



DIGITAL TECHNOLOGY PROVIDER

ANNUAL REPORT 2020

Planet Communications Asia PLC.
www.planetcomm.com

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Message from Chairman

The year 2020 was such a challenging year for Planet Communications Asia Public Company Limited or PLANET due to COVID-19 pandemic which global and Thailand economic portfolio have been drastically affected. For us, we as one of the affected entrepreneurs have prepared to be responsive and adjust to this situation; therefore, our turnover in 2020, far-fetched to the set target was even satisfactory.

For over twenty-seven years, starting from our establishment in 1994, with our experiences, competency and professionalism in telecommunications business, bringing to customers and business partners' confidence, we have been sustained and continued our business expansion, even in the critical year 2020. Our business has been moving forward as our set strategies in line with the era of rapid change of technologies, aimed at serving and meeting public and customers' needs, resulting in respectively good signs and opportunities in the future.

The basis of our business operation is on corporate good governance, moral and ethical operations, equal responsibility and fairness for all stakeholders, optimal use of resources as well as social, local, environmental responsibilities in safety, quality of life aspects, taking part in our sustainable growth.

We are committed to giving importance and being aware of equal and fair practice of shareholders' fundamental rights. We determine to sincerely comply with commercial conditions and give importance on accurate, complete, transparent accountability, focusing on continuously relationship establishment of relationship with business partners, public and private organizations through activities.

The year 2021 is our important step completely forwarding to Digital Technology Provider, focusing on research and development, designing, and systems integration for new solutions to provide complete services for public and private customers aimed at upgrading quality of life to be responsive with rapid changes. This is our great opportunity because it is new big market with high demand. With our professionalism and expertise, we can be confident that this will be good for our business operation onwards.

Lastly, as Chairman, I would like to say thank-you for all shareholders, business partners, and stakeholders as well as all managements and staff for your participation in supporting our business for stable and sustainable benefits for all of us.

Dr. Ruttikorn Varakulsiripunth
Chairman of Planet Communications Asia PLC.



Message from CEO and CTO

In 2020, COVID-19 pandemic gave drastic effects to the overall economic which made it as another challenging year of Planet Communications Asia Public Company Limited or PLANET because the supply of giant telecommunications equipment and digital TV broadcasting which is our main business as well as our revenue from our sales on mega projects have been affected from public procurements on bidding projects postponement.

However, our careful business plans by increase the efficiency of cost management and control of unnecessary expenditures, including change of working process by ERP system can efficiently maintain our profitability. This is our preparations to be responsive with future uncertainties.

To strengthen our organization, in 2020, we did not delay to develop our human resources for expertise, IT knowledge, learning rapidly-changing and emerging digital technologies as well as digital technologies goods and services development, for example, Cloud, IoT, Ai and Cyber Security to serve Emerging Market.

In 2021, we will step forward to complete Digital Technology Provider by gearing our organization with four groups of technology. The one is old business consisting two main businesses including Telecommunication and Cyber Security and another one is new businesses focusing on New S Curve including Digital Technology and 5G technologies products, for example, Cloud Computing, IoT Platform, CCTV/Video Analytics, Data Center, Telemedicine and Energy through 5G telecommunication networks.

For over three years, four groups of technology have been used for research, development, design and complete system integration, producing new smart solutions. In 2021, we focus on approaching four new markets with high demand trend for smart technologies, including Smart City, Smart Factory, Smart Office, and Smart Healthcare, mainly aimed at minimizing costs, increasing working efficiency for public and private organizations and upgrading people's quality of life in health and safety aspects. In collaboration with our partners, smart technologies have been leadingly implemented and successfully tested for many projects, for example, 5G Banchang Smart City Project and Phuket Smart City Project, etc. which are model projects for municipality's construction for other smart cities. This is our good trend and business expansion in the future. We can be confident that in 2021, we set our growth at 25% and in the next three years, our revenue would reach two thousand million Baht.

Lastly, we will operate our business in strict compliance with corporate good governance, transparency and all kinds of anti-corruption, as well as local, social and environmental responsibility for sustainable growth of our stakeholders. Moreover, we are aware and give importance on fundamental rights of our shareholders, define policies on equal and fair practice, right protections for all our shareholders, commitment to compliance with trading terms as well as business partnership contracts in good faith.

Mr. Prapat Rathlerkarn
Chief Executive Officer (CEO)

Mr. Trevor John Thompson
Chief Technology Officer (CTO)

Vision and Mission



Vision

PlanetComm is Digital Technology Provider for sustainable growth and improves a better quality of life.

Mission

PlanetComm aims to provide solutions for our valued customers. In digital transformation era, Technology is the key success factor. PlanetComm is dedicated to making use of it to maximize the efficiency business

Awards

2020

- Cisco Channel Partner Program
- Collaboration SaaS Authorized Partner
- Advanced Collaboration Architecture Specialized Partner

2019

- Cisco Advanced Collaboration Architecture Specialized Partner
- Cisco Premier Certified Partner
- Cisco Express Specialized Partner
- Polcom RealPresence Services Specialization, RealPresence Implementation Services Specialization and RealPresence Solutions Specialization
- An Authorized Distributor of Extron
- Cisco ASEAN Collaboration Workplace Transformation Champions

2018

- Granted the certified by Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)
- An Authorized Distributor of Steam Labs Products
- An Authorized Extron Reseller

2017

- An Authorized Partner of Secure Communications by Airbus

- An Authorized distributor for its products in Cambodia, Laos, Myanmar, Thailand and Vietnam by GD Satcom
- Innovation Product (Mobile Phone Jammer T-Box 3.0) by NSTDA
- Cisco Premier Certified Partner
- Cisco Advanced Collaboration Architecture Specialization
- Cisco WebEx Cloud Collaboration Resale Partner
- Cisco Registered Partner
- Cisco Authorized CRM Hybrid reseller
- Cisco Meeting Server formerly Acano
- Cisco Smart Care Registered Partner
- Cisco Smart Care Registered Part: Weight-Based
- ATP - Cisco TelePresence Video Master

2016

- Total Innovation Management Awards (TIM 2016) by SET & MAI
- Excellence in Industry for APAC by Polycom
- Polycom Platinum Partner

2015

- Most Improved Var Year-on- Year Revenue Increased by COBHAM

2014

- Most Improved Var Year-on- Year Revenue Increased by COBHAM

2013

- FY13 Public Sector Partner of the Year by Cisco
- FY13 Top YoY Growth of the Year (2 Tier) by Cisco
- TVU Best Performance/Market Unified Communications 2013
- ClearOne Project Achievement Award
- Codan Authorized Partner 2013
- Cisco Premier Certified Partner 2013
- The Top Cogeniality Collaboration Partner Award by Cisco

2012

- Cisco TelePresence Video Master Authorized
- Cisco Technology Partner
- FY12 Public Sector Partner of the Year by Cisco

2011

- Top Enterprise Partner Award by ZYXEL



Financial Highlight

Revenue Structure

Revenue	2018 (Million Baht)		2019 (Million Baht)		2020 (Million Baht)	
Sale	535.21	71.39 %	620.51	74.30 %	489.98	82.21 %
Services	197.12	26.30 %	184.47	22.09 %	78.60	13.19 %
Services Provider	17.33	2.31 %	30.17	3.61 %	27.45	4.60 %
Total Sales & Services	749.66	100 %	835.15	100 %	596.03	100 %
Other Revenue	14.63		14.05		11.04	
Total Revenue	764.29		849.20		607.07	

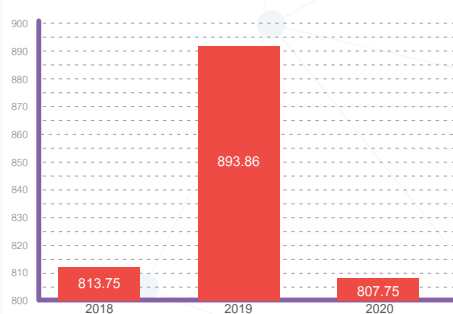
Costs of Goods Sold and Services

	2018		2019		2020	
Costs of Goods Sold & Services	(Million Baht)	Gross Margin (%)	(Million Baht)	Gross Margin (%)	(Million Baht)	Gross Margin (%)
Cost of Goods Sold	430.78	19.51	563.32	9.22	388.79	20.65
Costs of Services	129.60	34.25	87.98	52.31	36.49	53.58
Costs of Services Provider	26.08	(50.49)	28.50	5.55	25.51	7.07
Total Costs of Goods Sold & Services	586.46	21.77	679.80	18.60	450.79	24.37

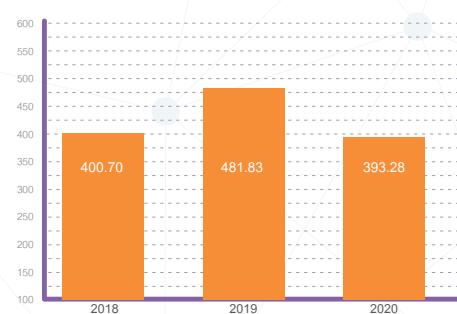
Revenue Structure



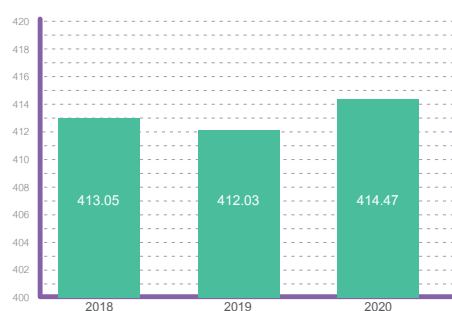
Assets



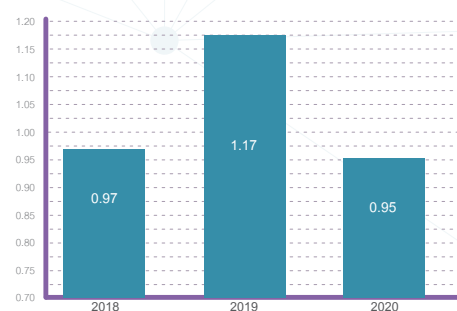
Liabilities



Shareholder's Equity



D/E Ratio



Board of Director



- 1 | Dr. Ruttikorn Varakulsiripunth
- Independent Director
- Chairman
- 2 | Mr. Prapat Rathlertkarn
- Director
- Vice Chairman
- 3 | Mr. Trevor John Thompson
- Director
- 4 | Dr. Wichai Laohmatvanich
- Director
- Chairman of Audit Committee
- Risk Management Committee Member
- Nomination, Remuneration and Corporate Governance Committee Member
- 5 | Mrs. Sutharak Soonthornpusit
- Independent Director
- Chairman of Risk Management Committee
- Audit Committee Member
- Nomination, Remuneration and Corporate Governance Committee Member
- 6 | Mr. Somkid Wangcherdchuwong
- Independent Director
- Chairman of Nomination, Remuneration and Corporate Governance Committee
- Risk Management Committee Member
- Audit Committee Member
- 7 | Mr. Thibdee Mangkalee
- Independent Director
- Audit Committee Member

Managements



- 1 | Mr. Prapat Rathlertkarn
- Chairman of Executive Committee
- President and Chief Executive Officer
- 2 | Mr. Trevor John Thompson
- Vice Chairman of Executive Committee
- President and Chief Technology Officer
- 3 | Mrs. Ratana Suwan
- Executive Vice President of Finance and Accounting
- 4 | Mr. Jakkrit Sonwai
- Executive Vice President of Operation and Technical Services
- 5 | Mr. Veerasak Athornchaikul
- Vice President of Marketing and Business Development



Dr. Rattikorn Varakulsiripunth

Age 67 Years

- Independent Director
- Chairman

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkhen District
Bangkok 10230

Education :

PhD.

- Electrical and Communication Engineering, Tohoku University, Japan
Master Degree
- Electrical and Communication Engineering, Tohoku University, Japan
Bachelor Degree
- Electronics and Electrical Engineering Kyoto University, Japan

Work Experiences

2019-Present

- President of The Association of Council of IT Deans

2018-Present

- Independent Director, Chairman, Planet Communications Asia PLC.

2013-Present

- Dean, Faculty of Information Technology, Thai-Nichi Institute of Technology

2011- Present

- Royal Scholarship Commission Member, Office of the Higher Education Commission

2011- Present

- Executive Director, Takahashi Foundation Thailand

2011- Present

- Editorial Board, The Journal of King Mongkut's University of Technology North Bangkok
2018 – 2019

- Chairman, The Association of Council of IT Deans

2014 – 2016

- Executive Director, Japanese Government Scholarship Alumni Foundation in Thailand

2005 – 2012

- Vice Chancellor, King Mongkut's Institute of Technology Ladkrabang

Directors in Listed company :

- None

Other non-listed company and other organizations

- The Association of Council of IT Deans
- Faculty of Information Technology, Thai-Nichi Institute of Technology
- Office of the Higher Education Commission
- Takahashi Foundation Thailand
- The Journal of King Mongkut's University of Technology North Bangkok

Share Possession including related persons

- None

Trainings

- Director Accreditation Program (DAP) 153/2018

Attendance the Meeting in 2020

- Board of Director 6/6 Meetings



Mr. Prapat Rathlertkarn

Age 62 Years

- Director, Vice Chairman
- Chairman of Executive Director
- President and Chief Executive Officer (CEO)
- Company Secretary

Appointed April 27, 1994

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District
Bangkok 10230

Education :

Master Degree

- Business Administration, Philips University, USA

Bachelor Degree

- Economics, Thammasat University, Thailand

Work Experiences

2019-Present

- Chairman, PlanetCloud Co., Ltd.

2017-Present

- Chairman, PlanetFiber Co., Ltd.

1994-Present

- Director, Vice Chairman, Chairman of Executive Director, President and Chief Executive Officer, Planet Communications Asia PLC.

2019-Present

- Company Secretary, Planet Communications Asia PLC.

2015-Present

- Sub-Committee Management and Development Space Krenovation Park
Geo-Informatics and Space Technology Development Agency (GISDA)

2005-Present

- Director, P & T Asset Co., Ltd.

Directors in Listed company :

- None

Other non-listed company and other organizations

- PlanetCloud Co., Ltd.
- PlanetFiber Co., Ltd.
- Geo-Informatics and Space Technology Development Agency
- P&T Asset Co., Ltd

Share Possession including related persons

- 78,950,000 Shares or 31.58% of paid up share capital

Trainings

- Chief Transformation Officer: CTO Course 2019 by SEAC
- Successful Formulation & Execution of Strategy (SFE) 28/2016
- Director Certification Program (DCP) 195/2014
- Director Accreditation Program (DAP) 94/2012

Attendance the Meeting in 2020

- Board of Director 6/6 Meetings



Mr. Trevor John Thompson

Age 66 Years

- Director
- Vice Chairman of Executive Director
- President and Chief Technology Officer (CTO)

Appointed April 27, 1994

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkheng District Bangkok 10230

Education :

Bachelor Degree

- Commerce, Engineering, British Columbia Institute of Technology, Canada

Work Experiences

2019-Present

- Director, PlanetCloud Co., Ltd.

1994-Present

- Director, Vice Chairman of Executive Director, President and Chief Technology Officer, Planet Communications Asia PCL.

2005-Present

- Director, P&T Asset Co., Ltd.

Directors in Listed company :

- None

Other non-listed company and other organizations

- PlanetCloud Co., Ltd.
- P&T Asset Co., Ltd.

Share Possession including related persons

- 78,950,000 Shares or 31.58% of paid up share capital

Trainings

- Director Certification Program (DCP) 207/2015
- Director Accreditation Program (DAP) 95/2012

Attendance the Meeting in 2020

- Board of Director 6/6 Meetings



Dr. Wichai Laohmatvanich

Age 67 Years

- Independent Director
- Chairman of Audit Committee
- Risk Management Committee Member
- Nomination, Remuneration and Corporate Governance Committee Member

Appointed January 25, 2018

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkheng District Bangkok 10230

Education :

PhD.

- Public Administration, University of Manila, Philippines

Master Degree

- Accounting, Thammasat University, Thailand

Bachelor Degree

- Accounting, Thammasat University, Thailand

Work Experiences

2018-Present

- Independent Director, Planet Communications Asia PCL.

2017-Present

- Chairman of Audit Committee, Thammasat University Hospital

2016-Present

- Audit Committee Member, Thai Coating Industrial PCL.

2015-Present

- Executive Director AEC Marketing Representative and Networking Co., Ltd

Directors in Listed company :

- Thai Coating Industrial PLC.

Other non-listed company and other organizations

- Thammasat University Hospital
- AEC Marketing Representative and Networking Co., Ltd

Share Possession including related persons

- None

Trainings

- Director Accreditation Program (DAP) 153/2018

Attendance the Meeting in 2020

- Board of Director 6/6 Meetings
- Audit Committee 5/5 Meetings
- Risk Management Committee 3/3 Meetings
- Nomination Remuneration and Corporate Governance Committee 2/2 Meetings



Mrs. Sutharak Soonthornpusit

Age 69 Years

- Independent Director
- Audit Committee Member
- Chairman of Risk Management Committee
- Nomination Remuneration and Corporate Governance Committee Member

Appointed December 30, 2011

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

- Master Degree
- Science in Economy and Marketing, Ball State University, USA
- Bachelor Degree
- Economics, Thammasat University, Thailand

Work Experiences

2018 – Present

- Committee Member
- Chairman of Risk Management Committee Planet Communications Asia PLC.

2011-Present

- Independent Director Planet Communications Asia PLC.

2005-Present

- Managing Director Charoendecor International Co., Ltd.

Directors in Listed company :

- None

Other non-listed company and other organizations

- Charoendecor International Co., Ltd.

Share Possession including related persons

- 50,000 Shares or 0.02% of paid up share capital

Trainings

- Director Accreditation Program (DAP) 103/2013
- Director Certification Program (DCP) 219/2016

Attendance the Meeting in 2020

- Board of Directors 6/6 Meetings
- Audit Committee 5/5 Meetings
- Risk Management Committee 3/3 Meetings
- Nomination, Remuneration and Corporate Governance Committee 2/2 Meetings

Mr. Somkid Wangcherdchuwong

Age 63 Years

- Independent Director
- Chairman of Risk Management Committee
- Audit Committee Member
- Risk Management Committee Member

Appointed May 12, 2015

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

- Barrister-at-Law
- The Thai Bar under the Royal Patronage
- Bachelor Degree
- Laws, Chulalongkorn University

Work Experiences

2015-Present

- Independent Director, Planet Communications Asia PLC.

2020-Present

- Director, C.T. Land Co., Ltd.

2020-Present

- Director, Sukhumvit Trading Co., Ltd.

2007-Present

- Chairman, ITV PLC.

Directors in Listed company :

- ITV PLC.

Other non-listed company and other organizations

- C.T. Land Co., Ltd.
- Sukhumvit Trading Co., Ltd

Share Possession including related persons

- None

Trainings

- Director Accreditation Program (DAP) 2006

Attendance the Meeting in 2020

- Board of Directors 6/6 Meetings
- Audit Committee 5/5 Meetings
- Risk Management Committee 3/3 Meetings
- Nomination Remuneration and Corporate Governance Committee 2/2 Meetings



Mr. Thibdee Mangkalee

Age 50 Years

- Independent Director
- Audit Committee Member

Appointed June 21, 2018

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

Master Degree

- Finance, University of Tennessee, USA

Bachelor Degree

- Accounting, Thammasat University, Thailand

Work Experiences

2020-Present

- Executive Director, Intermedical Care and Lab Hospital PCL

2019

- Director, MPG Corporation PCL.

2018-Present

- Independent Directors, Planet Communications Asia PCL

2008-Present

- Managing Director, Capital Plus Advisory Co., Ltd

Directors in Listed company :

- Intermedical Care and Lab Hospital PCL

Other non-listed company and other organizations

- Capital Plus Advisory Co., Ltd

Share Possession including related persons

- None

Trainings

- Director Certification Program (DCP) 267/2018

Attendance the Meeting in 2020

- Board of Directors 6/6 Meetings
- Audit Committee 5/5 Meetings

Mrs. Ratana Suwan

Age 60 Years

- Executive Vice President of Finance and Accounting

Appointed September 4, 2018

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

Bachelor Degree

- Accounting, The University of the Thai Chamber of Commerce, Thailand

Bachelor Degree

- Law, Sukhothai Thammathirat Open University, Thailand

Work Experiences

2018-Present

- Executive Vice President of Finance and Accounting
Planet Communications Asia PLC.

2016 – 2017

- Consultant of Finance and Accounting
Planet Communications Asia PCL.

2003 – 2016

- Executive Vice President of Finance and Accounting
Planet Communications Asia PCL.

Directors in Listed company :

- None

Other non-listed company and other organizations

- None

Share Possession including related persons

- 5,120,000 Shares or 2.05% of paid up share capital

Trainings

- CFO Certificate Program 20/2016
- Director Certification Program (DCP) 188/2014
- Director Accreditation Program (DAP) 94/2012



Mr. Jakkrit Sonwai

Age 52 Years

- Executive Vice President of Operation and Technical Services

Appointed December 16, 2019

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

Master Degree

- Science (M.Sc.), Data Communication and Networking, King Mongkut's University of Technology North Bangkok, Thailand
- Bachelor Degree
- Science, Telecommunication and Rajamangala University of Technology Lanna, Thailand

Work Experiences

2019 - Present

- Executive Vice President of Operation and Technical Services Planet Communications Asia PCL

2011 - 2019

- Senior Department Director (Service Operation Unit), BB Technologies Co., Ltd.

2010 - 2011

- Project Director (Network Rollout), Myanmar Information Highway (MIH)

2006 - 2010

- Project Director (Project Delivery), Huawei Technologies (Thailand) Co., Ltd.

Directors in Listed company :

- None

Other non-listed company and other organizations

- None

Share Possession including related persons

- None

Trainings

- Micro MBA. in General Management by Chulalongkorn University
- Modern Telecommunications Management by Thammasat University and TOT
- PMP Intensive Project Management Professional
- PM Competency Practical Training and Project Management in Practice.



Mr. Veerasak Athornchaikul

Age 45 Years

- Vice President of Marketing and Business Development

Appointed January 18, 2016

Address :

157 Ramindra 34, Ramindra Rd., Tarang Sub-District, Bangkok District Bangkok 10230

Education :

Master Degree

- Science and Technology (IT) Assumption University
- Bachelor Degree
- Science and Technology (IT) Assumption University

Work Experiences

2016-Present

- Vice President of Marketing and Business Development Planet Communications Asia PLC.

2014 - 2015

- Head of Department – Set Top Box Planet Communications Asia PCL.

2012 - 2014

- Head of Department – Digital TV Planet Communications Asia PCL.

2006 - 2012

- Head of Marketing Department Planet Communications Asia PCL.

Directors in Listed company :

- None

Other non-listed company and other organizations

- Planet Cloud Co., Ltd.

Share Possession including related persons

- 10,000 Shares or 0.004% of paid up share capital

Trainings

- None

Risk Management Committee Report

Dear all Shareholders,

Planet Communications Asia Plc. and its Subsidiary realize the importance of risk management which is the major mechanism of management and to ensure the sustainable business growth, including creating confidence and credibility for investors and stakeholders in the business operations of the Company. The Board of Directors has appointed the Risk Management Committee in the Board of Directors' Meeting No. 5/2014 on November 21, 2014. Currently, the Risk Management Committee consisted of 3 members namely; Mrs. Sutharak Soonthornpusit as Chairman of the Risk Management Committee, Dr. Wichai Laohmatvanich, and Mr. Somkid Wangcherdchuwong as Member of the Risk Management Committee. The Risk Management Committee assisted the Board of Directors' to review and identification main risk areas as well as recommendations the risk management effectiveness before reporting to the Board for final approval.

The Risk Management Committee appointed Risk Management Team consisted of Chairman of Executive Committee, Vice Chairman of Executive Committee, and Management Team which response on identify, review, monitor, evaluate and report to the Risk Management Committee, including build the Company's risk management culture.

In year 2020, the Risk Management Committee held 3 meetings which highlighted the following activities:

1. Establish and review the annual risk management plan throughout the organization to be appropriate and in line with the operating strategy and current situation.
2. Review the Anti-corruption Policy.
3. Identify the severity of risk together with the impact and methods to manage related risks.
4. Review the risk management report being reported by Quality Management Representative who was assign to follow up the actions and assessment of risk management procedures in comply with risk management policy and framework as defined.
5. Review Charter of Risk Management Committee and Risk Management Manual.
6. Conducted self assessment of the Risk Management Committee, by the whole and by individual to use the assessment result as information for performance development.

The Risk Management Committee ensured that the Company's risk management was effectively executed. The company has risk management system which is able to sufficiently oversee significant risks of the Company and be suitable for the business operations, including risk management continuously and in accordance with the changing circumstances while continuously conducted in compliance with good corporate governance rules including sufficient and adequate internal control process as well as under all requirements of the governing laws and regulations in order to help promote the Company to achieve success according to plan and goal sets.



Mrs. Sutharak Soonthornpusit
Chairman of the Risk Management Committee

Nomination, Remuneration, and Corporate Governance Committee Report

Dear Shareholders,

The Company realized on the importance of managing the business operation according to corporate governance policy to improve business operations in order to create more transparency and strengthen the confidence, including recruitment and selection of the Board of Directors and Management Team together with the compensation of each individual. The Board was appointed the independent directors performing duties as the Nomination, Remuneration, and Corporate Governance Committee of which members were responsible on reviewing of recruitment, selection, and approval of caliber and eligible directors and management team, as well as determining remuneration policy for the Board and Sub-committee. Additional, the committee monitors the business operations in compliance with the corporate governance principles of the Stock Exchange of Thailand and Securities and Exchange Commission.

In 2020, the Nomination, Remuneration, and Corporate Governance Committee consisted of 3 members namely; Mr.Somkid Wangcherdchuwong as Chairman of the Nomination, Remuneration, and Corporate Governance Committee, Mrs. Sutharak Soonthornpusit, and Dr. Wichai Laohmatvanich, as Member of the Nomination, Remuneration, and Corporate Governance Committee. The committee conducted 2 meetings to consider and follow up various matters regarding nomination, remuneration, and corporate governance and reported to the Board for consideration which could be summarized as follows:

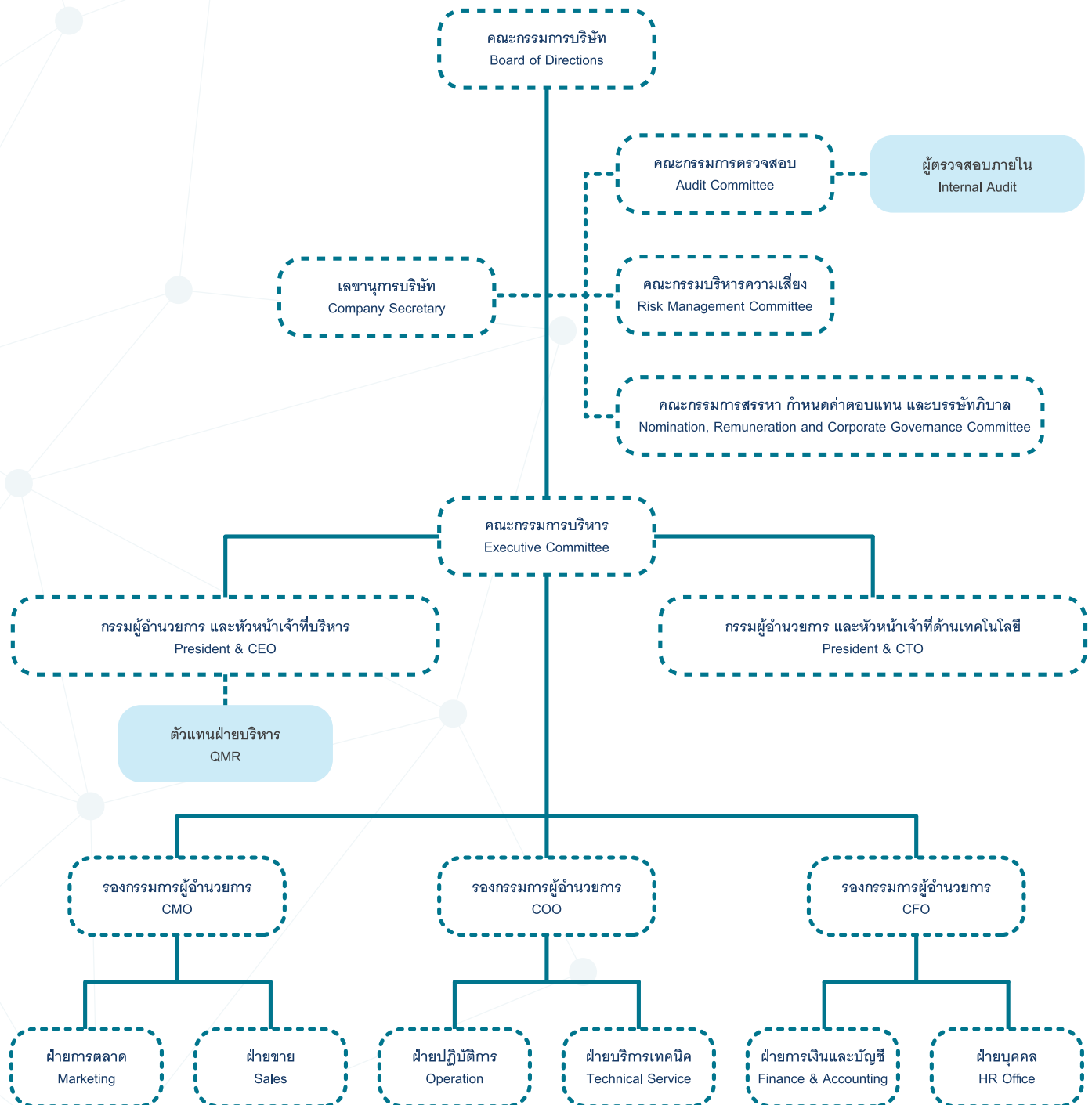
- Nominated and proposed candidates who had full qualifications in order to assume the position of directors in case of vacancy and retiring by rotation. The member who has an interest in any agenda shall be abstained from voting and not attend the meeting to consider this agenda.
- Considered the remuneration for Board of directors and member of sub-committees in consideration of appropriateness compared to the similar industry.
- Reviewed and amended of corporate governance policies, business ethics to comply with the regulations of the Stock Exchange of Thailand and Securities and Exchange Commission as well as corporate governance criteria as ASEAN CG Scorecard.
- Encouraged the minority shareholders to propose the agenda and submit any enquiries for consideration in the Annual General Meeting of Shareholders to comply with the Exchange Commission and the Principle of Good Corporate Governance.
- Reviewed Charter of the Nomination, Remuneration, and Corporate Governance Committee.
- Conducted self assessment of the Nomination, Remuneration, and Corporate Governance Committee, by the whole and by individual to use the assessment result as information for performance development.

The Nomination, Remuneration, and Corporate Governance Committee performed the responsibilities with integrity, thoroughness, completion, independence, and conciseness with respect to the best interest of all shareholders and stakeholders in the extent of corporate governance practices according to the Stock Exchange of Thailand.



Mr. Somkid Wangcherdchuwong
Chairman of the Nomination, Remuneration, and Corporate Governance Committee

Organization Chart



Policy and Business Overview

Planet Communications Asia Public Company Limited (henceforth “the Company”) was established on 27 April 1994, originally under the name Technology Gateway Asia Co., Ltd. with a registered start-up capital of 2 million baht. The Company was co-founded by Mr. Prapat Rathlertkarn and Mr. Trevor John Thompson, who have been in the IT business for over 30 years. It initially offered the professional consultancy, development and implementation of satellite communication systems for both public and private sectors. On 20 October 1998, the Company changed its name to Planet Communications Asia Co., Ltd.

