

AIS
DIGITAL
INTELLIGENCE
SUSTAINABILITY
REPORT 2018

Sustainability Report 2018
Advanced Info Service Public Company Limited

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AIS



DIGITAL



FOR



THAIs



Kan Trakulhoon

Chairman of the Board of Directors
(Mr. Kan Trakulhoon)

MESSAGE FROM THE CHAIRMAN (GRI 102-14, GRI 102-15)

DIGITAL TECHNOLOGIES HAVE BEEN EVOLVING AT A FAST PACE, FOREVER CHANGING THE ECONOMY, SOCIETY AND WORLD IN WHICH WE LIVE.

Emerging digital technologies have been driving an increasingly competitive landscape by enabling new digital platform providers with different business models to enter the market, posing a major challenge to our existing business in the way we generate revenue and maintain customer relationships. This new environment has also shifted the focus of human capital development, encouraging companies to acquire talents with new abilities and knowledge, such as Blockchain and Data Analytics, to fulfill their future needs. The upcoming 5G technology and its vast applications could potentially exemplify this affect, along with the rising concerns over personal data. While Thailand has one of the highest global rates of social media usage regarding to Hootsuite, awareness of cyber risks remains low, particularly in terms of the dangers of sharing personal information on social media. This means that while we

aim to deliver digital services that deeply engage our customers, it is also our responsibility to care and protect customer data. Despite increasing internet penetration, we continue to witness gaps in digital literacy and the well-being of people in urban areas compared to the rural population. By ensuring wider digital inclusion and accessibility, the company will bring value to all communities while ensuring trust and the Company's continued license to operate.

Among the environmental guidelines that have been brought to global attention is a reduction in greenhouse gas emissions, reflected in the commitment of nations to set goals to limit global warming under the Paris Agreement, as well as the draft Thai Electronic Waste Disposal Act, in response to the skyrocketing growth of new e-gadgets with short product lifecycles. In addition to regulatory compliance, climate change could put our ability to provide services to our customers at risk from the increasing severity of unpredictable natural events. Meanwhile, the proliferation of IoT equipment would result in higher volumes of hazardous waste in the community as well as driving overall electricity consumption through our networks. For these reasons, it is crucial that AIS make every effort to improve energy efficiency, to ensure consumers' understanding of appropriate e-waste disposal, and to become more resilient to climate change in order to improve our long-term cost structure while reducing operational and reputational risks.

DESPITE INCREASING INTERNET PENETRATION, WE CONTINUE TO WITNESS GAPS IN DIGITAL LITERACY AND THE WELL-BEING OF PEOPLE IN URBAN AREAS COMPARED TO THE RURAL POPULATION

2018 marked an important step in sustainable development for AIS as we re-prioritized our material issue to address the emerging risks faced by our business and capture new growth opportunities. AIS has set 7 strategic focuses as our priorities, including Digital Innovation, Data Privacy and Cyber Security, Human Resources Development, Social Inclusion, Cyber-wellness and Online Safety, Emissions, and Waste. Key movements in 2018 include:

• **Economic aspect:**

- Launched the AIS IoT Alliance Program (AIAP) to share knowledge and capability from multiple industries in both the public and private sectors, aiming to become the central hotspot for the exchange of technological ideas and information to improve and develop products, services and solutions that will run in line with the government's Thailand 4.0 policy

• **Social aspect:**

- Set the goal of becoming the most trusted operator in terms of cyber-wellness in Thailand by 2021, with the development of a network-based security solution already in process and a 2019 launch targeted

• **Environment aspect:**

- Partnered with Thammasat University in an e-waste collection program covering the university area, with plans to launch the program in 2019
- Set climate related targets to reduce GHG emission intensity scope 1 and scope 2 by 75% by 2023 compared to the base year of 2015

In 2018, AIS maintained our presence in the FTSE4Good Emerging Index and the SET THSI Index (SET Thailand Sustainability Investment Index) by The Stock Exchange of Thailand as well as retaining our status on the list of the ESG100 (Environment, Social and Governance) by Thaipat Institute for the fourth consecutive year. These recognitions reflect our continued and long-term commitment to sustainable business practice.

As a Digital Life Service Provider, AIS aims to leverage our capability and innovation to contribute to the economy and society with minimal environmental impact. Through our 7 strategic focuses of sustainable development, AIS is keen to build long-term value, contributing to the UN Sustainable Development Goals, particularly SDG 9: Innovation and Infrastructure, SDG 10: Reduce Inequalities, and SDG 13: Climate Action.

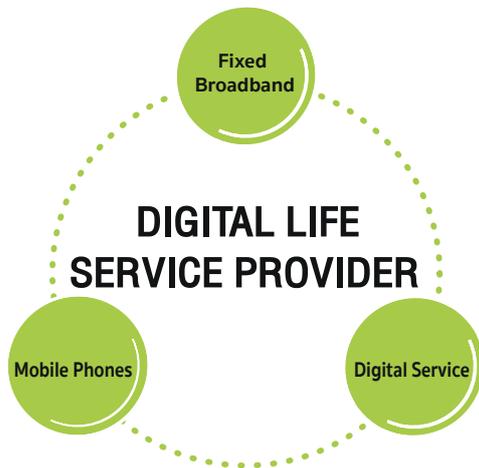
Overall, we believe that it is crucial to look beyond financial indicators by addressing the ESG issues to pre-empt negative impacts and minimize risks to ensure sustainable growth and the continued creation of value for society.

(GRI 102-1, GRI 102-2, GRI 102-4)

BUSINESS OVERVIEW

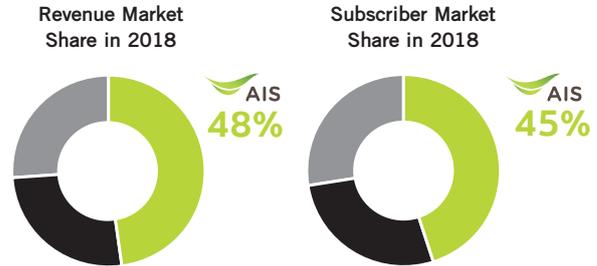
AIS, the Digital Life Service Provider

Advanced Info Services Public Company Limited (AIS) has been operating in the telecommunications service industry for the past 28 years. Today, we are a “Digital Life Service Provider” operating three core businesses, namely, mobile phone services, fixed broadband services, and digital service, while providing nationwide telecommunications infrastructure for Thailand. In 2018, AIS’s total assets were valued at Baht 290,505 million with a market capitalization of Baht 512,860 million, ranked fifth on the Stock Exchange of Thailand.



Growing in the Fixed Broadband Market

In 2015, AIS started its fixed broadband business under the “AIS Fibre” brand, with the goal of creating a new source of revenue by leveraging the already established fibre network and the subscriber base from the Company’s mobile business. Currently, AIS Fibre is available in 57 cities, covering 7 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 2018, therefore, grew by 42% YoY, accounting for 3% of core service revenue. Currently, the total number of subscribers is 730,500, accounting for more than 8% of the fixed broadband subscriber market share.

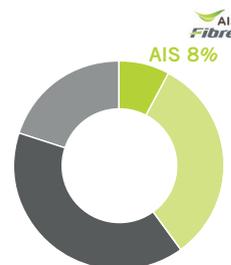


“Other operators are Dtac and True Move”

Leading the Mobile Market

At the end of 2018, AIS remained the largest mobile operator in Thailand, with a revenue market share of 48%, and a total of 41.2 million subscribers nationwide. AIS has been providing mobile phone services for 28 years, with its mobile phone service revenue still accounting for more than 94% of core service revenue. In the past year, revenue in this area continued to grow by 1.3% YoY. With the mobile spectrum currently available to AIS, we are able to provide quality network services, including 4G, 3G and 2G technology, to over 98% of the population. AIS also continues to collaborate with its partners and vendors to conduct research and development of our network in order to support new applications and services, an important foundation of our continued leadership in the up-and-coming 5G era. Our mobile services include voice calls, mobile data, WiFi, international direct dialing (IDD), and international roaming.

Subscriber Market Share in 2018



“Other fixed broadband operators are True, TOT and 3BB”

Building on Core Businesses with Digital Services

The third core business of AIS is Digital Services, which involves the development of services using digital technology in a variety of formats, including networks, service platforms and solutions, in order to create digital services for both our corporate and general customers. This is achieved via cooperation with our partners and the development of an integrated business ecosystem in which we grow and succeed together. AIS is currently focused on 5 main areas of business. These are VDO Platform, Business Cloud, Mobile Money, Internet of Things (IoT), and other platform services. Our digital services are an important propeller enabling AIS to access new sources of revenue in the future in addition to current mobile internet charges. It also allows AIS to be an integrated player via the convergence of products and services from our three core businesses.

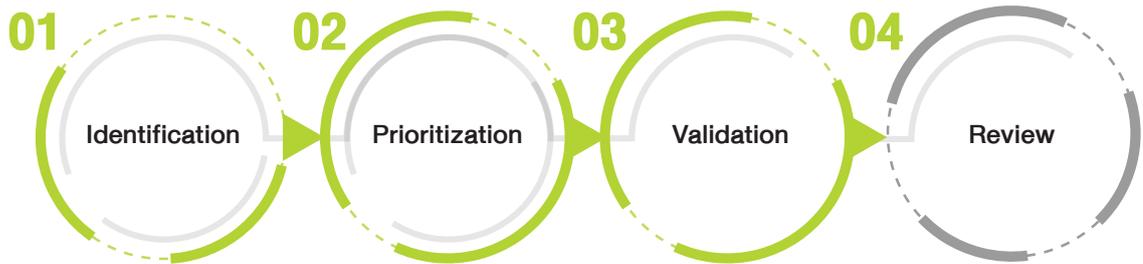
Operating Under Licenses Regulated by the NBTC

The majority of AIS's 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, as well as 2100, 1800 and 900MHz spectrum licenses. Moreover, AIS is partnering with TOT to utilize TOT's 2100MHz spectrum. This resulted in AIS having a total of 2x60MHz bandwidth for operations at the end of 2018. 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 LONG-TERM SUSTAINABILITY

(GRI 102-31, GRI 102-45, GRI 102-46, GRI 102-47, GRI 102-49)

Process for defining material topics



1. Identification

AIS annually reviews and defines the material topics of the companies within AIS group as indicated in 2018 Annual Report page 260–264 which is equivalent to 99.99% of total revenue as of 31 December 2018. An exemption has been made for the following subsidiaries due to the acquisition has been done since 26 January 2018.

- CS Loxinfo Plc. (CSL), 99.11% subsidiary, the provision of internet data center services, internet and satellite uplink–downlink services for domestic and international communications and distribute internet equipment
- Teleinfo media Plc. (TMC), 99.11% subsidiary through CSL, publishing business telephone directories and advertising
- AD ventures Plc. (ADV), 99.11% subsidiary through CSL, providing mobile contents
- Yellow pages commerce Co.,Ltd. (YPC), 99.11% subsidiary through CSL, online advertising business

Last year, factors to define material topics includes;

Internal perspective

- Business strategy and direction
- Challenge and opportunity that might cause an affect to AIS group
- Risk factors and risk management framework

External perspective

- Matters that material to stakeholders
- Matters that material to leading companies and companies in the same industry
- Globally accepted standards and indicators
- UN sustainable development goals

In this regards, the above process has been led by AIS’s Chief Executive Officer.

2. Prioritization

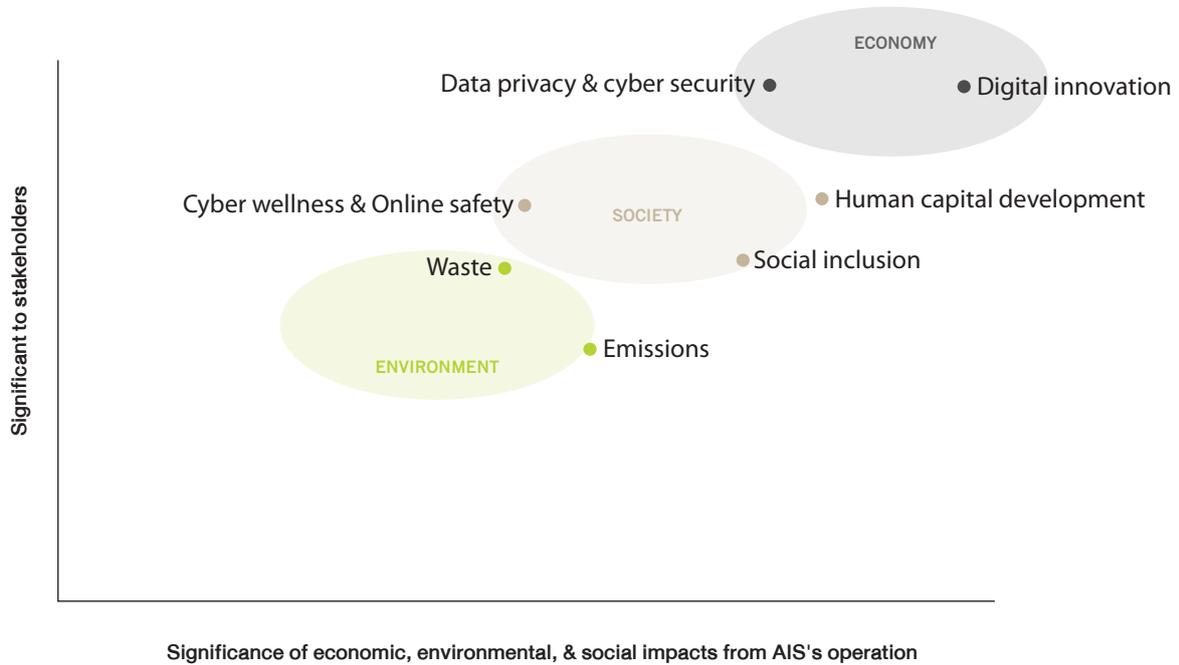
AIS’s procedure to prioritize the material topics included those happens outside the organization and within the organization

• **Within organization**

1-day workshop with top and senior management to understand the sustainability context of AIS group and to identify sustainability strategy, long-term target as well as aspiration of each strategy

• **Outside organization**

Stakeholder’s inclusiveness via one-on-one meeting and conference call with key stakeholders such as customers, regulators, communities, partners and investors in order to find out what sustainability issues matter most to them, their expectation towards AIS as well as how to develop an effective stakeholders’ engagement.



