business alongside society and the environment in a sustainable manner.



Waste separation at the office building



Food waste composter

From operations in 2021, **183** tons of waste was generated, dropped **67%** from 2020.



**36%**

Non-hazardous waste made up of the total, mostly comprising office and operations building refuse



**64%**

hazardous waste made up of the total, comprising e-waste and other types of hazardous waste from offices.

### Promoting Proper E-Waste Disposal through "Thais Say No to E-waste"

AIS continued "Thais Say No to E-Waste" in 2021, focusing on expanding its network throughout the public and private sectors to strengthen implementation and enhance convenience for e-waste disposal. The project also focused on promoting awareness toward health risks of retaining expired e-waste in the home or improper disposal, at the same time, dispensing knowledge on recycling and proper e-waste disposal in the hope of fostering understanding toward the critical environmental issue posed by e-waste. As well, it helps promote an image of a leader in sustainable business operations and boost customer confidence in the use of AIS products and services. The move also allows AIS to prepare for future relevant laws and regulations such as the draft Act on the Management of Waste Electrical and Electronic Equipment and Other End-of-Life Products. The efforts are as follows:

➤ **Expansion of “Thais Say No to E-waste” Cooperation Network** Building a network of participation across the public and private sectors, AIS promoted a sustainable solution to the impact of e-waste on the environment, expanding its e-waste receptacles to over 2,400 locations nationwide to facilitate the proper disposal of e-waste.



AIS joined forces with Thailand Post to launch the “Drop off with the Postman” to facilitate e-waste drop-off free of charge.



AIS collaborated with Bangkok International Preparatory & Secondary School to provide teachers, students, and parents with knowledge about the danger and proper management of e-waste as well as set an e-waste receptacle at Bangkok Prep School to facilitate e-waste drop-off.



AIS in collaboration with Thailand Business Council for Sustainable Development (TBCSD) campaigned to raise public awareness and expand e-waste receptacles at the sites of 20 member organizations to collect e-waste for proper management process.



AIS and Index Living Mall joined in a campaign to raise awareness about the proper disposal of e-waste by setting e-waste receptacles at Index Living Mall locations to accommodate convenient e-waste disposal.



AIS teamed with Toyota and WMS, a waste management service provider, to collect waste for proper management.



AIS released a new VDO on the International E-Waste Day, featuring Panipak Wongpattanakit, nicknamed Tennis, Thailand's first gold medalist in the women's taekwondo at the Tokyo Olympics 2020 in Tokyo, Japan. The medal was made of e-waste to inspire the public to realize the importance of e-waste management through recycling as a means to reduce the consumption of scarce natural resources and contribute to environmental sustainability.



AIS and the Ministry of Natural Resources and Environment joined hands to expand the “Thais Say No to E-waste” project across Thailand to build awareness and promote participatory involvement in taking care of the environment sustainably.

➤ **Continued Support for Activities Promoting “Thais Say No to E-waste”** through various activities such as ‘Challenge’ by The Green Paholyothin and other condominiums, AIS E-Waste Drop for Points campaign, and AIS E-Waste Bin and Win to spread awareness among the Thai people and entice them to take part in properly disposing of e-waste, paving the way for environmentally-friendly behavioral changes among the Thai public to sustain a better environment.



AIS worked to promote awareness while collecting e-waste across the country through the “Thais Say No to E-Waste” project, launching the “AIS E-Waste Drop for Points” campaign. To join the campaign, customers sorted five categories of e-waste including mobile phones, tablets, mobile phone batteries, charging cables, earphones, and power banks and dropped them off at any AIS Shop nearby to earn 5 AIS Points per piece.



The 11.11 AIS E-Waste Super Points Day campaign invited AIS and AIS Fibre customers to drop off e-waste properly at an AIS Shop nationwide and receive 11 AIS Points.



“AIS E-Waste Bin and Win” invited AIS and AIS Fibre customers to properly dispose of e-waste at AIS Shop branches nationwide, offering opportunities at prizes by counting 1 piece of e-waste as 1 Privilege (1 number/10 privileges/activity).