Led by experienced management with proven success and expertise in the industry, the Company has enjoyed continued expansion and become an authorized distributor of many leading telecommunications vendors, such as CISCO, CODAN, Sony, THALES and ClearOne. The Company has since broadened its line of products and services into a full range of telecommunications functions, covering wired and wireless network, multimedia systems, as well as terrestrial and digital television broadcasting. Under the PlanetComm brand, it has engaged in the design, development and integration of devices for IT solutions. The Company has also been appointed as a CODAN SERVICE CENTER, due to its extensive knowledge and competency in telecommunications. However, it is also fully-equipped and well-staffed to provide maintenance and repair services for other leading vendors, such as GE, and Comtech EF Data. This allows for PlanetComm to offer a complete telecommunications service to its customers.

Major company milestones and accolades as follows:

Year	Milestone
1994	<ul style="list-style-type: none"> - Founded as “Technology Gateway Asia Co., Ltd.”; rendered services for the consultancy, development and implementation of satellite communication systems. - Appointed as an authorized distributor of satellite communication products for Prodelin/Vertex (GD SATCom), Comtech EF Data and Viasat.
1996	<ul style="list-style-type: none"> - Increased paid-up capital to 5 million baht for expansion. - Appointed as a distributor of satellite communication products for CODAN.
1998	<ul style="list-style-type: none"> - Rebranded as Planet Communications Asia Co., Ltd. - Increased paid-up capital to 15 million baht for expansion.
1999	<ul style="list-style-type: none"> - Increased paid-up capital to 25 million baht for expansion. - Commenced wired network services; appointed as an authorized distributor of data network products for Patton Electronics and security network products for Thales Group.
2000	<ul style="list-style-type: none"> - Commenced multimedia services - Appointed as an authorized distributor of video conferencing systems for Polycom.
2001	<ul style="list-style-type: none"> - Granted ISO 9001:2000 accreditation.
2002	<ul style="list-style-type: none"> - Commenced broadcast services; provided satellite earth station devices to television broadcasting companies in Thailand and ASEAN countries. - Successful in-house R&D to manufacture 1:1 Redundant LNB/LNA equipment.
2005	<ul style="list-style-type: none"> - Commenced terrestrial wireless and radio communications services; appointed as an authorized distributor for Motorola and CODAN HF. - Successful in-house R&D to assemble a mobile satellite vehicle.
2010	<ul style="list-style-type: none"> - Relocated Head Office to PlanetComm Building on Ramindra Road. The new HO is an ‘intelligent’ building that uses cutting-edge telecommunications and multimedia facilities, enabling the Company to demonstrate products and position itself for future growth. - Granted ISO 9001:2008 accreditation. - Selected to be a Wireless Platinum Partner from Motorola Inc. - Won the Telecom Innovation Award from the Telecommunications Research and Industrial Development Institute (TRIDI) for its 1:1 LNx Redundant Controller. - Awarded for Sales Growth Achievement (Asia Pacific Region) by the Broadcast Pix. - Won the Top Enterprise Partners Award from ZyXEL Communication Corp.
2011	<ul style="list-style-type: none"> - Collaborated on R&D with the National Electronics and Computer Technology Center (NECTEC) to manufacture the radio jammer T-Box 3.0. - Commenced second generation terrestrial digital video broadcasting (DBV-T2/Digital TV) services in preparation for the transition from analog broadcasting to digital system, in accordance with public policy.

Year	Milestone
2012	<ul style="list-style-type: none"> - Appointed as an authorized Radio Telecommunications Equipment Service Center for CODAN. - Became the only company in Thailand to qualify as a TelePresence Video Master Authorized Technology Partner for Cisco. - Awarded FY12 Public Sector Partner of the Year by Cisco. - Appointed as an authorized distributor of terrestrial and digital TV broadcasting systems for Cobham, TVU, and Thomson.
2013	<ul style="list-style-type: none"> - Won the Top Congeniality Collaboration Partner Award, Premier Certified Partner Award (Cisco Channel Partner Program) and FY13 Top YoY Growth of the Year Award from Cisco. - Was officially appointed as an authorized distributor and service center of mobile satellite communications system (Satcom on-the-move) for ThinKom in Thailand and Vietnam. - Was appointed as an authorized partner of CODAN. - Won the Best Performance / Marketing Penetration Award from TVU Network. - Awarded the Best Growth Partner of the Year by ClearOne. - Listed as a public limited company (PLC). - Changed par value per share from 10.00 baht to 1.00 baht, resulting in a tenfold increase of ordinary shares from 2.5 million to 25 million. - Increased registered capital from 25 million baht to 250 million baht by issuing 225 million new ordinary shares with a par value per share of 1.00 baht allocated as follows: <ol style="list-style-type: none"> (1) 150 million shares to existing shareholders, resulting in the increase of the Company's paid-up capital to 175 million shares (2) 70 million shares via the initial public offering (IPO) (3) 5 million shares to the Company's directors and employees
2014	<ul style="list-style-type: none"> - Began offering 75 million capital gain shares at 2.80 baht per share, consisting of 70 million shares via IPO and 5 million shares to the Company's directors and employees. - Traded ordinary shares on the Market for Alternative Investment (MAI) under the stock symbol "PCA" on June 23. - Appointed as a Premier Partner of Cisco.
2015	<ul style="list-style-type: none"> - Awarded THE MOST IMPROVED VAR YEAR-ON-YEAR REVENUE INCREASE by Cobham. - PlanetFiber licenses being granted by National Broadcasting and Telecommunications Commission (NBTC) for Telecommunications Business Operation Licenses Type III on September 2, 2015
2016	<ul style="list-style-type: none"> - Awarded as the Excellent in Innovation Enterprise of Total Innovation Management Awards (TIM2016) by Stock Exchange of Thailand (SET), Market for Alternative Investment (MAI), and Nation Innovation Agency (NIA) - Awarded Excellence in Industry for APAC by Polycom - Awarded Platinum Partner by Polycom
2017	<ul style="list-style-type: none"> - Changed the Company's stock symbol from "PCA" to "PLANET". - Established PlanetFiber Co., Ltd as the subsidiary company for operating lease service for cable telecommunications network for client accessibility on August 16, 2017. - Being appointed as authorized distributor of General Dynamics SATCOM Technologies (GD Satcom) in Thailand, Laos, Myanmar and Vietnam. GD Satcom was as the global leading in satellite and wireless communications network system technology. - Appointed as the certified business partner of Airbus being as an international pioneer in the aerospace industry and telecommunications network technologies. - Awarded the private company giving importance and having merits on social and environment as well as collaboration with young generation to sustainable natural resource in the project of "2016 save the World Expo". - Conducted research and development the jammer "WT-Defender" with National Electronics and Computer Technology Center (NECTEC). - Verified PlanetComm T-Box 3.0 - the cell phone Jammer as the innovation product by National Science and Technology Development Agency (NSTDA) and published in Thailand's taxonomy innovation by Bureau of the Budget in June 2017. - Granted a testimonial from The Federation of Thai Industries (F.T.I) as the member developing products in local research and completing the registration of Thailand's taxonomy innovations. - Funding the innovation support in the Cloud PBX project from "Transform technology to capital" by National Innovation Agency (Public Organization).
2018	<ul style="list-style-type: none"> - Appointed as an authorized distributors of Stream Labs Television Computer Systems in Broadcasting System - Granted the certified by Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) on May 17, 2018 - "Voice over IP" with number and without number license was granted by National Broadcasting and Telecommunications Commission (NBTC) for operation PlanetCloud - Granted ISO 9001:2015 accreditation.

Year	Milestone
2019	<ul style="list-style-type: none"> - Established PlanetCloud Co., Ltd as the subsidiary company for hardware and software service on October 10, 2019. - Cisco Advanced Collaboration Architecture Specialized Partner - Cisco Premier Certified Partner - Cisco Express Specialized Partner - Polycom Real Presence Services Specialization, Real Presence Implementation Services Specialization - An Authorized Distributor of Extron - Cisco ASEAN Collaboration Workplace Transformation Champions
2020	<ul style="list-style-type: none"> - Cisco Advanced Collaboration Architecture Specialized Partner - Cisco Express Specialized Partner - Thales Business Partner of the Year 2020 with generating sales highest in ASEAN

Shareholdings of PLANET in subsidiary

The Company holds 99.99% shares in subsidiary

1. PlanetFiber Co., Ltd
2. PlanetCloud Co., Ltd

Long-Term Goal for Business Operation during 2021-2030

We commit to be a service provider for telecommunications technologies, digital technologies and cyber security by research, development, production, design, system integration, installation and after-sale services to serve smart market for public and private organizations, smart factory and smart city for people.

We are entrusted by leading organizations and ASEAN Economic Community (AEC) organizations for our potential equivalent to other globally leading service provider. Therefore, we are aware of giving importance on introduction for most innovative technologies and products, enhancement for competitiveness in terms of knowledgeable personnel, advanced technologies facilities and equipment, professional services with ISO 9001:2015 standard certification, social responsibility to serve customers' needs and satisfaction in our goods and services as follows;

1. Policy on telecommunications technologies, digital technologies and cyber security
 - Focus on exploring most innovative products and technologies in high opportunity for market expansion and in market demand
 - Focus on being distributor for worldly- leading manufacturer and business partners
 - Focus on introducing most innovative technologies to AEC
 - Focus on introducing completely upstream to downstream technologies to efficiently serve customers' demand in quality and cost-efficiency.
2. Policy on products under the name of PlanetComm
 - Research and develop products for new innovations
 - Produce innovative products under the name of PlanetComm
 - Produce products under the name of PlanetComm to be recognized and accepted in telecommunications market as well as digital TV
3. Policy on technical services
 - Provide professional services in accordance with ISO 9001:2015 standards for most customers' satisfaction
 - Focus on being leader on providing services, design, installation and after-sale services for complete and efficiently compatible systems and technologies to meet customers demand
 - Focus on continuously developing services to catch up with rapid change of business channels and customers demand
4. Policy on monthly services
 - Provide monthly services for Cloud, for example, Cloud PBX, Cloud Contact Center, Cloud Meeting, Cloud Wi-Fi, Cloud CCTV, Cloud Security and fiber cable high-speed internet

Company's revenue structure

Revenue	2018		2019		2020	
	Million Baht	%	Million Baht	%	Million Baht	%
Sale	535.21	71.39	620.51	74.30	489.98	82.21
Services	197.12	26.30	184.47	22.09	78.60	13.19
Services Provider	17.33	2.31	30.17	3.61	27.45	4.60
Total Sales & Services	749.66	100.00	835.15	100.00	596.03	100.00
Other Revenue	14.63		14.05		11.04	
Total Revenue	764.29		849.20		607.07	

Note* :

* Other revenue include exchange rate, sale of asset gain, rental income and interest income.

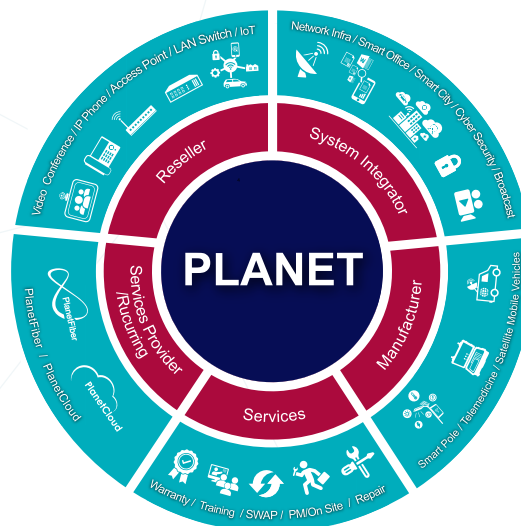
Nature of business

The Company is telecommunications and digital TV broadcasting technology provider; to provide a full range of services for design, installation, distribution of telecommunication systems and digital TV systems, fiber optic internet service for high-rise buildings and condominiums, Cloud Office service; and associated products for leading firms and organizations in the AEC (Asean Economic Community).

In addition, it engages in research and development (R&D) as well as the integration of devices into telecommunications solutions under the PlanetComm brand. With decades of experience in the industry, along with experts and full-scale test equipment, the Company is capable of rendering comprehensive telecommunications service. An overview 3 groups of products and services are as follows

Business Structure

The Company has a fully integrated telecommunications business structure consisting of 5 areas as follows:



1. Leading reseller of devices and telecommunication systems with the latest technology and high quality, consisting of Comtech, GD Satcom, Cisco, Poly, Thales, Evertz, etc.
2. System integrator contractor providing design, installation, and training services according to customer requirements. For maximum efficiency, value for money, consisting of: Network Infrastructure Solution, Smart Office Solution, Smart City Solution, Cyber Security Solution, and Digital Broadcast Solution.
3. Manufacturers and distributors of telecommunication systems consists of small and medium sized satellite mobile vehicles, Smart Pole, Telemedicine, and mobile Jammer and 1:1 Redundant LNB System.
4. Technical Services provides after sales service of design, installation, and training services for telecommunication systems and equipment to customers. The contract is for a period of 1-5 years, consisting of Product Warranty, SWAP Replacement, Preventive Maintenance, On-site Services, and Telecom Repair Lab.
5. Digital Service Provider is a business that charges monthly or annually fees. For 1-5 years, consisting of 2 businesses which are
 - PlanetFiber provides 1 Gb high speed internet per second for condominiums and offices
 - PlanetCloud provides cloud services both Software as a Service (SaaS) and Platform as a Service (PaaS). CloudOffice Platform for Intelligent Offices, IoT Platform for Smart Cities, Telemedicine Platform for Medical Services

In addition, it engages in research and development (R&D) as well as the integration of devices into telecommunications solutions under the PlanetComm brand. With decades of experience in the industry, along with experts and full-scale test equipment, the Company is capable of rendering comprehensive telecommunications service. An overview 3 groups of products and services are as follows

Group 1: Telecommunications Technology Products include

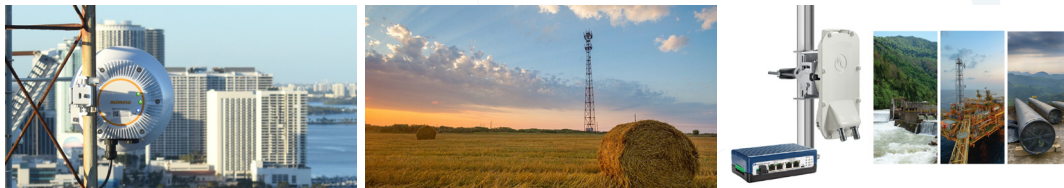
1. Network Infrastructure Solution consisting of

- Satellite Earth Station System is a digitally satellite high-speed digital communication reception and transmission network through C-Band and Ku-Band frequency.



Satellite Telecommunications System Devices

- Wireless Network System is a telecommunication network system with digitally satellite high-speed digital communication reception and transmission network through terrestrial radio frequencies of 2.4 GHz and 5.8 GHz.



Terrestrial High-Speed Wireless Telecommunication System

- Digital Radio Communications System is a telecommunication network system with digital data reception and transmission technology through VHF, UHF and HF radio frequencies.



Radio Telecommunications Systems Devices

- Optical Fiber Network System is a telecommunication network system with digital data reception and transmission through cable.



Optical Fiber Telecommunications System Devices

2. **Smart Office Solution** is a modern office telecommunications system, designed for video, audio and data telecommunications system through the internet with efficient compatibility, cost-efficiency and competitiveness enhancement including;

- Telepresence & Video Conference consists of products in the virtual teleconferencing group, multipoint conference unit, recording & streaming server and any other related systems.



Video Teleconference Telecommunications System Devices

- IP PBX/UC is a centralized telecommunications system, supporting the integration of various types of usage and communication in organization, such as IP (Internet Protocol Communication) phones, computer or mobile meeting system, messaging system or video conference, etc.



IP PBX/UC Systems Device

- Audio Conference contains products used for audio conferencing and in the conference room, such as Audio Conference system.



Audio Meeting System

- IP CCTV is a CCTV through the internet network, supporting H.265 technology and saving space for data storage.



Closed Circuit Television

- Internet Network/Wi-Fi for office

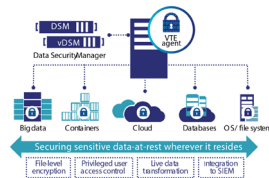
3. Cyber Security Solution consists of

- Network Security is the system operates encoding high level of data to avoid data hacking through internet connection between the source and destination for government agencies and military.



Network Security System Devices

- Transaction Security provides a high level of encryption during financial transactions, such as VISA credit cards, to prevent changes and theft of user's password for financial institutions



Transactions Security System Diagram

- Fire Wall is the security system against cyber attacks, it prevents It prevents attacker from disturbing internet network in the office.

4. Digital Broadcasting Solution is an integrated digital television broadcasting system consisting of

- Television program production system, multimedia and content production studio include.
 - a. Sony TV camera system for studio (Professional 4K Camera)
 - b. Cobham's Wireless Professional Camera System
 - c. Sony and BroadcastPix studios video switcher
 - d. Evertz video router system, multi viewer system and infrastructure for studio, editing rooms, and master C Rooms
 - e. Dalet and EvertzMedia Asset Management (MAM) systems and automation for Master Controls (MCR) rooms.
 - f. TV broadcasting system via the 3G / 4G network of TVU



TV, Multimedia and Studio System Production Systems

- Content Distribution & Transmission

- a. Video over Fiber Network is a device designed to support the transmission of digital television signals through fiber optic networks to be used in digital television broadcasting operations throughout the country.



Optical Fiber Video Signal Transmission System

- b. Television Headend Processing and Encoding System is a system for encoding and converting video signals to digital then compressed to a smaller size according to standard MPEG-2 / MPEG-4 to be used in television signals transmission, via ground network, satellite and internet. Currently, The Company is a distributor of world-class manufacturers, Harmonic, Evertz, AppearTV, etc.
- c. Radio and Television Transmitter and basic network equipment (Infrastructure) is a system and equipment for television transmitters for stations used to transmit digital television to home viewers in accordance with the DVB-T2 standard. The Company is currently a distributor and installation provider of Tredness TV transmission from Spain.

- Set Top Box/DVB-T2



Terrestrially Digital Television Set-Top Box

5. PlanetComm's products include

- Satellite Mobile Vehicle is a mobile telecommunication vehicle with the installation of satellite dishes and internal communication devices such as satellite communication systems, wireless communication system, radio communication system, video conference system, via data encryption system screen, television broadcasting systems, etc., to be used in telecommunications and television broadcasting activities in which the Company is specialized in designing, developing and manufacturing a variety of mobile telecommunication vehicles to meet the customers requirement as follows;
 - a. Small Wireless Mobile Vehicle
 - b. 2. Medium Wireless Mobile Vehicle
 - c. 3. Large Wireless Mobile Vehicle
 - d. 4. Trailer or Transportable SatCom Terminal for military operations
 - e. Mobile studios (Outside Broadcasting Van - OB Van) for live broadcasting



Mobile Telecommunications Vehicle

- Mobile Phone and Radio Jammer for military operations and security.



Radio Jammer for Mobile Phone

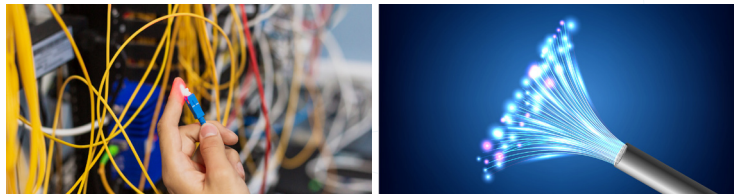
- Peripheral and Accessories, including

- a. Feeder Cables and Connectors for installing stations for mobile phone transmitters



Feeder Cable and Connecting Devices

- b. Passive Fiber Optic Component for High Speed FTTx Network



Optical Fiber Cable Telecommunication System Devices

Group 2: Professional Services

The Company provides consultative services, designs, installations, including after-sales service for telecommunication equipment and systems, with over 25 years of experience. The Company is equipped with tools and equipment, a team of trained professional engineers, specialized in providing quality services, divided into 4 types, consisting of

1. Pre-Sales Services

- Providing consult and system design for telecommunication systems according to customer needs, for most efficient system, low investment and cost-efficiency investment
- Providing project proposal service as per customer requirements

2. Implement & Installation Services

- Providing project management, administration, project planning from the commencement to the completion of the project to meet customers' requirements.
- Providing integration system by teams of specialists in specific technologies, system design, solutions to meet customers' requirements.
- Providing installation, testing, and delivery as designed and required by customers.
- Providing training services for customers after completion of the project and new feature updates.

3. After Sales Services

- Product Warranty
 - a. Product Warranty: The product warranty will be valid for 1 year.
 - b. Free Factory Repair: in case of defective devices due to production or malfunction during the warranty, the Company will be responsible for delivering defective devices to the factory for repair or recovery free of charge within 60 days.
 - c. Software Updates and Upgrades: Customers have the right to upgrade to the latest software version for most efficient operation.
 - d. Help Desk / Telephone technical support (Customer consultation): The customer can ask for assistance in case of malfunction devices. The Company's engineers will provide technical support or troubleshooting for customers by call in normal working days (Monday-Friday 8:30 am - 5:30 pm)
- SWAP The Company provides backup equipment in replacement of damaged devices to facilitate smooth operations of devices. The SWAP Replacement value depends on type of device.
- Preventive Maintenance Services: The Company will send staff to perform equipment maintenance as scheduled to avoid any damages or defections to the device as follows
 - a. Checking readiness of operation.
 - b. Improving and fixing when defects found
 - c. Cleaning
 - d. Upgrading the latest software version according to the terms of product warranty.
 - e. Suggesting techniques for uses of devices as per customers' requirement.
 - f. Introducing new products and technologies to facilitate customers' work development and improvement.
- ONSITE Services) : The service in case those customers encounter problems with device operation. After being notified and detected of equipment damage, the Company will send engineers to fix within 24 hours (the customer has the right to purchase the repair service when notified, in case that the customer purchased the maintenance services as scheduled only). There are 3 levels of service as follows
 - a. 5 working days for 8 hours (5X8)
 - b. 7 days for 8 hours (7X8)
 - c. 7 days for 4 hours (7X24)
- On-Call Services: The service in case of malfunction operations of customers' device. The On-Call Service is available for buying on individual time basis. Price depends on type of device and area of service
- Repair: The service provided by engineers well-trained from manufacturer, specialized in and experience in devices, testing tools and high quality spare parts for good quality repair work which makes the Company acceptable by manufacturers and customers.

4. Rental service: The service provides a variety of teleconferencing and digital TV broadcasting devices to meet customers needs

Group 3: Digital Service Provider

is the telecommunication on a monthly service fee basis, consisting of

1. PlanetFiber provides high-speed internet through fiber optic networks for mid- and high-rise condominiums on monthly fee basis with internet speed from 100 MB - 1 GB.

2. PlanetCloud provides cloud services for the office on monthly fee basis consisting of

- Cloud PBX office phone system
- Cloud meeting
- Cloud call / contact center system
- Cloud CCTV
- Cloud Wi-Fi

Market and competition

The Company has operated its business on telecommunications and digital television over 25 years as distributor, reseller and system integrator. The Company is aware of the importance on introduction of technologies and high quality services, forming professional team for efficient pre-sale and after-sale services. The Company' strategies are on advantageous competitiveness and strategic development for differentiation as follows;

Long List of Technologies between

1. Networking

Networking is referred as connecting computers electronically for the purpose of sharing information. Resources such as files, applications, printers and software are common information shared in a networking. The advantage of networking can be seen clearly in terms of security, efficiency, manageability and cost effectiveness as it allows collaboration between users in a wide range. Basically, network consists of hardware component such as computer, hubs, switches, routers and other devices which form the network infrastructure. These are the devices that play an important role in data transfer from one place to another using different technology such as radio waves and wires.

1.1 Applications/Use Cases

Software-defined wide-area network (SD-WAN)

SD-WAN is coming to transform the networks. It helps increase MPLS performance with high-capacity Internet connections from a separate provider. Moreover, resiliency and availability of the network would be improved as well. At the same time, the added capacity increases overall usable bandwidth at the location. Another promise of SD-WAN is to reduce MPLS costs by leveraging inexpensive Internet connections. Furthermore, the need to extend the business into the cloud is one of the factors driving SD-WAN deployments.

Low-power wide-area network (LP-WAN)

It is one of the key engines of IoT helping empower a new layer of operational transparency and efficiency enabled by advanced cloud analytics. 3 most common use cases are process optimization, condition-based monitoring and predictive maintenance and monitor safety.

- Process Optimization: LP-WAN can help monitoring factory environment in order to maintain the optimal ambient conditions for all manufacturing processes such as temperature, air quality, etc.
- Condition-based Monitoring and Predictive Maintenance: Continuously monitoring through massive embedded sensors enables a factory to have an early detection of any operational deviations or anomalies of machinery and assets. The communication technology that will understand tons of sensors is LPWAN.
- Monitor Safety: utilizing LP-WAN wearables and sensors enables workers to be tracked in industrial environment to improve worker wellness and productivity.

LTE-M (CAT-M1)

It is created for IoT devices and acts as a connection to 4G network without a gateway. Use cases for LTE-M are mostly for Low Density Sensors, Automated Meter Reading and Asset Tracking with LTEM

- Low Density Sensors: LTE-M is a better way to connect a large amount of sensors in the businesses likes Cold Chain, removing the headache of connecting via Wi-Fi or a gateway. Moreover, the technology has a long life battery that can enter the Power Savings Mode.
- Meter Connecting: Cellular-based AMR has been less popular because of its high cost. So, LTE-M will become the frontline of meters connecting due to its cheaper chip price.
- Asset Tracking: Short range connections like Bluetooth along with LTE-M are becoming the mainstream of asset tracking.

1.2 Current Scenario

Working to expand internet access around the world, Alphabet's Loon, in collaboration with satellite operator Telesat, is relying on high-altitude balloons to provide wireless connectivity in remote areas. These balloons are essentially helium-filled cell towers that float in the stratosphere and can reach areas with no ground-based carrier infrastructure.

Loon's network is managed by an automated software platform called the Temporospatial SDN. It enables individual balloons to coordinate with each other similarly to traditional cell towers. When one airborne system picks up a signal, it passes on the transmission to a system closer to the signal's destination, and the process is repeated until the message can be broadcast to the ground.

1.3 Relevance in Future

Traditional networks were built with little regards for the criticality of data flows, resulting in a network that treated all data the same, with quality of service being the primary differentiator in terms of offering differing levels of network services.

Intent-based networking (IBN), on the other hand, is an attempt to look at the intended outcome of a data flow that a particular end user or business unit finds most acceptable. Simply put, IBN is about the network having a clear understanding of the purpose, use and importance of all the applications it runs.

With that understanding, IBN uses AI to take this high-level overview of application service intent and convert that into detailed, end-to-end network policy. The IBN system then constantly reviews, updates and pushes this policy using real-time automation, thus improve network availability and agility.

1.4 How it is important to Thailand?

A good computer networking solution will be very beneficial for various businesses. As computers have become an important element in the life of all ages, networking will support the connection of each computer. The process of work will be more efficient and easier. This makes it a much needed tool for every business, banking, government, entertainment, daily life, industry, education, and administration. Not only connecting between computers, but networking also supports connecting between devices. Therefore, networking will be the base technology for developing other advance technologies such as IoT, 5G. This will support a recent government initiative, Thailand 4.0. As smart projects need strong connection between devices, networking will grow and be developed more than before. Several types of networking will be adopted in different devices which will create advantages for the people in communities. Not only communication in the organization, but networking also provides the communication channel in terms of business-to-business, business-to-customer and business-to-government. Therefore, networking is very important to Thailand in term of a supporter of Thailand 4.0. It will drive capacity of business and country to compete globally.

1.5 Trends in 5 years, 10 years 15 years

	5 Year	10 Year	15 Year
Technology Development	Software-defined WAN (SDWAN) continues to gain traction as enterprises examine new tools to connect their remote offices.	Hyper-converged infrastructure (HCI) combines compute, storage, networking and virtualization resources in a single integrated platform.	Using automation and policies, IBN could redefine how apps and services are delivered across networks.
Growth in terms of usage across the world	To hit THB 141.9 billion and grow at a 40.4% CAGR from 2017 to 2022.	To grow from THB 129.3 billion in 2018 to THB 539.3 billion by 2023, at a CAGR of 32.9% during the forecast period.	To grow from THB 20 billion in 2017 to THB 154.4 billion by 2023, at a CAGR of 42% during the forecast 2018-2023 period.
Potential growth in Thailand	Thailand has growth potential as enterprises and service providers are rapidly migrating key business applications to the cloud.	HCI products can help businesses across sectors in Thailand including telco, banking, healthcare, manufacturing, agriculture, oil and gas, education, government, as well as SMEs achieve cost-effective digital transformation.	Asia Pacific and Thailand is anticipated to witness the fastest growth rate among all the regions due to the surge in investments by the key players of the intent-based networking market.
Relevant Use Cases	SD-WAN Cloud Connect allows branch offices access to more distributed and cloud-based applications that reside in more than one location and may include SaaS, IaaS, public and private cloud.	Deploy HCI to support new business-critical Tier 1 applications, facilitating scaling up infrastructure as critical application require.	reactive/predictive network assurance, elastic bandwidth deployment, real-time network topology change, dynamic service orchestration and modifications

1.6 Sub-components of Networking

LP-WAN

LPWA networks are intended for IoT solutions that need low power consumption, extended battery life, and good penetration in buildings and underground. Several different technologies are being developed and deployed to support such IoT requirements. An important category of LPWA is a mobile operator-managed IoT network based on 3GPP standards for IoT networks. The two most commonly identified technologies as defined within the 3GPP standards for these purposes are LTE-M (also referred to as LTE Cat-M1) and NB-IoT (Narrow-Band IoT). Due to its key characteristics, LPWA is likely to have a significant impact on the growth rate of future IoT innovation and spur even higher volume device deployments than are present today.

Future Outlook - The Internet of Thing (IoT) industry in Thailand is expected to be worth THB 31.5 billion by 2020. And Thai enterprises ranked as highest among ASEAN countries in exploring or implementing IoT solutions, thus increase the potential adoption of LPWAN in the country.

LTE-M

LTE-M is the simplified industry term for the LTE-MTC low power wide area (LPWA) technology standard. It specifically refers to LTE CatM1, suitable for the IoT. It enables IoT devices to connect directly to a 4G network using batteries and without a gateway. It offers a secure network at low bandwidth with benefits of cellular network and its features can be optimized and designed for IoT industries and applications. LTE-U technology will be in demand, as cellular networks are trying to offload traffic from their networks by making use of the bandwidth available from unlicensed networks. In terms of potential to grow, in the early phases of implementation it is expected to make a significant difference by 2020 as carriers expand LTE-M coverage.

Future Outlook – Companies worldwide are actively working on IoT use cases and opportunities in various vertical markets ranging from agriculture to energy utilities and from automotive to robotics. Thus the NB-IoT and LTE-M market is expected to grow rapidly over the next five years and for 3GPP technologies to account for much of that growth as they continue to develop.