Economic dimension	Aspiration	Challenge	Opportunity	Scope and boundary		Contribution to UN SDGs
				within organization	outside organization	
Digital innovation & Cyber security	Innovate digital products & services to improve quality lives and promote businesses in Thailand	<ul style="list-style-type: none"> Thailand 4.0 Digital disruptions e.g. OTT Competitiveness 	<ul style="list-style-type: none"> New revenue stream New source of value creation 	Strategy and policy to promote digital innovation	<ul style="list-style-type: none"> Partnership with government agencies and educational institutions AIS theStartUp 	
	Ensure effective data governance to enhance customer value while ensuring customer trust	<ul style="list-style-type: none"> GDPR Draft Privacy Protection Act. Of the NBTC High impact on customer trust Risks for business reputation Loss of customers and business contracts 	<ul style="list-style-type: none"> Revenue improvement, enhance customer relationship management New revenue e.g. Cyber Security 	<ul style="list-style-type: none"> IT security policy Customer privacy protection policy Data privacy system and procedure 	<ul style="list-style-type: none"> Distribution channels Customers 	
Social dimension						
Human capital development	Drive AIS' human capital to pursue new strategic growth area	<ul style="list-style-type: none"> Lack of new abilities to drive company growth 	<ul style="list-style-type: none"> Enhance staff potential and ability Attract new talents 	<ul style="list-style-type: none"> Human resource management policy AIS academy AIS wellness program Human capital development strategy and programs 	Partners	-
	Leverage our digital infrastructure & solutions to uplift community well-being & reduce digital divide	<ul style="list-style-type: none"> Thailand 4.0 Community disputes Renewal of site rental 	<ul style="list-style-type: none"> Indirectly protect churn and engage new customers. Data insight to create new products 	<ul style="list-style-type: none"> Digital solution to uplift community well-being Widest network coverage 	<ul style="list-style-type: none"> Society and communities Partners 	

	Aspiration	Challenge	Opportunity	Scope and boundary		Contribution to UN SDGs
				within organization	outside organization	
Social dimension (Cont.)						
Cyber wellness & online safety	Establish trusted brand in cyber wellness & online safety to build healthy online space	<ul style="list-style-type: none"> Risk of reputation as responsible service provider (game addiction, screen time, unsafe space) 	<ul style="list-style-type: none"> Build leadership in Cyber-wellness Improve customer engagement 	<ul style="list-style-type: none"> New products and services regarding the promotion of cyber wellness and online safety Cyber wellness and online safety campaign PR & advertising 	<ul style="list-style-type: none"> Customers Society and communities 	-
Environmental dimension						
Emissions	Reduce GHG emission and utilize renewable energy in most possible extent in our operation	<ul style="list-style-type: none"> Paris agreement (COP21) Thailand NDC Future CO₂ tax, cap & trade Long term cost implication Fine/penalty on extra CO₂ 	<ul style="list-style-type: none"> New revenue opportunities for cloud, other avoided emission products New revenue from from IoT, monitoring climate change 	<ul style="list-style-type: none"> Environmental policy and management system Digital products and services to reduce paper work 	-	
Waste	Reduce & recycle waste from operation as well as encourage customers to dispose e-waste properly	<ul style="list-style-type: none"> Draft Management of Waste from Electrical and Electronic Equipment (WEEE) Act. Risk of reputation as responsible service provider 	-	<ul style="list-style-type: none"> Environmental policy and management system 	-	

The aforementioned materiality has been changed from previous year in all dimension since the previous one has been used for 2012–2017 and its thought process was based on telecommunication business only. However, AIS has been transform to the digital life service provider which its business includes fixed broadband and digital platforms. Therefore, the new material topics have been done based on the new foundation of business, an internal and external perspective, the UN SDGs as well as global standards and indicators as mentioned above. Here are a summary of those changes;

- The topic of Local Community Acceptance has been uplifted to ‘Social Inclusion’ – This came from the vision to become the digital life service provider. AIS has not only invested telecommunication infrastructure only, but also invested in wider digital infrastructure to enhance Thais’ quality of living and accessibility to digital technology and services.
- The topic of Network quality and reliability has been enhancing to ‘Digital Innovation’ – Besides of the widest network coverage, AIS also develops the new digital products and services that enhance people’s life and generate more value to economy, society as well as environment.
- The topic of Customer Satisfaction has been explicitly specified. With a view to create diverse digital innovation that meet customers’ needs, a trusted cyber security and data privacy as well

as a development of cyber wellness and online safety’s awareness, AIS shall retain and enhance customer satisfaction.

- The topic of Employees engagement, Training and Development and Occupational Health and Safety have been consolidated to ‘Human Capital Development’.

3. Presentation of material topics for the board of directors’ approval (Validation)

The validation has been made by endorsing from the sustainability management committee which chaired by the chief executive officer and approval of the sustainable development committee and the board of directors. Those material topics are included in AIS sustainability report and website. ^(GRI 102-32)

4. Review

AIS shall review the material topics after dissemination to stakeholders in order to grant stakeholders’ view and recommendation for the sustainable development of AIS and for improving of next year report.

Stakeholder Engagement

Stakeholder Group	Engagement Channel	Frequency	Expectation of Stakeholders
Community and Society	<ul style="list-style-type: none"> Community Relations Opinion box/ compliant box at base stations 	<p>Daily</p> <p>Daily</p>	<ul style="list-style-type: none"> Engaging with community to strengthen community's well-being through digital technology Ensuring proper management of e-waste
Business Partners	<ul style="list-style-type: none"> Dealer satisfaction survey Sales personnel Channels application and website Partners' forum Interview 	<p>Once a year</p> <p>Daily</p> <p>Daily</p> <p>1-2 times a year</p> <p>Once a year</p>	<ul style="list-style-type: none"> Expanding AIS's products and services to all group of customers Integrating social needs into AIS's business operation e.g. educational issues
Customers	<ul style="list-style-type: none"> Customer satisfaction survey through <ul style="list-style-type: none"> Call Center Sales personnel Sales representative Social network Complaints and suggestion from the above channels 	<p>Daily</p> <p>Daily</p>	<ul style="list-style-type: none"> Network quality and reliability Provision of complete and transparent product and service information Customer data privacy Safety when using products and services
Shareholders and Investors	<ul style="list-style-type: none"> Shareholder meeting Events related to operational result announcement e.g. analyst briefing, local and international roadshow as well as SET opportunity day Interview Investor Relations and Compliance Department 	<p>Once a year</p> <p>2-4 times a year</p> <p>Once a year</p> <p>Daily</p>	<ul style="list-style-type: none"> Strong growth of business performance Consistency in dividend payment Good corporate governance Equal access to information Provision of transparent and trust information

THE 7 STRATEGIC FOCUSES

THE 7 STRATEGIC FOCUSES

With the ultimate goal to become the most admired digital life service provider, AIS has placed 7 strategic focuses as follows:

Waste

Reduce & recycle waste from operation as well as encourage customers to dispose e-waste properly

Target 2021

- Reduce non-recyclable e-waste from 5% of total waste in 2018 to 3%
- Collect 9mn pieces of obsolete mobile and related electronic waste for proper recycling

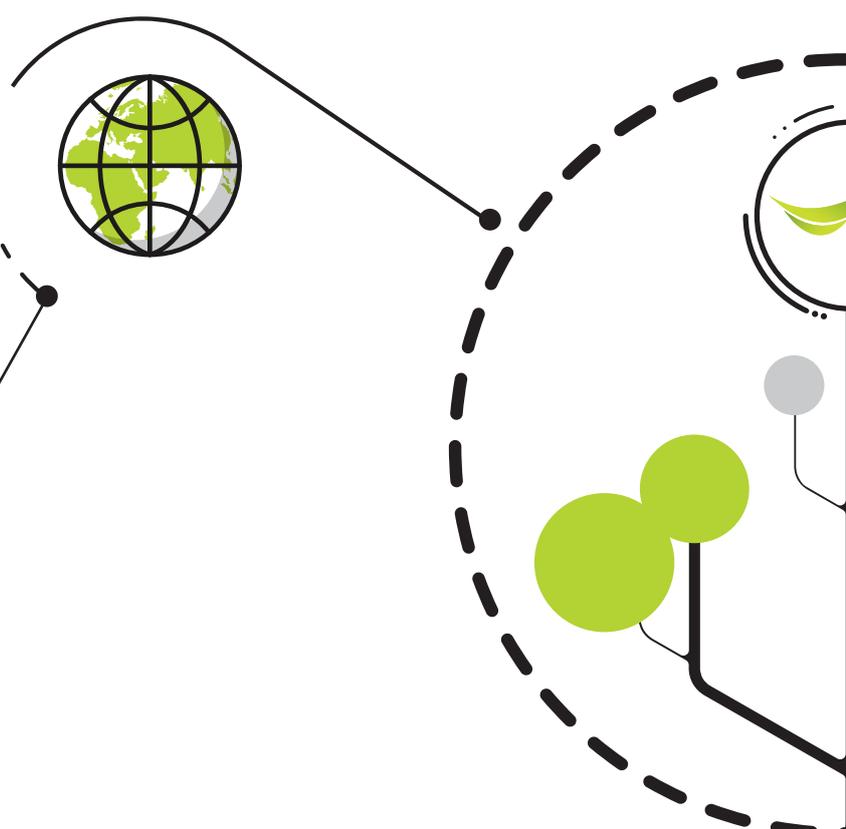
Emission

Reduce GHG emission and utilize renewable energy in most possible extent in our operation

Target 2023

- Reduce GHG emission intensity scope 1 and scope 2 combined by 75%, compared to base year of 2015
- Increase renewable energy usage from 0.06% of total energy consumption in 2017 to 5%

ENVIRONMENT



Cyber Wellness & Online Safety

Establish trusted brand in cyber wellness & online safety to build healthy online space

Target 2021

- Become the most trusted operators in cyber-wellness
- Reach 500,000 people through our cyber-wellness & online safety programs



ECONOMY

Digital Innovation

Innovate digital products & services to improve quality lives and promote businesses in Thailand

Target 2021

- 1,000+ active partners, with a product and/or service launched in the market on AIS Partner Platform

Data Privacy & Cyber Security

Ensure effective data governance to enhance customer value while ensuring customer trust

Target 2021

- Comply with cyber security-related laws and regulations, new technology-adopted standards, and privacy regulations toward the 2021 target
- Enhanced cyber security protection and visibility to protect infrastructure, system and new related services toward the 2021 target

Human Capital Development

Drive AIS' human capital to pursue new strategic growth area

Target 2021

- Acquire new abilities in digital technologies that support AIS business growth
- 80% of talent pool is retained
- 80% of existing employees are trained and equipped with new abilities digital technologies
- 80% employee wellbeing index

Social Inclusion

Leverage our digital infrastructure & solutions to uplift community well-being & reduce digital divide

Target 2021

- 100,000 people improve wellbeing through our digital platform and collaboration

SOCIETY

ECONOMY

DIGITAL INNOVATION

Innovate digital products & services to improve the quality of lives and promote businesses in Thailand

Target 2021

1,000+ active partners, with a product and/or service launched in the market on AIS Partner Platform

Significant Improvements in 2018

- Expanded the scope and resources for a dedicated business unit in innovation management and defined strategic focuses and framework
- Launched the AIS IoT Alliance Program (AIAP) to exchange knowledge and experience among AIS's alliances for developing new IoT based solutions
- Promoted IoT solution development in Thailand by targeting students, creators and developers. To facilitate the development of IoT solutions, AIS provides the IoT Development Suite, a toolkit comprised of the AIS IoT development platform and IoT enabling devices. Currently, we have more than 2,200 platform users and have rolled out over 2,000 IoT enabling devices in the market.

Challenges & Opportunities ^(GRI 103-1)

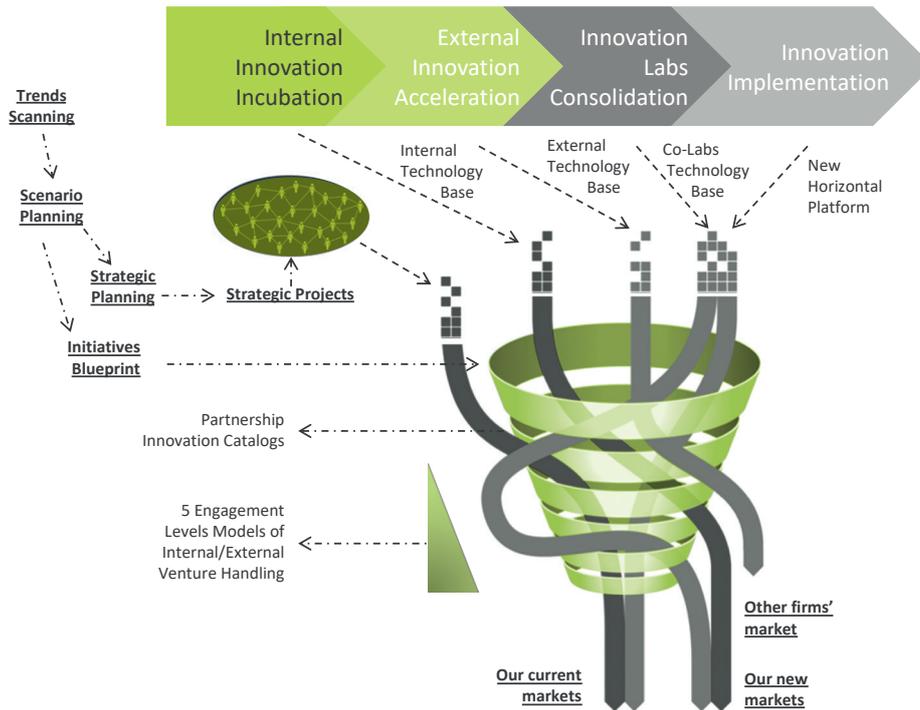
Digital technologies are emerging at a rapid pace and have changed the way the world works. During the past few years, a wide range of business models have been empowered by digital innovations to serve more sophisticated consumer and business needs, such as Over-The-Top (OTT), digital platforms, sharing economy, etc. In light of these trends, global telecom operators are faced with ongoing market disruption and structural change, threatening their revenue streams from traditional services. On the flip side, it is a compelling opportunity for AIS to leverage digital innovations as a growth engine to enhance our competitive edge and create value for our customers and society at large. This allows AIS to rethink our business model to capture new waves of customer demands, such as in relation to the smart city, smart transportation and logistics, healthcare,

and property, whilst also creating added value for the economy and society with a smaller environmental footprint. In addition, the government's Thailand 4.0 policy brings the opportunity to build our ICT ecosystem around people and industries and embrace the growing demands in the digital era.