➤ **Results of “Thais Say No to E-waste”**



**Electronic Waste Type**



**8,428** Pieces  
Used Mobile Phones and Tablets



**61,129** Pieces  
Charging cables



**15,838** Pieces  
Earphones



**8,587** Pieces  
Batteries



**7,943** Pieces  
Power Banks



**58,999** Pieces  
Others

**Total 160,924 Pieces**

[ 1 January – 31 December 2021 ]

## Performance Table (GRI 306)



Subjects		Unit	2018	2019	2020	2021
<b>Total Waste generated</b>		Tons	1,223	803	548	183
Total waste diverted from disposal		Tons	558	113	356	147
Total waste directed to disposal		Tons	665	690	192	36
<b>Break down by waste type and disposal method (Totally Offsite)</b>						
<b>Non-Hazardous Waste</b>		Tons	728	778	246	66 <sup>1)</sup>
<b>Waste diverted from disposal</b>	Preparation for reuse	Tons	0	0	0	0
	Recycling	Tons	88	89	54	28
	Other recovery operations (organic fertilizer)	Tons	0	0	0	2
<b>Waste directed to disposal</b>	Incineration (without energy recovery)	Tons	0	0	0	1
	Landfilling	Tons	640	689	192	35
<b>Hazardous Waste</b>		Tons	495	25	302	117
<b>Waste diverted from disposal</b>	Preparation for reuse	Tons	0	0	0	0
	Recycling	Tons	470	24	302	117
<b>Waste directed to disposal</b>	Incineration (without energy recovery)	Tons	0	0	0	0
	Landfilling	Tons	25	1	0.04	0
	Other recovery operations	Tons	0	0	0	0.002
<b>Non-recyclable or Residue</b>		% of Total Hazardous Waste	5.0	4.3	0.01	0.002

### Remark

<sup>1)</sup> In 2021, total non-hazardous waste was generated from employee working in the workplace only, work from home activity was not included.

## Remarks



1. GHG emissions result from the burning of fuels, vehicles, power generators, coolant leakage and carbon dioxide type fire extinguishers. Emission factor and Global Warming Potential (GWP) values used in the calculation are based on a 100-year time frame indicated in The fifth assessment report (AR5) by the Inter-Government Panel on Climate Change (IPCC). The GHG Inventory Calculation tool is from the Thailand Greenhouse Gas Management Organization (TGO). The consolidation approach used in this report is 'operational control'.
2. The slightly decrease of GHG Scope 2 in 2021, due to the updated calculation factors; Global Warming Potential (GWP) and emission factor which are referenced from IPCC AR5, Thai National LCI Database, TIISMTEC-NSTDA, AR5 (with TGO electricity 2016-2018), respectively.
3. GHG Intensity is the ratio of GHG per data traffic generated the whole year. It is specific for telecommunication industry which shows efficiency of the emission by stating how much GHG is emitted for every terabit of generated traffic.
4. 1 MWh = 0.0036 Terajoule
5. Direct energy consumption results from fuel for operation vehicles and backup generators. The monthly collected data in liters are derived to obtain energy by a conversion factor provided by Department of Alternative Energy Development and Efficiency (DEDE).
6. Indirect energy consumption is from electricity used in the business including network operations. Data is compiled to total MWh of usage through either Metropolitan or Provincial Electricity Authority billing, which is recorded in the system.

7. Energy from renewable source is from solar panels installed in a several substations and the solar-rooftops of data centers and call centers. Solar energy from solar-rooftops is actually recorded through the system while energy from substations is calculated from solar capacity of each site using a formula as below:

$$E = A \times r \times H \times PR$$

Where

E = Solar energy produced in one year (KWh)

A = The size of the solar panel (cubic meters) (standardly 8 m<sup>3</sup> for every one kilowatt of a polycrystalline silicone solar panel)

r = Solar energy to electricity conversion efficiency of the panel (%) (13% for a polycrystalline silicone solar panel)

H = Average solar radiation energy (KWh per cubic meter for an area in Thailand)

PR = Overall efficiency percentage including in-system energy loss (General PR for solar energy systems is 75%)

For each year, the amount of energy from solar panels utilized by each substation can be calculated from the proportion of active energy usage in that year to the generation deciphered according to the above formula. In some cases, solar panels may have only been recently installed at the substation (thus were not in use throughout the year).