Bluetooth

Bluetooth is low-power, short-range communications technology ubiquitous in laptops, tablets, and smartphones. Popular, as it is easy to use, compatible with a range of devices, enables voice and image data transfer. Bluetooth Special Interest Group (SIG) member companies can use Bluetooth and the number is pegged at about 20,000. Bluetooth-compatible devices include Wireless headsets, devices, and in-vehicle entertainment systems, peripherals such as keyboards and mice, audio transmission, videogame consoles, smart locks, and beacons. Its low power consumption enables long battery lifetime; while standards-based protocol enables interoperability.

Future Outlook - Smart devices, which include CCTV and Bluetooth Smart, are expected to increase 30% in 2018 (THB 101.4 billion) and 20% in 2019 (THB 121.68 billion) because the market base is still small and the popularity of Big Data and Internet of Things is growing.

Wi-Fi

Wi-Fi is used across homes, enterprises, schools, hospitals, airports, and industrial settings. Compatibility with almost every operating system, existing infrastructure, and various devices make it cost effective and increase its viability. Some applications include thermostats, smart meters, patient monitoring, POS terminals. The typical range for Wi-Fi indoors is 32 meters and outdoors is 95 meters, these can be further increased with the help of antennas.

Future Outlook – With low-cost airlines in Thailand looking to offer inflight Wi-Fi connectivity service, a new channel for Wi-Fi growth will pick up in the next 5 years.

Z-Wave

Z-Wave provides plug-and-play setup dedicated to home automation. Signals can travel through walls, floors and ceilings, and devices can route around obstacles, increasing the point-to-point communication range from 120 feet to almost 600 feet. There are more than 2,100 certified Z-Wave products, with applications such as control lights, doors, locks, thermostats, sensors, and appliances. Also, one application provides homes monitoring using sensors that detect changes in the environment and send alerts. Energy savings, as heating, cooling, and lights are managed automatically. Many companies such as GE, Samsung, Jasco and Smart home hubs such as Amazon's Echo, Samsung's SmartThings are Z-Wave compatible.

Future Outlook - The global smart home market is expected to grow from THB 2.4 trillion in 2018 to THB 4.8 trillion by 2024, at a CAGR of 12.02%, thus increasing the rate of Z-Wave usage in many smart devices and home automation for Lighting Control, Security & Access control, HVAC, Entertainment, Smart Speaker, Home Healthcare, Smart Kitchen, Home Appliances and Furniture.

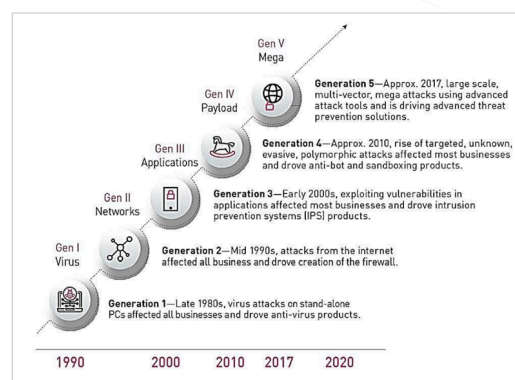
Thailand's networking market is projected to hit THB 18.3 billion by 2025 from THB 10.7 billion in 2018 at a CAGR of 8% during the forecast period.

2. Security

Digital security is the protection of online identities people have been creating exponentially with the growing usage of social media, mobile applications, electronic payments etc. Criminals are finding new ways to operate and steal information from digital users for their own personal gain.

Digital security or Cybersecurity is an all-encompassing term which includes the tools that can be used to secure identity, assets and technology in the online and mobile world. The tools for protecting identity include anti-virus software, web services, biometrics, multifactor authentication, voice, facial and vein recognition and secure personal devices.

In terms of the evolution of cybersecurity, the latest 5th generation or Generation V cyberattacks differ from their predecessors in a variety of ways, the most prevalent difference being the wide range of technologies that they can target, from mobile phones to entire cloud networks. As a result, Gen V attacks can occur across countries, companies, and even continents. An example of this broad scale is the Wannacry attack that cancelled thousands of doctor's appointments in the UK while simultaneously crippling the computer systems of German National Railways and Telefonica.



Evolution of Cyberattacks and its security solutions (Source: Checkpoint)

2.1 Applications/Use Cases

Security technology has been increasingly adopted in line with the increasing use of the internet and internet-accessible resources combined with an expectation of privacy. Organizations need cybersecurity approaches that are not only effective, but that deliver on effectiveness with cost efficiency, speed, and reliability. Security services and solutions can cover a range of service offerings, which can also be customized according to the end-user needs. Examples of security applications, to manage and maintain existing network security architecture and improve the security posture, include network management, threat and vulnerability management, monitoring and alerting, incidence response and recovery, as well as forensics and advanced analytics.

To explain in greater detail, network management solutions – which include services for asset management and updating the security architecture such as firewall management, patch management, updates, log management, and identity access and management – are a basic application. There is a consistent need for these services among end users. Secondly, threat and vulnerability management solutions – which include services for threat detection, vulnerability scanning, threat intelligence and analytics, advanced industry anomaly detection, etc. – are applications that users adopt to detect anomalies in their networks. Thirdly, monitoring and alerting solutions – which include services that monitor the current security posture for any anomalous behavior, including security monitoring services, 24/7 Security Operations Center (SOC), alerting services, and intrusion detection and management – are applications that end users with established security architecture prefer to outsource to other vendors. In addition, incidence response and recovery solutions - which include active services such as emergency incidence response, security incidence handling, SIEM services, and remediation - are applications that are anticipated to see the significant growth. Lastly, forensics and advanced analytics solutions – which include advanced network services such as endpoint detection and analysis, and forensic analysis of incidents – are applications that are expected to experience the highest growth in the coming years.

2.2 Current Scenario

The corporate world was rocked by a number of high-profile data breaches and ransomware attacks in 2018. Juniper Research estimated that the quantity of data stolen by cybercriminals could rise by as much as 175% over the next five years.¹²⁶

The development of cyber-security applications is important to address potential cybersecurity threats. Here are some of the emerging technologies that will help improve the security of information systems from being compromised by cybercriminals:

Cloud technology

The cloud has a major impact on the revolution of security technology. More and more businesses and government agencies are embracing the cloud technology every day to store vital information. The cloud provides for more security approaches and techniques.

Mechanisms such as virtualized firewalls, virtualized intrusion detection, and prevention systems, and virtualized systems can now be used from the cloud. For example, most businesses have increased their data center security by using IaaS services.

Hardware authentication

The shortcomings of using usernames and passwords are well known, and there is a need for a more robust and secure form of authentication. One of the recent technologies is the use of authentication hardware.

For example, Intel is now using this technology where it combines a variety of hardware-enhanced factors simultaneously to validate a user's identity. Hardware authentication is particularly important in IoT where networks need to make sure that anything trying to gain access to it is permitted to do so.

User-behavior analytics

After a person's credentials have been compromised, a cybercriminal who has them can penetrate a network and engage in malicious behavior. Such a behavior can trigger a red flag to the existing system defenders if they are using UBA (user behavior analytics). This technology uses Big Data analytics in order to detect any unusual behavior. This technology is important and it helps address blind spots in a business security system.

2.3 Relevance in Future

Digital or cyber security is considered the basic prerequisite for digitization as well as digitalization as data breaches and attacks have been growing along with its widespread usage. Thus, confidence in the safety of new technologies, including connected cars, industry 4.0, automation in manufacturing, critical infrastructure and digital services is indispensable.

2.4 How is it important to Thailand?

Cybersecurity technologies are crucial for Thailand in terms of providing a necessary infrastructure to protect not only national security and nationwide digital backbone facilities but also online privacy, identity, integrity and secured transaction from potentially impactful cyberattacks. The country has one of the highest penetrations of internet, smartphone, and mobile internet users in Thailand with the numbers expected to grow steadily year-on-year.

2.5 Trends in 5 years, 10 years 15 years

	5 ปี	10 ปี	15 ปี
Technology Development	Biometrics: assured identity security screening solutions by bio-signature such by measuring unique heart/pulse rates, electrocardiogram sensor, blood oximetry, skin temperature	AI-based cybersecurity applies machine learning and pattern recognition techniques to tap unstructured data and uncover new patterns. It analyzes sensitive security related structured and unstructured data to understand and learn about constantly evolving threats, building instincts, and expertise.	Quantum cryptography takes advantage of the properties of quantum physics to encrypt information at the physical network layer.
Growth in terms of usage across the world	The global biometric market is expected to grow from THB 334.3 billion in 2016 and estimated to reach THB 1.3 trillion by 2025, at 17.06% CAGR during 2017-2025.	The global AI-based cybersecurity market was valued at THB 123.6 billion in 2017 and is likely to reach THB 1.1 trillion by 2025, at a CAGR of 31.38% during the forecast period.	The global quantum cryptography market size is expected to grow from THB 3.2 billion in 2018 to THB 15.9 billion by 2023, at a CAGR of 37.9% during the forecast period.
Potential growth in Thailand	With Thailand focusing on Smart Living, Smart City Solution and Info Security to move forward, AI enhanced surveillance systems, biometric identification systems, smart sensors, alarms and access control systems will be in demand to meet such requirements.	Thailand is using AI to monitor network traffic and conduct Big Data analyzes to detect suspicious user behavior—for instance, two unusual logins with the same credentials, but hundreds of kilometers away.	Quantum cryptography has attracted much scientists attention in Thailand due to its potential for providing absolute secret communications that cannot be broken by any amount of computational effort.
Relevant Use Cases	Cases Workplace biometric scan via smartphone – 70% of organizations are expected to be using mobile apps to allow biometric authentication for workforce access such as a single sign-on service, allowing workers access to vital documents or files with just a scan.	Risk identification with AI - as machines possess abilities to understand technological environments, the innate nature of identifying the risks based on historical data and system breaches strengthens the organizational abilities to circumvent obstructive behaviors, thereby improving their overall security stance.	Quantum cryptography could encrypt fiber networks—i.e. the physical layer—from end to end. With fiber cable running across the entire connection, in theory encryption would not be needed at any other layer of the network.

2.6 Sub-components of Security

Biometrics verification and payment

This refers to the means by which a person can be uniquely identified by evaluating one or more distinguishing/multimodal biological traits such as fingerprints, hand geometry, retina/ iris patterns, voice waves and signatures. Biometric Payment is a point-of-sale (POS) technology that relies on biometric authentication to identify and authorize the user for deducting funds from a bank account; fingerprint payment, based on finger scanning is the most common biometric payment method. Facial recognition is gaining traction in this space.

Future Outlook – Since 2016, the Thai government has rolled out a national e-payment system, contributing to growth and optimism at companies providing biometric identity systems in the country. Singapore-based identity management firm i-Sprint Innovations has selected DataOne Asia Thailand as its local authorized distributor. I-Sprint has reached a 70% market share in Thailand's commercial banking sector. DataOne Asia Thailand expects its cybersecurity and identity management revenue to make up 30% of its total on the year, up from 20% in 2016. It expects revenues from i-Sprint products will reach THB 100 million within 3 years.

Multifactor Authentication

MFA refers to a security system that uses more than one form of authentication when compared to the contrary method of single factor authentication that uses only the User ID and password. In many countries, is a must for Second Factor Authentication (2FA) mode of authentication for banking. Such authentication methods can be thought of as three levels: something you know, something you are, and something you have. Passwords, in this case, fall into the category of something you know.

Future Outlook – With the launch of Apple's iPhone XS, XS Max and XR in Thailand, in October 2018, Thai consumers have been introduced to a multifactor authentication which will greatly reduce the risk for credential-based attacks. The global multifactor authentication market is expected to rise to THB 64.3 billion by 2025 from THB 152.3 billion in 2016. Over the forecast duration of 2017 and 2025, the global multifactor authentication market is prognosticated to expand at 17.7% CAGR.

Voice Recognition (Voice ID)

This is a type of authentication that recognizes voiceprints and forms patterns to verify a speaker. Voice ID relies on vocal characteristics and they are unique for each individual. This is a set of measurable characteristics in human voice that enables the unique identification of an individual. These characteristics are converted and expressed as a mathematical formula, based on the physical configuration of the speaker's voice.

Future Outlook – Due to the influx of Chinese tourists to Thailand, Tencent Holdings is considering launching WeChat Pay, its digital payments platform service in the country with an aim to provide convenience and ease of use, and for users to feel like they are at home even while travelling, with no need to worry about currency exchange rates. They can use voice recognition or facial recognition in order to identify users when they want to make a payment transaction.

China remains the largest contributor in terms of both arrivals and tourism revenue to Thailand and, on average, they spend more than other tourists – above THB 5,000 per person a day, according to data from the tourism authority. Chinese accounted for nearly one-third of 2017's record 35 million arrivals but the number began to fall in August 2018, plunging 11.77% from a year earlier due to a boat accident that killed over 40 Chinese in Phuket in early July.

Fingerprint sensor

This refers to the process of obtaining and storing human fingerprints electronically to store it as a digital image.

Future Outlook – Fingerprint Sensors Market is expected to grow from THB 130.9 billion in 2017 to THB 722.3 billion by 2026 globally, at a CAGR of 20.9% between 2017 and 2026.¹³³ It is predicted that intelligent buildings equipped with face recognition and fingerprints sensors will be commonplace by 2020. In Thailand, early adopters have included oil-and-gas companies and those in the finance and banking sectors, all of whom have made facilities management (FM) a core component of this shift. More sectors will likely follow suit quickly.

Behavioral biometric

Behavioral biometric is defined as the form of identification or authentication that uses the uniqueness of a person's interaction with the device or his or her behavioral trait. Gait recognition, keystroke, signature, and cognitive biometrics are examples of behavioral biometrics. The rising trend of technology convergence and Internet of Things (IoT), along with the above-mentioned macroeconomic trends, is expected to enhance the growth prospects of behavioral biometrics.

Future Outlook – The global behavioral biometrics market garnered THB 22.7 billion in 2017 and is projected to reach THB 123.6 billion by 2025, growing at a CAGR of 23.7% from 2018 to 2025. The Asia-Pacific region would register the highest CAGR of 26.5% from 2018 to 2025, owing to factors such as rise in security spending among government organizations, rapid penetration of smartphones in emerging economies such as China, Japan, India, Australia, and South Korea.

Facial recognition

Face recognition provides authentication by recognizing unique identification patterns on the end user's face. The mobile application gets permission to access the front camera of the mobile phone. The biometric software then maps out the unique features on the users face and confirms a match. The user then gets secure access to the mobile application to go forward with transactions.

Future Outlook – In 2018, Thailand's cabinet has given its approval in principle to a draft bill proposing an e-KYC digital ID system based on facial recognition to facilitate online financial transactions and cybersecurity. Facial recognition will be used to verify the identity of users opening new deposit accounts. Bangkok Bank (BBL) expects tens of thousands of new accounts to be opened within six months of the new service's availability.¹³⁵

Also, the second generation of a robot provides care for the elderly and Alzheimer's patients in Thailand, with a new feature using Artificial Intelligence. The new generation of Dinsow Mini comes with facial recognition and voice recognition, training the robot to recognize family members and understand patients' sounds, even if their condition worsens and their sound changes. Its accuracy is over 80%. In 2019, CT Asia Robotics Co will also introduce a new robot for the retail sector designed as a sales assistant that can recognize shoppers and recommend products based on their preferences.

Eye printing

Eye printing enables service companies to verify their customer's identities using biometrics. This type of authentication is simple to use and is also in trend with new-age digital banks. Eye printing authenticates mobile device users by verifying the eye veins and other features around the human eye. The human eye holds great detail and information that can be extracted to give high accuracy in authentication.

Future Outlook – The global eye tracking market size is estimated to reach THB 58.3 billion in 2025 from THB 9.0 billion in 2017. It is projected to register a CAGR of 26.3% during the forecast period. Increasing use of smart sensors for process control and decision making and rising demand for contactless biometrics are among the key trends stoking market growth. Growing adoption of Artificial Intelligence (AI), virtual reality (VR), and augmented reality (AR) in consumer electronics & other commercial application areas is poised to help the market gain tremendous momentum over the coming years.

Vein recognition

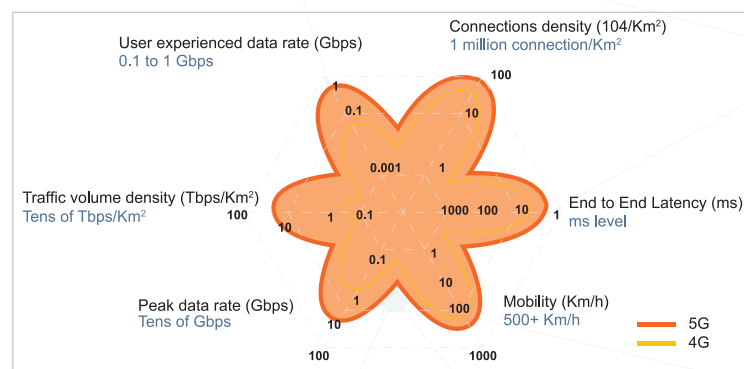
Vein recognition systems are the newest biometric technologies that have emerged in financial services. Vein authenti

Future Outlook – As the technology uses vein information inside the user's finger, theft or falsification of information is difficult, thus increasing the level of security such as access control for potential adoption in many areas, properties and buildings in Thailand.

Frost & Sullivan estimates that cybersecurity spending in Thailand will reach THB 16.3 billion by 2025 from THB 6.9 billion in 2017, at a CAGR of 11.30% during the forecast period.

3. Next Generation Telecom

This refers to the continuous evolution of mobile telecommunication technologies following 1G technology offering mobile voice calls, 2G providing both mobile voice calls and SMS and 3G offering mobile web browsing experiences. The current mainstream wireless technology is 4G that offers mobile video consumption and higher data speed. The next evolution in wireless connections is just around the corner with 5G expected to offer massive bandwidth, greater opportunities for connectivity and improved network reliability. When fully implemented, it will offer capacity and download speed many times faster than today's 4G LTE network.



Key benefits of 5G over 4G (Source: 5G PPP EU)

3.1 Applications/Use Cases

Challenging scenarios are typical scenarios requiring 5G services. 5G is needed for niche services and ones requiring flexibility due to wide variations. 1ms low latency - 5G can support remote control and connected vehicle applications with extremely low latency and high reliability in following use cases

- High-speed Train - Over 500km/hour high mobility
- Highway - End-to-end latency
- Subways – More than 6 people/sq.m. super density

100 Gbps peak throughput and 1 Gbps user experience - 5G can support ultra-HD video, AR/VR, and mobile cloud services.

- Office - Tens of Tbps/sq. km. traffic volume density
- Wide Area Coverage – 100 Mbps data rate user experience
- Dense Residence – 1 Gbps data rate user experience

Million Connections - 5G can support massive connected devices

- Outdoor Gathering - 1 million connections/sq. km.
- Stadium - 1 million connections/sq. km.
- Big Cities - High density areas, which may not be in big cities

Use cases benefited from real time, high speed/bandwidth enabled through 5G	Use cases that will be benefited from real time enabled through 5G
<ul style="list-style-type: none"> • Connected vehicle: 5G will transform the connected car industry and enable autonomous cars. This will result in more and more car companies transitioning into mobility services companies. • IoT: 5G will be the enabler for selected IoT use cases. It can help utilities cut costs, enable public safety organizations improve citizen experience, and help manufacturers reach peak productivity. • AI in Drones: 5G will effectively enable and increase competitiveness of AI, for example drones, for commercial purposes in the urban areas. This will lead to use of drones in logistics and delivery in urban areas. 	<ul style="list-style-type: none"> • IPTV with 4K UHD: 5G will enhance content distribution by facilitating faster download speeds and new immersive experiences, particularly if CDN is used. This will lead to a better, more delightful entertainment • e-Retail: 5G will enable real-time loading of images/videos and use of AR/VR in the retail sector. This will improve the user experience and boost sales. • e-Brokerage: 5G will enable real-time mobile trading and high frequency trading. It can potentially power more secure transactions.

3.2 Current Scenario

According to Ericsson, there were 3.4 billion 4G (LTE) smartphone subscriptions by the end of 2018. Though 4G is the most adopted wireless network as of now, it's still far from achieving the true 4G. 4G LTE is much better than 3G, but does not reach the speed specifications set by regulatory body the International Telecommunication Union (ITU). The technical standard for 4G is peak speeds of at least 100Mbps for high mobility or 1Gbps for more stationary applications but that was only reachable for carriers and manufacturers until recently with the introduction of LTE-advanced. After a bumpy initial rollout, 4G LTE has delivered on many of the predictions and expectations that were set before its launch. For example, it gave birth to the widespread consumption and use of mobile video. From the 4G LTE era, video chatting, video-driven social media like Snapchat, and mobile consumption of TV and film through apps like Netflix are common for smartphone users.

3.3 Relevance in Future

The world's connectivity needs are changing very rapidly. In this regard, global mobile data traffic is expected to multiple by 5 before the end of 2024. Particularly in dense urban areas, the current 4G networks won't be able to keep up. That's where 5G comes into play. The new communication technology brings new capabilities including higher bandwidth, greater capacity, security, and lower latency that will create new opportunities for people, businesses and society.

3.4 How is it important to Thailand?

Next Generation Telecommunication technologies such as 5G has a performance and responsiveness to enable a whole host of new use cases and deliver to Thai government, society and businesses the ability to drive and generate new levels of productivity and new revenue generation streams as the country is striving to become a high-income nation with "value-based economy" or Thailand 4.0 as a new growth engine.

3.5 Trends in 5 years, 10 years 15 years

	5 Year	10 Year	15 Year
Technology Development	5G is set to provide 100 times faster data rates, supporting instant access to services and applications, significantly reduced network latency to 1-10ms and making it possible to dedicate a unique part of a 5G network for a service.	5G will become dominant mobile technology across most of the networks. Meanwhile, the upcoming 6G mobile system for the global coverage will integrate 5G wireless mobile system and satellite network. Also called 5G Long Term Evolution, 6G will achieve terabits-per-second speeds, along with microsecond latency. Frequencies from 100GHz up to terahertz (THz) are the way to go for 6G. Frequency bands will be in the tens of gigahertz in that spectrum to provide conceivably virtually unlimited bandwidth.	The 6G momentum continues to grow strongly with new level of speed and data rates. At the same time, testing for 7G mobile technology is set to start in 15-year time. 7G mobile network is like the 6G for global coverage but it will also define the satellite functions for mobile communication.
Growth in terms of usage across the world	Ericsson expects the global number of 5G subscriptions to significantly take off with 191 million in 2021 and reach 1.48 billion in 2024.	At global level, 5G mobile technology will dominate the majority of connections by 2028 with forecasted subscriptions to reach 40.88% or 3.35 billion of global population by 2025.	According to the University of Oulu in Finland, 6G will emerge around 2030 to satisfy the expectation and requirements not met with 5G. 141 7G wireless technology is forecasted to emerge around 2040.1
Potential growth in Thailand	Frost & Sullivan predicts that the number of 5G subscriptions in Thailand will reach significant numbers in 2020 with 450,000 5G subscribers and grow to 9 million in 2023.	Assume that the fast-pace trend continues, Over 20% or 14 million of Thailand population could adopt 5G by 2025.	No potential growth yet as of now
Relevant Use Cases	Adoption of 5G is expected to elevate live-stream broadcasting, cloud gaming, cloud-based AR/VR (augmented reality/virtual reality), real-time healthcare monitoring and high-speed wireless broadband in rural areas.	5G can support massive connected devices up to 1 million connections such as outdoor gathering or sports stadium covering 1 million connections/Km	According to 6G research program called 6Genesis by Finland's University of Oulu, 6G's use cases include intelligent personal edge, sensor to AI fusion, super functional products with on the fly configuration and product gamification etc. In satellite system for 7G, the telecommunication satellite will be for voice and multimedia communication; navigational satellite will be for global positional system (GPS) and earth image satellite for some extra information like weather update.

3.6 Sub-components of Next Generation Telecom

5G

5th generation (5G) wireless technologies will deliver a potent combination of network capabilities and flexible options for network deployments, service delivery, and network management. 5G deployments are envisioned as a complex amalgamation of various next-generation technological enhancements to the wireless access, transport, cloud, network applications, and management layers. It will incrementally build on various 4G technologies currently deployed, thus enabling mobile operators to preserve existing investments in network infrastructure. A significant share of 5G will be deployed at very high frequencies, which has important ramifications for coverage. In order to overcome the coverage limitations at higher frequencies, 5G networks will be overlaid with “ultra-dense” access networks such as small and metro cells.

Future Outlook – Thailand’s Digital Economy and Society (DE) Ministry planned to begin the trial for the 5G testbed in the Eastern Economic Corridor (EEC) in January 2019. This move will prepare the country for 5G adoption by 2020. Initially focusing on transport, healthcare and tourism, the 5G trial will feature the alliance of private firms and state agencies, including Ericsson, Huawei Technologies, Qualcomm, Intel, Nokia, major telecom operators, the Thai Federation of ICT Technology Association, and the National Broadcasting and Telecommunications Commission (NBTC).

Following the showcase in November 2018, AIS has become the first mobile phone network operator in Thailand to commence 5G technology testing in the country, including making it available for trial at “5G the First LIVE in Thailand by AIS” in collaboration with global partners Nokia, Huawei and ZTE Corporation. It expects enhanced mobile broadband (EMBB) running on 5G will upgrade data usage speeds. 5G will also expand wireless connectivity capacity between devices based on massive machine-type communications (mMTC) which will support widespread adoption of the Internet of Things (IoT). 5G will improve network quality and provide faster responses more reliably thanks to the latest latency communications. This alone has implications for everything from medical safety to self-driving cars

6G

6G technology refers to the sixth generation technology. It is proposed to integrate 5G technology for a global coverage. For resource monitoring and weather information multimedia video and high-speed Internet connectivity and the Earth imaging satellite networks are used. To integrate these three kinds of satellite like telecommunication, navigation, multimedia networks which provide global positions, internet connectivity with high speed and for mobile user’s weather information services are major three objectives for 6G technology. The 6th generation (6G) wireless mobile communication networks integrate satellites for global coverage. It can be a combination of nanocore and Artificial Intelligence, where all the network operators will be connected to one single core. As in evolution and explosion, many will become extinct but some will change the world. In 6G the cost of mobile call will be relatively high but in 7G this problem will be improved and the cost of call will be reduced and lower level user will be benefited.

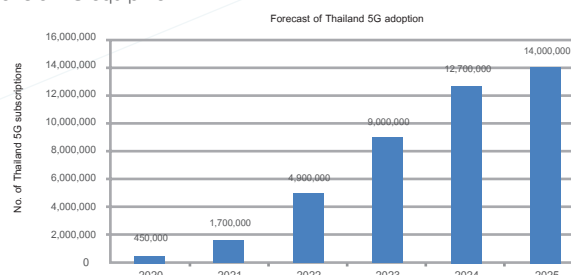
Future Outlook – The 6G mobile system for the global coverage will integrate 5G wireless mobile system and satellite network. These satellite networks consist of telecommunication satellite network, Earth imaging satellite network and navigation satellite network. The telecommunication satellite is used for voice, data, internet, and video broadcasting; the earth imaging satellite networks is for weather and environmental information collection; and the navigational satellite network is for global positional system (GPS). The four different countries which developed these satellite systems are; the GPS by USA, the COMPASS system developed by China. The Galileo system developed by EU, and the GLONASS system developed by Russia.

2G & 3G

2G cellular telephone technology is used for digital encryption of conversations, offered data services and SMS text messaging, followed by 3G, which offered faster data transfer rates and enabled video call. These can be used by applications that need lower bandwidth, wide coverage area, and low-cost connectivity. Mobile networks are not optimized for large number of devices per small area.

Alternative solutions are needed for devices that need very small amount of data periodically. First to offer data services, SMS text messaging, and video calls and still continue to be the primary source of communication where advanced connectivity options are limited.

Future Outlook – Thai telecoms regulator NBTC has set a schedule for the mandated shutdown of 2G networks across the country by October 2019 in order to free up capacity for 5G deployment. Thai operators have been instructed to take steps to migrate all 5.2 million remaining 2G subscribers onto 3G and 4G networks. Pending approval for the plan from the NBTC board, the regulator and operators will commence a multi-stage transition towards shutting down 2G. The first stage will involve disallowing further imports of 2G equipment.



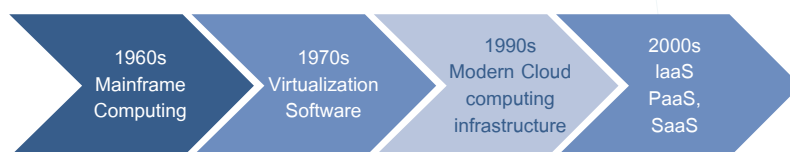
Forecast of Thailand 5G adoption 2020-2025 (Source: Frost & Sullivan Analysis)

Frost & Sullivan predicts that the number of 5G subscriptions in Thailand will reach significant numbers in 2020 with 450,000 5G subscribers, 1.7 million in 2021, 4.9 million in 2022, 9 million in 2023, 12.7 million in 2024 and 14 million in 2025.

4. Cloud Computing

Cloud computing is the delivery of on-demand computing resources (e.g., applications, data centers) over the Internet. Cloud services help to eliminate the limitations pertinent to scalability for on-premises computing resources. They eradicate the complexities and minimize cost of deployment and provisioning of physical resources.

Cloud computing has opened up a myriad opportunities to use expensive and complex computing resources as services. Having started with only providing Software-as-a-Service (SaaS), recent advancements in cloud computing technology offer almost all the major computing resources, such as infrastructure, storage, platforms and so on to be used as services, collectively known as XaaS (Everything/Anything-as-a-Service), which offers a virtualized working environment where various new technologies can be integrated together.



Evolution of Cloud Computing (Source: Frost & Sullivan)

The evolution of cloud computing has begun since 1960s in the name of 'mainframe computing' but the machines were very expensive and huge, so the company bought only 1-2 machines, and then implement "time-sharing" schedules which enabled multiple users to access the central mainframe computer from connected stations. The next major advancement is in 1969 when APRANET was introduced. It was the first network that allowed digital sources to be shared among computers in different locations. The decade later, much further advancement in cloud technology came into being. Most of all, it evolved with the Internet, and "virtual" private networks has been offered to business sector as a rentable service, eventually leading to the development of the modern cloud computing infrastructure in the 1990s. In the early 2000s, Amazon launched Elastic Compute Cloud (EC2) allowing companies and individuals to rent virtual computers through which they could use their own programs and applications. Same as Google that launched Google Docs services that users are able to save, edit and transfer document in the cloud. Nowadays, there are a number of services emerging from cloud such as Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS).

4.1 Applications/Use Cases

Cloud used to be an alien idea a while ago but today multi-cloud environments have become the norm for both public and private sector. Its promise about cost saving and high latency drives the adoption to be at the fastest pace in the last few years. Cloud has been applied in every industry regardless of public, private or hybrid one. Here are the most common use cases of cloud.

Disaster Recovery and Backup

Cloud has been built with the capability of backup. Disaster recovery in the cloud is emerging as a compelling alternative to an expensive disaster recovery plan due to its flexibility in commitment, capacity and cost. Disaster recovery in cloud help maximize enterprise's cost because there is no need to purchase hardware, hire or train new specialists and invest in a secondary physical site. This service will run replicating and recovering applications and data in the case of a local disaster or disruptive event.

Testing and Development

Public Cloud is another famous area to set up and do application development and then move them back on-premises data center for production (often for data governance or cost reasons). This is because cloud can speed up the development process. The traditional development and testing methods can be time-consuming and costly. As with traffic bursting, enterprises may not have the capacity to host lots of servers and storage in a data center for testing and development purposes. Cloud's promise for flexibility and stability, easy management, security and low costs in production are the factors that attract DevOps guys to run on cloud. Using the public cloud allows you to spin up servers as you need them, and then shut them down when you're finished.