Management Approach ^(GRI 103-2)

AIS commits to delivering innovative digital products and services to improve the quality of life and promote businesses growth in Thailand. Our goal is to become a sustainable innovation leader by building an Innovation System that can enhance the adaptability of AIS. To do so, in 2018, AIS defined the AIS Open Innovation Framework and process, as well as expanding the Innovation Development Department's functions and responsibilities to ensure that appropriate efforts and resources are allocated to promoting new growth areas that align with current and future trends, in both vertical and horizontal markets. The Innovation Development Department, led by the Chief Strategy Officer, has the overall responsibility for building, inspiring, and promoting both internal and external innovative ideas through cooperative and agile processes. The AIS Open Innovation Framework covers four key areas to manage innovation efficiently among internal and external parties as follows:

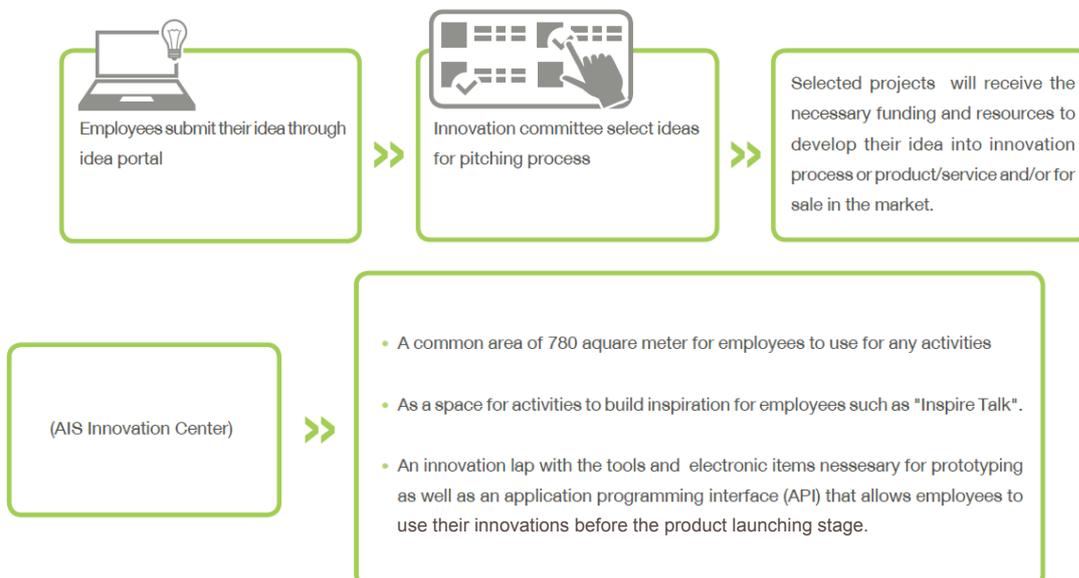
AIS Open Innovation Framework (GRI 103-3)



- Internal Innovation Incubation:** AIS believes in the potential of our people to grow in this fast-changing environment of the digital age, and thus, we continue to promote an innovative mindset among our employees and equip them with new knowledge, primarily through the InnoJUMP program, which in turn contributes to AIS innovation. The program drives internal innovation among our people by creating an opportunity for staff to experiment and

generate innovative ideas while being provided with related knowledge and inspiration through workshops on topics such as design thinking, agile work, and lean innovation. The program moves at a fast pace, giving employees the opportunity to pitch their business ideas directly to our top management. The selected business ideas will receive access to the funding needed to support the product launch.

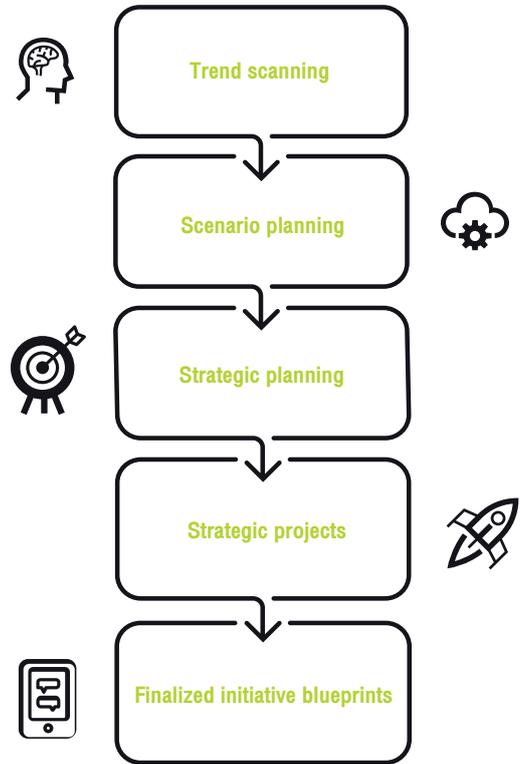
AIS InnoJUMP Program



- **External Innovation Acceleration:** With the aim of creating win-win growth and collaboration to serve new markets in the digital era, AIS has set up multiple programs that provide the resources and insights to enhance the capability of start-ups and creators who will potentially become our business partners to capture the new waves of customer demand.
 - **AIS Design Center (AIS D.C.)** aims to build a community among the new generation of start-ups and promote the generation of new ideas in an innovative environment that includes co-working spaces, meeting facilities, and Technology, Media and Telecom sectors and business-related seminars open to the public. In addition, at the AIS D.C., AIS has set up a hub called AIS Playground, which allow creators and people with business ideas still in the early stages to test and try connecting their prototypes with various types of AIS API (Application Program Interfaces) such as SMS, online payment, and AIS points and privileges, along with close support and consultation from AIS experts.
 - **AIS the StartUp** is a value-sharing platform through which tech startups can cooperate with AIS to accelerate the development of their products and services identified as having potential demand in current and future markets. The objective of this program is to both benefit AIS business and create social impact. More information can be found under the “Social Inclusion” section of this report.
- **Innovation Labs Consolidation:** Collaborate with academic and government sectors, aiming to exchange knowledge and technologies as well as jointly developing innovative new solutions, all the way from prototyping and co-developing to service launching.
- **Innovation Implementation:** Build an integrated partner platform to promote end-to-end services and solutions, including technology, equipment, devices and software innovation to serve both current and future demands.

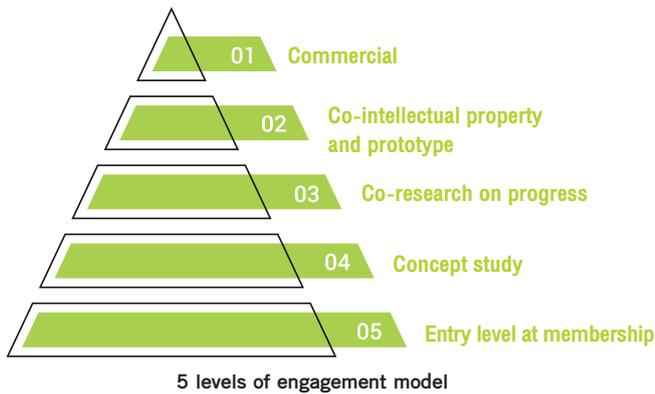
Identifying strategic projects

To ensure that the innovation management process capture the potential trends that align with business direction, AIS set the follow process by leveraging the capabilities and synergies from both internal and external collaborations.



Managing the Innovation Development Team

The Innovation Development are imbued with a lean and agile way of working with a flat team structure that challenges the team to come up with innovative ideas quickly. In addition, the talent groups with new abilities such as Blockchain and big data analytics also contribute to the development of innovative new ideas and the analysis of future trends. Through this process, AIS can leverage innovative business ideas, models and resources from internal and external sources in parallel with utilizing team capabilities and resource allocation more efficiently.



Emphasizing partnership engagement

AIS also emphasize partnership management through the 5 levels of engagement model. The model helps us to define the level of support and engagement of partners, ranging from accessing our open innovation portal and the transfer of knowledge, to sponsorship and product marketing support. This allows AIS to build relationships and engage with several partners more efficiently by allocating appropriate efforts and resources to match each level of engagement.

To propel mid- to long-term growth in the ICT ecosystem, AIS has allocated a dedicated budget to R&D on innovation since 2017. In 2018, AIS invested Bt91 million on R&D, representing 0.3% of the profit, focusing on IoT, Smart Industries, Micro Services etc.

2018 Progress

In 2018, the progress in our innovation development involved both internal and external parties as follows:

• Internal Innovation Incubation

- Out of a total of 52 innovative projects submitted to the AIS InnoJump Program, the selected projects were granted Bt1 million each to support their go-to market strategy. The selected ideas launched during the year include:
 - An application to avoid leaving a child in a school bus unintentionally by connecting a built-in camera, motion sensor, and CO₂ sensor. In the event of such an incident, the system will detect and notify the school bus driver, teachers, and parents through the application in a timely manner.

- A parental control application focusing on video content usage and access, aiming to protect children from inappropriate content by both direct viewing and video suggestion.
- Starting from 4Q18, AIS launched “Tech Taste”
 - internal knowledge sharing sessions covering topics such as 3D printing and Narrow Band IoT technology with the aim of equipping AIS staff with first-hand experiences and enabling them to understand new technologies. Tech Taste is one of the many types of innovation inspiration sessions that were joined by more than 1,000 staff overall in 2018.

• External Innovation Acceleration

- During the year, 70 teams participated in the AIS Playground and received consultation from our experts, with 30 of the teams having their products and/or services integrated with AIS APIs enabling them for commercial launch. We also provided workshops and courses at AIS D.C. to enhance the potential of creators and entrepreneurs, e.g. Innovation with APIs, Playing Lean Startup Simulation, Internet of Robotic Things, etc. Overall, there were 51 workshops joined by 2,040 participants in 2018.
- Engaged with **48** start-ups, approximately 50% of which launched products in collaboration with AIS.

• Innovation Labs Consolidation

- Across 11 provinces, partnered with 12 universities and 1 hospital, including Chulalongkorn University, Thammasat University, Prince of Songkla University, and Abhaibhubejhr Hospital, to share knowledge and researches, as well as to co-develop innovative solutions or product prototypes in digital technology fields such as Narrow Band Internet of Things (NB-IoT). During the year, AIS and our partners launched several co-developed innovations, including the following:
 - AIS and Khon Kaen University co-developed and launched the Outdoor Smart Parking system with NB-IoT for 50 parking spaces in November 2018. The system improved the efficiency of parking operations and traffic

flows within the university. By reducing the time spent on finding a parking space, overall fuel consumption was reduced by approximately 35 liters/month or 420 liters/year¹. Following this success, AIS smart parking has been further rolled out in the Khon Kean Smart City project for 55 parking spaces.

- More than 40 students and lecturers participated in NB-IoT knowledge sharing workshops at the Bangkok and Prachinburi campuses of King Mongkut's University of Technology North Bangkok.

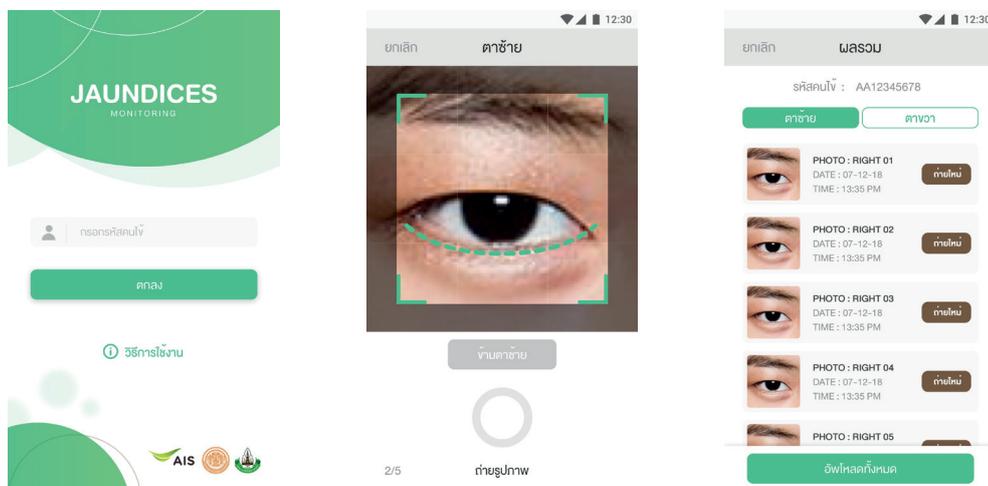


AIS Co-labs Consolidation Success Story: Juandice Patient Monitoring

Thailand is the country with the highest incidence of Cholangiocarcinoma in the world² The survival rate is extremely low due to the difficulty in detecting the symptoms in the early stage of the condition. One of the earliest symptoms is jaundice, a yellow discoloration of the skin and eyes due to a high level of bilirubin in the blood. A collaboration involving AIS, King Mongkut's University of Technology Thonburi, and the Faculty of Medicine at Khon Kean University aims to develop an AI-driven mobile application that is able to detect and monitor the level of bilirubin in the

blood. After a photo of a patient's eyes is submitted to the app, a machine learning algorithm calculates the amount of bilirubin in the whites of the patient's eyes. This algorithm has been developed based on analysis of a data set of 500 Jaundice patients from Srinakarin Hospital in Khon Kaen province. The project is expected to be launched in 2019.

In the future, this application could allow people to detect Cholangiocarcinoma with ease, simply by taking a photo on their smartphone.