8. Power Usage Effectiveness (PUE) is a metric to measure efficiency of data centers. PUE is defined as total energy used in a data center divided by the usage of the IT equipment load that such data center serves.
9. Third-party water is added according to GRI 303-3 2016 version. For the company, Third-party water refers to Municipal Water - tap water supplied by Water Authorities, either metropolitan or provincial. Total quantity of municipal water usage has been calculated by dividing the total cost of water purchased from both authorities with average water price per m<sup>3</sup>.
10. The 2018 edition of the GRI 303-3 must delineate each water source in terms of the scarcity of water of its location and that location's salinity levels and contamination levels (>1,000 mg. per liter). Third party water obtained by the company was not from a source with scarce water levels and was only freshwater.
11. Ground Water is water found underground in the cracks and spaces in soil, sand and rock. It is pumped up and used where tap water is not available. We have one data center using ground water and measure its usage every month.
12. The 2018 edition of the GRI 303-3 must delineate each water source in terms of the scarcity of water of its location and that location's salinity levels and contamination levels (>1,000 mg. per liter). Groundwater obtained by the company was geologically surveyed to be from sources with no scarcity of water and was freshwater due to being from a subterranean source (Information from <https://www.wri.org/aqueduct> referenced by GRI).

13. Non-hazardous waste is defined as office waste or municipal waste which does not include those listed in the latest announcement of the Pollution Control Department (PCD) and Department of Industrial Works (DIW). Typically, they are general office waste, organic waste and some are recyclable waste. The calculation methodology is to weight quantity of office waste from office buildings, which collected by municipal government agency sent to landfill, making organic fertilizer, and incineration. The estimation average waste quantity per staff generated was multiply with the total number of staffs at the end of the year to obtain the total weight of non-hazardous waste. Another type of non-hazardous waste is 'recyclable' which is also undergone weight sampling to find average waste per staff and then the total weight of the waste. This 'recyclable' waste will finally go to the recycling disposal process. In 2021, total non-hazardous waste was calculated from employee working in the workplace only, work from home activity was not included.

14. Hazardous waste in our industry is defined to coincide with international standards and the state's definition (Pollution Control Department, Department of Industrial Works and other relevant regulations). Within the telecommunications industry, most hazardous waste is E-Waste, including network equipment, batteries and cellular phones. The total amount of E-Waste is collected from the company's resource management system, which records decommissioned equipment and carries out disposal. Average estimation of recycled versus landfilled (leftover) E-Waste is derived from contractors who carry out authorized disposal. Even though the amount of hazardous waste, such as batteries and printer cartridges, is very small compared to the total amount of e-waste, AIS will record these items in separate categories in our reports in the future.

# About this Report

(GRI 102-48, GRI 102-49, GRI 102-50, GRI 102-51, GRI 102-52, GRI 102-53, GRI 102-54)

## Objectives



AIS compiled this report on sustainable business development to present information on its policies, strategies and operations in the three areas of Economy, Society and Environment with an emphasis on matters pertinent to the business and continued growth of AIS and 18 subsidiaries, which observe the 7 strategic focus for enhancing business sustainability.

## Scope and Boundary



Information presented in this sustainable business development report encompasses operations between 1st January 2021 and 31st December 2021 using the Global Reporting Initiative (GRI) method of reporting for the 9th year. The company's sustainable business development report for 2021 has been prepared in accordance with the GRI Standards: Core option and presented operations following the highest criteria of the UN Global Compact (UNGC) as well as report according to Sustainability Accounting Standards Board (SASB) Telecommunication Services Standard. Information was divided as follows:

### Economy

Covers AIS and 18 subsidiaries operations. However, the economy report of CSL does not cover Number of reported complaints during the year regarding breaches of customer privacy and losses of customer data.

### Society

Covers AIS and 18 subsidiaries operations.

### Environment

Covers AIS and 18 subsidiaries operations.

Information acquired from directly and indirectly inquiring stakeholders is also used. In-depth information on business practices, management structures, good governance, risk management, internal controls and auditing, rewards and important events in the past year, including operational returns are presented in the Annual Report for 2021, which is available at <https://investor.ais.co.th/>

## Validation



- Numerical data related to economic operations apply the same data as published in annual financial statements for 2021, which were audited by an independent external auditor.
- Data regarding environmental performance and employees training was audited and verified according to the GRI Standard by independent auditor LRQA (Thailand) Limited. (Details are on pages 104)

## Process for Defining Report Quality



- **Balance:** AIS is committed to presenting balanced information so that readers may extrapolate an accurate assessment of the company's sustainability operations.
- **Comparability:** Information from prior operation is presented to display changes and development in the company.
- **Accuracy:** Information presented in this report is reviewed and verified to ensure accuracy and completeness.
- **Timeliness:** This report is compiled annually so stakeholders may evaluate the sustainability of AIS operations in a predictable timeframe.
- **Clarity:** Information is presented in a clear and accessible manner.
- **Reliability:** An internal accuracy review process is used so readers may be confident that all information is accurate, transparent and verifiable.