Extend Existing Applications

The costs of deploying, managing and upgrading existing applications can be very costly. Extending applications to the cloud can provide scalable and cost effective solution. Some cloud platforms support tons of applications and loads of operating systems to run on allowing applications testing without changes required. With cloud, organizations can perform their works with the same tools and processes, no need for changing custom settings in the environment.

Cloud Bursting

Some period of the year, the demand for resources may reach a certain level; for example, retail business may get an overwhelmed interaction from customers during special holidays likes Christmas. In a traditional data center environment, businesses need to provision a compute, storage, and network capacity to reflect this. This is not an effective method of scaling. Enterprises will be paying for extra infrastructure that you may only use for a couple of months of the year. Cloud computing offers a far better method for handling peak traffic loads. Cloud can be used to scale a network and resources to manage this unusual traffic during peak period.

4.2 Current Scenario

Globally, hybrid and multi-cloud environments have gained momentum as enterprises look to adopt the right mix of cloud models and service to best suit their business objectives. By the end of 2019, almost two-thirds of organizations are expected to adopt multi-cloud infrastructure.¹⁵⁴ The emergence of open-source-based cloud platforms (e.g., OpenStack) is a key driver for growth in hybrid clouds, as they facilitate easy migration of cloud apps and enable multi-cloud interoperability. Google, for example, has been increasingly focusing on “Google Stackdriver,” a dashboard tool for customers using multiple clouds, as it notes a trend of multi-cloud usage and rising private cloud deployment.

As security concern is one of the top challenges, securing data and applications in the cloud is imperative as more mission-critical apps and valuable data is moved to the cloud. Global cloud security solutions are expected to reach an annual growth rate of 28% over the next few years. Security and control concerns are also driving enterprises to look toward managed private cloud solutions over public clouds. In addition, managed private cloud and professional services have also been increasing in popularity, due to assistance required in migrating complex Big Data and workloads such as ERP to a cloud model. The expansion of open source technologies as well as advances in API-accessible single-tenant cloud servers also help promote acceptance toward managed private cloud providers.

4.3 Relevance in Future

The technology convergence will help create new opportunities in XaaS. Advancements in technologies such as AI, Big Data, VR, and others, when converged with cloud, will lead to the development of innovative applications. For instance, convergence of cloud computing, Big Data, AI, and biometrics can develop Biometrics-as-a-Service, which allows collected biometric information to be stored in cloud-based Big Data infrastructure, meanwhile, AI engine embedded in the cloud can identify patterns in biometric data to accurately recognize individuals through a cloud-based application interface. Furthermore, technology advancements might as well make supercomputing available as a service through cloud computing.

4.4 How it is important to Thailand?

Cloud computing will come to make a significant shift to the business and economic model that leads to an effective cost maximization. When implemented properly, the cloud computing economic model can drastically reduce the operations and maintenance cost of IT infrastructures. Thus, businesses could allocate the budget to invest in develop other capabilities. Thai SMEs should have been supported to be accessed to free cloud. This could lead to a competitive edge of SMEs to help drive Thailand economy as a whole. For government sector, cloud will help improve management of network systems and public service systems to be able to provide continuous service even in the event of a disaster and can save at least 30% of the system investment budget according to international study.

4.5 Trends in 5 years, 10 years 15 years

	5 Year	10 Year	15 Year
Technology Development	Hyper-converged cloud can refer to a public cloud provider using hyper-converged infrastructure (HCI), an on-premises hybrid cloud using HCI, or a system that links the virtualization in an enterprise HCI system with a public cloud's own virtualized servers.	Container-as-a-Service (CaaS) is a cloud service model that allows users to manage and deploy containers, applications and clusters through container-based virtualization.	Technology convergence will lead to an emerging of new innovative cloud-based applications such as Exascale computing-as-a-Service (EC-as-a-Service), which allows data that is stored in cloud-based Big Data infrastructure to be expeditiously processed by exascale computing.
Growth in terms of usage across the world	The global HCI market is projected to grow from THB 129.3 billion in 2018 to THB 539.3 billion by 2023, at a CAGR of 32.9% during the forecast period.	Worldwide CaaS market is forecasted to grow at a CAGR of 34.8% during 2017-2023 to aggregate THB 132.8 billion by 2023.	EC-as-a-Service is expected to accelerate its growth subsequent to growth of Exascale computing in the age of 5G/6G. EC-as-a-Service will also be driven by the worldwide strong growth of Big Data and AI.
Potential growth in	HCI has been increasing adopted by Thai organizations, enterprises that are embracing digital transformation in particular. Hyper-converged cloud, therefore, is expected to be progressively deployed in the next few years.	Having been initially adopting in mature cloud markets, CaaS has potential to grow in Thailand and other emerging cloud markets, amid increasing migration of data intensive input/output (I/O) workloads to the cloud.	Similarly to the global trend, EC-as-a-Service in Thailand is also expected to be widely adopted in the future due to an increasing use of cloud and Big Data technologies by businesses, e.g. cloud-based ERP and Big Data workloads
Thailand Relevant Use Cases	HCI can simplify hybrid cloud environment and reduce the time and expense necessary to transition to hybrid cloud. HCI also benefits edge computing by eliminating configuration and networking hassles that might happen on the edge.	CaaS allows businesses to use container services, enabling users to develop, test, execute, or distribute software in so-called application containers across IT infrastructures, without having the necessary infrastructure.	EC-as-a-Service can allow a wide range of users to use high performance computing without the need to spend on such highly expensive infrastructure.

4.6 Sub-components of Cloud Computing

Edge Computing

Edge computing enables processing data at the edge of the network, and enables analytics at the source of the data. This reduces the volume of data that must be moved, decreasing the cost of transmission and latency. However, edge presents its own challenges, including the emerging need for high-power density networking and to reduce latency. It might require redesigning to serve different carrier environments, and could involve complicated pricing models depending on the application.

Future Outlook – It is forecasted that up to 40% of all compute will happen at the edge over the next couple of years. The global edge computing market is projected to grow from THB 41.0 billion in 2017 to THB 574.0 billion by 2022, at a CAGR of 69.5% during the forecast period.¹⁵⁸ The strong growth of edge computing adoption is driven by a growing number of IoT devices, an increasing cloud adoption, and a rising demand for more computing power in smaller footprint devices.

Everything/Anything-as-a-Service (XaaS)

Everything/Anything-as-a-Service (XaaS) is a collective term that refers to the delivery of services such as SaaS, PaaS, IaaS, Database-as-a-Service (DaaS), Storage-as-a-Service (STaaS), Security-as-a-service (SECaaS), Database-as-a-Service (DBaaS), Disaster Recovery-as-a-Service (DRaaS), Communications-as-a-Service (CaaS), and Network-as-a-Service (NaaS). XaaS forms the intrinsic part of cloud computing, and offers not only cost reduction, but also a flexible and scalable infrastructure for every business process ranging from new product development to data insights and innovative business models.

Future Outlook – With the increasing penetration of Big Data analytics and IoT in the ecosystem across industries, XaaS will have immense application potential in the future. The global XaaS market is projected to grow from THB 8.2 trillion in 2017 to THB 16.5 trillion by 2022, at a CAGR of 15.2% during the forecast period.

Infrastructure-as-a-Service (IaaS)

In an IaaS model, a cloud provider hosts the infrastructure components traditionally present in an on-premises data center, including servers, storage and networking hardware, as well as the virtualization or hypervisor layer. Infrastructure as a service (IaaS) refers to online services that provide high-level APIs used to dereference various low-level details of underlying network infrastructure like physical computing resources, location, data partitioning, scaling, security, etc.

Future Outlook - Many companies in Thailand, especially small and medium businesses, are showing an increase in demand for cloud infrastructure services in cloud storage and Web hosting. Disaster recovery and backup continue to drive the rapid uptake of IaaS cloud solutions in the country. Thailand's IaaS market is projected to grow from THB 1.6 billion in 2018 to THB 4.5 billion by 2022, at a CAGR of 30.75% during the forecast period.

Software-as-a-Service (SaaS)

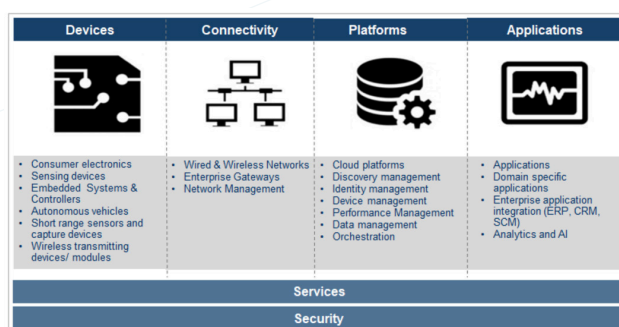
Software-as-a-Service (SaaS) generally refers to a new and alternative way of accessing software, as opposed to more traditional methods of access. A SaaS solution requires no investment in infrastructure. IT resources can be redeployed to core business functions, while maintenance and updates are factored-in.

Future Outlook – It is forecasted that 75% of the total cloud workloads and compute instances will be SaaS by 2022, according to Cisco's Global Cloud Index. Thailand's SaaS market is projected to grow from THB 3.5 billion in 2018 to THB 9.4 billion by 2022, at a CAGR of 27.97% during the forecast period. Popular continuous SaaS services deployed include workplace collaboration tools (email, accounting, payroll, and document management software), cloud storage services, as well as CRM applications.

Thailand's cloud services market is expected to grow at a CAGR of 29% during 2018–2025, to reach an overall market size of THB 31.5 billion in 2025 from THB 5.3 billion in 2018. SaaS spending was the highest of the cloud services segments, at 66.21% in 2018, followed by IaaS at 29.33% and PaaS at 4.46%.

5. Internet of Things (IoT)

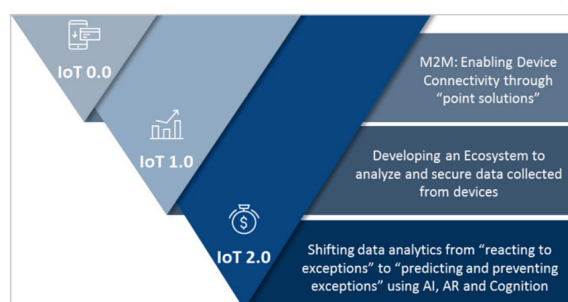
Internet of Things (IoT) is the connection of objects, sensors, and devices into an internet-like structure and organization – enabling the virtualization of everyday objects, providing physical and virtual objects with a digital identity, and allowing interconnecting objects to be monitored and interacted. The IoT stack comprises of 4 major layers - namely devices, connectivity, platforms, and applications - with security and services cutting across the entire stack.



IoT Taxonomy (Source: Frost & Sullivan)

IoT extends internet connectivity beyond traditional devices such as desktop and laptop computers, smartphones, and tablets, to other devices that use embedded technology to communicate and interact over the internet. This means that everyday physical objects, from vehicles to manufacturing equipment, which are able to be connected to the internet can link and communicate to each other. The common characteristics of any IoT-connected device are the presence of: a unique identifier, an IP address, and internet connectivity; the ability to emit and receive information; the ability to interact with other objects; and the ability to perform these functions without requiring either human-to-human or human-to-computer interaction.

The definition of IoT has evolved over the last several years. In the past, IoT has been used interchangeably with machine-to-machine (M2M) communications. Over time, the definition has evolved to include technologies such as Big Data analytics, edge computing, cloud-based platforms, and enterprise system integration that includes integrating with people and processes. While initial implementation was focused on visibility of operation, implementations today are primarily focused on optimizing business process and improving efficiency. However, several leading IoT providers have already started to offer new innovative cross convergence IoT services that leverage on IoT data.



The Evolution of IoT from M2M to Predictive Computing (Source: Frost & Sullivan)

5.1 Applications /Use Cases

IoT can be utilized in both consumer and business segments across industries. Providing a connected environment with everyday items will help businesses utilize the information captured from IoT networks, which will help improve the decision-making process and result in highly reliable predictive insights for business development. It can also have a substantial impact on enhancing user experience which potentially generates additional revenue streams for enterprises. With the implementation of IoT, enterprises can solve a variety of business challenges such as visibility and insights, optimization of business processes, tracking and monitoring of assets and environment, improved customer engagement, as well as enabling of new services and business models. Consequently, IoT use cases will continue to expand in the coming years. Some current use cases and applications of IoT are illustrated in the below figure.

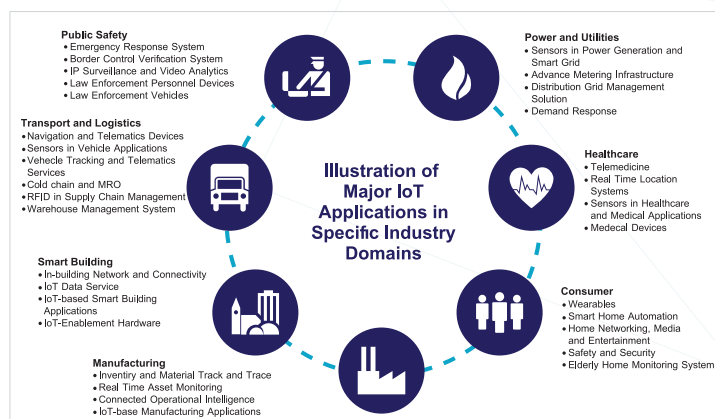


Illustration of IoT Applications (Source: Frost & Sullivan)

Top three industries that have been impacted by IoT include healthcare, automotive, and industrial sectors. To explain in greater detail, IoT is well suited to meet the needs of the transforming healthcare industry by supporting the transition from disjointed care to coordinated care and reactive to proactive care-delivery approaches. Almost 60% of global healthcare organizations have already adopted healthcare IoT or Internet of Medical Things (IoMT), and have realized cost savings, improved their profitability, visibility and customer experience. In addition, the automotive sector will harness IoT throughout the value chain. Automotive industrial IoT spend will grow to \$37 billion by 2025, while digital retailing related to IoT spend will increase at a CAGR of 29.1% from 2015 to 2025. Connected cars, autonomous driving, and the rise of AI are among the key automotive use cases compelling OEMs and Tier I suppliers to invest in IoT platforms.

Finally, for industrial sector, investment in the Industrial Internet of Things (IIoT) is driven by a desire for zero inefficiencies, no machine downtime, and accurate remote diagnosis. With the introduction of automated techniques and flexible production and assembly procedures, manufacturers could improve their productivity by close to 30% and generate significant savings. Frost & Sullivan estimates that the global IIoT market could be worth \$10 trillion by 2030.

5.2 Current Scenario

The IoT movement is growing at a significant pace and impacting virtually every industry sector. Frost & Sullivan forecasted that the number of IoT devices used across the world will reach 60.7 billion by 2024, growing from 19.9 billion devices in 2018, at a CAGR of 20.35%.

Stakeholders in IoT ecosystem worldwide have been constantly developing technologies to offer smarter IoT devices and services. Qualcomm, for example, recently unveils the Vision Intelligence Platform, a new chip-based platform, built specifically for the IoT using an advanced 10 nm FinFET process technology to deliver powerful computing for on-device camera processing and machine learning, with exceptional power and thermal efficiency, across a wide range of IoT applications. Likewise, Microsoft has introduced Azure Sphere, a new custom System-on-Chip (SoC) operating system for the IoT that includes a new security subsystem called Pluton to provide greater IoT device security starting from the microcontroller level and moving up to the cloud.

5.3 Relevance in Future

Many of IoT use cases that are currently supported over existing 4G networks will derive additional benefits from 5G features, such as higher reliability, enhanced capacity and coverage, as well as improved cost-efficiency and virtual network customization capabilities. Industrial IoT applications, especially those that need ultra-low latency and high degree of reliability, are likely to become a major IoT use case in 5G environments. Distributed industrial applications, which are an essential component of next-generation industrial facilities, require ubiquitous connectivity and real-time communication between machines in industrial environments.

5.4 How is it important to Thailand?

IoT is one of the key technologies that drive the digital transformation of Thailand and help bring the country to the Digital Thailand vision, which is part of Thailand 4.0, with a significant impact on enterprises, individuals, and societies. Nationwide, connected devices are increasingly being adopted by both consumer and business segments across industries, mainly driven by the evolving sensor technology at lower price, the rising in high speed networking technologies, the improving connectivity and mobile coverage, as well as the growing adoption and popularity of cloud computing and Big Dataanalytics. One reason for higher demand in business segment is that enterprises need to incorporate technologies in order to stay competitive. With the utilization of IoT, enterprises have new sources of data that provide end-to-end visibility of their business organization enabling them to digitize their physical business processes, optimizing these processes and improving their cost structure.

5.5 Trends in 5 years, 10 years 15 years

	5 Year	10 Year	15 Year
Technology Development	To address security and privacy challenges, blockchain-based solutions can be used to facilitate next-generation IoT use cases focused on cybersecurity, automation, compliance and certification management, and privacy.	The future of IoT will bring significant advancements in Smart City concept. The development of Smart City will also be driven by the growth of cloud computing, machine learning, analytical tools, 5G, as well as the evolving sensor technology at lower price.	5G/6G connectivity will radically transform data services methods across various industry verticals, supporting advanced IoT deployment. 5G/6G will enable, for example, fully autonomous Robotics, immersive remote operations, and end-to-end life cycle management for monitoring and tracking.
Growth in terms of usage across the world	The global blockchain-based IoT (BloT) market is projected to reach THB 8.0 trillion by 2026. In addition, APAC market is estimated to witness the highest growth, of over 13.3% CAGR, from 2018 to 2026.	The Smart City concept is gathering steam all over the world. Huawei, for example, has set out its aim to become the backbone behind smart cities across the world, with its Smart City Solution being already in operation in more than 160 cities in over 40 countries.	It is forecasted that the number of 5G connections globally will reach 1.3 billion connections by 2025, covering 40% of the world's population or around 2.7 billion people.
Potential growth in Thailand	Blockchain-based IoT solutions are expected to be widely implemented in Thailand in the coming years, especially in BFSI sector, due to security and data privacy concerns among customers while adopting IoT technology. BloT also allow enterprises to simplify business processes, improve customer experience, and achieve significant cost efficiencies.	The smart cities scheme is a part of the government's Thailand 4.0 initiative, aiming to integrate digital technology, energy, and transport, with the ultimate goal to develop 100 smart cities within two decades. The government has also established the National Smart City Committee to stimulate adoption of smart cities.	5G/6G will have dramatic impact across industries in Thailand, particularly telecom industry. This will consequently create new opportunities for Telcos, as well as other IoT service providers, to offer advanced IoT services and solutions for both consumer and business segments.
Relevant Use Cases	Connected IoT devices can use blockchain to organize, store, and share streams of data reliably. Even if there are different networks and device sets, blockchain records allow anyone with appropriate authorization to connect and take necessary actions.	IoT use cases for smart cities include smart traffic solutions, smart public transportation, smart parking, smart utilities –e.g. smart meters, smart street lighting, smart waste management, smart public safety solutions, etc.	One of the major use cases of 5G will be connected cars coupled with AR/VR. 5G will also significantly transform the healthcare industry; use cases include live transmission of high-definition surgery videos that can be remotely monitored.

5.6 Sub-components of Internet of Things (IoT)

Next Gen IoT using AI (including Swarm Technology)

AI is expected to have significant impact on IoT in the next 5-10 years. As a part of AI, swarm intelligence is a collective behavior of decentralized self-organized systems where each member autonomously offers its abilities. With Swarm intelligence applied to IoT, a number of discrete physical devices, with each one contributing its interfaces and processing capabilities to the collective, can be viewed in architectural and functional terms as a single entity, enabling harnessing of data and processing power. Providing massive scalability and the ability to easily integrate future interfaces and devices, Swarm technology can extremely reduce the costs of application development and deployment, installation, commissioning and maintenance out at the network edge.

Future Outlook – Swarm technology is expected to witness high growth in the coming years, mainly driven by the increasing usage of swarm intelligence for solving Big Data problems, the rising adoption of swarm-based drones in the military, and need for swarm intelligence in the transportation business. The global Swarm intelligence market is projected to reach THB 14.1 billion by 2030, growing at a CAGR of 40.47% from 2020 to 2030, considering the Swarm technology will get commercialized by 2020.

IoT Connectivity including Digital Twin

IoT connectivity protocols enabling IoT to leverage the applications have been evolving from 2G, 3G to new protocols, such as Sigfox, NB-IoT (Narrow Band IoT), and LoRa, as well as the future technologies of 5G. New technology like Digital Twin technology can help enable better connectivity, communication, and collaboration across IoT ecosystem. Representing the convergence of the physical and virtual worlds, Digital Twin is a digital model or replica of a physical asset, product, process, or system that allows users to have a digital footprint of an asset's or product's life, from the design and development phases through deployment and the end of the asset's or product's lifecycle. The connected digital twins enable businesses to proactively monitor their equipment or processes. The pairing of a digital companion with a physical object can also help enable cost effective products and an improved production process.

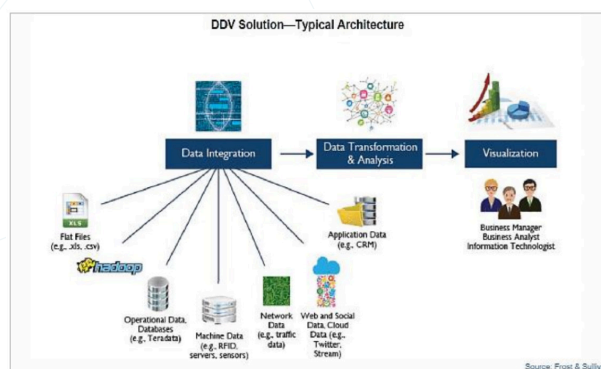
Future Outlook – Since Digital Twin technology incorporates advanced technologies such as Big Data, AI, machine learning, and IoT, to leverage sensor data; Digital Twin will witness wider adoption worldwide including in Thailand, following the increased adoption of these advanced technologies. The global Digital Twin market is projected to grow from THB 71.9 billion in 2017 to THB 493.9 billion by 2023, at a CAGR of 37.87%; additionally, the digital twin market in APAC is expected to grow at the highest CAGR during the forecast period.

IoT adoption in Thailand has been growing fast in both consumer and business sectors. F&S forecasted that the country's IoT market would grow from THB 3.6 billion in 2018 to reach THB 9.6 billion by 2023, at a CAGR of 21.47% during the forecast period.

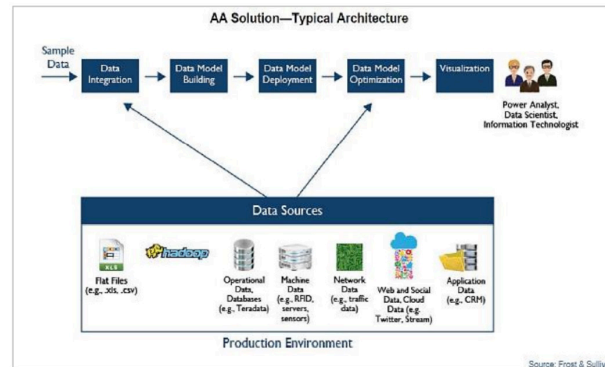
6 Data Analytics

Data Analytics is defined as the process of analyzing data to explore patterns using computing algorithms, programming, and statistical modeling techniques to find valuable and timely correlations, resulting in actionable insights that drive business decisions inside an organization. Data analytics techniques can reveal trends and metrics that would otherwise be lost in the mass of unstructured data. Moreover, data analytics supports an organization's capability to make proactive real-time decisions. In short, data analytics facilitates access to traditionally silo data and uncovers previously inaccessible information. At a high level, data analytics methodologies include exploratory data analysis (EDA), which aims to find patterns and relationships in data, and confirmatory data analysis (CDA), which applies statistical techniques to determine whether hypotheses about a data set are true or false.

The availability of ever increasing amounts of structured and unstructured data, along with higher, cheaper and faster computing power, have been key drivers for the development of data analytics.



Evolution of Data Analytics: DDV solution (Source: Frost & Sullivan)



Evolution of Data Analytics: AA solution (Source: Frost & Sullivan)

The first generation of analytics termed Analytics 1.0 was based on Data Warehousing and Business Intelligence platforms in the 1990s. The type of analytics in this phase was mainly classified as Descriptive (what happened) and Diagnostic (Why something happened). This evolved to Analytics 2.0, which involved the adoption of newer platforms such as Hadoop to extend analytics capabilities in the Internet age, where there was an explosion of data. Open Source community had begun in this era which started to integrate Predictive analytics into the platform. Moving on to Analytics 3.0, data handling and insights were more sophisticated, more predictive and prescriptive than before. We are now in the age of Analytics 4.0, which advanced technologies – such as AI, machine learning, and data science technology along with descriptive-predictive-prescriptive analytics – helps humans in making better decisions.

6.1 Applications/Use Cases

Data analytics is being used in various industries to address the key challenges and identify unexplored opportunities from all of data regardless of source, type, size, or format. However, most of the use cases are in Customer Analytics, Operational Analytics, Fraud and Compliance and Data Driven Products and Services.

- Customer Analytics help improve customer conversion rates, personalize campaigns to increase revenue, predict and avoid customer churn and lower customer acquisition costs. It is challenging nowadays when customers interact with companies through various interaction points – mobile, social media, stores, e-commerce sites, and more – which dramatically increases the complexity and variety of data types that needs to aggregate and analyze. With data analytics, companies can combine, integrate and analyze all of your data at once to generate the insights needed to drive customer acquisition and loyalty.
- Operational Analytics help companies to understand machines, devices and human interactions in order to optimize asset utilization, performance and service quality. It helps analyze product availability and predict product failures to plan right maintenances. Data analytics plays a role to unlock insights buried in log, sensor and machine data to see trends, patterns and outliers that can improve decisions, drive better operations performance and maximize cost effectiveness. The most important thing is analytic tools allowing you to integrate and analyze historic machine data and failure patterns to predict and improve downtime and supplier data to optimize supply chain operations.
- Fraud and Compliance is another area that data analytics could come to help identify issues before they turns to be problems. It is all about uncover hidden and suspicious issues in order to mitigate those risks. Data analytics will directly help reduce the operational costs of fraud investigation, prevent fraud and ensure regulatory and compliance. Apart from breach detection and data profiling, it can also perform identity verifications, risk profiles, and data visualizations and perform master data management.
- Data-Driven Products and Services use data analytics tools to help develop new products and shorten product life cycle as well as a prototype process. Moreover, with data companies can respond to growing demand better. This will lead to customer loyalty, cost savings or revenue increase through alternative channels because it helps benchmarking information about other similar companies in their industry.

6.2 Current Scenario

The adoption of data analytics has been growing in both consumer and business sectors in various segments. For instance, the advertising and media space requires the adoption of advanced analytics in order to stay agile and competitive. Analytics help provide data on consumer sentiment, emotions, preferences and behaviors, helping media companies in deciding on content, trends and strategy. Social media analytics enable marketers to tune in to the “voice of the customer,” identifying influencers and instances of consumption. Besides, surveillance systems have increasingly used analytics to detect irregularities in security in commercial, airports, train stations and public service environments. Analytics for surveillance has moved beyond the traditional motion detection to include tracking, anomaly detection, abandoned object, crowd counting, and so on.

6.3 Relevance in Future

Advanced technologies will be increasingly converged or integrated into data analytics, leading to the development of new products and services. The convergence of advanced analytics, Big Data, and 3D Printing, for example, will enable hyper-personalization in product design. Analytics will be embedded into everyday life through social media, web browsing patterns, IoT, which will enable micro-segmentation of markets and products targeted to individuals at a micro level in real-time. As another example, AI will be increasingly integrated into the development of autonomous vehicles so that vehicles are trained to learn and improve. Infotainment applications would increasingly incorporate gesture recognitions, speech recognition, driver monitoring, eye tracking and natural language interfaces.

Advancements in analytics will also drive the development of new business models. Analytics-as-a-service will grow in importance, and other new revenue streams such as data brokerage will increase as companies realize the value in data. Organizations will buy and sell data from each other to increase value.

6.4 How it is important to Thailand?

To move toward a value-based economy under ‘Thailand 4.0’, Big Data analytics has been put at the focal point. As we can see that, the government has begun collate data from 20 ministries into a centralized Big Data management system. Once the system is fully integrated, all government agencies will have access to the data, enabling them to analyze and better implement policies and facilitate the country's digital transformation. Moreover, the data will be shared to the public allowing start-ups and investors to utilize these data to develop solutions. Finally, Big Data analytics will serve as a backbone of Thailand's economy that helps entrepreneurs to better understand market scenario and customers' behavior.

6.5 Trends in 5 years, 10 years 15 years

	5 Year	10 Year	15 Year
Technology Development	Machine Learning will be increasingly adopted in mainstream data analytics use cases. For example, there will be a use of IoT to combine Streaming Analytics and Machine Learning, which streaming data provides useful information from IoT to offer Machine Learning to be analyzed in real time, and in a less controlled environment.	Considering AI platforms will have remarkable impact over the next decade, using AI platforms to process Big Data will be a significant improvement in gathering Business Intelligence and improving organization's efficiency. AIs will also provide data governance, ensuring that high data quality exists throughout the complete lifecycle of the data.	Augmented analytics, which automates data insight by utilizing Machine Learning and Natural Language Processing to automate data preparation and enable data sharing, will evolve to next generation augmented analytics, which capable of automatically and actively preparing and cleansing data, finding key insights and hidden patterns, and performing feature engineering.
Growth in terms of usage across the world	Within the Business Intelligence & analytics market, Data Science platforms that support Machine Learning are predicted to grow at a 13% CAGR through 2021. Also, the global Machine Learning market is expected to grow from THB 44.5 billion in 2017 to THB 277.9 billion by 2022, at a CAGR of 44.1%	The global AI platform market is expected to grow from THB 66.9 billion in 2016 to THB 311.6 billion by 2022, at a CAGR of 30.5%, mainly driven by a proliferation in data generation, increasing demand for AI-based solutions, increasing operational efficiency and reduced cost, and growing need to enhance customer experience.	The global augmented analytics market is projected to grow from THB 151.4 billion in 2018 to THB 580.3 billion by 2023, at a CAGR of 30.6%, mainly driven by the increasing volume of complex data and growing adoption of advanced business analytics tools.
Potential growth in Thailand	Advanced analytics, including AI-powered data analytics, have potential to be progressively adopted by Thai enterprises. The soaring adoption are expected to be driven by organizations' higher demands for embracing digital transformation as well as increasing demands for improving customer experiences.	AI platforms used in processing Big Data have potential to grow in Thailand, especially in the BFSI sector, as they help enterprises to stay competitive by getting insights from a large amount of data, analyzing trends and customers' behaviors, enhancing customer experience, as well as enhancing decision making process.	Augmented analytics solutions are expected to be widely adopted by both large enterprises, as well as small and medium businesses throughout the world, including Thailand. Augmented analytics, for example, benefit SMEs by helping them to monitor the growth of their businesses and generate insights to deal with their future prospects in order to compete with large firms.
Relevant Use Cases	Organizations can use Machine Learning to augment elevate everyday operational analytics pipelines and normal line of business activities. They can also use Machine Learning to gather intelligence to identify and analyze potential risks in a particular growth initiative to help organizations mitigate the risks and make better decisions.	AI platforms will enable data analytics to be faster and more efficient. This will help reduce costs in multiple ways, such as by preventing the duplication of efforts, automating basic tasks, and eliminating simple, but time-consuming activities (e.g. copying, data processing, and constructing ideal customer profiles).	Augmented analytics can benefit businesses in multiple ways, such as helping business to get deeper data analysis by identifying factors that truly influence business' output, allowing business users to get answers to their questions directly in a matter of seconds, and simplifying the data analysis process leading to actionable insights.