¹ The calculation is based on the following assumptions: 1) serving 5,000 cars per month, 2) time spent on finding a parking space reduced by 5 minutes per car, and 3) a fuel consumption rate of 12 kilometres per liter with a 1500 cc engine

² Source: Cholangiocarcinoma foundation of Thailand

• **Innovation Implementation**

- Launched the AIS IoT Alliance Program (AIAP) to share the knowledge and capabilities from multiple industries in both the public and private sectors, including device manufacturers and software developers, to build versatile IoT solutions that can benefit a wide range of industries and the country as a whole. This project aims to become the central hotspot for the exchange of technological ideas and information to improve and develop products, services and solutions that will run in line with the Thailand 4.0 policy. Overall, more than 900 partners joined the AIAP and more than 30 trainings sessions and workshops were held. Overall, 47 solutions developed through the AIAP were launched in 2018.
- During the year, several IoT based solutions, both commercial and non-commercial, were launched, including:
 - AIS partnered with Thammasat University, Property Perfect, Samsung, and Mobike to

develop commercial IoT based Smart City and Smart Campus solutions for the effective management of community areas, including: 1) Smart Tracking and Face Recognition to ensure high security, 2) Smart Bike to provide easy transportation, and 3) Smart Lighting to promote energy saving.

- AIS, HIP Global (a distributor of international standard internet security solutions) and the Metropolitan Police Division 1 have jointly developed the “NB-IoT Motor Tracker”. Connected to a GPS tracking system through the NB-IoT network, Motor Tracker devices have been fitted to 360 police motorbikes. The Trackers provide the coordinates of the operating routes of the traffic and patrol police in near real-time via the NB-IoT network. The solution aims to improve the efficiency of police operations and to safeguard lives in timely manner.

AIAP Members and Success Stories

Integrated Pipeline Maintenance and Monitoring System

AIS and PTT co-developed remote monitors of cathodic protection levels along gas transmission pipelines using NB-IoT networks. All measured cathodic protection data are automatically displayed and archived on PTT’s online software. With low power consumption and real-time monitoring, the system allows PTT to improve cost efficiency by reducing the time needed for field work. This innovation resulted in operating cost savings of approximately Bt 2,400 per year for each 1 kilometer of pipeline. PTT now aims to expand the technology to cover more than one thousand kilometers of pipeline.

How the device works



For more details, please scan the QR code or visit <https://aiap.ais.co.th/download/IPMMS%20PTT-AIS-e-Brochure.pdf>

NB IoT Greenhouse Monitoring and Control System (smart farming)

The Department of Agriculture and AIS jointly developed a smart farming solution launched in Ubon Ratchathani. This NB-IoT Greenhouse Monitoring and Control System aims to improve crop quality, reduce waste, and enhance productivity for farmers by using more accurate data based on IoT technology. The IoT-based system is built for monitoring crops in greenhouses with the help of sensors (temperature and humidity) and automated fan and fogging systems.

With AIS's IoT Ecosystem, farmers can monitor their crop conditions from anywhere through the Magellan IoT Platform which receives the data from AIS's Cloud System via an NB-IoT network. IoT-based smart farming is highly efficient when compared with the conventional approach. This project serves to complement the expertise of the public and private sector in the pursuit of Thailand's agricultural development. Following the application of this system, farmers have been able to achieve 30% reduction in their water bills.



For more details, please scan the QR code or visit <https://aiap.ais.co.th/download/Greenhouse.pdf>

To demonstrate our aim to become a sustainable innovation leader, we have set the following goals:

- Engage with 120 active partners on the AIS partner platform by the end of 2019
- Allocate an R&D budget of Bt85 million with a focus on building domain expertise partners for IoT businesses, enhancing partner engagement platforms, and improving internal processes in 2019

Performance Table

	Units	2015	2016	2017	2018
1. Active partners ³	Partner	9	13	37	72
2. Active start-up partners	Partner	9	13	37	25
3. New products launched ⁴	Product	6	30	43	49
4. Investment in R&D	Baht million	NA	NA	7	91

³ Active partner is a partner with a product and/or service launched in the market

⁴ New products and services launched and/or enhanced within the previous 12 months

DATA PRIVACY & CYBER SECURITY

Ensure effective data privacy and cyber security to enhance customer value while ensuring customer trust

Target 2021

- Comply with cyber security-related laws and regulations, new technology-adopted standards and privacy regulations toward the 2021 target
- Enhance cyber security protection and visibility to protect infrastructure, system and new related services toward the 2021 target

Significant Improvements in 2018

- **Applied the new Data Classification Policy:** according to the level of data sensitivity, the Data Classification Policy covers the key business units that are closely involved with customer information and operating systems.
- **Established a dedicated Data Protection Office (DPO):** the DPO is solely responsible for the organization's customer data privacy protection, ensuring Company-wide compliance with related regulations and promoting the company's readiness for new regulations.
- **Enhanced staff capability:** AIS staff involved in cyber security and data privacy related functions underwent training and acquired new certifications in ethical hacking and penetration testing, incident management and forensics, and cyber security management.
- **Enhanced existing cyber security protection and detection:** steps were taken to strengthen the Company's network perimeter and end-point protection as well as increasing the detection capabilities using data analytics.
- **Promoted collaboration related to cyber security and data privacy among the public and private sector including:**
 - Collaborated with related regulators, public agents, other operators and service providers to set up the Thai Telecom Sector Computer Emergency Response Team (TTC-CERT), with the aim of responding to major cyber security incidents in the industry.

- Actively engaged in public events related to the new regulations of and preparation for the Cyber-Security Act and National Digital ID Act, contributing our expertise to deliver community safety and assessing the viability of the new regulations in the telecommunication business.

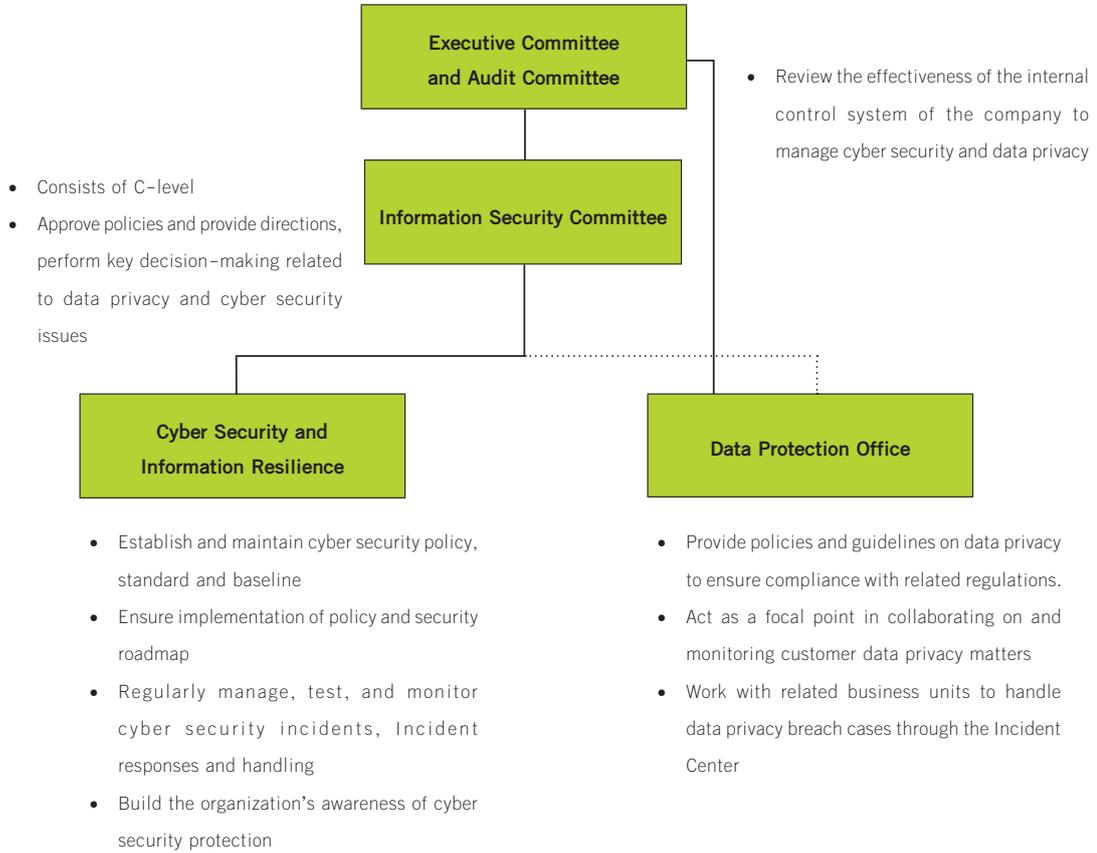
Challenges & Opportunities ^(GRI 103-1)

With the speed at which information technology has been evolving, it has changed the way we communicate and share information for both personal and professional purposes, resulting in a proliferation of data usage and connectivity on a global scale. The increase in online and cyber activities has also resulted in greater exposure to more sophisticated attempts by hackers and cybercriminals to launch cyberattacks. In this regard, the threat to cyber security has influenced the relevant authorities to continuously enhance legislation on cyber security and personal data protection. AIS places high priority and is highly obliged in protecting customers information privacy, ensuring cyber security, as well as regulation compliance, which help reduce financial and reputation risks from losses and leaks of customers data and cyber-attack. At the same time, a thorough understanding of the trends, technology, and regulations also brings about new opportunities for AIS to leverage our data security to enhance the value to and relationships with our customers while earning their trust through assured security.

Management Approach (GRI 103-2, 102-20)

Our commitment is to ensure transparency, privacy and the protection of all customer information that is captured, stored, accessed, and managed within our operating systems and procedures to earn the customers’ trust.

Data privacy & Cyber security Management Structure



The Board of Directors has the overall responsibility for providing the Company’s direction on data privacy and cyber security management, approving related policies and key decision-making, as well as supervising the management team to act effectively in accordance with the plan. The key privacy and cyber security material issues and related risks are reported to the Board of Directors at least quarterly by the Information Security Committee.

Data privacy protection (GRI 103-3)

- In 2018, AIS strengthened our data privacy program through a dedicated Data Protection Office (DPO), which serves as a focal point in protecting and monitoring customer data privacy while providing the policies and guidelines to ensure that the whole organization follows the related legislations and standards.
- Our Customer Data Privacy Protection Policy provides understanding for customers on the customer data privacy practices, e.g. purpose of collecting and using data.



For more details, scan the QR code or visit <http://www.ais.co.th/NBTC-Privacy-Guide-line/en/>

- To ensure customer data protection, AIS set in place the following actions and procedures:
 - We promote customer privacy protection company-wide through building the awareness, education and implementation of Privacy by Design and Privacy by Default.
 - AIS has performed a Data Protection Impact Assessment (DPIA) to identify and minimize the risks related to data protection in new services.

- Evaluate risk exposure from our day-to-day business workflows, aiming to prevent leaks and identify measures to minimize those risks
- Set step-by-step instructions for the process and procedure of customer data flows and communicate these instructions to the related business units
- Provide safeguards on data protection for customer information to be transferred by applying a Standard Contractual Clause (SCC) with related business units and our business partners
- To prevent customer information leaks, AIS has restricted the access to sensitive information and deployed multiple data protection techniques to protect both data at rest and data in-motion.

- Our Incident Center is a centralized data protection entity, comprising Data Protection Office, Cyber Security and Information Resilience, customer complaints, technical support, human resources, public relations, legal, business relations, and customer service teams to handle breach cases and communicate to the relevant stakeholders. Customers with questions and concerns can contact us via our Complaint Center at 08-0000-9263 or by email at complaint_center@ais.co.th. Refer to the following chart for our incident handling process.

Incident Respond Process

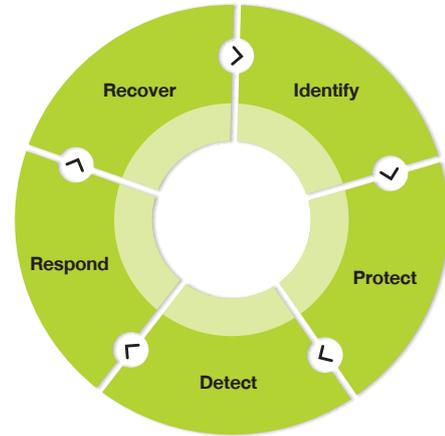


Cyber security

- AIS has the infrastructure, systems and protocols to ensure the regular management, testing, and monitoring of cyber security incidents by our Cyber Security and Information Resilience team, a dedicated team responsible for cyber security protection. The team is also responsible for building awareness of cyber security within the organization.
- Our policies and guidelines related to cyber security are developed and reviewed regularly in accordance with the best practices and related regulatory requirements.
- We ensure that the systems are protected from cyber security threat through the application of the following procedures: Ensure that our systems and infrastructures meet data security standards; perform security assessment testing and crucial security scanning prior to launching systems and applications; and provide security self-check tools for software developers.
- Through our 24x7 cyber security monitoring and incident response infrastructure, AIS provides a centralized notification system and ensures a timely response through cooperation between the related teams.
- AIS used the “**NIST Cyber Security Framework**” as a guideline for designing our cyber security strategies and processes, which include the following steps: Identify, Protect, Detect, Respond, and Recover. Furthermore, we are constantly expanding our scope to other applicable global standards and

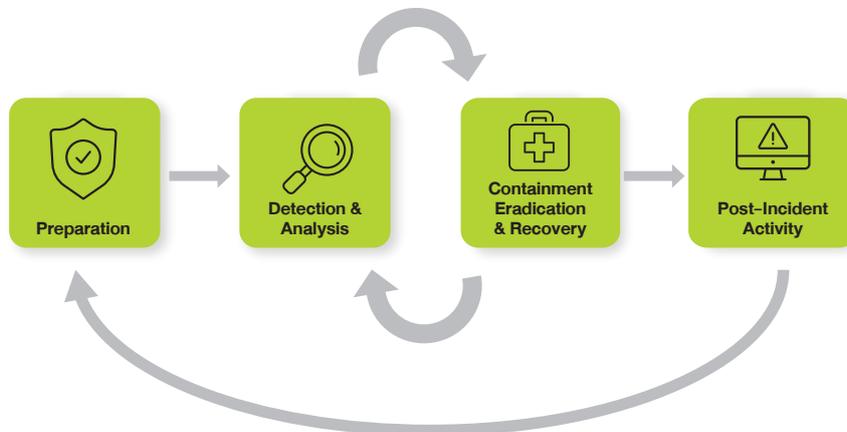
principles to ensure an effective and solid first line of defense against breaches of cyber security and customer data protection.