### Inquiry Channel

Advanced Info Service Plc.

414, AIS Tower 1 Fl. 22, Paholyothin Rd. Samsen Nai,  
Phayathai District, Bangkok 10400



Tel.: (66) 2029 5117



Email: [AISustainability@ais.co.th](mailto:AISustainability@ais.co.th)



Website: <http://www.ais.co.th>



## GRI Content Index



This report has been prepared in accordance with the GRI Standards: Core option.

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions/ Remark
<b>General Disclosures</b>			
<b>GRI 102: General Disclosures 2016 (Organizational Profile)</b>	102-1	Name of the organization	Cover page, 96 -
	102-2	Activities, brands, products, and services	7-10 Remark: AIS did not sell any banned products in 2021.
	102-3	Location of headquarters	96, Back Cover -
	102-4	Location of operations	7-10 -
	102-5	Ownership and legal form	10 -
	102-6	Markets served	8-10 -
	102-7	Scale of the organization	8-10, 30, 60 More information refer to AIS Annual Report 2021, page 17-18, 93-98, 148, 180-181
	102-8	Information on employees and other workers	60 More information refer to AIS Annual Report 2021, page 148.
	102-9	Supply Chain	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 33 and 62
	102-10	Significant changes to the organization and its supply chain	- Remark: No significant changes (i.e. location, operation, share capital structure, supply chain, etc.) during the reporting year.
	102-11	Precautionary principle or approach	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 51-58
	102-12	External Initiatives	6, 23-28, 64-71, 76-77, 78-79, 90-92 -
	102-13	Membership or associations	5-6, 10 <a href="https://investor.ais.co.th/public_policy_participation.html">https://investor.ais.co.th/public_policy_participation.html</a>
<b>GRI 102: General Disclosures 2016 (Strategy)</b>	102-14	Statement from senior decision-maker	4-5
	102-15	Key impacts, risks, and opportunities	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 51-58
<b>GRI 102: General Disclosures 2016 (Ethics and Integrity)</b>	102-16	Values, principles, standards, and norms of behaviour	- <a href="https://www.ais.co.th/sustainability/en/ais-business-code-of-ethics-cg.html">https://www.ais.co.th/sustainability/en/ais-business-code-of-ethics-cg.html</a>
	102-17	Mechanisms for advice and concerns about ethics	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 118-119
<b>GRI 102: General Disclosures 2016 (Governance)</b>	102-18	Governance structure	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 123
	102-20	Executive-level responsibility for economic, environmental, and social topics	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 13, 134, 141
	102-21	Consulting stakeholders on economic, environmental, and social topics	11-18
	102-30	Effectiveness of risk management processes	AIS Annual Report 2021 Remark: Refer to AIS Annual Report 2021, page 46-48
	102-31	Review of economic, environmental, and social topics	11, 12, 32, 49, 63, 75, 82, 88 More information refer to AIS Annual Report 2021, page 46-48
	102-32	Highest governance body's role in sustainability reporting	11 More information refer to AIS Annual Report 2021, page 13, 141
102-33	Communicating critical concerns	11	