6.6 Sub-components of Data Analytics

Imagery Analytics

Imagery analytics is the process of extracting useful data from images or videos by using algorithms to monitor, analyze and manage large volumes of data. The analytics can be real-time, or retroactive, where events that have already occurred are analyzed. For image analytics, basic image data is processed into higher level constructs by using advance analytics. The objective of image analysis is to organize unstructured image data into a set of variables that are easily analyzed by a machine, including revenue, emotion, health data and consumer sentiment. Image analytics is becoming increasingly important in the marketing space and is able to capture a lot of insights that text analysis cannot, including sentiment analysis, gender, age, activities, objects, scenes and landmarks; meanwhile, video analytics is expected to see huge adoption, especially in the fields of surveillance, retail, media, advertising, and autonomous vehicles.

Future Outlook – Image analytics is the most optimal analysis option in cases where image is the starting point of analysis, such as analysis of scans, images, maps, location information, 3D landmarks, and so on. Increasing application of imagery analytics in healthcare, gaming and entertainment and military is expected to drive the growth of imagery analytics market. In addition, the global video analytics market is projected to grow from THB 101.9 billion in 2018 to THB 269.7 billion by 2023, at a CAGR of 21.5% during the forecast period. Thailand's video analytic spending is growing at 19% a year, slower than in China (21%) and India (22%). Demand for video analytics increase caused by concerning over public safety and use for criminal investigations. Moreover, the retail sector implements these systems to gain insight of consumer behavior. The adoption of video analytics by rising application of intrusion detection, license plate recognition, crowd management, and congestion detection are implied in transportation and healthcare industry.

Text Analytics

Text analytics, also called text mining or opinion mining, comprises data analytics techniques that extract rich, meaningful structured data from largely unstructured data in order to inform strategic decision making; discern customer sentiment about products, services, or events; extract competitor information; organize enormous amounts of data, such as in the healthcare space; and ultimately suggest predictive models to facilitate business agility.

Future Outlook – Text analytics will be used with advanced techniques such as machine learning and natural language processing (NLP). Therefore, the global text analytics market was valued at THB 124.6 billion and is expected to reach THB 327.4 billion by 2023 with an expected CAGR of 17.3% during the forecast period of 2018–2023.¹⁸² The rising acceptance of social media platforms and a growing inclination towards cloud technology for data storage are the drivers of the text analytics.

Audio and Speech Analytics

One of the applications of audio analytics is in the smart home industry. Audio analytics today can differentiate the sound of window glass breaking from similar noises such as that of a dropping coin. Unusual sounds such as dripping water and creaking are also detected. AI systems are developed that are trained to recognize entire taxonomies of sound. Contextual awareness is a key to identify anomalies and deliver a superior experience in smart homes.

Future Outlook – The capabilities of audio analytics have been leveraged through the Internet of Things increasing customer interactivity in various industries such as entertainment and healthcare. The global speech analytics market size is expected to grow from THB 29.7 billion in 2017 to THB 68.6 billion by 2022, at a CAGR of 18.2% during the forecast period. APAC is a highly potential market from increasing focus on higher customer satisfaction.

Emotion Analytics

Emotion analytics involves analyzing the gamut of human moods, sentiments, attitudes and perceptions via a range of tools such as text, image, video and speech. Emotion analytics can be based on facial expression or analysis of speech by recording and analyzing a person's facial and/or verbal cues to identify moods, such as happiness, anger, sadness, fear, disgust and surprise.

Future Outlook – Emotion analytics or “facial coding” will be increasingly engineered into analytics systems as the next natural interface will be more interactive and perceptive. In the future, devices will be able to react to human emotions in real-time. Emotion AI is seen as being critical to establishing ethical AI systems, and emotion AI systems will augment human capabilities and not replace them. Emotion analytics is projected to witness a CAGR Of 32.7% over the forecast period of 2018 – 2023, driving the market to reach THB 780.3 billion by 2023.

Virtual Agents

Today's personal assistants - now more commonly termed virtual assistants, or VAs - are speech driven applications designed to assist consumer's complete tasks, such as accessing information on mobile devices. VAs takes advantage of the broad capabilities provided on smartphones, making the phones themselves more useful in hands-free mode. A well-known example is Siri, a consumer-grade virtual assistant, which makes it easier to use a mobile device. Chat Bots, also termed Chatterbots or Chatter Robots, are AI-based computer programs that simulate an intelligent conversation with a person through text or speech.

Future Outlook – The Virtual Agents market value is projected to exceed THB 283.9 billion by 2023, expanding at a CAGR of 32% during 2018-2023. However, Asia-Pacific would witness the highest CAGR of 38.97% during the forecast period.¹⁸⁵ For Thailand, the enterprises are increasingly adopting this technology to enhance their customer engagement along with reduced cost of operation.

Strengths

The Company has strengths that enhance competitiveness significantly as follows;

1. **Digital Technology Leader:** The Company has a expert engineering team who early access the technology resources. Therefore, able to fast apply the latest technology to the market, such as the Cloud IoT Platform, satellite communication systems, etc.
2. **Partner with World Class Manufactures:** The Company will directly be transferred the technology from manufacturer. Having enough knowledge to use technology such as Cisco, Thales, Comtech, Airbus, Poly, etc.
3. **Trusted Providers:** The Company operates the business of selling, designing, installing and after sales services for telecommunication systems for government agencies, military organizations and leading private organizations such as banks, factories, more than 1,000 people for more than 25 years, has been recognized and trusted in the work and can regularly present new technology.
4. **Service Center:** To provides after sales service during the warranty for telecommunication systems that customers have invested in from the company for maximum efficiency.

Competitive strategy

1. New Products

To boost competitiveness and position the Company as a leader in telecommunications and digital TV markets in the AEC, the Company puts a strong emphasis on delivering innovative technologies with following policies:

Seek new products with high performance and sophistication, both from world-class telecommunications manufacturers for which the Company is a distributor and from new vendors that engage in cutting edge R&D. The Company can thus launch novel products and technologies in the market and maintain product and utility differentiation and to comprehensively serve customer needs.

2. Solution Sales

The Company has Develop R&D Team as well as engineer's proficient in integrated systems to customize solutions according to customer specifications and cater to different markets.

With the development of new types of services continuously, to meet ever-changing customer demands. The on-going development of new services, such as mobile satellite communications systems and on demand teleconference system, are part of the Company's sales strategy to enhance customer value added (CVA), for example, PlanetFiber 1Gbps high speed internet through fiber optic from the source to room unit, PlanetCloud, Software as a Service (SaaS.)

3. Professional Services

The Company's goal is to operate the business and provide our customers professional services. We have operated and implemented working system in accordance with ISO 9001 standards since 2001. This is to certify quality of our working process and services under international standards and continuous development, equipped with high quality products and most innovative technologies, personnel and engineers specialized in design, complete installation, working facilities in terms of places, auxiliary equipment, testing devices, service centers and past working experiences. Therefore, we are entrusted by leading organizations, manufacturers providing services, designs and installations for Telecommunications and Digital TV Systems to provide customers quality and cost-efficiency services.

4. Retain the Existing Customers and Acquiring New Customers

With the availability of high-quality products and the latest technology. Personnel and engineers with expertise in design, fully integrated installation, work facilities in terms of location, reserve equipment, testing equipment, service center and past work experience, The Company is trusted by leading firm and organizations. Factory that can provide design, installation, telecommunication and digital TV systems for customers with quality and worthwhile investment. As well as adding new products and developing new service platform to increase the number of new customers in new markets such as

- Smart Pole for smart city development, is the use of climate monitoring tools, dust concentration detector, telephone signal system, and at the electric car charts (EV), for example. The product is being offered to partners and government organizations which will initially be used to provide services in leading tourist districts.
- Telemedicien for hospitals and the health center by using technology that helps patients and medical staff to be able to talk to each other in real-time as well as communication through video conference system in which the conversational partner can connect face to face without restriction in time and place etc.

5. Distribution Channel and Target Customers

The Company distributes its products and services using two methods as follows;

- Distribution of products and services directly to customers

Sale Department contacts customers directly to discuss products and services. Sales personnel are divided into five teams by target sector, due to different business methods and characteristics. The department is responsible for customer care and offering a variety of services, as well as customizing services to fulfill client specifications. The Company's customers include both public and private organizations categorized as follows;

- Broadcasting Sector are consisting of terrestrial, satellite, cable and internet protocol TV (IPTV) operators as well as related business. These operators broadcast video and audio signals to the general public locally. Examples include Bangkok Broadcasting & TV Co., Ltd (Channel 7), Royal Thai Army Radio and Television Station (Channel 5), True Visions Cable PLC., MCOT PCL, BEC Multimedia Co., Ltd (Channel 3), The One Enterprise Co., Ltd (GMM One) and Triple V Broadcast Co., Ltd. (Thairath TV).
- Telecommunications Service Provider Sector are consisting of service providers of information networks, mobile phone networks and internet networks. Example includes True Corporation PLC, Total Access Communications PLC (DTAC) and Thaicom PLC.
- Commercial Sectors are consisting of businesses that require implementation of intra-network systems for company information, communications and applications. Examples include Toyota Motor Thailand Co., Ltd., CP All Public Company Limited, Nissan Motor (Thailand) Co., Ltd. and PTT Public Company Limited.
- Public Sectors are consisting of public agencies and state enterprises that require to develop intra-organizational information and communications technology infrastructure systems. State procurement methods mostly involve procedures similar to those under government regulations, e.g. request for tender (RFT), e-Auction, etc. Public entities that engage telecommunications services include the Royal Thai Police Headquarters, Court of Justice, Ministry of Finance, Royal Thai Armed Forces Headquarters, Chulalongkorn University, Mahidol University, Kasetsart University, Metropolitan Electricity Authority and Provincial Electricity Authority.
- International Sector are consisting of agencies and organizations from foreign nations, particularly in ASEAN region such as Vietnam, Malaysia, Cambodia and Myanmar. Examples include Telekom Malaysia Berhad, Camintel S.A., Scope Tel Sdn.Bhd, and the Department of Civil Aviation (Myanmar).

- Distribution of Products and Services via Business Partners

The majority of the Company's business partners are also in the ICT industry, purchasing the Company's products and services in addition to their own, for sales and tenders. These partners include Samart Telcoms PCL., Loxley Wireless PLC, SVOIA PLC and Supreme Distribution (Thailand) Co., Ltd.

Revenue from sales and services divided by distribution channels from year 2018-2020

	2018		2019		2020	
	(million baht)	(%)	(million baht)	(%)	(million baht)	(%)
Distribution directly to customers	258.95	34.54	240.60	28.81	134.85	22.62
Broadcasting Sectors	112.48	15.00	82.38	9.86	98.21	16.48
Telecommunication service provider Sectors	100.68	13.43	269.16	32.23	132.34	22.20
Public Sectors	259.95	34.68	218.91	26.21	191.36	32.11
International Sectors	17.60	2.35	24.10	2.89	39.27	6.59
Total	749.66	100.00	835.15	100.00	596.03	100.00

History of business achievements by client organizations, project/product and revenue from year 2018-2020

Year	Customer	Project / Product	Revenue (Mil. Bt.)
Telecommunications Products			
2020	Court of Justice Thailand	1. Firewall System	84.48
		2. Video Conference System for Deference of the change and motion for a warrant of detention Phase I	
		3. Computer, Video Conference system and Peripheral Equipment for new Office of the Court of Justice, Trang and Krabi	
2020	Thaicom Public Company Limited	RTN-Maritime Ku-Band Phase II	23.56
2020	Krungthai Computer Services Company Limited	HSM Hardware Infrastructure	14.12
2019	Office of the Permanent Secretary	Video Conference System	12.43
2019	Communications and Electronics Royal Thai Air Force	VHF/UHF/AM Multiband Radio	24.61
2019	Court of Justice Thailand	Broadcasting System	4.67
2019	Department of Disaster Prevention and Mitigation	Video Conference Components	4.46
2018	Thaicom Public Company Limited	Maritime Satellite Communications Turnkey Solution for Royal Thai Navy	41.68
2018	Court of Justice Thailand	COJ Network Phase 2 - Computer Network System: 61 Sites	39.40
2018	Royal Thai Navy	RTN C4I Spare part - Control and Command Center System	36.44
Broadcasting and Digital TV Products			
2020	Thai Public Broadcast Service (Thai PBS)	Transmitter 22 units	16.58
2020	Three BB TV Company Limited	TV-Playout System 4:2 Channels	9.02
2020	MCOT Public Company Limited	Combiner 11 Stations	7.59
2019	The Government Public Relations Department 4, Phitsanulok	FM Radio 1kW for Radio Thailand, Sukhothai	6.42
2019	The Government Public Relations Department 2, Ubon Ratchathani	FM Radio 1kW for Radio Thailand, Mukdahan	6.35
2019	The Government Public Relations Department 6, Songkhla	AM Radio 10kW for Radio Thailand, Yala	8.99
2018	TOT Public Company Limited	Digital Terrestrial Television Broadcasting (DTTB) Network Monitoring on Service Availability	6.42
Products distributed under the PlanetComm brand			
2020	Trinergy Comm-THA Company Limited	LaosTelecom Vehicle 2 Set	6.66
2019	Department Of Communication - Royal Thai Army	Telecom Maintenance for Mobile Station	9.10
2019	TrueMove H Universal Communication Co., Ltd	3G/4G Mobile Base Station	18.00
2018	Royal Thai Police	C-Band Satellite Mobile Vehicle	55.7

2.4 Pricing policy

The Company's pricing policy varies according to the type of product or service

1. Products for which the Company is an authorized distributor are priced based on product expense plus an appropriate markup percentage (cost-plus pricing), while accounting for market prices set by competitors.
2. Products under the PlanetComm brand are priced by accounting for the market prices of comparable products set by competitors.

2.5 Product Procurement

The Company selects and procures quality products from appropriate sources. Most products have been authorized for distribution by manufacturers due to the Company's expertise in product features. Regarding products for which it is not an authorized distributor, the Company acquires them through manufacturers on the Approved Vendor List. The List includes vendors that have been pre-screened by the Company for quality and services. Details are as follows;

1. Products related to Telecommunications Systems

a) Wireless Networks

Product Group	Type	Brand-Vendo
Satellite Communications	Satellite Modem	Comtech EF Data
	Up/Down Converter	IRT technologies
	Satellite Transceiver	Viasat - ViaSat, Inc.
	Satellite Antenna	GD Satcom - SATCOM technologies
	Very Small Aperture Terminal System	Kymeta Corporation
		ETL – ETL Systems Ltd.
		Norsat – Norsat International Inc.
		Gigasat – Ultra Electronics GigaSat
		Iridium - Iridium Communications Inc.
Terrestrial Communications	Wireless Broadband System	Cambium
	Wi-Fi Communications System	Cisco
		Mimosa – Mimosa Networks, Inc.
		Will-Burt – The Will-Burt Company DTC - Domo
Radio Communications	Digital Radio Communications System	Tactical Communications Ltd.
	Network Radio Communications System	JPS Raytheon – Raytheon Company
	SCADA System	GE MDS – General Electric International, Inc.
		Barrett Communications
		Harris

b) Wired Networks and Security

Product Group	Type	Brand-Vendo
Data Network	Router	Cisco - Cisco Systems, Inc
	Converter	Patton – Patton Electronics Company
Fiber Optic Network	Fiber-Based Signal Transfer Equipment	3M – 3M Global Channel Services, Inc.
	Fiber Optic Cables and Passive Components	
Security Network	Data Protection System	Thales – Thales Transport & Security (Hong Kong) Ltd.
	Information Technology Security System	Entrust
		SRAN - SRAN Technology Co., Ltd.
		Cobwebs - Cobwebs Technologies Ltd.

c) Collaboration Systems

Product Group	Type	Brand-Vendo
TelePresence and Video Conferencing	TelePresence Video Conferencing System and Feature Systems	Cisco - Cisco Systems, Inc Poly - Poly Inc.
Unified Collaboration	IP Telephony	
Audio Conferencing	Equipment for Meeting Room System	Extron Electronics Asia Pte Ltd. Kramer - Kramer Electronics Ltd. Clearone - ClearOne Communications, Inc.

2. Products Related to Broadcasting and Digital TV Systems

Product Group	Type	Brand-Vendo
Content production	Professional Studio Camera System	Sony - Sony Corporation
	Wireless Professional Camera System	DTC - Domo Tactical Communications Ltd.
	Video and Audio System	Evertz - Evertz Microsystems Ltd.
	Media Asset Management System	Sony - Sony Corporation
	3G/4G Broadcasting System	Evertz - Evertz Microsystems Ltd. DALET - Dalet Digital Media Systems TVU - TVU Networks Corp.
Content Distribution and Transmission	Television Headend System	Harmonic - Harmonic Inc.
	Television Transmitter System	AppearTV
	Network Design and Planning Software	Tredess - Tredess 2010 S.L.
	RF Component	Kathrein - Kathrein Indochina Co., Ltd. Jampro - Jampro Antennas, INC.

Authorized distributor agreements granted to the Company generally carry a term of 1-2 years, which is normal practice for distributor agreements in the IT industry. However, the Company has a good relationship with manufacturers and vendors based on long-standing business. Therefore, the Company strongly believes that it will continue to be the distributor for these manufacturers. Good business relationships benefit the Company in terms of technical assistance, special discounts, timely delivery, prevention of product shortage, etc. The Company purchases products from both local and overseas manufacturers and vendors. Amount and proportion of products purchased by the Company from domestic and overseas source from 2018-2020

Source	2018		2019		2020	
	(Millio Baht)	(%)	(Millio Baht)	(%)	(Millio Baht)	(%)
Domestic	286.67	62.78	516.32	77.84	192.00	57.13
Overseas	169.94	37.22	147.03	22.16	144.09	42.87
Total	456.61	100.00	663.34	100.00	336.09	100.00

2.6 Backlog

As of December 31, 2020, the company has backlog, approximately revenue 139 million baht, Which is expected to be completed by 2021, expected to be approximately 55 percent that will be delivered within first quarter and the 25 percent will be delivered within third quarter.

Therefore, the company does not have any undelivered projects with values of 10% or more of total revenue as of 31 December 2020.

2.7 Environmental impact

As the company is a service provider and distributor of telecommunications and digital TV technology by providing a full range services of design, installation, distribution of communication systems and digital TV systems services. We are not a manufacturer. Therefore, we do not have operations that directly affect the environment. However, the company is committed to preventing pollution caused by system integrator services and other activities of the company in order to comply with environmental management standards as well as encouraging all employees to be aware and contribute and participate in environmental management such as waste separation, water and air pollution reduction by the following details in section 2 in the topic of "Responsibilities to society"

Risk Factors

1. Risks from Technological Changes

Operating in the telecommunication sector means that we are subject to rapid and ongoing technological changes, which can affect our performance in terms of inventory, overhead and opportunities to secure tenders for supplies and services.

Therefore, the Company is always prepared for such technological changes. With over 30 years of experience, our executives fully understand the IT industries. As a dealer for world-class manufacturers, we stay up to speed with new technologies and market trends. Our R&D team also stays abreast of technical developments. We encourage all related employees, especially those in the Engineering and Marketing Departments, to constantly undergo training in new technologies and products. The Company only retains products with constant inventory turnover. Part of the Company's competitive edge is our practice of holding audio conferences and telepresence video conferences with clients to respond quickly and adapt to their ever-changing demands. To reduce the risk of products becoming obsolete or depreciating, we place supply orders only when the Company has been awarded the contract.

2. Risks from Dependency on Major Distributors

Our business involves buying products from manufacturers or other distributors and selling them to our clients. We are business partners with Cisco Systems International B.V. (henceforth, "Cisco"), a world-renowned manufacturer of high quality, durable IT and telecommunication devices. Our purchases from Cisco in 2018-2020 constituted 15.80%, 9.02% and 21.43% of our total purchases during those respective periods. There is the risk of Cisco retailing their own products and ending their partnership with the Company.

However, this risk is remote because Cisco has clearly express edits intentions to expand business through their partners and distributors, which help the manufacturer reduce overhead and reach more customers. The Company has also maintained good relations with Cisco for a decade, during which we have improved our operations in compliance with CISCO standards. The Company was appointed as a Master Authorized Technology Partner for Cisco's Telepresence systems in Thailand in 2012, and received the Top Congeniality Collaboration Partner Award and Premier Certified Partner under the Cisco Channel Partner Program in 2013. However, one of the Company policy is maintain relationship with other partners for reduce risks from Dependency on Major Distributors.

3. Risks from Dependency on Staff

IT and telecommunications industries require people who have profound knowledge and expertise in design, installation, operation, marketing and consultation services. This competency is expected of engineers with proficiency certificates from CICO, CODAN, etc. Loss of qualified staff can adversely affect our business.

Therefore, the Company focuses on human resources development. Our engineers have certificates from CISCO and CODAN and have worked with us for over a decade, we encourage all of our employees to learn more about our products and technologies to improve their performance. We offer training, pay and fringe benefits similar to those offered by other companies in the same industry.

Our engineers who have worked with us for over 10 years got the certificate from CISCO and CODAN. Therefore, the Company has policy to encourage our staffs' knowledge and training to get more certificate from CISCO, CODAN, and other partners.

4. Risks of Failure to meet Project Deadlines

The Company provides IT service under contracts that generally require 3 to 6 months to fulfill, depending on their size and complexity. Failure to deliver product within the project deadline will result in paying penalties which reduce revenue. However, we have never had to pay a significant penalty for failure to deliver on any project within the deadline.

To minimize these risks, our Project Management Office plans work schedules and resolve any timeframe issues to ensure the Company meets its deadlines.

5. Risks from Exchange Rates

Importing products for sales in Thailand means they are purchased in foreign currencies, mostly the US dollar, and sold in Thai baht. Therefore, the Company incurs certain risks from exchange rate fluctuation. In 2018-2020, products were purchased in foreign currencies equivalent to 169.94 million baht, 147.03 million baht, and 144.09 million baht respectively. Foreign purchases accounted for 37.22%, 22.16% and 42.87% of our total purchasing in those periods.

To minimize risks from exchange rate fluctuation, the Company incorporates these currencies into the production and project cost calculations when drawing up contracts.

In 2018, the Company gained on foreign exchange rate for 4.57 million baht and the Company gained on foreign exchange rate, amounting of 1.97 million baht in 2019. In 2020, the company gained on foreign exchange rate amounted 1.03 million baht.

6. Risks from Fluctuating Contract Revenue

The Company largely depends on revenue from contracts with government agencies for supplies and services. Contract revenue accounted for 34.68%, 26.21% and 32.26% in 2018-2020 respectively that effected to the company's performance quarterly from the government agencies approved their budgets in the third and fourth quarter, which plays a factor in tenders for those periods. However, their budgets are now evenly distributed throughout the year, which translates to evenly distribute public contract revenue, led to more consistent revenue of the Company.

7. Risks from Dependency on Executives

Established by Mr. Prapat Ratlertkarn and Mr. Trevor John Thompson, who have been in industry for more than 30 years and currently assume important management roles, the Company heavily relies on them. While PlanetComm is exposed to a certain level of key person risk, Mr. Ratlertkarn and Mr. Thompson, including their dependents, each hold 31.58% of paid registered shares. Therefore the two executives have a vested interest in maintaining the value of their assets in the Company and ensuring its growth and prosperity. Meanwhile, PlanetComm continues to hire more professionals to expand management.

The Assets of Business Operations

1. The details of assets of business operations

As at 31st December, 2020. The Company and Subsidiaries' Company had assets in the business operation as follow;

Type of Assets	Ownership	Obligation	Net Book Value As at 31st December, 2020 (Million Baht)
Testing Equipment and Network Equipment	Owner	Non- Obligation	124.20
Motor Vehicles	Owner	Some are under Obligation with Hire-Purchase Agreements	13.18
Furniture, Fixtures and Office Equipment	Owner	Non- Obligation	3.25
Total			140.63

2. Investment in Subsidiary and Associated Policy

PlanetFiber Co., Ltd.

On March 23, 2017, the Company's Board of Directors Meeting passed a resolution to approve the incorporation of PlanetFiber Company Limited with a registered capital of Baht 5 Million (500,000 ordinary shares of Baht 10 per share) in which the Company's invest is 100%. The subsidiary registered its incorporation with the Ministry of Chamber on August 16, 2017 with initially called up Baht 2.50 per share (called up 25% of registered capital), or a total of Baht 1.25 million. The Company paid in share capital in proportion to its invest amounting to Baht 1.25 million.

In August, 2019 The Company paid in full of share capital (100% of registered capital), or a total of Baht 5.00 million. In 2020, the company increased its capital by Baht 122 million by transferring the assets from PlanetComm. Total paid-up share capital Baht 127 million.

PlanetCloud Co., Ltd.

On August 8, 2019, the Company's Board of Directors Meeting passed a resolution to approve the incorporation of PlanetCloud Company Limited with a registered capital of Baht 5 Million (500,000 ordinary shares of Baht 10 per share) in which the Company's invest is 100%. The subsidiary registered its incorporation with the Ministry of Chamber on October 10, 2019 with initially called up Baht 2.50 per share (called up 25% of registered capital), or a total of Baht 1.25 million. The Company paid in share capital in proportion to its invest amounting to Baht 1.25 million. Subsequently, on November 27, 2020, the Company paid in share capital of Baht 3.75 million, totaling Baht 5 million.

However, the Company may consider investing more in business that support and benefit to the Company's business or a related field in an industry with a growing trend. In consideration of the rate of return from the investment, the Company will perform operations to be in compliance and the announcement of Capital Market Supervisory Board and the Stock Exchange of Thailand, include the related laws. The company will send our committees to impose policies, and/or will send representatives to be executives to participate in management, which depending on each case.

Conflict of Laws

- None-

Management Structure

The Company management structure consists of the Board of Directors and four committees, including (1) Audit Committee, (2) Nomination, Remuneration and Corporate Governance Committee, (3) Risk Management Committee and (4) Executive Committee. The Directors, Audit Committee members, Executive Committee members and the Company's management have qualifications as stipulated under Section 68 of the Limited Public Company Act, B.E. 2535 and applicable SEC's announcements. The details are as follows:

1. Board of Directors

As of December 31, 2020, the Company's Board of Directors consisted of seven Directors including five Non-Executive Directors (1) as follows

Name - Surname	Title	Appointed as Director on
1. Dr. Ruttikorn Varakulsiripunth ⁽¹⁾	Independent Director & Chairman	June 21, 2018
2. Mr. Prapat Rathlertkarn	Director & Vice Chairman	April 27, 1994
3. Mr. Trevor Thompson	Director	April 27, 1994
4. Dr. Wichai Laohmatvanich ⁽¹⁾	Independent Director & Chairman of Audit Committee	January 25, 2018
5. Mrs. Sutharak Soonthompusit ⁽¹⁾	Independent Director & Audit Committee Member	December 30, 2011
6. Mr. Somkid Wangcherdchuwong ⁽¹⁾	Independent Director & Audit Committee Member	May 12, 2015
7. Mr. Thibdee Mangkalee ⁽¹⁾	Independent Director & Audit Committee Member	June 21, 2018

Notes: (1) Non-Executive Director

Authorized Directors

The Company's authorized persons are (1) Mr. Prapat Rathlertkarn and Mr. Trevor John Thompson jointly affix their signatures and the Company seal.

Scope of powers and duties of the Board

1. To operate and manage the Company's business according to applicable laws, the Company's objectives, Articles of Association and resolutions of shareholders' meeting, together with, make all efforts to protect the Company's interests.
2. To have the balance sheet and profit and loss statement prepared and audited at the end of the Company's accounting period, for presentation at the shareholders' meeting for review and endorsement.
3. To set targets, adopt guidelines and policies, make operation plans and allocate budgets, as well as oversee the management and administration of executives or persons assigned to such tasks to ensure compliance with the Company's policies.
4. To review, scrutinize and approve policies, orientations, strategies and operation plans including monitor, evaluate, and oversee the quarterly reports proposed by management.
5. To set the policy and oversee of the system to support the Anti-Corruption efficiency to ensure that the management realize and prioritize for Anti-Corruption and cultivate into the Company's culture.
6. To set the management structure, appoint Managing Director, Executive Committee and other Committee and designate the scope of their powers and duties.

The Executive Committee, the Managing Director and other Committees so appointed shall not have powers or duties to consider and approve any transactions that potentially cause conflict of interest with the Company or any of its affiliated companies (if any), otherwise approved in accordance with the Company's policies and criteria set forth by the Board of Directors.

7. To authorize as they see fit one or many Directors to perform any acts for and on their behalf with defined powers for a specific period, and to also revise or revoke such authorization at any time.

Such authorization shall not be for having powers or duties to consider or approve any connected transactions in conflict with the Company or its affiliated company (if any) in accordance with Notification of the Capital Market Supervisory Board or the Securities and Exchange Commission, otherwise approved in accordance with the Company's policies and criteria set forth by the Board of Directors.

In brief, the Authorizations (approval) of the Board are as follows:

1. To approve the setting and modification the Company's rules and regulations, organization structure, level of authorizations, finance and accounting policies, accounting improvement, and procurement regulations.
2. To approve annual business plan and budgeting, including annual investment.
3. To approve appointing authorize persons which related to bank and financial institutes.
4. To approve loan or increasing loan with bank and financial institutes complying with level of authorization.

Roles and Duties of Chairman

1. To act as leader of the Company's Board of Directors to supervise and oversee the management and operation of the Company's Executive Committee and other Committees to achieved the set objectives.
2. To act as chairman of the Company's Board of Directors and shareholders' meeting
3. To give award in case of draw votes by the Company's Board of Directors

2. Audit Committee

As of December 31, 2020, the Company's Audit Committee was comprised of four (4) Independent Directors

Name - Surname	Title	Appointed on
1. Dr. Wichai Laohmatvanich	Chairman of Audit Committee	February 23, 2018
2. Mrs. Sutharak Soonthornpusit	Audit Committee Member	December 30, 2011
3. Mr. Somkid Wangcherdchuwong	Audit Committee Member	February 23, 2018
4. Mr. Thibdee Mangkalee	Audit Committee Member	June 22, 2018

Ms. Wanwimol Jongsureeyapas is the Secretary of the Audit Committee.

Scope of powers and duties of Audit Committee

1. To audit the Company's account to ensure that financial reports contain complete and correct information.
2. To audit the Company's internal control and internal audit to ensure they are appropriate and efficient, to ensure the independence of internal audit personnel, to engage, transfer and disengage internal audit chiefs or any persons related to the internal audit.
3. To review the system of internal control, internal audit and risk management relating to the risk that may occurs from corruption and to follow by the anti-corruption policy to ensure that the operation is concisely, appropriately and efficiency, including to review whistle blowing policy.
4. To audit the Company with regard to securities and stock exchange laws and regulations and laws applicable to business operations.
5. To consider, recruit and appoint an independent auditor of the Company and set remuneration, to convene a meeting with the auditor at least once a year without management present as well as to approve and terminate hire for external auditor.
6. To examine connected transactions, to act in the best interests of the Company to ensure compliance with laws and the regulations of the stock exchange.
7. To issue the annual audit report signed by the Audit Committee Chairman for disclosure in the Company's annual report. The annual audit report must at least contain observations and recommendations on the following
 - (a) the correctness , completeness and reliability of the Company's financial statements.
 - (b) the adequacy of the Company's internal control.
 - (c) the Compliance with securities and stock exchange laws and regulations, or laws applicable to the Company's operations.
 - (d) the qualifications of the auditor.
 - (e) the connected transactions that may cause a conflict of interest.
 - (f) the number of meetings attended by each Audit Committee Member.
 - (g) the findings from duties performed as Audit Committee according to the Charter.
 - (h) the information to be given to shareholders and investors as required by the Audit Committee as set forth by the Board of Directors.
8. To perform other acts assigned by the Board of Directors, subject to the approval of the Audit Committee.