NIST Cyber Security Framework



Source: National Institute of Standards and Technology

- Regarding the cyberattack respond, protocol and escalation process, AIS also applies the “**NIST’s Cyber Incident Response Framework**”, by National Institute of Standards and Technology, into our day-to-day routine, which involves the following incident handling steps: 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.



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

AIS has obtained the following certifications and standards, which underline our commitment to data security in our services and customers:

- ISO27001 Information Security Management System (ISMS) since 2015
- CSA STAR (Cloud Security Alliance) Self-Assessment since 2016
- PCI DSS (Payment Card Industry Data Security Standard) since 2017

2018 Progress

In 2018, our efforts to strengthen customer data protection and cyber security were demonstrated through several movements as follows:

- **Compliance with laws and regulations**

- AIS revisited all governance frameworks and policies to ensure compliance with current laws and regulations while preparing for the upcoming ones e.g. Draft Computer Crimes Act (No.2) B.E.2560 (A.D.2017) and the Draft Thai Personal Data Protection Act.
- To cope with new and future regulation, the Company has built awareness within the organization and performed risk assessment regarding the General Data Protection Regulation (GDPR), which has been enforced across the European Union since May 25th, 2018.

- **Training and Awareness:** At the corporate level, AIS implemented initiatives aimed at raising the awareness and understanding of data privacy and cyber security among our employees through emails, self-paced online learning, and knowledge-sharing sessions. The awareness programs are aligned with our digitization strategy, security practices and new technology adoption e.g. cloud security, USB phishing, software updates, etc., which have been deployed throughout 2018 and will continue into 2019. Additionally, the dedicated Awareness program was expanded to the board and C-suite/top management level to ensure their understanding of their roles in cyber-attacks, the variety and impact of cyber threats, the challenges of security team, crisis management and communication strategies.

- **Collaboration and partnerships**

- The Company's cooperation with global telecom sector leaders including Singtel and OPTUS involved sharing various operational practices with the aim of utilizing the combined capabilities and knowledge of the group to handle and minimize security risks in a timely manner based on the best practices, e.g. handling cybersecurity incident response.
- AIS has collaborated with related regulators and public agents, including the National Cybersecurity Committee, the Thailand Information Security Association, the Bank of Thailand and the 14 other telecommunication-service providers, to establish the Thai Telecom Sector Computer Emergency Response Team (TTC-CERT).

- **Operational and process improvement:** Covering the key business units that are closely involved with customer information and system operations, AIS has implemented a new Data Classification Policy to identify different levels of data sensitivity. In addition, the Cybersecurity Assessment has been integrated into all new platforms, software and product development processes.

- **Enhance existing cyber security:** In 2018, AIS improved its network security protection and detection capabilities by adopting new technology, upgrading systems, and improving operation processes including data collection, monitoring alerts, and data analysis to identify any potential cyber security events.

- **Compliance controls:** In 2018, both internal and external audits were performed, regarding data privacy and cybersecurity protection e.g. general IT controls, information security awareness programs, cyber security incident management, and Cloud security and operations.

To demonstrate our commitment to protecting our customers' data privacy and information security, we set the following goals:

- Ensure complete compliance with the upcoming Thai Personal Data Protection Act by 2019
- Expand the Data Classification Standard for corporate-wide adoption by 2019
- Enhance the executives' readiness for cyber risk handling and crisis management by 2019

Performance Table (GRI 418-1)

	Units	2015	2016	2017	2018
Number of reported complaints during the year regarding breaches of customer privacy and losses of customer data					
From outside parties	Cases	271	321	575	131
From regulatory bodies	Cases	13	11	15	47
Leaks, thefts, or losses of customers data	Cases	0	1	0	0
Number of government requests ¹	Cases	26,022	26,301	26,710	28,270

¹ The company provides customer data upon the request of the authorized and designated government agencies by virtue of laws which are the Court of Justice, Royal Thai Police, Anti-Money Laundering Office, etc.

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

	Unit	2018
Economic value generated		
Total assets ⁽¹⁰²⁻⁷⁾	Baht million	290,505
Total revenue ⁽¹⁰²⁻⁷⁾	Baht million	169,856
Economic value distributed		
Operating costs	Baht million	103,456
Employee wages and benefits	Baht million	8,108
Donations	Baht million	29
Community investment	Baht million	12
Payment to government	Baht million	26,259
Commercial initiative	Baht million	153
Payment to providers of capital		
Dividend payments	Baht million	21,852
Finance costs	Baht million	5,148
Economic value of AIS group		
Net profit	Baht million	29,682
EBITDA	Baht million	73,792

SOCIETY

HUMAN CAPITAL DEVELOPMENT

Drive AIS' human capital to pursue new strategic growth area focusing on digital business

Target 2021

- Acquire new abilities in digital technologies that support AIS business growth
- 80% of talent pool is retained
- 80% of existing employees are trained and equipped with new abilities in digital technologies
- 80% employee wellbeing index

Significant Improvement in 2018

	Unit	2018	Target 2018	Target 2019
Percentage of talent remained in AIS	%	97	75	80
Employee well-being index score	%	87	80	80
Percentage of talent who participated new ability training	%	95	90	95

Challenges & Opportunities (GRI 103-1, 103-2)

With the industry clearly entering a digital world, this has resulted in obvious customer behavioral changes. These changes, in turn, have allowed AIS to transform itself from a solely mobile service provider to a digital life service provider, meeting the needs of customers more quickly and with greater versatility, to maintain its leadership and competitive advantage. To meet the challenges in digital world, it is necessary to have personnel with new abilities and the willingness to acquire skills needed in the digital world of today. Attracting job applicants with such new abilities is a challenge for the Company, as is the development of personnel and continual adjustment of internal structures in order to adequately keep up with the constant changes of the digital era. The Company has therefore revised its workplace culture to be one of greater alertness, full of creativity, with fair management of remuneration and compensation, and with development and training to increase employee knowledge and expertise in digital services and thus retain quality personnel who remain with AIS for the long-term.

Management Approach (GRI 103-3)

- **Talent Attraction and Retention**
 - Collaborate with leading universities in Thailand and abroad to recruit personnel with new abilities AIS carries out its recruitment and retention strategies for personnel with new abilities by organizing road show activities in order to introduce the organization to potential candidates, as well as to present a variety of opportunities to students with special abilities in the specific fields needed in this digital age-Blockchain, AI, data analytics, etc. - attracting them to join AIS and thus help promote business growth in new areas and fields.
 - Career growth plan for talents AIS focuses on career growth planning for its talents, providing personnel with information, advice and recommendations from their supervisors in order to plan career growth and development. Last year, AIS established the "AIS Career Framework" as a tool to help guide both employees and supervisors through the process and procedures for career growth as well as to identify employees with greater potential.

- **Develop employee potential with an “anywhere, anytime, any device” culture of learning**

To enhance our employee’s skills and capabilities and allow them to grow in line with the Company’s business direction, the AIS Academy places focus on providing both online and offline learning modes. The employee lifecycle was an important determining factor considered in course development for the program, making it suitable and beneficial for personnel across a wide spectrum of responsibilities.

- o Training and development

- Fundamental Courses for day-to-day operation, includes new staff orientation, relevant law compliance, and basic foundational courses to support various work areas, such as effective sales training, English communication, etc.
- Managerial Courses focus on developing the skills necessary at the supervisor level. For example, the situational leadership course, first line manager course, second line manager course etc.
- Functional Courses are specialized for specific fields of work, such as sales skills training, customer relationship training, etc.
- Compliance Courses comprise compulsory modules required by law, such as workplace safety, fire drills and prevention.
- Courses for Talent group and potential executive role. AIS has collaborated with leading universities both in Thailand and abroad, including Harvard Business School, the University of Manchester, and the SEAC (South East Asia Center), to establish training courses that respond to corporate strategic and organizational changes. The curricula are developed and customized for each of the four talent groups, classified according to their roles and positions in the Company, and to prepare the talents based on succession plan as well as growing them for senior executive positions in the future.

- o AIS’ employees are also required to create their own individual development plan, which includes goal setting, an advancement plan, and personal objectives, and is developed in conjunction with

the competency model. It is planned, developed and analyzed jointly by employees, supervisors and human resource management in order to lay the foundations for the skills necessary for career development.

- o AIS develops Succession plan as part of company risk management using performance appraisal along with the potential assessment in order to form an individualized executive development plan with monitoring and follow-up.

- o AIS also develops an online learning platform i.e. LearnDi and ReadDi applications. The applications includes an online library of training courses, knowledge on digital technology, trends and other important news as well as online books, allowing employees to access 24/7.

- o To measure training effectiveness, AIS uses the Kirkpatrick model. This includes 5 training evaluation levels: starting from level 1 (satisfaction measurement), to level 2 (post-training behavioral changes), and up to level 5 (return on investment). In the past year, AIS evaluated its Leadership Development program which was held for talent groups at levels 1 and 2. Results showed that average leadership behaviors exhibited pre-training were at 70 percent, while post-training evaluation showed a positive percentage increase with leadership behavior at an average of 81 percent.

- **Employee Well-Being**, comprising physical, mental, and financial health care, and promotion of a positive work environment within AIS.

- o **Health and wellness program**

- AIS Wellness program was established since 2016 with the goal of promoting and developing preventive health measures under the 4 ‘E’s: Eating (diet and food choices), Emotions (mental and emotional health), Exercise (fitness and movement for a healthy lifestyle), and Economics (financial savings). AIS conducted a variety of activities, including analysis of employee morbidity statistics in order to pinpoint specific causes, the results of which were then developed as activities to promote the reduction of workplace illnesses.

o **Occupational health, safety, and environment**

AIS is committed to providing good occupational health, safety and a positive work environment for its employees culminating in visible, concrete, practical results. We work to cultivate a sustainable approach in occupational health, safety and environment while also complying to relevant laws and standards. The Company conducts activities covering both internal and external business locations following two key approaches:

- Operation Safety, which comprises established standards for work safety at every step of the operational process.
- Personal Safety, for which the Company has provided designated protective equipment for employees working in higher risk areas.

o **Promote employees' financial wellness**

Recognizing the importance of good financial management and employee savings, particularly for those nearing retirement, AIS arranges for financial experts to share knowledge and advice on financial savings, revenue and expense management, and retirement preparation. In the past year, AIS arranged sessions on Spending Plan for Wealth, Savings Plan and Tax Management, Investing as a Salary man.



• **Employees' performance appraisal**

- o AIS places an importance on performance evaluation and fair remuneration. Performance evaluations are carried out on a biannual basis covering the following categories:
 - Performance evaluation according to objectives and goals jointly determined by supervisors and subordinates.
 - Employee's progress assessment according to their training and individual development

The result will be considered and communicated to employees in order to define employee's remuneration. In 2018: there were 100% of employees who received performance appraisal.

- o In determining employee remuneration, AIS compares remuneration packages with those in the same industry, and holds to the principles of equality and consistency with the performance of both the Company and individual employees. The independent consultants are commissioned to conduct research and obtain data on wages and benefits within the labor market to be evaluated against current AIS remuneration rates and criteria, as well as to monitor various methods and forms of compensation management in other leading corporations. This allows us to better analyze and develop the AIS compensation model for employees, ensuring it is both appropriate and continues to motivate current employees and those interested in working with AIS in the future.
- o AIS uses the 3-Ps principles in determining employee remuneration as follows:
 - **Pay for Performance:** Based on the results, behavior and potential of employees
 - **Pay for Position:** Based on employees' duties and responsibilities
 - **Pay for People:** Based on specific skills required by AIS

2018 Progress

• **Talent Attraction and Retention**

In 2018, the AIS talent acquisition team had the opportunity to bring the University Road Show to 15 universities, with a total of 1,241 students responding to participate in the project. From these, 25 students were selected to join the AIS family after graduation in the past year.

• **Employee Well-Being**

Activities under AIS wellness program in 2018 e.g. the 3-month Fat-Burning campaign, an activity to encourage increased exercise among employees so as to reduce excess body fat, the provision of fitness facilities in office buildings, and the exclusive talk on stress management and emotional management.

Employee participated 14,080 staffs which is higher than target at 13,364 staffs and increased from 7,024 in previous year.



○ AIS also established its “AIS Health Care Center”, a preventive employee health care counseling center, staffed by a team of medical professionals from Phayathai 2 Hospital and equipped with modern tools and equipment that meet hospital standards. The center also includes an indoor fitness center and provides training seminars with guest speakers providing knowledge and information about mental health management, etc.

● **Occupational health, safety, and environment**

In 2018, the safety health and environmental committee set up activities as follows:

- Safety Campaigns, including the anti-virus campaign (H5N1), standard electrical outlet usage campaign, World No Tobacco Day, etc.
- Defensive Driving Program, which includes a GPS vehicle speed control system in every Company car, with a speed control level of no more than 120 kilometer per hour.
- Contractor Control Program, For AIS contractors, the Company provides workplace safety training courses, an electrical safety course and a height safety course, to ensure their compliance with AIS occupational health, safety policies and relevant laws.
- Company Fire Prevention and Suppression, The Company has conducted basic firefighting training; general fire evacuation drills; and fire evacuation drills for office buildings, exchange systems, and data centers.
- Safety Inspections, including building inspection of office space, electrical system inspections as well as a monthly fire extinguishing system inspection,

which covers fire extinguishers, emergency lighting, fire alarm systems, and fire sprinkler systems.

○ Other preventative measures

- Annual inspection of lighting quality in buildings and changing from fluorescent bulbs to LED lighting.
- Annual workplace noise level evaluations and control noise levels at no more than 85 decibels as required by law.
- Monthly indoor air quality monitoring as well as inspecting and cleaning of ventilation systems on a monthly basis.
- Quarterly indoor humidity measurements, monitoring and maintaining humidity levels at <65% to prevent an increase in mold, bacteria, germs and infections. This is achieved by regular cleaning of air conditioning systems and filters, as well as high-low pressure system inspection.
- Quarterly air temperature measurement and maintenance by adjusting parameters in line with appropriate temperature control criteria of 23–26 °C.

Note: the number of employees who participated in the program higher than total employee due to the inclusion of resigned employees.