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions/ Remark
<b>GRI 102: General Disclosures 2016 (Stakeholder Engagement)</b>	102-40 List of stakeholder groups	16-18	-
	102-41 Collective bargaining agreements	61	-
	102-42 Identifying and selecting stakeholders	11, 16-18	More information refer to <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/social-inclusion/ais-stakeholder-communication-engagement.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/social-inclusion/ais-stakeholder-communication-engagement.pdf</a>
	102-43 Approach to stakeholder engagement	11, 16-18	-
	102-44 Key topics and concerns raised	16-18	-
<b>GRI 102: General Disclosures 2016 (Reporting Practice)</b>	102-45 Entities included in the consolidated financial statements	AIS Annual Report 2021	Remark: Refer to AIS Annual Report 2021, page 195-196
	102-46 Defining report content and topic Boundaries	11-15	-
	102-47 List of material topics	12-15	-
	102-48 Restatements of information	86	Remark: GHG emissions in 2021 is based on the fifth assessment report (AR5), changing from AR 4 in the previous years.
	102-49 Changes in reporting	96	Remark: Expand the coverage of all environmental data to CS Loxinfo Plc. (CSL)
	102-50 Reporting period	96	-
	102-51 Date of most recent report	96	-
	102-52 Reporting cycle	96	-
	102-53 Contact point for questions regarding the report	96	-
	102-54 Claims of reporting in accordance with the GRI Standards	96	-
	102-55 GRI content index	97	-
	102-56 External assurance	104	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions/ Remark	SDGs
<b>Materials Topics</b>				
<b>Economy</b>				
<b>Digital innovation</b>				
<b>GRI 103: Management Approach 2016</b>	103-1 Explanation of the material topic and its Boundary	13, 21-22	-	-
	103-2 The management approach and its components	20, 21-25	-	9
	103-3 Evaluation of the management approach	24, 25-29	-	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions/ Remark	SDGs
<b>Cyber security &amp; data privacy</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	13, 31-32	-
	103-2	The management approach and its components	20, 32-42	-
	103-3	Evaluation of the management approach	34-36, 40-47	-
<b>GRI 418: Customer Privacy</b>	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	47	-
<b>Society</b>				
<b>Human capital development</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	14, 48-49	-
	103-2	The management approach and its components	20, 49-51	3, 5, 8, 10
	103-3	Evaluation of the management approach	48, 51-61	-
<b>GRI 401: Employment 2016</b>	401-1	New employee hires and employee turnover	61	More information refer to <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
<b>GRI 404: Training and Education 2016</b>	404-1	Average hours of training per year per employee	61	-
	404-2	Programs for upgrading employee skills and transition assistance programs	52-55	-
	404-3	Percentage of employees receiving regular performance and career development reviews	61	-
<b>GRI 405: Diversity and Equal Opportunity 2016</b>	405-1	Diversity of governance bodies and employees	60	More information refer to <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
<b>GRI 403: Occupational Health and Safety 2018</b>	403-1	Occupational health and safety management system	51, 58	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable". However, AIS has disclosed more information for this requirement through <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
	403-2	Hazard identification, risk assessment, and incident investigation	-	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable".
	403-3	Occupational health services	51, 58	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable". However, AIS has disclosed more information for this requirement through <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
	403-4	Worker participation, consultation, and communication on occupational health and safety	51, 58	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable". However, AIS has disclosed more information for this requirement through <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
	403-5	Worker training on occupational health and safety	58	-
	403-6	Promotion of worker health	51, 57-58	-
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	-	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable".
	403-8	Workers covered by an occupational health and safety management system	-	AIS does not consider Occupational Health and Safety topic as material issue, therefore it's "Not Applicable".
	403-9	Work-related injuries	61	However, AIS has disclosed more information for this requirement through <a href="https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf">https://sustainability.ais.co.th/storage/sustainability-priorities/human-capital-development/ais-human-capital-development-2021.pdf</a>
	403-10	Work-related ill health	61	-



GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions/ Remark	SDGs
<b>Social inclusion</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	14, 62-63	-
	103-2	The management approach and its components	63-64	-
	103-3	Evaluation of the management approach	30, 64-74	More information refer to <a href="https://sustainability.ais.co.th/en/sustainability-priorities/social-inclusion">https://sustainability.ais.co.th/en/sustainability-priorities/social-inclusion</a>
<b>GRI 201: Economic Performance</b>	201-1	Direct economic value generated and distributed	30	-
<b>Cyber wellness &amp; Online safety</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	14, 75	-
	103-2	The management approach and its components	75-76	-
	103-3	Evaluation of the management approach	76-79	-
<b>Environment</b>				
<b>Climate actions</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	15, 80-82	-
	103-2	The management approach and its components	83	-
	103-3	Evaluation of the management approach	83-87	-
<b>GRI 305: Emissions 2016</b>	305-1	Direct (Scope 1) GHG emissions	86	-
	305-2	Energy indirect (Scope 2) GHG emissions	86	-
	305-4	GHG emissions intensity	86	-
	305-5	Reduction of GHG emissions	83-84, 86	-
<b>GRI 302: Energy 2016</b>	302-1	Energy consumption within the organization	86	-
<b>GRI 303: Water 2018</b>	303-1	Interactions with water as a shared resource	-	AIS does not consider Water topic as material issue, therefore it's "Not Applicable".
	303-2	Management of water discharge-related impacts	-	AIS does not consider Water topic as material issue, therefore it's "Not Applicable".
	303-3	Water withdrawal by source	87	AIS does not consider Water topic as material issue, therefore it's "Not Applicable". However, AIS has disclosed some information for this requirement on page 87
<b>E-waste</b>				
<b>GRI 103: Management Approach 2016</b>	103-1	Explanation of the material topic and its Boundary	15, 88	-
	103-2	The management approach and its components	89	-
	103-3	Evaluation of the management approach	89-93	-
<b>GRI 306: Waste 2020</b>	306-1	Waste generation and significant waste-related impacts	89-90	-
	306-2	Management of significant waste-related impacts	89-92	-
	306-3	Waste generated	93	For non-hazardous waste, AIS sorted and disposed waste to local contractors and municipality in accordance to law. For hazardous waste transportation and disposal, AIS sourced contractors who hold license as required by law.
	306-4	Waste diverted from disposal	93	-
	306-5	Waste directed to disposal	93	-

UNGC Requirement		2020 Disclosure Reference
Principle	Criteria of UNGC COP for the advance level	Page number (s) and/or URL (s)
<b>STRATEGY, GOVERNANCE AND ENGAGEMENT</b>		
<b>Scope : Implementing the Ten Principles into Strategies &amp; Operations</b>	1. Mainstreaming into corporate functions and business units	AIS Annual Report 2021, page 13
	2. Value chain implementation	AIS Annual Report 2021, page 62-65
<b>HUMAN RIGHTS</b>		
<b>Principle 1 : Support and respect the protection of internationally proclaimed human rights</b>	3. Robust commitments, strategies or policies in the area of human rights	<a href="https://sustainability.ais.co.th/en/respect-to-human-rights">https://sustainability.ais.co.th/en/respect-to-human-rights</a>
<b>Principle 2 : Not complicit in human rights abuses</b>	4. Effective management systems to integrate the human rights principles	<a href="https://sustainability.ais.co.th/en/respect-to-human-rights">https://sustainability.ais.co.th/en/respect-to-human-rights</a>
	5. Effective monitoring and evaluation mechanisms of human rights integration	<a href="https://sustainability.ais.co.th/en/respect-to-human-rights">https://sustainability.ais.co.th/en/respect-to-human-rights</a>
<b>LABOUR</b>		
<b>Principle 3 : Uphold the freedom of association and the effective recognition of the right to collective bargaining</b>	6. Robust commitments, strategies or policies in the area of labor	AIS Sustainability Report 2021, page 52-59
<b>Principle 4 : Uphold the elimination of all forms of forced and compulsory labour</b>	7. Effective management systems to integrate the labor principles	AIS Sustainability Report 2021, page 49-51
<b>Principle 5 : Uphold the effective abolition of child labour</b>		
<b>Principle 6 : Uphold the elimination of discrimination in respect of employment and occupation</b>	8. Effective monitoring and evaluation mechanisms of labor principles integration	AIS Sustainability Report 2021, page 59, 61
<b>ENVIRONMENT</b>		
<b>Principle 7 : Support a precautionary approach to environmental challenges</b>	9. Robust commitments, strategies or policies in the area of environmental stewardship	AIS Sustainability Report 2021, page 83-86, 89-93
<b>Principle 8 : Undertake initiatives to promote greater environmental responsibility</b>	10. Effective management systems to integrate the environmental principles	AIS Sustainability Report 2021, page 83, 89
<b>Principle 9 : Encourage the development and diffusion of environmentally friendly technologies</b>	11. Effective monitoring and evaluation mechanisms for environmental stewardship	AIS Sustainability Report 2021, page 86-87, 92-93
<b>ANTI-CORRUPTION</b>		
<b>Principle 10 : Work against corruption in all its forms, including extortion and bribery</b>	12. Robust commitments, strategies or policies in the area of anti-corruption	AIS Annual Report 2021, page 110-122
	13. Effective management systems to integrate the anti-corruption principle	AIS Annual Report 2021, page 110-122
	14. Effective monitoring and evaluation mechanisms for the integration of anti-corruption	AIS Annual Report 2021, page 110-122
<b>UN GOALS AND ISSUES</b>		
<b>Scope : Taking Action in Support of Broader UN Goals and Issues</b>	15. Core business contributions to UN goals and issues	AIS Sustainability Report 2021, page 13-15
	16. Strategic social investments and philanthropy	AIS Sustainability Report 2021, page 62-71
	17. Advocacy and public policy engagement	AIS Sustainability Report 2021, page 4-5
	18. Partnerships and collective action	AIS Sustainability Report 2021, page 24-28, 64-73, 90-92
<b>GOVERNANCE</b>		
<b>Scope : Corporate Sustainability Governance and Leadership</b>	19. CEO commitment and leadership	AIS Sustainability Report 2021, page 4-5
	20. Board adoption and oversight	AIS Annual Report 2021, page 13, 141
	21. Stakeholder engagement	AIS Sustainability Report 2021, page 16-18