3. Nomination, Remuneration and Corporate Governance Committee

As of December 31, 2020, the Nomination, Remuneration and Corporate Governance Committee were comprised of three independent directors namely;

Name - Surname	Title	Appointed on
1. Mr. Somkid Wangcherdchuwong	Chairman of the Committee	February 23, 2018
2. Mrs. Sutharak Soonthornpusit	Committee Member	November 30, 2011
3. Dr. Wichai Laohmatvanich	Committee Member	February 23, 2018

Scope of powers and duties of Nomination, Remuneration and Corporate Governance Committee

1. Nomination

- 1.1 To deliberate on the structure and number of members on the Board of Directors and Committee(s) and the professional background and expertise of each director or Committee member in relation to the nature of the Company's business and industries by Board Skill Matrix method.
- 1.2 To deliberate on the qualifications of a candidate for independent director according to the Company requirements and SEC regulations.
- 1.3 To set forth the criteria and procedures for recruitment and engagement of directors, and publish them in the Company's annual report and website. For example, the extension of directorships ;the engagement of new directors ;the nominations by shareholder or incumbent directors; and the recruitment of new directors via employment agencies or directory of professional directors.
- 1.4 To establish a development plan for incumbent and new directors to understand their roles, the Company's businesses and developments.
- 1.5 To make succession plan to ensure uninterrupted operations. This involves grooming people for CEO, CTO, and other high-level executives who may be nearing retirement or will otherwise no longer be able to perform their duties

2. Remuneration

- 2.1 To establish rates of remuneration and other fringe benefits for directors in a clear and transparent manner and present them for approval by the Board of Directors or the shareholders' meeting.
- 2.2 To ensure that directors receive remuneration proportionate to their duties and responsibilities.
- 2.3 To lay guidelines on director performance assessment for consideration of annual rewards.
- 2.4 To disclose in the Company's annual report the policies on remuneration and all types of payments.
- 2.5 To propose the rates of remuneration for directors and Committee members to the Board of Directors and the shareholders' meeting for approval.
- 2.6 To review proposals on the management of remuneration policies and other fringe benefits for employees and payment schedules and submit recommendations to the Board of Directors.

3. Corporate Governance

- 3.1 To adopt corporate governance policies and submit them to the Board of Directors for approval; to follow up on practices to ensure compliance with said policies; to review said policies on a continual basis to ensure relevance.
- 3.2 To monitor the Company's practices and ensure compliance with the corporate governance principles of the regulatory agencies such as SEC and SET.
- 3.3 To assess the annual performance of the Chairman, Directors and Committee members.
- 3.4 To self-assess their performance on a continual basis and report to the Board of Director
- 3.5 To perform acts as required by laws, rules, notifications, regulations or orders of related authorities.

4. Risk Management Committee

As of December 31, 2020, the Risk Management Committee was comprised of three independent directors namely:

Name - Surname	Title	Appointed on
1. Mrs. Sutharak Soonthornpusit	Chairman of the Committee	November 11, 2011
2. Mr. Somkid Wangcherdchuwong	Committee Member	June 19, 2015
3. Dr. Wichai Laohmatvanich	Committee Member	February 23, 2018

Scope of powers and duties of Risk Management Committee

1. To set a clear agenda; to state, analyze and examine major risk factors; and to adopt strategies for managing risks.
2. To establish the Company's risk management measures for all departments.
3. To oversee and support on the risk management pertaining to the corruption, anti-corruption by evaluating the risk of corruption and to review its policy appropriately.
4. To communicate such measures to all employees and ensure their compliance.
5. To arrange for systematic and constant assessment / analysis of possible losses and damages in all stages of business operations.
6. To constantly improve risk management for the entire organization in line with international standards.

5. Executive Committee

As of December 31, 2020, the Executive Committee was comprised of two members:

Name - Surname	Title
1. Mr. Prapat Rathlertkarn	Chairman of Executive Committee
2. Mr. Trevor John Thompson	Vice Chairman of Executive Committee

Scope of Powers and Duties of Executive Committee

1. To propose targets, policies, annual budgets, business plans and strategies to the Board of Directors for approval.
2. To monitor the Company's operations and ensure compliance with the policies, plans and budgets as approved by the Board of Directors.
3. To consider and approve the Company's regular activities in line with the Board-approved budget.
4. To present organization structure and management to the Board of Directors for approval.
5. To appoint or hire consultants for Company management to ensure efficiency.
6. To determine the Company's profits or losses and propose interim dividend payments to the Board of Directors for approval.
7. To authorize person (s) to perform act (s) under its responsibilities or grant such person(s) the power for a period they see fit. The Committee reserves the right to revise or revoke such authorization or replace such person (s).
8. To perform other acts assigned by the Board of Directors.

Such authorization and responsibilities of the Board of Directors shall not be the authorization or assignment for the authorized person to give approval for any transactions that may be in conflict with oneself or any other persons (As defined by the notification of the Capital Market Supervisory Board and / or the Stock Exchange of Thailand And / or related agencies as specified) potentially having any gains or losses or any conflict of interests with the Company and/or its affiliated companies and /or any associated companies which the Board of Directors has no mandate to give approval for such transaction. Such transaction shall be proposed to the board of directors' meeting and / or the shareholders' meeting (as the case may be) for approval, unless the approval given for normal business transactions and normal commercial terms and conditions in accordance with the notification of the Capital Market Supervisory Board and / or the Stock Exchange of Thailand and / or related agencies as specified.

6. Company Secretary

The Company's Board of Directors' meeting no. 8/2017 held on September 7, 2017 resolved in favor of appointing Mr. Prapat Rathlertkarn to be the Company Secretary, effectively from September 8, 2017 onwards in compliance with Section 89/15 of the Securities and Stock Exchange of Thailand Act, B.E. 2535, revised by the Securities and Stock Exchange of Thailand Act (No.4), B.E. 2551. Ms. Dhidaphat Prompanthada is a Company Secretary Assistant which has passed the company secretary training program (CSP) Class 89/2561.

The Secretary has the following duties and responsibilities:

1. To prepare and keep records of the following documents
 - (a) Registry of Directors
 - (b) Invitations to Board Meetings, minutes of Board Meetings and the Company's annual report
 - (c) Invitations to shareholders' meetings and minutes of shareholders' meetings
2. To keep records of connected transactions reported by directors and executives
3. To advise the related legal and regulations to the Board including oversee the Board activities.
4. To perform other acts as set forth by the Notifications of Capital Market Supervisory Board.

7. Management

As of December 31, 2020, the company has six managements as follows:

Name - Surname	Title
1. Mr. Prapat Rathlertkarn	President and Chief Executive Officer
2. Mr. Trevor John Thompson	President and Chief Technology Officer
3. Mrs. Ratana Suwan	Executive Vice President of Finance and Account
4. Mr. Jakkrit Sonwai	Executive Vice President of Operation and Technical Services
5. Mr. Veerasak Athornchaikul	Vice President Marketing and Business Development

Note : Chief Executive Officer (CEO) and Chief Technology Officer (CTO) shall limit to be as the director of three companies only.

Scope of powers and duties of Executives

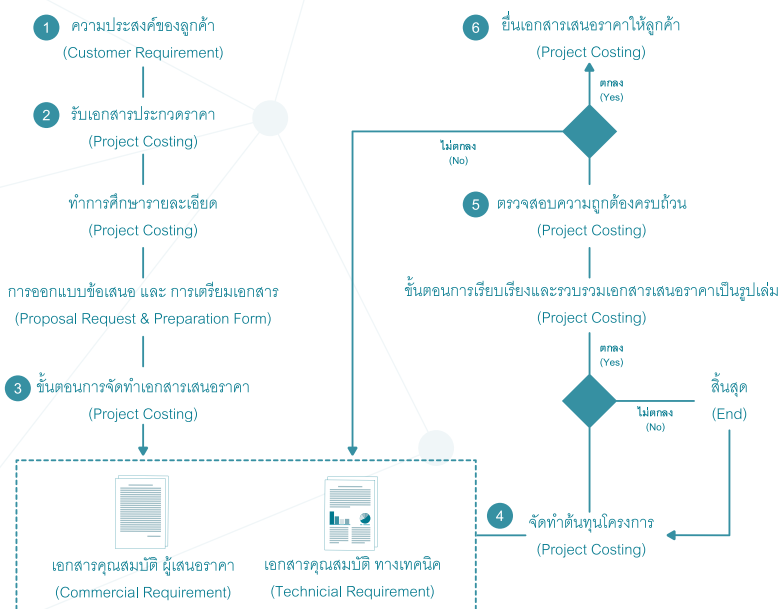
1. To oversee the Company's daily operations and managements.
2. To operate and manage the business according to policies, plans and budgets approved by the Board of Directors and/or the Executive Committee.
3. To adopt policies, make plans, build strategies and allocate annual budgets; to propose them to the Executive Committee and the Board of Directors for approval.
4. To consider and approve the Company's regular transactions such as sale of goods and purchase of raw materials for the amount within the scope of powers granted by the Board of Directors ; to consider and approve the purchase of property with the budget approved by the Board of Directors.
5. To constantly follow up and assess the Company's operations; to prepare and submit reports on the performance, management and work progress to the Executive Committee, Audit Committee and Board of Directors.
6. To consider and approve the business contracts for values within the scope of powers granted by the Board of Directors.
7. The managements has duty to response on setting the system to support anti-corruption policy to communicate with the employees and related persons including, to review the proper process as well as others measurement to be in line with the change of the company's business, regulations, rules and legal requirements.
8. To issue orders, regulations, notifications and notes with respect to Company operations in compliance with its policies, for maintaining discipline in the organization and in the interests of the Company.
9. To perform other duties as assigned by the Executive Committee or the Board of Directors.

The Chief Executive Officer, or authorized equivalent who may have a conflict of interest with the Company, its affiliates, subsidiaries or related companies (as set forth in the Notifications of Capital Market Supervisory Board, the SEC or other competent agencies) may not approve any connected transactions, but propose such transactions to the Board Meeting or the shareholders' meeting for approval, the exception being approval of regular transactions on an individual basis as set forth in the Notifications of the Capital Market Supervisory Board, the SEC or other competent agencies.

Have served many state agencies, the Company has set forth legitimate and efficient procedures for tender approval with government offices as follows;

1. The Company's Sales Department receives terms of reference (TOR) for tender for customer's requirements.
2. The Sales Department shall study commercial and technical requirements carefully before decision for bid submission.
3. The Sales Department and Sales Coordinator prepare tender documents such as lists of equipment and devices, technical specifications and other essential documents required by the customer.
4. The Sales Coordinator collects the lists of equipment and devices and cost analysis. The Head of Sales Department performs a cost analysis and submit it for approval by authorized persons. Approval is granted only when authorized persons are sure that the Company potentially completes the project for the proposed contract price.
5. The Sales Department and Sales Coordinator jointly examine all the bid documents to verify accuracy and submit them for written approval by authorized persons.
6. The bid is then submitted on the date and time required by the customer. If the Company is awarded the contract,

the Sales Department and Legal Department (in some cases) will carefully review the contract before signing. The authorized person will empower the employee in charge of the project to sign the contract.



Remuneration for Directors and Executives

1. Monetary Remuneration

Directors

The company's Board of Directors approved the remuneration structure for Directors in 2018 - 2020 as follows:

Year	Remuneration (Baht/person/year)					
2018	Not exceeding 500,000 Baht (totally eight directors not exceeding 4,000,000 Baht)					
2019	Not exceeding 500,000 Baht					
2020	(totally seven directors not exceeding 3,500,000 Baht)					

	2018		2019		2020	
Remunerations for Executive Committee and other committees	Monthly Remuneration (Baht / Person / Month)	Attendance Fee (Baht / Person / Time)	Monthly Remuneration (Baht / Person / Month)	Attendance Fee (Baht / Person / Time)	Monthly Remuneration (Baht / Person / Month)	Attendance Fee (Baht / Person / Time)
1. Board of Directors						
Chairman	30,000	10,000	30,000	10,000	30,000	10,000
Directors	20,000	10,000	20,000	10,000	20,000	10,000
2. Audit Committee						
Chairman	-	25,000	-	25,000	-	25,000
Directors	-	20,000	-	20,000	-	20,000
3. Nomination, Remuneration and Corporate Governance Committee						
Chairman	-	25,000	-	25,000	-	25,000
Directors	-	20,000	-	20,000	-	20,000
4. Risk Management Committee						
Chairman	-	25,000	-	25,000	-	25,000
Directors	-	20,000	-	20,000	-	20,000

Remark: Other benefits (both monetary & non monetary) – None

From 2018 to 2020, we have paid our Directors as follows;

Name - Surname	2018	2019	2020
1. Dr. Ruttikorn Varakulsiripunth ⁽¹⁾	239,667	460,000	420,000
2. Mr. Prapat Rathlertkarn	330,000	340,000	300,000
3. Mr. Trevor John Thompson	320,000	320,000	300,000
4. Mrs. Sutharak Soonthornpusit	535,000	510,000	515,000
5. Mr. Somkid Wangcherdchuwong	505,000	570,000	510,000
6. Dr. Wichai Laohmatvanich ⁽²⁾	440,000	595,000	525,000
7. Mr. Thibdee Mangkalee ⁽³⁾	216,667	480,000	400,000
8. Dr. Katiya Greigam ⁽⁴⁾	200,000	-	-
9. Mr. Somphong Outrakul ⁽⁵⁾	145,000	-	-
Total	2931,334	3,275,000	2,970,000

Notes:

- (1) Dr. Ruttikorn Varakulsiripunth Dr. Ruttikorn Varakulsiripunth was appointed as Director and the Chairman on June 21 and June 22, 2018, respectively.
- (2) Dr. Wichai Laohmatvanich was appointed as Independent Director and Chairman of Audit Committee on January 25, 2018 and February 23, 2018, respectively.
- (3) Mr. Thibdee Mangkalee was appointed as Director and Audit Committee Member on June 21, 2018 and June 22, 2018, respectively.
- (4) Dr. Katiya Greigam resigned from the Company's Directors and Chairman on April 30, 2018.
- (5) Mr. Somphong Outrakul resigned from the Company's Director on February 23, 2018.

Remuneration for Management

From 2018 to 2020, we have paid our Management remuneration, including CEO and CTO of 23.13 Million Baht and 21.11 Million Baht and 21.58 Million Baht respectively, including monthly salary, bonus and contribution to provident fund.

Year	Number of Management (Person)	Remuneration (Baht)
2018	6	23,128,277.97
2019	6	21,106,518.67
2020	6	21,578,948.39

2. Other Remunerations

The Company has Director and Officer Liabilities Insurance (D&O) to Directors, Executives, and Management and training expenses of Thai Institute of Directors Association (IOD) and related institutes according to the Company's regulations.

Number of Employees

1. Number of employees

From 2018 to 2020, total number of full time employees including managements and daily workers are 155 persons, 145 persons, and 127 persons respectively.

As of December 31, 2020, total number of the company's employees is 127 persons (including executives 5 persons) 121 of them are full-time employees and 6 persons are employed on daily basis. Details are as follows:

Department	Full-Time Employees (Persons)	Daily Worker (Persons)	Total (Persons)
1. Office of the President	7	-	7
2. Finance and Accounts Department	7	1	8
3. Marketing and Business Development Department	8	-	8
4. Sales Department	17	-	17
5. Operations Department	23	5	28
6. Technical Services Department	35	-	35
7. Human Resource Department	2	-	2
8. PlanetFiber Co., Ltd.	13	-	13
9. PlanetCloud Co., Ltd.	9	-	9
Total	121	6	127

2. Labor Disputes

- None -

3. Remuneration for Employees

Monetary Remuneration

From 2018 to 2020, the Company paid 72.91 million Baht, 75.63 million Baht, and 71.52 million Baht respectively to our employees (excluding executives) in form of monthly salary, bonus, overtime payments and contributions to Workmen's Compensation Fund and other fringe benefits.

4. Personnel development Policy

Personal development policy is defined aimed at developing our employees at all levels from management and department heads to supervisors and operative levels to increase our efficiency. We offer trainings as follows;

1. Our employees, especially engineering staff are trained by specialists in work-related fields to enhance their efficiency and potential.
2. Improvement of working and management procedures, encouragement of teamwork, proper communication, time management and decision making. Our employees at all levels are trained by specialists.
3. Development in line with ISO 9001:2015 implemented by all related departments, and properly keeps records of training sessions. The quality management chief conducts in-house training.

We keep records of training courses undergone by all our employees for the purpose of performance assessment and promotion consideration. We also apply the Key Performance Index (KPI) to define and measure progress toward organizational goals.

Therefore, one of Company policy is the Talent Management program for screening, selection, development, and retention the potential staffs.

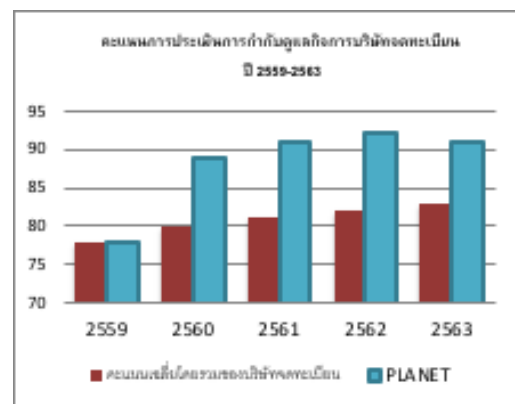
Corporate Governance

1. Corporate Governance Policy

The Company gives great importance on good corporate governance, which contributes to efficient, transparent and accountable management. Good governance strengthens the trust and confidence of shareholders, investors, stakeholders and other related parties. It is also useful for adding business value, enhancing competitiveness, as well as promoting sustainable growth in the long term as outlined by the Stock Exchange of Thailand.

The Board of Directors meeting No.6/2013 on July 16, 2013 resolved to enact the Company's Good Corporate Governance Policy being reviewed and approved by the Board of Director annually. The Company has participated with Corporate Governance Report of Thai Listed Company since 2015. From 2015 to 2020, the Company's average score are as below:

Year	Total Average score (%)		Recognition Level
	Total listed Company	Planet	
2015	75	73	Good
2016	78	78	Good
2017	80	89	Very Good
2018	81	91	Excellence
2019	82	92	Excellent
2020	83	91	Excellent



The policy consists of five sections as follows:

Section 1 : Rights of Shareholders

The Company recognizes and values the basic rights of the shareholders, namely the right to buy, sell or transfer shares, the right to share in corporate profit, the right to obtain adequate information on the Company, the right to attend shareholder meetings, and the right to cast votes related to the appointment or removal of directors as well as appointing external auditors. Shareholders also have voting rights regarding decisions that affect the Company such as dividend allocation, establishing or amending the Articles and Memorandum of Association, capital increase or decrease, etc.

Therefore, the Company has made arrangements to encourage and facilitate shareholder rights.

1. Submit the notice of shareholder meeting at least seven days in advance, with details on the date, time, place, agenda items and complete supporting information related to items for consideration.
2. The Company offers a shareholder that is unable to attend the meeting an opportunity to appoint a Company's independent director or any person to attend on his/her behalf, by submitting a proxy form with the meeting notice.
3. Shareholders are given full opportunity to freely ask questions or make comments and recommendations.
4. After the meeting, the Company will prepare the minutes of meeting, in which correct and complete information is disclosed for shareholder verification.

Having become a public limited company and listing on the Stock Exchange of Thailand, the Company includes the opinions of the Board of Directors in the meeting notice and send the said notice to shareholders in advance for a period specified by the SEC or SET's electronic channel, the Company's website and newspaper advertisement pursuant to the Limited Public Companies Act. As a policy, all directors, especially sub-committee, chairpersons must attend the meeting in order to give explanations to or answer questions from the shareholders.

Section 2: The Equitable Treatment of Shareholders

It is company policy to protect the rights of all shareholders in an equal and fair manner, whether they be executive, non-executive, Thai, foreign, major or minor. After the initial public offering on the SET, the Company has allowed any shareholder unable to attend the meeting an option of appointing a Company's independent director or any person to attend and vote on his/her behalf. Minor shareholders can also nominate candidates for director positions well in advance.

The meeting is conducted according to the Company's Articles of Association and in the order of a predetermined agenda. Full details and supporting information of each agenda item are provided for shareholders well in advance. No items can be added to the meeting agenda without prior notice to the shareholders unless absolutely necessary, especially important agenda items that require time in order to make an informed decision.

The Board of Directors has established a measure against insider trading by related persons, which include directors, executives, employees, staff and relatives of aforementioned persons. Penalties are imposed for disclosure or use of information for personal gain. Regardless, the Company has acquainted directors and executives with their duty to report Company's securities held by themselves, their spouses and minor children, as well as any changes thereof to the SEC as stipulated by Section 59 and penalty clauses of the Securities and Exchange Act B.E.2535.

Section 3: Role of Stakeholders

With the satisfaction of all parties in mind, the Company pursues a policy that regards the rights of all stake holders fairly and transparently as follows;

1. Shareholders

The Company endeavors to operate business with transparency in order to deliver satisfactory returns to shareholders and sustainable growth to the organization. The Company upholds a principle to treat every shareholder without any discrimination and relies on equality of shareholders and awareness of fundamental rights of shareholders, for example, rights on buy and sell share, right of receiving profit share, rights on receiving adequate business information of the Company, rights on attending the meeting for voting shareholders or withdrawing director, appointing auditor and asking issues relevant to the company, for example dividend payment, stipulating or amending the Company's rules and regulations and memorandum of associations, decrease or increase of capital.

2. Employees

The Company endeavors to treat employees equitably and fairly, while providing them suitable compensation, continual training and skill development for improved productivity, as well as a provident fund and other fringe benefits such as bonus, health insurance, life insurance, etc. However, there are no accidents, leaves and sickness of the employees from working in 2018.

Therefore, the Company emphasizes on safety on employee's life and health as follows;

- The Company commits to develop safety, health and working environment as per legal requirements.
- The Company will control and prevent loss from accident, fire and injury in workplace as well as maintain safe workplace for employees.
- The Company supports adequate and appropriate use of natural resources as per legal requirements; commit to develop human resources for knowledge and cultivating conscious in employees' safety and working environment.
- Safety and sanitation is important issue. The executives, supervisory levels and all employees are responsible for complying with legal requirements.

3. Partners/ Suppliers

Any business alliance with any partners shall not bring any damage to the Company's reputation or any laws. The Company gives concern on equality of business operation and mutual benefits with partners. The Company commits to comply with commercial terms and conditions and sincere compliance with the partnership contracts without taking advantages.

Systematic procurement of goods and services in accordance with ISO 9001:2015 standards as following significant rules:

- a) Partners/ Suppliers selection: The Company shall consider the products' specification, market demand, technology development, reputation, price, marketing support, trade conditions, and delivery.
- b) Partners/ Suppliers evaluation: The Company shall evaluation major partners (both local and international) every year in the first quarter.
- c) Sub-contractor procedures: The Company set the Committee to evaluate and select the sub-contractors for arranging the sub-contractors list.

4. Creditors

The Company commits to strictly comply with financial terms and conditions for credibility in terms of debt settlement, loan payment, interest and responsibilities in bonds.

5. Customers

The Company endeavors to be attentive and responsible to customers by such means as equitable services, high-quality products and services, and the protection of customer confidentiality. Various business units and staff are assigned to respond quickly to clients with customer care, as well as satisfy customers or ensure standard goods and services in reasonable price, as well as maintain good and sustainable relationship under the good practices.

6. Competitors

The Company endeavors to engage in fair competition, maintain acceptable standards of competition and refrain from unethical practices against competitors.

7. Communities and Society

The Company realizes to operate its business with community, social and environmental responsibilities as well as safety, quality of life, natural resources conservation, efficient use of energy, awareness of quality of life of community and society. Some of its profits are contributed to payback and create community and society.

8. Environment

The Company realized on environmental effects, be selecting technologies and innovative development for efficient use of energy. The Company followed by Corporate Social Responsibilities' policy through the project "We Care" of the topic Care Planet on "Corporate Social Responsibility" on 11.2 and 11.3 included sort out garbage into 4 types; (1) degraded waste or biodegradable waste (2) recycle waste (3) general waste (4) hazardous waste.

The Company also complies with guidelines of Human Rights of Universal Declaration of Human Rights of United Nations which are the standard rights practices to the Company's employees or other related parties as well as no violation against intellectual properties or copyrights. Moreover, please see more details about communities and society on the topic "Corporate Social Responsibility".

Section 4: Disclosure and Transparency

The Board of Directors realized on information disclosure with equitable, accurate, complete and transparent. This encompasses financial and non-financial information as stated by SEC and SET regulations and material information that affects the value of the Company's securities, which in turn influences decision-making by investors and stakeholders. The Company will disclose its information to the shareholders and the general public through SET channels and the Company's website.

The share ("PLANET") holding of director and management was reviewed by the Board of Directors' meeting quarterly.

As 31 December, 2020, the Board of Directors (included related persons) held the amount of 163,080,000 shares or 65.23% of the total number of shares. In 2018 - 2020, the Company's directors and executives held the following number of shares.

Directors and Management	Title	No. of Shares held as of 31 December			Remark
		2018	2019	2020	
1. Dr. Ruttikorn Varakulsiripunth	- Chairman - Independent Director	0	0	0	Appointed as Director on June 21, 2018
2. Mr. Prapat Rathlertkarn	- Director - Vice Chairman - Chairman of Executive Committee, - Chief Executive Officer	78,950,000	78,950,000	78,950,000	Including related persons
3. Mr. Trevor John Thompson	- Director - Vice Chairman of Executive Committee - Chief Technology Officer	78,950,000	78,950,000	78,950,000	Including related persons
4. Dr. Wichai Laohmatvanich	- Independent Director - Chairman of Audit Committee - Risk Management Committee Member - Nomination Remuneration and Corporate Governance Committee Member	0	0	0	Appointed as Director on January 25, 2018
5. Mrs. Sutharak Soonthompisit	- Independent Director - Audit Committee Member - Chairman of Risk Management Committee, and - Nomination Remuneration and Corporate Governance Committee Member	50,000	50,000	50,000	
6. Mr. Somkid Wangcherdchuwong	- Independent Director - Audit Committee Member - Risk Management Committee Member - Chairman of Nomination Remuneration and Corporate Governance Committee	0	0	0	
7. Mr. Thibdee Mangkalee	- Independent Director - Audit Committee Member	0	0	0	Appointed as Director on June 21, 2018
8. Mrs. Ratana Suwan	- Executive Vice President of Finance and Account	5,120,000	5,120,000	5,120,000	Appointed on September 4, 2018
9. Mr. Jakkrit Sonwai	- Executive Vice President of Operation and Technical Services	-	-	-	Appointed on December 16, 2019
10. Mr. Veerasak Arthornchaikul	- Vice President of Marketing and Business Development	10,000	10,000	10,000	

The Board of Directors recognizes its responsibility to provide accurate and complete financial reports that have been proved in accordance with generally accepted accounting practices. Appropriate accounting policies are applied and regularly practiced, while adequate information is disclosed in financial statements. Furthermore, the Board has adopted an effective internal control system in order to ensure accounting records as accurate and sufficient to protect company assets, as well as identify system vulnerabilities for corruption or material irregularities. The Company has appointed an Audit Committee, comprised of non-executive directors responsible for examining financial reports, related transactions and the internal control system. The Audit Committee reports directly to the Board of Directors.

The Company has yet to attach a unit responsible for investor relations, due to a small number of activities. However, Mr. Prapat Rathlertkarn who is the person act as investor to contacts and provide company information in an accurate and complete manner to shareholders, and analysts and relevant agencies.

Moreover, in 2020 the Company reported our performance via set portal of Stock Exchange of Thailand and submitted news subjected to the company's performance for 4 times via 3 – 5 newspapers.

Section 5: Responsibilities of the Board of Directors

1. Structure of the Board of Directors

The Company's Board of Directors comprises of qualified persons who possess knowledge, competency and executive experiences in various organizations, thus enabling them to utilize such backgrounds and expertise in developing and setting corporate policies and business direction effectively for the utmost benefits of the Company and its shareholders. The Board of Directors plays a vital role in formulating policies and business concept, along with supervising, examining and monitoring performance of the Management, and also assessing to ensure that the Company's operating results are achieved as planned. Therefore, the Company's Directors are not allowed to hold directorship in more than five listed companies.

As of December 31, 2020, the structure of the Board of Directors consists of Independent Directors account for one third of Board members. At present, the Board of Directors consists of seven members who there are two executive directors and five non-executive directors which including four audit committee members. The Board has also appointed sub-committee to assist in overseeing the Company's operations as follows:

- 1.1 Executive Committee is consisting of two members to determine business direction and strategies. The committee is tasked with accomplishing the goals set by the Board, as well as smooth and flow management.
- 1.2 Audit Committee consisting of four non-executive directors with the rights and duties as specified in the Authorities and Responsibilities of the Audit Committee. The Committee performs specific tasks and proposes relevant matters to the Board for consideration and acknowledgement. At least one member must have a sufficient background in accounting to oversee the credibility of the Company's financial statements.
- 1.3 Nomination, Remuneration and Corporate Governance Committee (henceforth, "Nomination Committee") consists of three non-executive directors, with the Chairman of the Board also serving as Chairman of the Committee. The term of office for each member is the same as his/her term on the Board of Directors.
- 1.4 Risk Management Committee has members nominated and appointed by the Board from among the Company's directors and executives or other qualified persons. The committee members elect one member as Chairman of the Risk Management Committee. The Committee is responsible for determining risk management policies and frameworks which cover strategic risks, enterprise risks, financial risks, operational risks and external factors. Its responsibilities also include monitoring, examining and assessing risk management performance, overseeing the Company's compliance risk management policies as well as evaluating the risk management policies and system, system effectiveness and policy compliance. The committee reports the discharge of duty of the Board and its performance for the year to shareholders through the annual report. In addition, the Risk Management Committee appoints the executive committee in charge of (1) Identifying risk and conducting risk management review in line with Business Plan (2) Estimating relevant impacts (3) Setting preventive measures against risks (4) Monitoring results and update status of risk to the Risk Management Executive Committee and (5) Consistently and continually building innovations for risks management for staff.

The Board of Directors has established a policy that the Chairman of the Board must not be the same person as the Chief Executive Officer; in order to explicit segregate responsibilities between corporate governance policy-making and day to day management. The roles of the Board of Directors are also defined separately from those of executives. The Board of Directors is responsible for setting policies and supervising the operations of executives. Meanwhile, executives are responsible for managing the Company's businesses in accordance with the set policies. Although the Chairman of the Executive Committee is also the CEO, the Company has prevented autocracy by clearly defining the scope of powers and duties in the Company's Level of Authorization (LOA) in written.

The Company Secretary is appointed by the Board and takes responsibilities pursuant to the Securities and Exchange Act.