Performance Table

	Unit	2015	2016	2017	2018
Total employee	Persons	11,885	12,207	11,884	12,314
Break down by gender					
male	Persons	4,748	4,944	4,828	4,985
female	Persons	7,137	7,263	7,056	7,329
Break down by age group					
> 50	Persons	254	375	463	554
30-50	Persons	6741	6800	6894	7024
< 30	Persons	4,890	5,032	4,527	4,736
Break down by employment type					
Permanent					
male	Persons	3,714	3,861	3,884	3,999
female	Persons	4,759	4,929	4,969	5,049
Temporary					
male	Persons	1,008	1,082	926	986
female	Persons	2,306	2,330	2,045	2,280
Break down by employee level					
Top management					
male	Persons	103	110	115	125
female	Persons	59	64	68	66
Middle management					
male	Persons	1,539	1,605	1,627	1,643
female	Persons	1,588	1,665	1,703	1,725
Operational staffs					
male	Persons	3,080	3,228	3,068	3,217
female	Persons	5,418	5,530	5,243	5,538
Employee turnover by volunteering	Persons	363	591	635	530
Ratio between employee turnover by volunteering and total employees	Percent of total employees	4.53	7.08	7.44	7.45
Employee engagement score	Percent	82	72	82	83
Break down by gender					
male	Percent	-	-	82	82
female	Percent	-	-	82	83

Remark : 1. The number of employees in the table excluded daily temporary staffs.
2. Percentage of employees engagement score breakdown by gender has been collected since 2017

	Unit	2015	2016	2017	2018
Percentage of employee received performance appraisal ^(GRI 404-3)	Percent of total employees	100	100	100	100
Total number of staffs with disability	Persons	27	27	120	120
Total employees participated AIS wellness program ²	Persons	-	2,951	7,024	14,080
Fatality rate	Persons	0	0	0	0
Injury rate	Persons	5	0	0	0
Sick leave rate	Day/persons	4	4	3	3

² AIS wellness program was established in 2016

	Unit	2018
Total number of training hour	Hours	1,332,020
Break down by gender		
male	Hours	440,869
female	Hours	891,152
Break down by employment type		
Permanent	Hours	683,280
male	Hours	286,547
female	Hours	396,733
Temporary	Hours	648,740
male	Hours	154,321
female	Hours	494,419
Break down by employee level		
Top management	Hours	9,275
male	Hours	6,213
female	Hours	3,062
Junior management		162,283
male	Hours	95,490
female	Hours	66,792
Operational staffs		1,126,462
male	Hours	339,165
female	Hours	821,297
Average training hour per FTE	Hours/person	106

SOCIAL INCLUSION

Leverage our digital infrastructure & solutions to uplift community well-being & reduce the digital divide

Target 2021

Improve the wellbeing of 100,000 people through our digital platform and collaboration

Significant Improvement in 2018

	Unit	2018	Target 2018	Target 2019
Farmsuk's active users	Persons	25,203	25,000	40,000
Aor Sor Mor Online's users	Persons	52,000	50,000	80,000

Challenges & Opportunities ^(GRI 103-1)

Today, telecommunication network in Thailand well covers beyond 98% of population with 4G technology playing key role in supporting diverse services to enhance people's lives and work. However, a large number of rural population have access only to basic service such as telephony remains to have low internet adoption. Data collected by the National Statistical Office suggest that 90% of population use mobile phone but only 57% access internet. Also, 70% of Thai people work in the agriculture sector, and these people tend to have limited access to knowledge base and technologies, partly causing income gap. AIS as the leading telecommunication infrastructure and digital service provider sees this as an opportunity to bring in digital technologies and innovations as a mean of elevating the wellbeing of rural population. At the same time, this represents an opportunity for digital platforms to make an impact on an unexplored target group, expanding the marketing coverage and preparing Thailand for the digital economy. ^(GRI 103-2)

Management Approach ^(GRI 103-2)

- proposal to NBTC to reduce digital divide by providing decent quality of internet access.
- **Integrated affordable digital device with the price range** starting from Baht 1,000 – Baht 2,000 only and campaign to Digital for Thais initiatives ensuring the inclusivity and accessibility for all Thais to help reduce digital divide and increase digital literacy
 - **Promote digital platforms to enhance community well-being and economic wellness (Digital for Thais)**

 - **Sarnrak Konkeng Huajai Kreng (Strong People Strong Heart):** AIS gives scholarships to students from low income families to help them pursue an education up to and including the level of Bachelor's degree. AIS has also provides distance learning through the Skype platform, to give an opportunity for students within the Sarnrak program to learn English with native speaking teachers after school hours. AIS also engages with content partners to provide educational contents through various AIS channels.
 - **Sarnrak Sarnkuamroo (Learning):** AIS uses our strength as a broadband internet provider with coverage reaching over 7 million households in 57 provinces to enable educational content in the form of documentaries and scientific programs for border schools through the AIS PLAYBOX.
- **Invest in Digital Infrastructure Currently,** AIS's 3G and 4G have full coverage of 98% of total Thai population and its fixed broadband covers 50 provinces across Thailand. AIS also contribute to the Universal Service Obligation (USO) via project

- **Agriculture:** Encourages the development of digital technology and agricultural knowledge for helping farmers develop more effective agricultural practices and direct access to the markets.



- **“Farmsuk”** an application that provides insights through the vision of “sorn serm”, or “teach and develop”. The purpose of the app is to provide exclusive knowledge on agriculture to farmers who use the AIS mobile service. This service includes data on the farmers’ surrounding land through the installation of NB-IOT, information on the buying and selling of products, knowledge from experts and best practices from the community, and information on the weather. The benefits are to provide the farmers with a more effective farm planning and cost reduction due to uncertain factors such as the weather and the environment.
- **“Farmsuk shop”** an application under the vision of “build”. It acts as a mobile market place for farmers to sell their products including OTOP products directly to customers. The channels give farmers the opportunity to manage their own selling prices and provide a better solution by cutting out the middle man and giving the customers more transparency in buying products directly from the original source.
- **Public Health:** Focus on digital platform to facilitate the working process of the village health volunteers, thereby encouraging better public health in rural areas, decreasing the chances of diseases, and protecting communities from other health threats.

- **Aor Sor Mor online application** – a networking platform for Tambon Health Promoting Hospitals (THPH) and village health volunteers (Aor Sor Mor). The functions of the application include sharing news, scheduling meetings, group discussions, and reporting through a streamlined process that is more efficient and convenient for its users. This enhance the effectiveness of the overall management of the local health unit, equipped with better analysis of health data and effective handling of health issue to the right target groups. For more details, please see <http://www.ais.co.th/aorsormor/en/>.



- **Startups:** Cooperate to develop and expand business opportunities with startups to help connect them with funding and their potential markets.
- **AIS the StartUp Program** a value-sharing platform through which tech startups can cooperate with AIS to accelerate the development of their products and services identified as having potential demand in current and future markets. The process starts from the incubation of the idea and testing it out on potential customers, to launching it to the market and acquiring funding from local and global investors. AIS sets the following strategy for running the AIS the StartUp program Drive the momentum of recognition in Thailand and Asia, Form an effective cooperative platform for long-term business purposes, Commit to supporting the innovation economy

2018 Progress

- **Education**

- **Sarnrak Konkeng Huajai Kreng** over a span of 17 years, the program has given scholarships to 832 students, 221 of whom have completed their Bachelor's degrees.
- **Sarnrak Sarnkuamroo** by 2018, the "Sarnrak Sarnkuamroo" project reached 36 schools with consistent monitoring for the effectiveness of the program. Last year, AIS expanded the channel through the AIS PLAY application by partnering with content partners to provide more edutainment programs, such as Chinese is All Around – online Chinese learning in the form of VDO on-demand. From this co-operation, our partners can also gain benefits from offering in-app purchasing of their exclusive content.

- **Public health** in 2018, the application had been developed to include a new feature in the form of location mapping for targeted groups or occurrences related to public health. This provided the Aor Sor Mor in the communities with better access to health information. The app now offers more accuracy, precision, and swiftness, while people in the communities have better access to public health information and receive quicker assistance from their Aor Sor Mor.

- **Startups** In 2018, AIS expanded its partnerships with local startups in different regions of Thailand with an aim of supporting the local ecosystem, growing together, and providing more opportunities for startups to partner with AIS. We also provide the real experience as well as the knowledge needed to help startups grow their business. For example, AIS partners with the "Fixzy" application (an easy home maintenance service) as an official AIS representative providing the installation service for AIS Fibre. By using Fixzy, AIS customers will get a 10% discount on the monthly service fee together with free installation. AIS also cooperates with the "O care" application to provide a convenient blood test and analysis service at home through a mobile device for AIS customers. This can help customers to reduce their time spent traveling to a hospital. Currently, there are **48** startups which have joined hands with AIS, increasing from **45** startups in 2017.

Performance Table

	Units	2016	2017	2018	Target 2018
Agriculture					
Farmsuk application					
Number of farmers using the application	Persons	-	200	1,600	5,000
Number of Farmsuk Learning Centers	Locations	-	-	2	3
Number of farmers who improved farming processes	Persons	-	-	30	20
Number of farmer shared there knowledge on the application	Persons	-	5	17	20
Farmsuk shop					
Number of shops selling on the application	Shops	-	173	445	500
Number of active users					
Application	Persons	-	9,681	17,235	15,000
Website	Persons	-	-	6,368	5,000
Transactions via the application	Baht	-	232,990	661,342	700,000
Public health					
Aor Sor Mor online application					
Number of active users	Persons	2,000	22,000	52,000	50,000
Smartphone adoption by Aor Sor Mor	Persons	350	7,000	18,200	17,500
Reduced papers	Sheets	16,800	184,800	312,000	300,000
Reduced fuel consumption	Baht	-	12,000,000	31,200,000	30,000,000

CYBER WELLNESS AND ONLINE SAFETY

Establish trusted brand in cyber wellness & online safety to build healthy online space

Target 2021

- Become the most trusted operators in cyber-wellness
- Reach 500,000 people through our cyber-wellness & online safety programs

Significant Improvement in 2018

2,726 ZoneAlarm subscriptions and 372 Safe & Care subscriptions

Challenges & Opportunities ^(GRI 103-1)

In the light of internet proliferation, there has been growing social concerns regarding cyber risks exposed to the communities, e.g. identity theft, internet addiction, cyber-bullying, etc. According to DQ institute, in 2017, 60% of Thai children are exposed to cyber risks or 4% higher than the global average, while currently there is little work being done to tackle these risks. As a Thailand's leading telecommunication service provider, AIS considers company's obligation to ensure cyber-wellness and online safety by ensuring healthy online spaces for Thai society. AIS believes that the company could reduce exposure to reputational risk impact as a responsible service provider while improving engagement with customers. In addition, we also see the opportunities through our new products and solutions to serve customers' needs and to protect the society from cyber risks.

Management Approach ^(GRI 103-2)

2018 marked a significant milestone for AIS as the executive management has defined "Cyber-wellness and Online safety" as one of AIS materiality issues and committed to build healthy online spaces for Thais. AIS aims to proactively mitigate risks to vulnerable groups in the society by identifying such groups comprising children age 5-12, adults, and senior citizen. Our strategy focuses on 3 important elements, namely, Prevention, Education, and Awareness.

Cyber-wellness & online safety strategy



- **Prevention:** focus on keeping the vulnerable groups to stay safe online by protecting them through the devices and our networks, which include features such as web filtering, parental controls, malware detection, etc.
- **Education:** aim to help children use internet and technology in safe and responsible ways by working in cooperation with schools.
- **Awareness:** in Thailand, despite prevalent cyber risks e.g. identify theft, there are few awareness in the society. AIS will focus on raising awareness of consequence and risks regarding the use of internet and technology.

To achieve these goals, AIS has set up a working team, led by the Chief Consumer Business Officer and consisting of staffs from product marketing, engineering, cyber security and information resilience, etc. to leverage our knowledge and expertise to mitigate the risks to the vulnerable groups.

2018 progress (GRI 103-3)

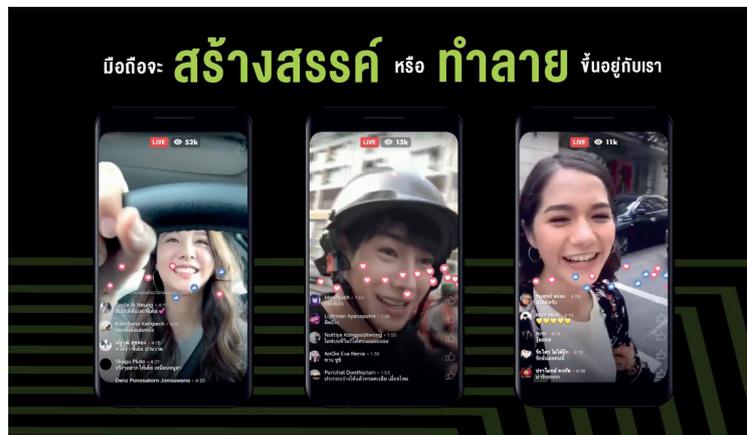
During the year, our efforts in cyber wellness and online safety were reflected in the following actions:

- **Prevention:** AIS has offered the application-based security solutions e.g. ZoneAlarm and Safe & Care which provide features such as malware detection, trusted WiFi. AIS continue to provide one-month free trial for ZoneAlarm application to build customers interest toward cyber risk prevention. At year end, there were 2,726 ZoneAlarm subscriptions and 372 Safe & Care subscriptions. In the meantime, AIS also started to co-develop network-based security solution

and targeted to launch the solution in 2019. With no installation required, the new solution is expected to better penetrate and effectively prevent vulnerable groups from emerging cyber risks.

- **Awareness:** with an aim to build awareness toward excessive social networks usage and internet addiction, AIS has launched the 3 short video clips, which encourage the smartphone users to put their phone away at certain time such as when driving and walking. Please scan these QR codes to view the video clips

Videos enhancing cyber-wellness & online safety



By Violette Wautier	By Pek Palitchoke	By Toey Jarinporn
 <p>https://www.youtube.com/watch?v=nhUTkr4KQRI</p>	 <p>https://www.youtube.com/watch?v=UHKEL9RthOA</p>	 <p>https://www.youtube.com/watch?v=DDDCB9Udomg</p>

For more details, please scan the QR code or visit the websites



ZoneAlarm

Provide safety online lifestyle, away from cyber attacks

- Secured connection when surfing online with mobile internet and Wi-Fi.
- Instantly alert when unsafe app detected
- Always keep update new malwares or virus signature
- Trusted public Wi-Fi hotspots recommended



AIS Safe & Care

Encourage family safety with real time locations of members and restrict the use of their smartphones.