## Sustainability Accounting Standard Board (SASB) Index

The tables below outline how our existing disclosures align with the recommended metrics under the SASB Telecommunications Services standard.

### Activity metrics

Topic	SASB Code	Activity metric	Unit of measure	Reporting information	Disclosure reference
	TC-TL-000.A	Number of wireless subscribers	Number	approximately 44.1 million subscribers	Page 9
	TC-TL-000.B	Number of wireline subscribers	Number	N/A	
	TC-TL-000.C	Number of broadband subscribers	Number	approximately 1.77 million subscribers	Page 10
	TC-TL-000.D	Network traffic	Petabytes	8,364	

### Sustainability Disclosure Topics & Accounting Metrics

Topic	Code	Accounting metric	Unit of measure	Reporting information	Disclosure reference
<b>Environmental Footprint of Operations</b>	TC-TL-130a.1	(1) Total energy consumed	Gigajoules (GJ)	47,465,682	Page 86
		(2) Percentage grid Electricity	Percentage (%)	96.55%	
		(3) Percentage renewable	Percentage (%)	1.23%	Page 87
<b>Data Privacy</b>	TC-TL-220a.1	Description of policies and practices relating to behavioral advertising and customer privacy	n/a	See more detail in Privacy Protection Section in Data Privacy & Cyber Security.	Page 34-37, and 45
	TC-TL-220a.2	Number of customers whose information is used for secondary purposes	Number	AIS complies with relevant law and regulation. Customer data is used in accordance with the terms of service and/or customer consent and is done only for the purposes notified to customers. Please see more detail in Data Life Cycle Management section in Data Privacy & Cyber Security.	Page 34-35
	TC-TL-220a.3	Total amount of monetary losses as a result of legal proceedings associated with customer privacy	Thai Baht	None	
	TC-TL-220a.4	(1) Number of law enforcement requests for customer information	Number	25,442 cases	
(2) Number of customers whose information was requested		Number	We only record number of cases		
(3) Percentage resulting in disclosure		Percentage (%)	70%		Page 47