2. Roles, Duties and Responsibilities of the Board of Directors

The Company's directors are to comply with the Code of Best Practices for Directors of Listed Companies enacted by the SET. Directors must understand and acquaint themselves with their entrusted roles, duties and responsibilities and relinquish their position with integrity in accordance with the laws, the Company's objectives and Articles of Association, as well as resolutions of the shareholders meeting. Therefore, the Board of Directors develop policies, business goals, corporate plans and budgets, including to review vision, mission and the company's strategy in previous year, while ensuring that management has implemented policies, plans and budgets effectively and efficiently in the best interests of the Company and its shareholders.

- Policy on Conflict of Interest -

The Company has laid out a policy to prevent any conflicts of interest that may arise from Company transactions. Persons with conflicts of interest are not permitted in the approval process for the transaction. The Board of Directors oversee this matter to ensure the Company's strict compliance with the laws on securities and exchange, relevant regulations and notifications, orders or requirements of the Capital Market Supervisory Board and the Stock Exchange of Thailand, requirements related to the disclosure of connected transactions and the acquisition/disposal of material assets of the Company, including the accounted standards specified by the Institute of Certified Accounts and Auditors of Thailand.

Moreover, the Company has the Audit Committee, external auditors or independent specialists review and comment on product pricing and transactions. Transaction details are disclosed in notes of financial statements audited or reviewed by external auditors, the Company's annual registration statement (Form 56-1) and annual report (Form 56-2).

- Internal Control System -

Recognizing the importance of an internal control system at both management and operational levels, the Company has explicitly stated in writing the scope of duties and responsibilities of various roles. To maintain proper checks and balances, the Company has developed a control mechanism for the best utilization of assets and segregated duties and responsibilities for transaction approval, accounting and information records, and asset security. Additionally, it has ensured internal financial control systemizing financial reporting up the chain of responsibilities. The Internal Auditor is responsible for examining the Company's internal control system and reports directly to the Audit Committee

The Company has set clear and measurable goals. Management reviews the actual performance against projected targets on a monthly basis, through the assessment of external and internal risk factors to business operations, along with an analysis of contributory factors. The Company has also adopted measures to monitor the causes of risk factors and develop countermeasures to mitigate them. Related units have been assigned to report any progress or changes to the Board of Directors.

3. Board of Directors Meeting

3.1 Board of Directors

According to the Company's policy, the Board of Directors must hold a meeting at least once every three month and convene special meetings as necessary. The agenda items of each meeting must be clearly stated and sent out along with the meeting notice at least seven days prior to the meeting date to allow sufficient time for directors to review and prepare. Minutes of the meeting are recorded and then approved by the Board. The records must also be safely stored for future examination by the Board or related parties.

The Company set and informs the schedules of Board of Directors meeting every year in the fourth quarter. In 2020, the Board of Directors meeting shall be held on every quarter to certify financial statement, and held additional meetings on January and February to approve other matters as appropriate. The Board of Directors meeting shall be composed of the number of directors of not less than half of total number of directors. At the time of casting resolution, the number of attending directors shall not be less than two-third of total number of directors.

As at January 30, 2020, non-executive directors including Dr. Ruttikorn Varakulsiripunth, Dr. Wichai Laohmatvanich, Mrs. Suttharak Soonthornpusit, Mr. Somkid Wangcherdchoowong, and Mr. Thibdee Mangkalee gathered for the unofficial meeting without administrative parties participation for general discussions for the Company management.

From 2018 to 2020, the Company held nine meetings, ten meetings, and six meetings respectively. In 2020, the average Directors attendance was 100.00% of total the Board of Director Meeting. The attendance record of each director are as shown below:

Directors' Name	2018		2019		2020	
	No. of Meeting Attendance	%	No. of Meeting Attendance	%	No. of Meeting Attendance	%
1 Dr. Ruttikorn Varakulsiripunth ⁽¹⁾	5/9	100	10/10	100	6/6	100
2. Mr. Prapat Rathlertkarn	9/9	100	10/10	100	6/6	100
3.Mr.Trevor John Thompson	8/9	100	8/10	80	6/6	100
4. Dr. Wichai Laohmatvanich ⁽²⁾	8/9	89	10/10	100	6/6	100
5. Mrs. Suttharak Soonthornpusit	9/9	100	8/10	80	6/6	100
6.Mr. Somkid Wangcherdchuwong	9/9	100	10/10	100	6/6	100
7. Mr. Thibdee Mangkalee ⁽³⁾	5/9	100	10/10	100	6/6	100

Notes:

(1) Dr. Ruttikorn Varakulsiripunth was appointed as the Independent Director on June 21, 2018.

(2) Dr. Wichai Laohmatvanich was appointed as Independent Director on January 25, 2018.

(3) Mr. Thibdee Mangkalee was appointed as Independent Director on June 21, 2018.

3.2 Audit Committee

From 2018 to 2020, the Audit Committee's meetings have been held on quarterly basis for six times, seven times and five times a year, respectively. Details of attendance are as follows;

Name- Surname	Title	No. of Meeting Attendance / Total No. of Meetings		
		2018	2019	2020
1. Dr. Wichai Laohmatvanich ⁽¹⁾	Chairman	4/6	7/7	5/5
2. Mrs. Sutharak Soonthornpusit	Member	6/6	5/7	5/5
3. Mr. Somkid Wangcherdchuwong ⁽²⁾	Member	4/6	7/7	5/5
4. Mr. Thibdee Mangkalee ⁽³⁾	Member	2/6	7/7	5/5

Notes:

- (1) Dr. Wichai Laohmatvanich was appointed as Chairman of Audit Committee on February 23, 2018.
- (2) Mr. Somkid Wangcherdchuwong was appointed as Audit Committee Member on February 23, 2018.
- (3) Mr. Thibdee Mangkalee was appointed as Audit Committee Member on June 22, 2018.

3.3 Nomination, Remuneration and Corporate Governance Committee

The Company's Board of Directors Meeting No. 5/2014 on November 12, 2014 resolved to appoint the Nomination, Remuneration and Corporate Governance Committee (Nomination Committee) which shall hold the meeting at least twice a year and the committee members shall attend the meeting.

In 2018- 2020 two Nomination Committee's meetings were held, respectively. Details of attendance are as follows:

Name- Surname	Title	No. of Meeting Attendance / Total No. of Meetings		
		2018	2019	2020
1. Mr. Somkid Wangcherdchuwong	Chairman	2/2	2/2	2/2
2. Mrs. Sutharak Soonthornpusit	Member	2/2	2/2	2/2
3. Dr. Wichai Laohmatvanich ⁽¹⁾	Member	1/2	2/2	2/2

Notes:

- (1) Dr. Wichai Laohmatvanich was appointed as Nomination, Remuneration and Corporate Governance Committee Member on February 23, 2018.

3.4 Risk Management Committee

The Company's Board of Directors Meeting No. 5/2014 on November 12, 2014 resolved to appoint the Risk Management Committee which shall hold the meeting at least twice a year and the committee members shall attend the meeting.

In 2018- 2020, two, two, and two Risk Management Committee's meetings were held, respectively. Details of attendance are as follows:

Name- Surname	Title	No. of Meeting Attendance / Total No. of Meetings		
		2018	2019	2020
1. Mrs. Sutharak Soonthornpusit ⁽¹⁾	Chairman	2/2	2/2	3/3
2. Mr. Somkid Wangcherdchuwong	Member	2/2	2/2	3/3
3. Dr. Wichai Laohmatvanich ⁽²⁾	Member	1/2	2/2	3/3

Notes:

- (1) Mrs. Sutharak Soonthornpusit was appointed as Chairman of Risk Management Committee on February 23, 2018.
- (2) Dr. Wichai Laohmatvanich was appointed as Risk Management Committee Member on February 23, 2018.

4. Remuneration of Directors and Executives

The Company retains competent directors and executives by providing sufficient remuneration comparable to that of industry peers. Factors determining remuneration include professional background, duties, scope of roles and responsibilities, Remuneration for directors must be approved by the shareholders meeting. Meanwhile, remuneration for executives is in accordance with criteria and policy specified by the Board of Directors, taking into account the duties, responsibilities and performance of each executive.

5. Development of Directors and Executives

For continual enhancement of business operations, the Board has put forth a policy to encourage and facilitate training and learning activities. For persons involved in corporate governance, directors and executives, Audit Committee members, and the Company Secretary. Management courses are provided through the Thai Institute of Directors Association (IOD)

Directors and executives, Audit Committee members and the Company Secretary have taken IOD courses and other courses as follows;

Name	ตำแหน่ง	หลักสูตรที่เข้าร่วมอบรม
Dr. Ruttikorn Varakulsiripunth	- Chairman	- Director Accreditation Program (DAP) 153/2018 *
Mr. Prapat Rathlerkam	- Vice Chairman - Chairman of Executive Committee - Chief Executive Officer - Company Secretary	- Chief Transformation Officer: CTO Course 2019 by SEAC, Thailand - Successful Formulation & Execution of Strategy (SFE) 28/2016 * - Advance Innovation Training no. 4 by National Innovation Agency (NIA) By Thailand Management Association (TMA) - Director Certification Program (DCP) 195/2014 * - Director Accreditation Program (DAP) 94/2012 *
Mr. Trevor John Thompson	- Director - Vice Chairman of Executive Committee - Chief Technology Officer	- Director Certification Program English Program (DCP) 207/2015 * - Director Accreditation Program (DAP) 95/2012 *
Dr. Wichai Laohmatvanich	- Independent Director - Chairman of Audit Committee - Risk Management Committee Member - Nomination Remuneration and Corporate Governance Committee Member	- Director Accreditation Program (DAP) 153/2018 *
Mrs. Sutharak Soonthornpusit	- Independent Director - Chairman of Risk Management Committee - Audit Committee Member - Nomination Remuneration and Corporate Governance Committee Member	- Director Certification Program (DCP) 219/2016 * - Director Accreditation Program (DAP) 103/2013 *
Mr. Somkid Wangcherdchuwong	- Independent Director - Chairman of Nomination Remuneration and Corporate Governance Committee - Audit Committee Member - Risk Management Committee Member	- Director Accreditation Program (DAP) 2006 *
Mr. Thibdee Mangkalee	- Independent Director - Audit Committee Member	- Director Certification Program (DCP) 267/2018*
Mrs. Ratana Suwan	- Executive Vice President of Finance and Account	- Director Certification Program (DCP) 188/2014* - Director Accreditation Program (DAP) 94/2012*
Mr. Jakkrit Sonwai	- Executive Vice President of Operation and Technical Services	- Micro MBA. in General Management by Chulalongkorn University - Modern Telecommunications Management by Thammasat University and TOT - PMP Intensive Project Management Professional - PM Competency Practical Training and Project Management in Practice.
Mr. Veerasak Arthornchaikul	- Vice President of Marketing and Business Development	- Advance Innovation Training no. 4 by National Innovation Agency (NIA) By Thailand Management Association (TMA)

Note : * Thai Institute of Directors Association (IOD) Courses

Furthermore, directors and managements attended others seminars arranged by the Thai Institute of Directors and other institutes consistently to gain knowledge and apply for working efficiency.

6. Nomination of Directors and Top Executives

The nomination and appointment of directors is conducted through the shareholder meeting. Qualified candidates are selected by the Nomination Committee based on their experience, knowledge, proficiency and prerequisite qualifications under the law. Subsequently, the candidate is elected by the shareholder meeting according to the criteria and procedure stipulated in the Articles of Association.

6.1 Composition and Appointment of the Board of Directors

The Composition, nomination, appointment, removal or retirement of directors are specified in the Articles of Association, which is summarized as follows:

1. The Board of Directors consists of at least five directors and at least half of the total number of directors must reside in the Kingdom of Thailand.

The directors must possess qualifications as specified under the law.

2. Directors are elected by the shareholder meeting according to the following criteria and procedure:

- Each shareholder has a number of votes equal to the number of shares held
- Each shareholder may allocate all his/her votes to elect one or several candidates. However, in an election for multiple directors, the shareholder must allocate his/her votes equally
- Candidates receiving the most votes in descending order are elected to the number of positions required at a given meeting. In the event of a tie for the final position, the Chairman of the meeting will cast the awarding vote.

3. At every annual general meeting, one-third (1/3) of the directors shall vacate in proportion. If the number of directors is not a multiple of three, the number of directors closest to one-third (1/3) shall vacate. Unless otherwise specified by the articles of association, the directors vacating from office in the first and second years after the registration of the company shall be selected by drawing lots. In subsequent years, the director who has held office longest shall vacate. A director who vacates office under this section may be re-elected.

4. Any director intending to resign from office can submit a resignation letter to the Company. The resignation is effective on the date the letter is received by the Company.

5. If a directorship falls vacant for reasons other than by rotation, the Board will elect a person with suitable qualifications and legal prerequisites to fill the vacancy at the next Board of Directors meeting, unless the remaining term of the former director is less than two months. The replacement director retains office only for the remaining term of his/her predecessor. The Board of Directors' resolution represents a vote of not less than three-fourths the number of remaining directors.

6. The shareholder meeting can remove any director from office before his/her retirement by rotation by a vote of not less than three-fourths the number of shareholders in attendance and entitled to vote. The vote must represent not less than one-half the number of shares held by shareholders in attendance and entitled to vote.

6.2 Composition and Appointment of Independent Directors

Definition "Independent Director"

Independent Director means the external director who does not hold the position of executive or the company's employee, non executive director or director who has authorized to sign and independent from the major shareholder, the executive and related persons and be able to protect the shareholders' advantage consistently as well as beware of the conflict of interest between the company and relate persons.

The Board of Directors consider a candidate's qualifications for an independent directorship according to the Public Limited Companies Act, law on securities and exchange, notifications of the Capital Market Supervisory Board, a relevant notifications, regulations and/or rules. The Board also considers a potential nominee's proficiency, work experiences and other relevant qualities. The candidate is subsequently nominated to the shareholder meeting in final voting. The number of Independent directors must be at least one-third of the Board, as well as, at least three members. Independent Directors serve a term of three years each time (but total term shall not over 9 years).

As of December 31, 2020, five Independent Directors consisted of:

ชื่อ - สกุล กรรมการอิสระ	ตำแหน่ง	Appointed Date	Total Terms
1. Dr. Ruttikorn Varakulsiripunth	- Chairman	June 21, 2018	1 year 6 months 9 days
2. Dr. Wichai Laohmatvanich	- Chairman of Audit Committee - Risk Management Committee Member - Nomination Remuneration and Corporate Governance Committee Member	January 25, 2018	2 year 11 months 7 days
3. Mrs. Sutharak Soonthornpusit	- Audit Committee Member - Chairman of Risk Management Committee - Nomination, Remuneration and Corporate Governance Committee Member	December 30, 2011	9 years
4. Mr. Somkid Wangcherdchuwong	- Audit Committee Member - Risk Management Committee Member - Chairman of Nomination Remuneration and Corporate Governance Committee	May 12, 2015	5 years 7 months 19 days
5. Mr. Thibdee Mangkalee	- Audit Committee Member	June 21, 2018	2 year 6 months 9 days

Qualifications of Independent Director

1. Must hold no more than 1% of total shares with voting rights in the Company, its parent company, subsidiaries, affiliates or juristic persons with possible conflicts of interest (hence forth, the Company, its parent company, etc") including shares held by the director's affiliate.
2. Has not served as executive director, employee, staff, salaried advisor, or controlling person in the company, parent company, etc. for at least two years from the date of submitting the application to the SEC.
3. Has no familial relation, either biologically or legally, to executives, major shareholders, controlling persons, or persons to be nominated as executives or controlling persons of the Company or its subsidiaries. Familiar relations include, but are not limited to father, mother, spouse, sibling or in-law.
4. Has neither a conflict of interest via business relations with the Company, its parent company, etc that may impede his/her independent discretion, nor served as a major shareholder, non-independent director or executive of those with business relations to the Company, its parent company, etc. for at least two years from the date of submitting the application to the SEC.
5. Has neither served as an external auditor for the Company, its parent company, etc, nor been a major shareholder, non-independent director, or managing partner of an audit firm which employs external auditors to the Company, its parent company, etc for at least two years from the date of submitting the application to the SEC.
6. Has neither been a professional service provider of any kind who received an annual service fee exceeding 2 million Baht from the Company, its parent company, etc, not in the event the professional service provider is a juristic person, been a major shareholder, non-independent director, executive or managing partner of a professional service provider for at least two years from the date of submitting the application to the SEC.
7. Has not served as a director appointed as a representative of the Company's directors, major shareholders or shareholders related to major shareholders.
8. Does not possess any other characteristics that render him/her incapable of giving independent opinions on the Company's operations.

6.3 Composition and Appointment of the Audit Committee

The Board of Directors appoint members of the Audit Committee which consists of at least three independent Company directors qualified under securities and exchange legislation as well as the notification, regulations and/or rules of the Stock Exchange of Thailand. The term of office for each Audit Committee member is three years and the independent directors that chair the Audit Committee must possess additional qualifications as follows:

1. Not a director being assigned by the Board to make decisions on the business operations of the Company, its parent company, subsidiaries, same-level subsidiaries, affiliates or juristic persons with possible conflicts of interest
2. Not a director of its parent company, subsidiaries or same-level subsidiaries that are listed companies.
3. Has sufficient knowledge and experiences to perform duties as a member of the Audit Committee. At least one member must have sufficient knowledge and experiences to review the credibility of financial statements.

6.4 Orientation of New Director

It is necessary and advantage to arrange orientation for the new director to understand the business and the operations of the Company as well as understanding the director's role to work efficiency and gain more benefit for the Company. Thus, the Board of Director has set the orientation for new director every time and assigns company secretary to provide the information to the new director.

When Nomination Committee considers the qualified person and proposed to the Board of Director for approval. The Company would provide the important information before and after position as director that separates into three processes (1) during invited to be director (2) after appointing as director from Annual General Meeting (3) before the first of the Board of Director's meeting

7. Self-Assessment of the Board of Directors and Top executives

To be conducted annually, the self-assessment of the Board of Directors and top executives is divided into three parts as follows:

- 1) Self-assessment of individual directors.

It shall be the tool for supporting directors to review their own roles and to guide for development efficiency and effectiveness. Self-assessment of individual directors shall evaluate the following skills:

- | | |
|---------------------------------|---------------------|
| 1. Strategy | 4. Diligence |
| 2. Ethic and Value | 5. Self Development |
| 3. Knowledge in Directors' Role | |

2) Self-assessment of the Board:

The Company applied Self-assessment of the Board from Stock Exchange of Thailand which consisted of

- | | |
|---|---|
| 1. Structure and Character of the Board | 4. Board's performance of duties |
| 2. Role and Responsibility of the Board | 5. Relationship with Management |
| 3. Board Meeting | 6. Self-development of directors and executive development. |

The Self-assessment of the Board and individual directors shall be arranged by the Company Secretary every year. After all directors evaluated both self-assessments, Company Secretary shall gather and summarize for reporting to the Board of Directors Meeting.

3) Self-assessment of top executives

The Company applies the said self-assessment from Stock Exchange of Thailand instruction. The evaluation results will benefit for develop the top executives not only performance but also effectiveness. The self assessment comprises of three sections as follows:

Section 1 Status of Achievement

Section 2 Performance Measure consists of

- | | |
|-----------------------------------|--|
| 1. Leadership, | 6. External Relation |
| 2. Strategy Formulation | 7. Human Resource Management/ Relation |
| 3. Strategy Execution | 8. Succession |
| 4. Financial Planning/Performance | 9. Product/Service Knowledge |
| 5. Relationship with the Board | 10. Personal Character |

Section 3 Development

The Self-assessment of the top Executives shall be arranged by the Company to Executive Committee every year. After all top Executives evaluated self-assessments, Secretary of Executive Committee shall gather and summarize for reporting to the Chairman of Executive Committee (CEO) to use comments and recommendations derived from the assessment to enhance their performance and optimize corporate governance practices.

8. Succession of the Company's Top Executive Management

The Company's Board of Directors gives importance on succession plan to have the Company be always ready to respond in the event that some of directors become incompetent. The Board of Directors will assign the Nomination, Remuneration and Corporate Governance committee to create the succession plan. The succession plan will include development plan for Chairman, or Chief Executive Officer, Chief Technology Officer including top executive management aimed at being always ready and continual operation plan with nominating successor in case of their retirement, or incompetency for continual flow operation.

9. Control over the Use of Internal Information

1. The Company's directors, executives, employees and staff at all levels as prohibited from disclosing or exploiting confidential and/or internal information of the Company for their own or other persons' benefit, either directly or indirectly
2. The Company's directors, executives, employees and staff at all levels as well as their relations are prohibited from using internal information that may affect the value of the Company's securities for either direct or indirect trading, before said information is officially disclosed to the public, regardless of the intended purpose. Those who violate this regulation shall be subjected to disciplinary actions.
3. The Company has acquainted its directors and executives with their duty to report the Company's securities held by themselves or their relatives including changes thereof, to the Office of the SEC. in accordance with Section 59 and penalty provisions of the Securities and Exchange Act, B.E.2535.
4. The Company's directors, executives, employees and staff, as well as their relatives are prohibited from trading the Company's securities during one month period prior to the disclosure of its financial statements to the public.

Therefore, the Company shall announce above matters to directors, executives, employees and staffs.

10. Audit Fee

As the resolution of 2020 Annual General of Shareholders Meeting, it approved A.M.T. Associates being as the Company's auditors and Mr. Chaiyuth Angsuwithaya CPA (Thailand) No.3885, has been audited for first year of the Company. The proposed external auditor is neither a connected person nor a person with conflict of interest. With all due knowledge and independence in auditing, Mr. Chaiyuth Angsuwithaya is also an auditor approved by the Office of the Securities and Exchange Commission (SEC).

In 2019-2020, the Company and its subsidiary paid audit fees as follows;

	2018	2019	2020
Planet Communications Asia Public Company Limited			
- Audit Fees	1,200,000	1,370,000	1,450,000
- Other services	None	None	None
PlanetFiber Co., Ltd. (Subsidiary)			
- Audit Fees	250,000	250,000	200,000
- Other services	None	None	None
PlanetCloud Co., Ltd. (Subsidiary)			
- Audit Fees	-	90,000(1)	20,000
- Other services	-	None	None
Total	1,450,000	1,710,000	1,850,000

Notes : (1) PlanetCloud Co., Ltd. was established on October 2019.

Corporate Social Responsibilities: (CSR)

1 Corporate Social Responsibility and Sustainable Development Policy

Market for Alternative Investment (mai), the Board of Directors realized on Sustainability Development Roadmap: SD Roadmap by the Securities and Exchange Commission (SEC). The said SD Roadmap emphasizing on three points comprising of : (1) CG in Substance: Board and executives drive the company to achieve its performance with good governance and sustainability in real practice, (2) CSR in Process: Responsible to social and environmental concerns that embedded in day-to-day business operation. Change agent that influences others to respect CSR, and (3) Anti-Corruption: Commitment not to initiate or facilitate any corruption practices.

The Board granted the Corporate Governance Policy which realized on direct and indirect corporate social responsibility. The Board also encouraged the Company to participate in Private Sector Collective Action Coalition against Corruption (CAC) in quarter 4/2014.

To ensure in the Company's anti corruption policy, the Company defined responsibilities, practice, and requirement of any business that related to corruption. In 2016, the Company also provided and announced "our Anti- Corruption Policy, Code of Conduct, and Whistle Blowing Policy" in writing. For submit to certify CAC, in 2017, the Company reinforced our Anti-Bribery and Anti-Corruption Policy and all related documents and practices which the details are shown in Anti-corruption Section. Finally, Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) certified the Company as its member on May 17, 2018.

In 2020, the Company maintained and conduct our business under Sustainability Development Roadmap: SD Roadmap as above with our mission on "Commitment to Integrated Services with High Quality Products, Competitive Price, Just-in-Time Delivery, Pre-Sales and After-Sales Supports by Professional Engineering Team, in line with Optimization and Cost Efficiency of Technology for Customer Satisfaction".

With our notion to conduct business with sustainability development, corporate social responsibility, good corporate governance, and capability in risk management. The Company also realizes on not only 8 CSR principles of Securities and Exchange Commission of Thailand (SEC) comprising of: (1) Good governance, (2) Anti-corruption, (3) Respect on Human Rights, (4) Fair labor practices, (5) Responsibilities to consumers, (6) Environmental protection, (7) Community and Social Development Collaboration, and (8) CSR Innovation and Innovative Expansion but also the Global Goals for Sustainable Development (17 SDGs) certified by UN General Assembly at New York that consisted of: 1) No poverty 2) Zero hunger 3) Good health and well-being 4) Quality education 5) Gender equality 6) Clean water and sanitation 7) Affordable and clean energy 8) Decent work and economic growth 9) Build industry, innovation and infrastructure 10) Reduce inequality 11) Sustainable cities and communities 12) Responsible consumption and production 13) Take urgent action to combat climate change and its impacts 14) Conserve water resource 15) Life on land 16) Peace and justice strong institution 17) Partnerships for the goals.

The Company intends to develop our sustainability in Environment, Social, Governance or ESG.

2 CSR-in-Process

The Company has conducted CSR in form of various kinds of social supports, for example, donation and making social merits which is a part of CSR in terms of CSR after Process only. Thus, the Company expands our CSR-in-Process to ESG via our project namely "WE CARE".

The Company started developing CSR in Process in Quarter 4/2014 under the project named "WE CARE", focused in 3Ps including Care People, Care PlanetComm, and Care Planet. The project is social and environmental responsibility policy aimed at cultivating PLANET staff's conscious and awareness in their responsibility for themselves, customers, stakeholders, partners, society and environment.

3 Actions and Report Preparations

Since 2014, our “WE CARE” activities affected both direct and indirect to the Company through 8 CSR principles of Securities and Exchange Commission of Thailand (SEC) and the Global Goals for Sustainable Development (17 SDGs) of UN as follows:

PLANET : “WE CARE” Activities		CSR in Process	CSR after Process	หลักการ CSR* 8 ข้อ	หลักการ SDGs**17 ข้อ
1. Care People					
Happy Money	Providing loaning program /provident fund /annual bonus /uniform for employee	✓		3 , 4	1,2
Happy Soul	Annual merit-making Alms to Buddhist Monk Ceremony	✓		3 , 4	16
Happy Relax	Team Building / New Year Party / Health & Recreation Activities Clubs	✓		3 , 4	10
Happy Family	Employee's family participation in New Year Party/ Granting employee's spouse or children to buy corporate group insurance	✓		3 , 4	10
Happy Brain	Annual training program/ On the job training program	✓		3 , 4	4
Happy Body	Health and recreation activities clubs /corporate group insurance /annual medical check-up	✓		3 , 4	3
2. Care PlanetComm					
Good Place	Good Office's environment, Happy Workplace	✓		4	16
Good Profit	Trusted provider	✓		4 , 5	8 , 9 , 12
Good Governance	Good governance policy/ CSR projects / Anti -Corruption	✓		1 , 2 , 5	12 , 16
Good Reputation	Trusted provider	✓		5	8 , 12
3. Care Planet					
Save Energy	Saving energy, energy saving light bulbs	✓		6	7
Save Paper	Reducing use of paper and printing ink	✓		6	7
Save Society	Donation / Opening for student trainees / Join other social responsibilities with other organizations		✓	7	4
Save Environment	Reducing waste and plastic bottles / wet and dry waste segregation	✓		6	7 , 13

The Management reported the progress of CSR in Process to the Board of Director Meeting every quarter and non-disclosure in Annual Report in accordance with rules and regulations of Stock Exchange of Thailand (SET), and Exchange Commission of Thailand (SEC). However, the Company plans to make the Sustainability Development Report, separately.

4. CSR-after-Process

The Company continues social activities every quarter in form of collaborative activities with other organizations and own activities.

The activities in 2020 as follows:

- Giving desktop calendars for Braille calligraphy production to the Foundation for the Blind in Thailand under the Royal Patronage
- Donating funds for the Children's Hospital Foundation
- Donating funds for Thai with Disability Foundation for the Wheelchair for the Disabled Project
- Donating masks, alcohol gels to relevant hospitals and related organizations

Anti-Bribery and Anti-Corruption

Background

End of 2014, the Company signed on declaration of intent in the Private Sector Collective Action Coalition against Corruption Project. Then, the management improved our operation and internal control to comply with the said anti-corruption concept and the Company granted the first version of Anti- Corruption Policy and Whistle Blowing Policy in 2016.

In 2017, the Company resubmitted declaration of intent in the Private Sector Collective Action Coalition against Corruption Project to ensure that the Company conducted our business under good corporate governance and anti-corruption policy that against both direct and indirect corruption.

Finally, Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) certified the Company as its member on May 17, 2018.

Anti-Corruption Policy

Planet Communications Asia Public Company Limited is the telecommunications and digital TV service provider for designing, commissioning, selling integrated telecommunications and digital TV systems. Our vision has been set clearly with our commitment on creating new future of innovative organization with sustainable economic, social and environmental growth, emphasizing on good corporate governance, transparency, accountability, particularly any relevant processes or risks for corruption in the Company as well as all kinds of direct or indirect corruptions. The Company defines its anti-corruption policy as follows;

1. Directors, Managements, Employees, Stakeholders and Subsidiary are aware of all kinds of direct or indirect corruptions in all businesses, all countries and all relevant organizations. Compliance with the anti-corruption policy and action requirements shall be regularly reviewed in accordance with business change, rules and regulations and legal requirements.
2. Anti-corruption policy measures are an integral part of the business operation and responsibilities of the Company's directors, management, employees, stakeholders and subsidiary to take part in giving opinions about compliance with anti-corruption policy.
3. The Company develops anti-corruption policy to be in accordance with relevant laws including ethical code of conducts. Risk shall be assessed in relevant activities or risks to misconduct and corruptions and arranged as actions guidelines for associated persons.
4. The Company shall not act or support all kinds of bribery for all activities under its custody as well as control for charity donation, donation to political parties and offer for gift and support for activities to be transparent and have no intention to improperly convince the public and private sector.
5. The Company shall properly, regularly organize the internal control to avoid misconducts, particularly sale, marketing and purchasing tasks.
6. The Company shall provide the Company's directors, management and staff knowledge against misconduct and anti-corruption for enhancing honest, good faith and responsibilities as well as showing the Company's commitment.
7. The Company shall arrange the mechanism of transparent and accurate financial statement.
8. The Company shall promote several modes to allow employees and relevant persons are able for whistle blowing and to ensure protection for the whistleblower, without unfair turnover or persecution and nominating personnel monitoring all receiving whistle blowing reports.

Whistle Blowing Policy, Malpractice and Corruption

Objectives

Board committee is aware of the importance of "Whistle blowing Policy" as a tool for the company to acknowledge about unlawful conduct, non-compliance with the Company's rules and regulations and unethical business practices from staff, stakeholders and outsiders which can cause damage to the Company's properties and reputation.

This policy is aimed at making the staff be confident and their whistle blowing report will be seriously responded. The whistleblower's information will be strictly kept confidential to avoid worrisome from unfair actions, for example, revenge or threat and to encourage the staff to report clues or concerning. The Company does not have the policy for demotion, penalty or giving negative effects to staff who denying to corruption.

Confidentiality guidelines

Protecting whistleblowers or information giver acting in good faith, the Company will keep their name, address or any information confidentially. Only persons who in charge of investigating incident will be accessible to the information.