- Real time location based services, family location and check-in
- Geo-fencing: Create safety zones for family members
- Parental control: Control the member’s mobile usage by setting access and call restriction
- Phone security: Find, ring, lock and wipe any family phone if lost or stolen

To demonstrate our commitment to build healthy online spaces for Thais, we have set following goals:

	Unit	2019 target	2020 target	2021 target
People engaged in our cyber-wellness & online safety programs	Persons	100,000	250,000	500,000

ENVIRONMENT

EMISSIONS

Reduce GHG emission and utilize renewable energy in most possible extent in our operation

Targets 2023 ^(GRI 305-5)

- Reduce GHG emission intensity (tCO₂e per terabit of data traffic) scope 1 and scope 2 combined by 75%, compared to the base year of 2015
- Increase renewable energy usage from 0.06% of total energy consumption in 2017 to 5% in 2023

Significant Improvements in 2018

- Set short-, medium-, and long-term goals related to climate change, including GHG emission intensity reduction, e-Bill adoption, and renewable energy usage.
- Achieved a scope 3 GHG reduction by implementing Digital Acceptance for the network site acceptance process.
- Achieved 2.2 million users of e-bill over the target of 2 million

Challenges & Opportunities ^(GRI 103-1)

Climate change continues to become increasingly important in both the global and the national context. For AIS, climate change presents both business risks and opportunities. As a telecommunication service provider, we understand that the increasing severity of unpredictable natural impacts resulting from climate change could put our ability to provide a service to our customers at risk. The concern on telecommunication network is rising particular with the emerging digital and telecommunication technologies enable much wider services to the economy and society. Meanwhile, we also foresee opportunities in providing ICT services and other avoided emission services to our partners, customers and various communities. From our efforts to reduce energy consumption and to become more resilient to climate change, AIS has constantly improved our long-term cost structure while at the same time reducing our operational risk.

Management Approach ^(GRI 103-2)

As a leading digital life service provider in Thailand, AIS believes that it is our responsibility to address climate change through leveraging our capability and innovation. We are committed to the constant reduction of GHG emissions and to improving energy efficiency in our operations as well as in the development of new products and services. We also aim to promote a green value chain among our partners, suppliers, and distributors. This year, to demonstrate our commitment, AIS has set a number of short-, medium, and long-term climate related targets. The AIS Environment governing body, led by the Chief Technology Officer (CTO), is responsible for environmental initiatives and management, which are applied corporate-wide and include all key operations and administrative support. Supervised by the CTO, the Environment Expert Team sets the KPIs for developing the environmental management plan, monitoring its progress, and reporting its timeline. The Company's environment-related performance is monitored and reported quarterly to the Sustainability Development Committee, and further updated to the Board of Directors.

Our environmental policy was specified by the Board of Directors in order to promote a sustainable environment, including:

- to assess, manage, monitor and minimize overall environmental impacts
- to comply with all applicable environmental laws and regulations as a minimum
- to ensure operational and network resilience to climate change



Scan the QR code or visit http://www.ais.co.th/sustainability/policy/english/08%20AIS_Environmental_Policy.pdf to download the AIS Environmental Policy

2018 Progress ^(GRI 103-3)

2018 marked a year of strategic movements in our sustainability practices, including climate change-related issues, resulting in the setting of targets and a commitment to several projects for the reduction of GHG emissions.

- o Made efforts to achieve a scope 3 GHG reduction by implementing Digital Acceptance for the network site acceptance process with our vendors, which expects to generate a reduction of 3.5 million fewer paper sheets being used over the full year.
- o Defined the scope of EMS implementation at 2 out of 9 data centers, with an independent third-party auditor completed on-sites audit activities, covering energy efficiency and waste management.
- o Continued to encourage our customers to reduce their environmental footprints by promoting digital processes, including electronic bills and electronic service applications (myAIS app) and achieved the number of e-bill users of 2.2 million and 5.6 million of myAIS app.
- Overall, our absolute total energy consumption increased slightly by 0.9% YoY in 2018, mainly due to lower fuel consumption offset by higher electricity use due to growing demand for connectivity resulting in network capacity expansion.
- At AIS, approximately 46% of total water consumption is used for the cooling systems at our data centres, while the rest is general water use in the offices. In 2018, in addition to opening a new building for call centre development and training arena, we also tested and replaced a new fire extinguisher system at our data centre, which required water usage in the testing processes and resulted in increased water consumption. Overall water consumption rose 4.6% YoY in 2018 compared to 2017.

Looking Toward 2019

In 2019, AIS will continue to reduce GHG emission further through key initiatives as part of a Bt280 million investment plan, which will in turn enhance cost saving and energy efficiency. For example, we plan to install 3,000 solar base stations to reduce electricity consumption while continuing to promote electronic bill adoption, targeting 4.6 million subscribers by 2019. In addition, we expect two of our nine data centres to be ISO 14001:2015 certified by the year 2019.

To demonstrate our commitment to the reduction of GHG emissions, we have set the following goals:

- Reduce GHG emission intensity for scope 1 and scope 2 combined by 58% compared to the base year of 2015 within 2019 and by 75% within 2023
- Increase the use of renewable energy to 1% of total energy consumption by 2019 and 5% by 2023

Initiatives for GHG reduction	Unit	2015	2016	2017	2018	2018 target	2019 target
Electronic bill adoption ^(GRI 305-5)							
e-Bill subscribers	Million subscribers	0.3	0.4	0.5	2.2	2.0	4.6

Performance Tables

	Units	2015	2016	2017	2018
GHG emission ^(GRI 305-1, 305-2, 305-4)					
Total GHG emissions (Scope 1 and 2)	Metric tonnes CO2e	328,840	459,819	519,950	525,451
Direct GHG emissions (Scope 1) ^{1 (GRI 305-1)}	Metric tonnes CO2e	7,280	12,965	11,431	10,687
Indirect GHG emissions (Scope 2) ^{2 (GRI 305-2)}	Metric tones CO2e	321,560	446,854	508,519	514,764
GHG intensity ^{3 (GRI 305-4)}	tCO2e/terabit of data traffic	0.088	0.072	0.041	0.025
Energy ^(GRI 302-1)					
Total energy consumption	MWh	656,671	807,703	911,827	919,900
	Terajoule ⁴	2,363	2,908	3,283	3,311
Total non-renewable energy consumption	MWh	656,618	807,380	911,372	919,320
	Terajoule	2,363	2,907	3,281	3,309
Direct energy consumption: Fuel and other ⁵	MWh	27,778	39,722	37,778	35,000
	Terajoule	100	143	136	126
Indirect energy consumption: Electricity ⁶	MWh	628,840	767,658	873,594	884,320
	Terajoule	2,263	2,764	3,145	3,183
Energy from renewable sources ⁷	MWh	52.56	322.88	454.73	580.38
	Terajoule	0.1892	1.1627	1.6370	2.0894
% Energy from renewable sources	% to total energy consumption	0.01%	0.04%	0.05%	0.06%
Power Usage Effectiveness (PUE) at Data Centres ⁸	unit	1.80	1.80	1.88	1.61
Water ^(GRI 303-1, 2016 version)					
Total water use ^(GRI 303-1)	Cubic meters	109,631	117,843	151,559	158,542
Municipal Water ⁹	Cubic meters	109,631	117,843	148,377	154,933
Ground water ¹⁰	Cubic meters	-	-	3,182	3,609

Details of note 1-10 are provided on page 53

WASTE ^(GRI 306-2)

Reduce & recycle waste from operation as well as encourage customers to dispose e-waste properly

Targets 2021

- Collect 9 million units of obsolete mobile and related electronic waste from consumers for proper recycling
- Reduce non-recyclable e-waste from AIS services and operations from 5% of total waste in 2018 to 3% in 2021

Significant Improvements in 2018

AIS has set short-, medium-, and long-term e-waste collection targets. As one such initiative, AIS has also announced a partnership with Thammasat University to collect electronic waste in campus areas for proper recycling.

Challenges & Opportunities ^(GRI 103-1)

The amount of e-waste from mobile devices and computers is expected to increase significantly on a global scale. According to a publication by the Pollution Control Department and the Thailand Development Research Institute, mobile phones contributed 55% of the total e-waste in Thailand in terms of units in 2017 with a 5% 4-year CAGR. However, the awareness of e-waste recycling remains low and most old devices ended up in landfill or kept at home, which can cause serious environmental and health problems due to the toxic chemicals. As a leading mobile operator in Thailand, AIS is also one of the major distributors of smartphones to Thais and we believe that it is our responsibility to educate and engage with customers to help them dispose of such electronic waste properly. This will in turn reduce our exposure to the related reputational risk while enhancing consumers' perception toward AIS as a responsible service provider. Also, it will prepare us to keep in line with potential regulations and legal requirements related to e-waste in Thailand such as the Draft Management of Waste from Electrical and Electronic Equipment (WEEE) Act, which requires producers, providers and operators to dispose properly of the electronic waste from their products and operational processes.

Management Approach ^(GRI 103-2)

With the aim of reducing and recycling waste from operations as well as encouraging customers to dispose of their e-waste properly, AIS aspired to play a significant role in sustainable waste management (Waste Stewardship) in 2018. Led by the Chief Finance Officer and Chief Technology Officer, AIS seeks to minimize environmental impacts from resource use, waste and e-waste in both our own operations and across the value chain. The Waste Stewardship team comprises staff from Purchasing, Marketing and Engineering, as well as environmental experts. The team reports to the Sustainability Development Committee on a quarterly basis.

2018 Progress ^(GRI 103-3)

- Stipulated more stringent criteria in the selection process for specialized e-waste disposal by authorized vendors, aiming to minimize residual waste after the recycling process.
- Successfully initiated an e-waste collection program with Thammasat University and will provide e-waste drop off points at the university along with building awareness to encourage university students and staff to join the program before we handover the collected e-waste to the authorized disposal services.
- Invited an environmental expert from Pollution Control Department, Ministry of National Resources and Environment to conduct a seminar of basic green procurement knowledge to 30 AIS purchasing staffs.
- Set up 'Green Procurement' by purchasing products and services that cause minimal adverse environmental impacts and include environmental compliance clauses into TOR/Specification to ensure product/service meet or exceed environmental standard and regulation.

- Overall, waste reduced 6.5% YoY in 2018 mainly from reduced non-hazardous waste. AIS has launched a campaign, which successfully reduce general office waste, resulting in a 40% decrease in non-hazardous waste, which partly offset by higher hazardous waste from increasing amount of end of life network power batteries. Our e-waste, including batteries were sent to the authorized e-waste disposal services. As a result, portion of recycled waste increased significantly from last year.

Looking Toward 2019

- Expand alliances in new areas for end-of-life mobile drop-off points while aiming to build awareness of e-waste recycling among the public
- Plan to adopt ‘Green Procurement’ for 30% of new non-network item purchased
- Launch a campaign to reduce municipal waste and

implement office waste sourcing in Bangkok and selected regional head offices, applying the 3Rs (Reduce, Recycle, Reuse) to urge staff to reduce the use and waste of office supplies.

To demonstrate our commitment to reducing waste, we have set the following goals:

- Collect one million units of obsolete mobile and internet-related e-waste from customers for proper recycling by 2019 and 9 million units in total by 2021
- Reduce residue from e-waste after the recycling process to 4.5% in 2019 and 3% by 2021, compared to 5% in 2018

Performance Table

	Units	2015	2016	2017	2018
Waste (GRI 306-2)					
Total waste	Tonnes	1,296	1,303	1,308	1,223
By type					
Non-hazardous waste ¹¹	Tonnes	1,183	1,215	1,209	728
Hazardous waste ¹²	Tonnes	113	88	99	495
By disposal method					
Total landfill	Tonnes	1,054	1,081	1,076	665
Total recycle	Tonnes	242	222	232	558
% recycled	% to total waste	18.7%	17.0%	17.7%	45.6%

Details of note 11-12 are provided on page 53

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Remarks:

1. Direct GHG emissions are from the combustion of fuel in company vehicles and backup generators, septic system and CO2 fire extinguisher. The change of GHG Scope 1 from the base year of 2015 is from increase of implementation and operation activities mainly due to nationwide network coverage and capacity expansion. The source of emission factor and Global Warming Potential (GWP) values 100 year time horizon, Fourth Assessment Report (AR4) used in the calculation are referenced from Intergovernment Panel on Climate Change (IPCC) guidelines, Vol.2. GHG Inventory Calculation tool is from Thailand Greenhouse Gas Management Organization (TGO). Consolidation approach use in this report is 'operational control'.
2. The change of GHG Scope 2 from the base year of 2015 is from increase of electricity used due to nationwide network coverage and capacity expansion. The source of emission factor used in the calculation is referenced from 'Thailand Grid Mix Electricity LCI Database 2552 (2009)'. Consolidation approach use in this report is 'operational control'.^(GRI 305-5)
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.^(GRI 305-4)
4. 1 MWh = 0.0036 Terajoule
5. Direct energy consumption is mostly from fuel for operation vehicles and backup generators. The monthly collected data in liters are then 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 PV installed in a few base stations and solar-rooftop from data centers and a call center. Solar energy from solar-rooftop is actually recorded through the system while that from base stations is calculated from solar capacity of each site using a typical formula as below:-
$$\text{Annual Solar Energy (kWh)} = \text{Solar PV capacity (kWp)} \times \text{system factor} \times \text{avg. 5 hour/day} \times 365 \text{ days}$$
8. Power Usage Effectiveness (PUE) is a metric to measure efficiency of the 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. Municipal Water is 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 m³. For 2018, we have improved our data collection methodology for greater accuracy. We then looked back and correct the past usage of water to reflect the veracity of the data accordingly.
10. Ground Water or aquifer is the 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, usage of which is measured and collected every month.
11. Non-hazardous waste is defined as office waste or municipal waste which does not included those that are listed in the latest announcement of the Pollution Control Department (PCD) and Department of Industrial Work (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 AIS Tower 1 and Tower 2, which collected by municipal government agency sent to landfill. The estimation average waste quantity per staff generated was multiply with the total number of staffs at the end of FY2018 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.
12. Hazardous waste in reporting is 'e-waste' ranging from network and power equipment, batteries to mobile handsets and accessories. The e-waste weight data collected from our Asset Management System which records weight of the written-off material for disposal.