**Sustainability Disclosure Topics & Accounting Metrics**

Topic	Code	Accounting metric	Unit of measure	Reporting information	Disclosure reference
<b>Data Security</b>	TC-TL-230a.1	(1) Number of data breaches	Number	0	Page 47
		(2) the percentage of data breaches in which personally identifiable information (PII) was subject to the data breach.	Percentage (%)	0	Page 47
		(3) number of customers affected		0	
	TC-TL-230a.2	Description of approach to identifying and addressing data security risks, including use of third-party cybersecurity standards	n/a	See more detail in Cyber security Section in Data Privacy & Cyber Security.	Page 40-42
<b>Product End-of life Management</b>	TC-TL-440a.1	(1) Materials recovered through take back programs	Metric tons (t)	- 147 tons of total waste from our operations. - We also collect e-waste from public and proceed to proper disposal and recycling. 160,924 pieces of e-waste were collected, equivalent to approximately 8.29 tons. More detail in Promoting proper e-waste disposal section	Page 93 Page 90-92
		(2) percentage of recovered materials that were reused	Percentage (%)	0	
		(3) percentage of recovered materials that were recycled	Percentage (%)	80.33%	Page 93
		(4) percentage of recovered materials that were landfilled	Percentage (%)	19.67%	Page 93
<b>Competitive Behavior &amp; Open Internet</b>	TC-TL-520a.1	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	Thai Baht	None	
	TC-TL-520a.2	Average actual sustained download speed of (1) owned and commercially-associated content (2) non-associated content	Megabits per second (Mbps)	AIS does not have these specified metrics. We comply with regulations from the National Broadcasting and Telecommunication Commission (NBTC) related to the quality of service. We also report download speed in accordance with the reporting standard specified by the NBTC.	
	TC-TL-520a.3	Description of risks and opportunities associated with net neutrality, paid peering, zero rating, and related practices	n/a	AIS provides internet access services based on equal and non-discriminatory treatment and comply with related regulations on customers' rights.	
<b>Managing Systemic Risks from Technology Disruptions</b>	TC-TL-550a.1	(1) system average interruption frequency as the average number of disruptions per customer.	Disruptions per customer	0.18	
		(2) customer average interruption duration as the average number of hours per customer.	Hours per customer	54 Minutes	
<b>Technology Disruptions</b>	TC-TL-550a.2	Discussion of systems to provide unimpeded service during service interruptions	n/a	Refer to the discussion on Risk from Major Network Failure or Interruption to Important Systems in Enterprise Risk Management section, Annual Report	Annual Report 2021, page 54-55

# Assurance Statement of Environment and Social Reporting



## LRQA Independent Assurance Statement Relating to Advance Info Service Public Company Limited's ES datasets for the calendar year 2021

This Assurance Statement has been prepared for Advance Info Service Public Company Limited in accordance with our contract but is intended for the readers of this Report.

### Terms of engagement

LRQA was commissioned by Advance Info Service Public Company Limited (ADVANC) to provide independent assurance on its environmental and social (ES) datasets ("the report") against the assurance criteria below to a limited level of assurance and at the materiality of the professional judgement of the verifier using LRQA's verification procedure. LRQA's verification procedure is based on current best practice, is in accordance with ISAE 3000 and ISAE 3410 and uses the following principles of - inclusivity, materiality, responsiveness and reliability of performance data.

Our assurance engagement covered ADVANC's subsidiary companies and their activities at a total of eighteen entities within Thailand and specifically the following requirements:

- Reviewing whether the ES datasets have taken account of GRI Sustainability Reporting Standards
- Evaluating the accuracy and reliability of data and information for only the selected datasets listed below:

#### Environmental

- 302-1: Energy consumption within the organization
- 303-3: Water withdrawal
- 305-1: Direct (GHG emissions (Scope 1)
- 305-2: Energy indirect GHG emissions (Scope 2)
- 306-3: Waste generated
- 306-4: Waste divert from disposal
- 306-5: Waste directed to disposal

#### Social

- 404-1: Average hours of training per year per employee

Our assurance engagement excluded the data and information of ADVANC's suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to ADVANC. LRQA disclaims any liability or responsibility to others as explained in the end footnote. ADVANC's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of ADVANC.

### LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that ADVANC has not, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable datasets as no errors or omissions were detected.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.



### LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- Auditing ADVANC's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by:
  - Reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification.
  - Reviewing the organizational and operational boundaries.
  - Interviewing relevant employees responsible for managing and compiling each dataset as well as speaking with people at the corporate office.
  - Verifying historical Environmental and Social data and records at an aggregated level for January-December 2021.

### Observations

Further observations and findings, made during the assurance engagement, are:

- Currently each dataset is managed by its own separate system. However, we believe that ADVANC should create a single documented data handling procedure that is then implemented across its entire group. This will improve consistency in reporting as well as the accuracy and reliability of aggregated corporate performance data and information.
- ADVANC should consider revisiting the method for determining each dataset's boundary to ensure all data, regardless of size, has been accounted for. For example, hazardous waste incurred at office buildings i.e. light bulb, battery AA, should be reported too for completeness.

### LRQA's standards, competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

The verification is the only work undertaken by LRQA for ADVANC.



Nit Tanasuthiseri  
LRQA Lead Verifier

Dated: 10 February 2022

On behalf of LRQA Ltd.  
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