ADDITIONAL INFORMATION

ABOUT THIS REPORT

Objective

The objective of report is the disclosure of information on the economic, environmental, and social performance of AIS. The report focuses on material issues that may affect the abilities of AIS and its subsidiaries to conduct their business operations in a sustainable manner according to the 7 strategic priorities.

Scope and Boundary

The 6th AIS Sustainability Report is presented according to the guidelines set forth by the Global Reporting Initiative (GRI) Standards: Core Option and the UN Global Compact (UNGC).

The scope and boundary of information presented in this report consists of information gathered both directly and indirectly from key stakeholders through surveys as well as information regarding AIS and all subsidiaries within the AIS group as stated in the Annual Report 2018 page 260–264, equivalent to 99.99% of total revenue as of 31 December 2018 which is in accordance with the acquisition of the following companies which has been taken place after 26 January 2018;

- CS Loxinfo (CSL) Plc., a provider of internet based services which is a 99.11% owned subsidiary of AIS
- Teleinfo Media (TMC) Plc., a provider of online advertising platforms on websites, PCs, mobile devices and laptops for business and individual users which is a 99.11% owned subsidiary of AIS through CSL
- AD Venture (ADV) Plc., a provider of content through mobile devices, community portal services, and applications on smartphones via ISO and Android systems which is a 99.11% owned subsidiary of AIS through CSL
- Yellow Pages Commerce (YPC) Co., Ltd., a provider of online advertising services which is a 99.11% subsidiary of AIS through CSL

In-depth information regarding the nature of the business, management structure, practice of good corporate governance, risk management, internal control and internal auditing, recognitions and significant events as well as business performance can be found in the Annual Report 2018 at: <http://investor.ais.co.th>

Reporting period

1st of January 2018 – 31st of December 2018, unless otherwise stated.

Data verification

- Numerical data dealing with results apply the same data as published in the audited annual financial statements of 2018 which have been audited by an independent external auditor.
- Data regarding environmental performance and employees' training are audited and verified according to the GRI Standards by independent auditors from SGS (Thailand) Co., Ltd. For further details, please see page 63–64

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Process for Defining Report Quality

- **Balance of information:** AIS adheres strictly to the presentation of information that is balanced, both positive and negative, so that readers can evaluate our work outcomes on sustainability with accuracy
- **Comparability of content:** AIS presents information on previous work results to show the changes and developments that have occurred in the organization
- **Accuracy:** AIS carries out verifications to be sure that the information in this report is correct, accurate and complete in terms of containing the full details
- **Timeliness:** AIS prepares this report annually so that interested stakeholders can evaluate the outcomes of our work performance in terms of sustainability as needed within foreseeable timeframes
- **Clarity:** AIS presents information that is clear and in an easy-to-understand format
- **Reliability:** AIS implements steps for the verification of information through internal working units so that readers can be assured of correct, transparent and verifiable content

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
General Disclosures					
GRI 102: General Disclosures 2016 (Organizational Profile)	102-1 Name of the organization	7	-	-	-
	102-2 Activities, brands, products, and services	7-8	Remark: AIS did not sell any banned or disputed products	-	-
	102-3 Location of headquarters	55, Back Cover	-	-	-
	102-4 Location of operations	7-8	-	-	-
	102-5 Ownership and legal form	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 206	-	-
	102-6 Markets served	7-8	-	-	-
	102-7 Scale of the organization	7, 38	-	-	-
	102-8 Information on employees and other workers	38-39	Remark: No significant variation in employment numbers and changes during the reporting year.	8	-
	102-9 Supply Chain	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 28	-	2
	102-10 Significant changes to the organization and its supply chain	This page	Remark: No significant changes (i.e. location, operation, share capital structure, supply chain, etc.) during the reporting year.	-	2
	102-11 Precautionary principle or approach	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 93-98	-	-
	102-12 External Initiatives	6, 11-12	-	-	-
	102-13 Membership or associations	8	-	-	-
GRI 102: General Disclosures 2016 (Strategy)	102-14 Statement from senior decision-maker	5-6	-	-	19
	102-15 Key impacts, risks, and opportunities	11-12	-	-	19

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
GRI 102: General Disclosures 2016 (Ethics and Integrity)	102-16 Values, principles, standards, and norms of behaviour	AIS website	http://www.ais.co.th/sustainability/en/ais-business-code-of-ethics-cg.html	16	12-14
	102-17 Mechanisms for advice and concerns about ethics	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 81-83	16	12-14
GRI 102: General Disclosures 2016 (Governance)	102-18 Governance structure	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 55	-	1, 20
	102-20 Executive-level responsibility for economic, environmental, and social topics	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 55, 62	-	1, 20
	102-21 Consulting stakeholders on economic, environmental, and social topics	10, 13, 14, and 55	-	16	1, 20
	102-30 Effectiveness of risk management processes	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 93-98	-	1, 20
	102-31 Review of economic, environmental, and social topics	9-14	-	-	1, 20
	102-32 Highest governance body's role in sustainability reporting	AIS Annual Report 2018	Remark: Refer to AIS Annual Report 2018, page 106	-	1, 20
	102-33 Communicating critical concerns	14	-	-	1, 20
GRI 102: General Disclosures 2016 (Stakeholder Engagement)	102-40 List of stakeholder groups	14	-	-	-
	102-41 Collective bargaining agreements	Not applicable	Reporting on this indicator is not applicable because AIS does not have trade union. AIS respects and fully supports the rights of employee in freedom of association in accordance with laws.	-	21

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
	102-42 Identifying and selecting stakeholders	9, 14	-	8	-
	102-43 Approach to stakeholder engagement	9-10, 14	-	-	21
	102-44 Key topics and concerns raised	5, 14		-	21
GRI 102: General Disclosures 2016 (Reporting Practice)	102-45 Entities included in the consolidated financial statements	AIS Annual Report 2018	Remark: Refer to the entities provided in AIS Annual Report 2018, page 150 including Advanced Info Service Plc.	-	-
	102-46 Defining report content and topic Boundaries	55	-	-	-
	102-47 List of material topics	10-12, 16-17	-	-	-
	102-48 Restatements of information	This page	Remark: No restatement in 2018	-	-
	102-49 Changes in reporting	This page	Remark: No significant changes in scope and boundary from previous reporting periods.	-	-
	102-50 Reporting period	55	-	-	-
	102-51 Date of most recent report	This page	Remark: Most recent previous report is Annual Report and Sustainability Report 2017.	-	-
	102-52 Reporting cycle	This page	Remark: AIS publishes Sustainability Report annually.	-	-
	102-53 Contact point for questions regarding the report	55, Back cover	-	-	-
	102-54 Claims of reporting in accordance with the GRI Standards	55	-	-	-
	102-55 GRI content index	56-62	-	-	-
	102-56 External assurance	63-64	-	-	-

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
Materials Topics					
Digital innovation					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11, 19	-	-	-
	103-2 The management approach and its components	19-24	-	-	-
	103-3 Evaluation of the management approach	19	-	-	-
AIS's own indicator	Number of active partners, with a product and/or service launched in the market on AIS Partner Platform	19	-	-	-
Data privacy & Cyber security					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11, 26	-	-	-
	103-2 The management approach and its components	26-31	-	-	-
	103-3 Evaluation of the management approach	26	-	-	-
GRI 418: Customer Privacy	418-1: Substantiated complaints concerning breaches of customer privacy and losses of customer data	31	-		
Social inclusion					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11, 40	-	-	-
	103-2 The management approach and its components	40-46	-	-	-
AIS's own indicator	Average network interruption frequency	-	Remark: in 2018 = 0.05		
	Average network interruption duration	-	Remark: in 2018 = 12 minutes		

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
	103-3 Evaluation of the management approach	40	-	-	-
GRI 201: Economic Performance	201-1 Direct economic value generated and distributed	32	-	7, 9, 11	-
Cyber wellness & Online safety					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11, 44	-	-	-
	103-2 The management approach and its components	44-46	-	-	-
	103-3 Evaluation of the management approach	44	-	-	-
Human capital development					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11, 34	-	-	-
	103-2 The management approach and its components	34-39	-	-	-
	103-3 Evaluation of the management approach	34	-	-	-
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	38	-	8	6-8
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	39	-	4, 8	6-8
	404-2 Programs for upgrading employee skills and transition assistance programs	35	-	8	6-8

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
	404-3 Percentage of employees receiving regular performance and career development reviews	36, 38	-	5, 8	-
GRI 405: Diversity and Equal Opportunity	405-1 Diversity of governance bodies and employees	38	Remark: Refer to AIS Annual Report 2018, page 44-50, 73	8	6-8
GRI 403: Occupational Health and Safety	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	39	Remark: AIS is under process of data collection for contractor and publish in future reports.		
Emissions					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	48	-	-	-
	103-2 The management approach and its components	47-48		-	-
	103-3 Evaluation of the management approach	47, 51	-	-	-
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	50	-	3, 12, 13	9-11
	305-2 Energy indirect (Scope 2) GHG emissions	50	-	3, 12, 13	9-11
	305-4 GHG emissions intensity	50	-	13	9-11
GRI 302: Energy 2016	302-1 Energy consumption within the organization	50	-	7, 8, 12, 13	9-11
GRI 303: Water and Effluents 2016	303-1 Water withdrawal by source	50	-	6	9-11
Waste					
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	51	-	-	-

GRI Content Index					
GRI Standard	Disclosure	Page number (s) and/ or URL (s)	Omissions/ Remark	SDGs	UNGC
	103-2 The management approach and its components	51-52	-	-	-
	103-3 Evaluation of the management approach	51	-	-	-
GRI 306: Effluents and Waste 2016	306-2 Waste by type and disposal method	52	Remark: 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.	3, 6, 12	9-11



ASSURANCE STATEMENT

SGS (THAILAND) LIMITED'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED'S CORPORATE SUSTAINABILITY REPORT FOR 2018

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS (Thailand) Limited was commissioned by Advanced Info Service Public Company Limited (hereinafter referenced to as AIS) to conduct an independent assurance of the Corporate Sustainability Report year 2018 in the section of Environmental and Human Capital Management (hereinafter referred to as CSR Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in this report.

The information in the CSR Report of AIS and its presentation are the responsibility of the management of AIS. SGS (Thailand) Limited has not been involved in the preparation of any of the material included in the CSR Report.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all AIS's stakeholders.

The SGS protocols are based upon internationally recognized guidance, including the Principles contained within the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines (2016) for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This report has been assured at a moderate level of scrutiny using our protocols for:

- evaluation of content veracity;
- AA1000 Assurance Standard (2008) Moderate evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008) and;
- evaluation of the report against the Global Reporting Initiative (GRI) Sustainability Reporting Standards (2016).

The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, and the management at AIS office, Phaholyothin Rd., Samsen Nai, Phayathai, Bangkok 10400, documentation and record review and validation with external bodies and/or stakeholders where relevant. Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS (Thailand) Limited affirm our independence from AIS, being free from bias and conflicts of interest with the organization, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors experienced in one or more of the following standards; AA1000, GRI, QMS, EMS, SMS, EnMS, Carbon Footprint, Water Footprint, GHG Validation - GHG Verification, Lead auditors and experience on the SRA Assurance service provisions.

VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within CSR Report verified is accurate, reliable and provides a fair and balanced representation of AIS sustainability activities from 1st January 2018 to 31st December 2018.

The assurance team is on the opinion that the Report can be used by the Reporting Organization's Stakeholders. We believe that the organization has chosen an appropriate level of assurance for this stage in their reporting. In our opinion, the content and reported data of the report meet the requirement of GRI (2016) in accordance with Core option and AA1000 Assurance Standard (2008), moderate level assurance.

AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

Customer, society, environment, shareholders, investors, employees and business partners are identified and recognized as the important stakeholders by AIS and communications. AIS communicated with internal and external stakeholders in various ways in the respective divisions and sites. Positioning of sustainability is under the direct control of the management. The communication with stakeholders is continuously implemented in the divisions and sites including the headquarters. For future reporting, AIS may proactively consider having more direct multi-ways involvement of stakeholders during future engagement.

Materiality

AIS has established effective processes for issues determination that are material to the business. Formal review has identified stakeholders. Issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to stakeholders. It is recommended to continuously enhance stakeholders' understanding impacts of AIS.

Responsiveness

The report includes coverage given to stakeholder engagement, as well as the response to the material issues concerned by the stakeholders.

GLOBAL REPORTING INITIATIVE REPORTING GUIDELINES CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

AIS's CSR Report year 2018 is prepared in accordance with the core option for GRI Standard (2016) and fulfills all the required content and quality criteria for the identified aspects listed as below;

GRI 302 – Energy 2016; (302-1 - Energy consumption within the organization)

GRI 303 – Water 2016; (303-1 – Water withdrawal by source)

GRI 305 – Emissions 2016; (305-1 - Direct (Scope 1) GHG emissions and 305-2 - Energy indirect (Scope 2) GHG emissions)

GRI 306 – Effluents and Waste 2016; (306-2 - Waste by type and disposal method)

GRI 404 – Training and Education 2016; (404-1 - Average hours of training per year per employee)

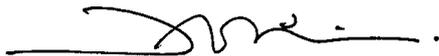
And incorporated on additional information to the GRI standard; the total training cost/expense in year 2018 (this is part of financial data be audited by independent financial accounts).

The material aspects and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material aspects, boundaries are correctly located in context report.

It is recommended to have more increase documentation behind the calculations of the report. Each aspect should create an internal procedure documents to explain in detail of data collection in case of responsible person change or absences. The estimation technique and assumption should link between documentation and data sources, such as the conversion factor from cost to quantity. When reporting on goals and targets for each material topic, the expected results are suggested to be set, if applicable, with quantitative objectives. More disclosure on subsidiaries, supply chain management and material aspects are encouraged in future reporting.

Signed:

For and on behalf of SGS (Thailand) Limited



Sompong Kiatiporn, General Manager

Bangkok THAILAND

7th March 2019

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