Whistle blowing procedures

The whistle blowing report and investigation process is as follows;

1. Complaint and Whistle Blowing method

Shareholders, employees and stakeholders are able to report clues that offenses against laws, the Company's rules and regulations, business ethics or any incidents which potentially cause harm to Chairman of the Board/ Chairman of the Audit Committee by sending letter by post to the following address or through the Company's website. The Whistle blowing report will be kept confidentially to avoid any disturbance to the whistleblower.

Channel for whistle blowing is as following address:

Chairman of the Board/ Chairman of the Audit Committee
Planet Communications Asia Public Co., Ltd.
157, Ramindra 34, Tha-Raeng,
Bang Khen, Bangkok 10230

Any whistleblowers are able to report for misconduct or non-conformance against the Company's business ethics to the following persons;

- (1) Reliable Supervisor
- (2) Chairman of the Audit Committee
- (3) Chairman of the Board
- (4) Company Secretary

2. Investigation Process

1. The recipient of whistle blowing report will collect information about unlawful conduct, non-compliance with the Company's rules and regulations and unethical business practices or appoint qualified person to proceed the investigation.
2. After collect all factual information, the recipient will send documents and/or evidences to the Chairman of the Board or Chairman of the Audit Committee.
3. The Chairman of the Board or Chairman of the Audit Committee will investigate and analyze the case. In case that information is true as report, the case will be reported to the Company's Audit Committee for further consideration.
4. If the investigation result found no evidence of wrongdoing as per report, no penalty will be imposed by the Company to the whistleblower.
If the investigation result found the evidence of wrongdoing, the penalty such as verbal or written warning, job suspension, discharge or legal proceeding will be applied.
5. The Company will investigate the whistle blowing report independently and fairly until obtain enough information. Disciplinary penalties will be applied follow the whistle blowing and anti-corruption policy.
6. The Company will keep the whistleblower updated about the investigation result for the whistleblower who disclosed the address, telephone numbers, email or other modes of communications. However, the Company may not be able to disclose the investigation process or disciplinary penalty.

3. Protective for whistleblower or complainant

1. The complainant, whistleblower and witness will be protected. Their information will not be disclosed to other persons only to the recipient of the whistleblowing report, the Chairman of the Board or Chairman of the Audit Committee.
2. The Company will protect and not allow the threatening or forcing happen to the whistleblower including to person who cooperate in investigation.
3. In case of the whistleblower is threatened should immediately inform to reliable supervisor for proper protection by depending on seriousness and importance of the whistle blowing issue.
4. The Company's executive or staff is not allowed to discharge, suspend, penalize or threat the whistle blower or complainant for offense or corruption. Any breaching persons will be imposed for disciplinary penalty.
5. The Company will be fair and protect its staff. No demotion, penalty or negative effects will be given to any staff who denied the corruption, although that action will bring to the Company loss of opportunity.
6. This whistle blowing policy will be reviewed and updated as necessary and appropriate at least once a year.
In 2020, The Board of Directors has reviewed the Anti-Corruption Policy and the Anti-Bribery Policy in the Board of Directors's meeting No. 6/2020 on November 12, 2020

Internal Control and Risk Management

The Audit Committee No. 1/2020, held on February 26, 2020 with the Audit Committee, evaluated the Company's internal controls through consulting management. Conclusions were drawn on five aspects of internal controls, summarized as follows:

1. Revenue Cycle
2. Human Resource Management
3. IT General Control
4. After Sale and Support

The Audit Committee has considered the Company to have arranged adequate internal controls with major shareholders, directors, management and all stakeholders, as well as other company operations.

1. Internal Control Management

The Company's Audit Committee has deemed the Company's internal controls and internal audit to be adequate and effective. In terms of the Company's performance, the audit has to be in accordance with SEC announcement and SET rules and regulations. The Audit Committee's meeting is held at least very quarter to consider and manage financial reporting for adequate disclosure. Connected transactions, i.e. transactions with potential conflicts of interests were considered in accordance with related laws and Capital Market Supervisory Board's requirements. An independent auditor attended the Audit Committee Meetings to advise as necessary. Details are shown in Audit Committee Report.

The Company has appointed P&L Internal Audit Co., Ltd. to perform the Company's internal control system since 2011. The auditor reported system evaluations to the Audit Committee every quarter and the Company has always executed improvements as per auditor recommendations

2. Internal Audit's Observation on Internal Control System

In 2020, the Internal Audit observed the Company's operations in major aspects. Improvement suggestions were given for more check and balance in every operating system, led to continuous internal controls and good corporate governance as ultimate goal. The audit showed a suitable internal control system, it was further showed that the Company followed the auditor's remedial suggestions in 2020, auditing and monitoring operation process were conducted by the auditor and following observations were proposed;

Working process	Remarks and Suggestions
Human Resources Management	<ul style="list-style-type: none"> - It is suggested to propose the revised organization structure for the board 's approval - It is suggested to completely review documents for storage - It is suggested to always review the accuracy and completeness of documents before storage
Revenue Cycle	<ul style="list-style-type: none"> - It is suggested to completely review working procedures in line with actual working and covering working process - It is suggested to review and update accounting department structure - It is suggested to review current credit limit of customers and propose for approval by authorized person - It is suggested to completely review customers database in Syteline system - It is suggested to prepare and review all related documents and have them completely signed by authorized persons
IT General Control	<ul style="list-style-type: none"> - It is suggested to review strategic guidelines as well as targets and planning to cover important information technology elements - It is suggested to completely define and review related annual policies, strategies and working plans and internally communicate for strict compliance - It is suggested to completely store important documents - It is suggested to make a complete service contract - It is suggested to always check currently-used copyright programs
After sale and support	<ul style="list-style-type: none"> - It is suggested to propose the key performance indicators for the board's consideration - It is suggested to check to ensure completely signing in the contract - It is suggested to remind related staff not to make any corrections on date in the ASSY system - It is suggested to prepare evidences for following up DEMO - It is suggested to specify the authorization of subsidiary company for giving approval for additional borrows and prepare clear borrowing registration for each company

3. Auditor's Observation on Internal Control System

- None -

Management Discussion and Analysis (MD&A)

1. Overview of Operating Performance

The Company provides telecommunications and digital technology services covering three product categories, namely:

- (1) Distribution of full-ranged products (Solutions) consisting of telecommunication systems, wireless networks, wired network and multimedia systems, as well as television and digital television broadcasting systems and products under the name PlanetComm
- (2) Service, which is a full- range of services including giving consult for customization ,design, installation, training, maintenance services and systems or devices repairs
- (3) Be a service provider, such as, PlanetFiber for providing fiber internet services for condominiums, PlanetCloud for providing "monthly payment", office equipment and systems through Cloud Office

Target customer

The company is engaged in distributing various services and being a service provider for various customer groups including;

- (1) Private agencies such as industrial plants, medium and large companies, banks and financial businesses
- (2) Government agencies such as security agencies, government agency, state enterprises, educational institutions and hospitals
- (3) Television stations
- (4) Telecommunications service providers, such as fixed line service providers, mobile service provider, internet service provider, and satellite communication service providers

Industry situation

Industries that affect the Company's operations include the ICT industry and digital TV industry, both of which play a vital part in the country's infrastructure. The government defined its policy to develop the country into the Thailand 4.0 era for internal competitiveness enhancement. One of the policies is to develop 4G telephone network systems, resulting in greater public and private sector investments in technology and ICT systems. Which are favorable to the Company's growth.

Revenue

The Company's total revenue amounted to 764.29 million Baht in 2018, 849.21 million Baht in year 2019, and 607.07 million Baht in year 2020. The Company's total revenue in 2020 included revenue from sales and service and other revenues, figured as 98.18 % and 1.82%. The Company's revenue can be summarized as follows;

1. Revenue from sales and services

In 2018-2020, the Company earned revenue from sales and services of 749.66 million Baht, 835.15 million Baht, and 596.03 million Baht respectively. In 2020, the revenue was divided into sales of distributed products, services and services provider revenue of 489.98 million Baht, 78.60 million Baht, and 27.45 million Baht respectively.

Revenue from sales and services	2018		2019		2019	
	(Mil. Baht)	%	(Mil. Baht)	%	(Mil. Baht)	%
Revenue from distributed products	535.21	71.39	620.51	74.30	489.98	82.21
Revenue from services	197.12	26.29	184.47	22.09	78.60	13.19
Revenue from services provider	17.33	2.31	30.17	3.61	27.45	4.60
Total revenue from sales and services	749.66	100.00	835.15	100.00	596.03	100.00

Revenue from distributed products

The Company's revenue from 2018-2020 distributed products totaled 535.21 million Baht, 620.51 million Baht, and 489.98 million Baht, respectively of the total sales and services revenue.

Revenue from services

The Company's services revenue comes mostly from maintenance and repair services. In 2018-2020, the Company had services revenue of 197.12 million Baht 184.47 million Baht and 78.60 million Baht respectively, accounted for 26.29%, 22.09%, and 13.19 % respectively.

In 2020, the Company recorded services revenue breakdown as follow;

- Installation services, Rent services, and Repair service of 17.42 million Baht.
- Maintenance service of 61.18 million Baht

Revenue from services provider

Revenue from services provider includes PlanetFiber: Internet Fiber services for condominiums, and PlanetCloud: Monthly for office equipments and systems renting through the Cloud.

In 2018-2020, the Company's revenue from service provider amounted to 17.33 million Baht, 30.17 million Baht and 27.45 million Baht, respectively, accounted for 2.31%, 3.61% and 4.60% of the revenue from sales and services respectively.

In 2020, revenue from as a service provider is as follows:

- Revenue from cloud services in amounted 14.39 million Baht.
- Revenue from internet fiber service for condominiums amounted 13.06 million Baht.

2. Other revenues

In 2018-2020, the Company had other revenue of 14.63 million Baht, 14.05 million Baht and 11.04 million Baht, accounted for 1.90%, 1.65%, and 1.82% of total revenue, respectively.

In 2018, the other revenue was 14.63 million Baht which consisted of interest income 0.31 million Baht, gain on exchange rate 4.57 million Baht, profit for asset sale 7.97 million Baht, and other revenues 1.78 million Baht.

In 2019, the Company's other revenues totaled 14.05 million baht, consisting of profit from its sale of assets of 6.06 million baht and others of 7.99 million baht.

In 2020, the Company's other revenues totaled 11.04 million baht, consisting of profit from its sale of assets of 1.03 million baht and others of 10.01 million baht.

3. Costs and expenses

Main expenses of the Company consist of sales and services costs, sales and administrative expense and interest expense. In 2018-2020, the Company's total costs and expenses amounted to 754.91 million Baht, 846.53 million Baht, and 599.90 million Baht respectively, as per the following details.

Sales and services costs and Gross Profit Margin (GPM)

The sales and services costs are regarded as main expenses of the Company. In 2018, the sales and services cost was 586.46 million Baht, 679.80 million Baht in 2019 and 450.79 million Baht in 2020, accounting for 78.23%, 81.40 % and 75.63 % of total sale and service revenue, respectively. The Company's sales and services cost can be divided into the cost of sales cost distributed products, the cost of services and the cost of services provider. Details are as follows:

Cost of Sales and Services	2018	Gross Margin (%)	2019	Gross Margin (%)	2020	Gross Margin (%)
Cost of Sales	430.78	19.51	563.32	9.22	388.79	20.65
Cost of Services	129.60	34.26	87.98	52.31	36.49	53.58
Cost of Services Provider	26.08	-50.51	28.50	5.55	25.51	7.06
Total	585.94	21.84	679.80	18.60	450.79	24.37

Cost of sales

The sales cost of products distributed by the Company in 2018-2020 amounted to 430.78 million Baht 563.32 million Baht, and 388.79 million Baht respectively, accounted for 80.49%, 90.78%, and 79.35% of total revenue, respectively.

The Gross profit margin of 2018-2020 is 19.51%, 9.22% and 20.65% respectively.

In 2018 the company's gross margin increased slightly from 2017 by 19.51% from 19.50%.

In 2019 the company's gross margin was decreased from 2018 due to the company was sale a big lot of products to the large project with low profit.

For the Year 2020, the company was achieved a normal gross profit of 20.65% from both general sale products and projects.

Cost of Services

In 2018-2020, the Company's service cost was 129.60 million Baht, 87.98 million Baht, and 36.48 million Baht respectively. These costs include the cost of services, the cost of warranty and maintenance paid to manufacturers or distributors, the cost of salaries for post-sale service department and amortization. In 2018-2020, the Company's GPM from services was 34.26%, 52.31%, and 53.58% respectively.

Cost of service providers

Cost of a service providers consists of rental fees for using various networks to connect to the Internet And depreciation of investment equipment used for service in 2018-2020, the cost of services were 26.08 million baht, 28.50 million baht and 25.51 million baht, respectively. Service provider gross margins in 2018-2020 were (-50.51%), 5.55% and 7.06%, respectively.

Service providers cost in 2020 can be classified by type of revenue as follows:

- Cost of providing services via cloud amounted to 6.29 million baht with a gross profit of 56.29%.
- Cost of providing high-speed internet service for condominiums amounted to 19.22 million baht with a gross profit (-47.19%).

Sales expense

The Company recorded sales expense in 2018 of 54.81 million Baht, 45.75 million Baht in 2019, and 35.77 million Baht in 2020, equal to 7.17%, 5.39% and 5.89 of total revenue respectively.

In 2020, the Company's sales expense decreasing 9.98 million Baht from previous or, about 21.81 %. The decrease comes from sales representative expense, commission and sales promotion.

Administrative expense

In 2018-2020, the Company's administrative expense was 100.63 million Baht, 104.36 million Baht, and 94.93 million Baht representing 13.17%, 12.29%, and 15.64% respectively of total revenue.

In 2020, the Company's administrative consisted of 52% for personnel expenses, 26% for operation expense, 18% for depreciation, and 4% for rentals expense. Administrative expenses for the year 2020 was 3.73 decreased from the previous year amounted 9.43 million Baht. Due to the decreasing of the remuneration for employee benefits. The recording of long-term leasehold rights as an asset resulted in lower rental rents and other operating expenses decrease due to the Company's cost control. During from COVID-19 situation.

Financial expense

In 2018-2020, the Company incurred financial expense of 13.02 million Baht, 16.62 million Baht, and 18.41 million Baht accounting for 1.70 %, 1.96 % and 3.03 % respectively of total revenue. Finance expense comprised of interest expense from use of L/I, P/N and LC/TR loans, which were current loans for domestic and international purchase orders, long term loan for investment with finance institutes, and bank fee.

In 2020, The Company's financial expenses increased from the previous year by 1.79 million baht , arisen from the Company's payment for front end fees and more paid interest from Trust Receipt loans. This was of interest in long-term leases of 3.67 million baht and a 1.88 million baht decrease in bank fees.

Net Profit and Net Profit Margin (NPM)

In 2018, the Company's net profit amounted to 5.88 million Baht or 0.77% of total revenue. In 2019, the company had a net loss of 1.00 million Baht and other comprehensive losses from re-measurement of employees' benefits on actuarial science principle of 0.02 million baht, resulting in total comprehensive loss for the year 2019 equal to 1.02 million baht, equal to Percentage (0.12) of total revenue. In 2020, the Company's net profit amounted to 2.44 million Baht or 0.40% of total revenue.

Return on equity

The return on equity ratio was 1.44% in 2018, -0.24% in 2019, and 0.59% in 2020. The Company did not paid dividend due to continuous losses in 2018. The company had its net profit of 5.88 million baht. No dividends are paid, because it was the first year when the Company's net profit returned and the amount was not much which needed to be used in the Company's operation. In2019, the Company had net loss, therefore, dividends cannot be paid. In 2020, the Company had net profit 2.44 million baht, which after deducting accumulated loss carried forward of 1.36 million baht, remaining 1.08 million baht, therefore unable to pay dividends.

2. Financial Position

(a) Assets

In 2018-2020, the Company's total year-end assets amounted to 813.75 million Baht, 893.86 million Baht, and 807.75 million Baht respectively. Key assets include trade receivables and other account receivables, inventory, land, plant and equipment. In 2020, the key assets to total asset ratios were 33.97 %, 22.12 %, and 16.47 % respectively. In 2020, The company's total assets decreased by 86.11 million baht as a result of an decrease in trade receivables. The details of assets can be summarized as follows;

Assets	As of December 31,2018		As of December 31,2019		As of December 31,2020	
	ล้านบาท	ร้อยละ	ล้านบาท	ร้อยละ	ล้านบาท	ร้อยละ
Current Assets						
Cash and Cash Equivalents	25.42	3.12	34.31	3.84	31.54	3.90
Trade and Other Receivables - Net	273.98	33.67	448.78	50.21	274.37	33.97
Accrued Income	106.26	13.06	75.86	8.49	178.68	22.12
Inventories - Net	95.62	11.75	58.87	6.59	46.61	5.77
Advances for Purchases of Goods	22.12	2.72	22.04	2.47	9.20	1.14
Other Current Assets	-	-	1.09	0.12	10.55	1.31
Total Current Assets	523.40	64.32	640.96	71.71	550.95	68.21
Non - Current Assets						
Restricted deposits at Financial Institutions	53.90	7.85	21.40	2.39	21.40	2.65
Land, Building and Equipment	154.55	18.99	166.46	18.62	147.19	16.47
Intangible Assets - Net					56.68	6.34
deferred Tax Assets	12.90	1.59	12.19	1.36	9.97	1.12
Other Non - Current Assets	11.53	1.42	7.85	0.88	7.54	0.84
Total Non - Current Assets	47.47	5.83	45.01	5.04	14.02	1.57
Total Assets	290.35	35.68	252.91	28.29	256.80	31.79
	813.75	100.00	893.86	100.00	807.75	100.00

Trade and other receivables

The Company had trade receivables before doubtful accounts deduction amounted 268.14 million Baht at year end 2018, 434.28 million Baht at year end 2019 and 291.90 at year end 2020 figured as 32.95 %, 48.58 %, and 32.42 of total assets respectively. The Company has a policy to grant a credit terms from 30-90 days to general customers. At year end of 2018-2020, the Company recorded an average collection period of 152.66, days155.23 days, and 221.42 days respectively.

สินทรัพย์	As of December 31, 2018		As of December 31, 2019		As of December 31, 2020	
	Mil.Baht	%	Mil.Baht	%	Mil.Baht	%
Undue	74.38	27.74	51.67	11.90	197.70	75.49
Overdue						
Less Than 3 months	30.33	11.31	96.58	22.24	40.47	15.45
3 – 6 months	0.97	0.37	192.62	44.35	5.88	2.24
6 – 12 months	88.69	33.08	1.30	0.30	3.22	1.23
Over than 12 months	73.77	27.50	92.11	21.21	14.63	5.59
Total trade receivable	268.14	100.00	434.28	100.00	261.90	100.00
Less Allowance for doubtful Account	(7.41)		(7.24)		(6.66)	
Total Net trade receivable	260.73		427.04		255.24	
Other receivables	3.79		9.33		19.13	
Total Net trade receivable and other receivable	264.52		436.37		274.37	

The above table indicates that paid or undue receivables of the Company as of 2018-2020 years ends accounted for 27.74, 11.90 %, and 75.49 % respectively of total trade receivables, before allowances for doubtful accounts. During these year-end periods, receivables that were less than 3 month overdue amounted to 30.33 million Baht, 96.58 million Baht and 40.47 million Baht, accounted for 11.31%, 22.24 % and 15.45 %, respectively of total trade receivables, before allowance for doubtful accounts; those that were to 3 to 6 months amount of 0.97 million Baht 192.62 million Baht and 5.88 million Baht respectively or overdue accounted for 0.37%, 44.35 % and 2.24% respectively of total trade receivables, before allowance for doubtful accounts.

However, there was more than 12 months overdue receivables from 2019-2020 amount of 73.77 million Baht 92.11 million Baht and 14.63 million Baht respectively. Regarding its allowance for doubtful account policy, the Company estimates potential loss incurred from a simplified model for each debtor based on creditability, organizational stability, payment history, aging profile and the prevailing economic circumstances. Debtors are divided into two main types as follows

1. Government agencies and state enterprises for which no allowance is made.
2. Private organizations, for which the Company will consider allowance based on the period in default.

The allowance is estimated as a percentage of the debt value in default as follows;

(No. of default Days)	Allowance for doubtful account rate
> 180 days	20% of total default debts
> 240 days	40% of total default debts
> 365 days	100% of total default debts

The allowance for doubtful account policy, the Company has set allowance for doubtful of 2018-2020 amount of 7.41 million Baht 7.24 million Baht and 6.66 million Baht respectively

Inventory

At 2018-2020 year-ends, the Company had inventory, before allowance for diminution in value of inventory, amounted to 112.51 million Baht, 71.98 million and 61.46 million Baht respectively mostly with finished goods accounting for 78.64 %, 66.57 % and 74.15%, respectively. The Company must retain sufficient stock of certain goods based on customer demand, e.g. audio conference system, Telepresence systems, etc.

At the end of 2018, the value of finished goods decreased by 100.97 million baht from the remaining 2017 at 88.48 million baht, most of which were the Set Top Box with great sales. In 2019, finished goods decreased from 2018 by 40.56 million baht, remaining 47.92 million baht. And in 2020, finished goods similar to 2018 by remaining 45.58 million baht.

Inventory	As of December 31, 2018		As of December 31, 2019		As of December 31, 2020	
	Mil. Baht	%	Mil. Baht	%	Mil. Baht	%
Finished goods	88.48	78.64	47.92	66.57	45.57	74.15
Work in process	11.92	10.59	19.35	26.88	8.79	14.30
Spare parts and Supplies	0.36	0.32	-			
Good in Transit	11.76	10.45	4.71	6.55	7.10	11.55
Total inventories	112.51	100.00	71.98	100.00	61.46	100.00
Less : Reduce cost to net realisable value	(16.89)		(13.11)		(14.85)	
Total net inventories	95.62		58.87		46.61	

In determining an allowance for diminution in value of inventories, the management is required to make estimates of the loss on damaged and slow moving inventories, and the net realizable value of inventories, as well as technology disruption. The Company reserved for allowance 16.89 million Baht at the end of 2018, 13.11 million Baht at the end of 2019, and 14.85 million Baht at the end of 2020.

The policy of allowance for diminution in value of inventories is as follows:

Age of inventory	Rate of allowance for diminution in value of inventories	Value of Inventory as of December 31, 2020 (Mil. Baht)	(Value of allowance for diminution in value of inventories as of December 31, 2020) (Mil. Baht)
1-2 years	10%	1.86	0.18
2-3 years	20%	3.23	0.65
3-4 years	30%	11.48	3.45
4-5 years	40%	5.39	2.16
5 years and over *	100%	13.79	8.41

Leasehold improvement and Equipment - NET

The Company's Leasehold improvement and Equipment totaled 154.55 million Baht at the year-end 2018, 166.46 million Baht at the year-end 2019, and 147.19 million Baht at the year-end 2020 figured as 18.99 %, 18.62 %, and 18.22 % respectively.

In 2018, the Company invested 15.64 million Baht for test equipment, 1.13 million Baht for office equipment and 15.14 million Baht for asset in installation.

In 2019, the Company invested 7.14 million Baht for test equipment, 2.09 million Baht for office equipment and 12.86 million Baht for transportations.

In 2020, the Company invested 6.82 million Baht for fiber-optic installation asset, 1.96 million Baht for office equipment and 0.63 million Baht for office equipment.

Intangible Assets

The Company separated intangible assets from equipment. In 2018 -2020, the Company's intangible assets amounted 12.90 million Baht, 12.19 million Baht and 9.97 million Baht or 1.59%, 1.36% and 1.23% respectively of total asset. The Company's intangible assets was software for process management and control.

(b) Liquidity

Cash flow

In 2018-2020, the Company recorded cash flows from operations of 127.38 million Baht -122.55 million Baht, and 239.73 million Baht respectively. The cash flow from operations in 2018 increased 60.51 million Baht due to the reduced of inventory. In 2019; the negative cash flow was 125.55 million baht, mainly due to an greater accounts receivables and payment of creditors. In 2020, the cash flow increased significantly as a result of the large debtors paying off their debt, an increased in payables and the advance received from the contracts

The cash flow from the Company's investing activities in 2018-2020, was -31.52 million Baht and 40.99 million Baht, and -8.68 million Baht respectively. In 2018, the Company cash flow used for equipment and intangible asset at 26.55 million Baht and restricted deposits at finance institutions increasing of 6.56 million Baht. And in 2019, the Company received from investment, cash of 40.99 million baht due to decrease of the restricted deposits, and in 2020, the Company cash flow used for equipment 8.70 million baht.

The cash flow from the Company's financing activities.

In 2018, cash flow from financing activities was 86.28 million Baht from short-term loan payment was 75.92 million Baht and payment for interest 10.88 million Baht.

In 2019, the Company spent cash for financing 92.90 million Baht. The main reason was is expenditure of short-term loan for big purchases.

In 2020, cash flow from financing activities was 233.82 million Baht, from short-terms loan 208.38 million Baht and payment for interest and debts from the contracts was 25.10 million Baht.

(Unit : Million Baht)	2018	2019	2020
Cash Flow from (used in) operating activities	127.38	(125.55)	239.73
Cash Flow from (used in) investment activities	(31.32)	40.99	(8.68)
Cash Flow from (used in) finance activities	(86.28)	92.90	(233.82)
Net increase (decrease) in cash and cash equivalents	9.78	8.34	(2.77)

Liquidity ratios

As of 2018-2020 year end, the Company recorded a current ratio of 1.39 times 1.42 times, and 1.80 times, respectively and a quick ratio of 1.14 times, and 1.26 times, and 1.65 times, respectively.

The Company's cash cycle was 174.41days in 2018,149.02 days in 2019, and 197.51 days in 2020. The significant reduction of cash cycle were (1) average sale period decrease was 85.67 days in 2018, 41.48 days in 2019 and 42.70 days in 2020 (2) collection date decrease from 2018 -2020 were 152.66 days, 155.23 days, and 221.42 days, respectively. In 2020, the significant increase was due to the large projects with the government sector delays in payments affecting the cash cycle period.

	2018	2019	2020
Current ratio (time)	1.39	1.42	1.80
Quick ratio (time)	1.14	1.26	1.65
Average collection period (days)	152.66	155.23	221.42
Average sales period (days)	85.67	41.48	42.70
Payment period (days)	63.91	47.68	66.61
Cash Cycle (days)	174.41	149.02	197.51

(C) Source of fund**Liabilities**

At 2018-2020 year end, the Company had total liabilities of 400.70 million Baht, 481.83 million Baht, and 398.28 million Baht, respectively. The Company's liabilities structure, most of its liabilities were current liabilities used in business operations, which was 94.01% of total liabilities in 2018, 93.85% of total liabilities in 2019, and 77.73% of total liabilities in 2020 year end.

In 2020, the most current liabilities included loans from financial institutions, which mostly are overdraft and LC/TR and trade receivable of 58.53% of total liabilities in 2020 year end.

Shareholder's equity

In 2018 year end, the shareholder's equity was 413.05 million Baht, as 12.66 million Baht increased from 2017 because of the Company's net profit of 5.88 million Baht and other comprehensive profit of 6.78 million Baht.

In 2019 year end, the shareholder's equity was 412.04 million Baht, as 1.02 million Baht decreased from 2018 because of the Company's net loss of 1.00 million Baht. and other comprehensive net loss of 0.02 million Baht.

In 2020 year end, the shareholder's equity was 414.47 million Baht, as 2.44 million Baht increased from 2019 because of the Company's net profit.

Capital Structure

In 2018 – 2020 year end, the Company's debt to equity ratio was 0.97 times, 1.17 times, and 0.95 times,. The Company's capital structure was not much difference because the Company's liability are short-term loan from finance institute and trade payable which were limited credit.

Financial Ratio

Financial Ratio		2018	2019	2020
Liquidity Ratio				
Current Ratio	(Time)	1.39	1.42	1.80
Quick Ratio	(Time)	1.14	1.29	1.65
Cash Flow Ratio	(Time)	0.32	(0.30)	0.63
Account Receivable Turnover	(Time)	2.39	2.31	1.65
Average Collection Period	(Days)	152.66	157.94	221.42
Inventory Turnover	(Time)	4.26	8.80	8.55
Average Days Sale	(Days)	85.67	41.48	42.70
Account Payable Turnover	(Time)	5.71	7.65	5.48
Average Payment Period	(Days)	63.91	47.68	66.61
Cash Cycle	(Days)	174.41	151.73	197.51
Profitability Ratio				
Gross Profit Margin	(%)	21.84	18.60	24.37
Operating Profit Margin	(%)	1.23	0.32	1.18
Other Income Margin	(%)	1.91	1.65	1.82
Cash to Make a Profit Ratio	(%)	568.53	(650.46)	937.12
Net Profit Margin	(%)	0.77	(0.12)	0.40
Return on Equity (ROE)	(%)	1.44	(0.24)	0.59
Efficiency Ratio				
Return on Assets	(%)	0.71	(0.12)	0.29
Return on Fixed Asset	(%)	21.63	15.96	19.19
Total Asset Turnover	(Time)	0.92	0.99	0.71
Financial Policy Ratio				
Debt to Equity Ratio	(Time)	0.97	1.17	0.95
Interest Coverage Ratio	(Time)	3.93	2.83	2.89
Coverage Obligation	(Time)	0.82	(3.44)	0.97
Dividend Payment	(%)	-	-	-

3. Key factors and influences that affect the operations and financial status in the future

- None -

4. Non-Finance Key Performance Indicator

The Company offers comprehensive services related to the design, installation and sales of telecommunications and broadcast / digital TV systems along with associated products including provides lease service for Passive Fiber Optic Component for client accessibility. Thus, the Company has annual customer satisfaction survey which is the one of Non-Finance Key Performance Indicator. From 2018-2020, the results of our customer satisfaction were 99.41%, 99.46% and 100%, respectively.

Connected Transaction

1. Nature of Relationship

The Company has had connected transactions with persons that may cause a conflict of interest. These persons include shareholders and/or executives as well as related companies. This refers to companies that may have a conflict of interests or have relationship with shareholders and executives of the Company. Relationships are summarized as follows:

Person that may have a conflict of interest	Nature of Relationship
P&T Asset Co., Ltd.	<ul style="list-style-type: none"> - The same directors include Mr. Prapat Rathlertkarn and Mr. Trevor John Thompson. - Operate property leasing business with the same shareholders. Mr. Prapat Rathlertkarn and Mr. Trevor Thompson (including related persons) collectively hold 63.16% of share of the Company as of December 31, 2018 and hold the 99.94% of shares in P&T Asset as of December 31, 2020.
Mr. Prapat Rathlertkarn*	<ul style="list-style-type: none"> - Serves as vice chairman, president and chief executive officer of the Company and Company Secretary. - Holds 78,950,000 shares in the Company (including holdings of related persons), accounting for 31.58% of the total paid-up shares of the Company as of December 31, 2020.
Mr. Trevor John Thompson*	<ul style="list-style-type: none"> - Serves as vice chairman, president and chief technology officer of the Company. - Holds 78,950,000 shares in the Company (including holdings of related persons), accounting for 31.58% of the total paid-up shares of the Company as of December 31, 2020.

Note : Mr. Prapat Rathlertkarn and Mr. Trevor John Thompson have entered into an agreement with the Company affirming that they would not operate any business that competes with the Company. This extends to assuming the role of a partner, major shareholder or director of any company whose business competes with the Company. All management executives have also entered into an agreement with the Company, affirming that while they are employed by the Company, they cannot operate any business that is of the same nature and compete against the Company. This includes being a partner, major shareholder or director of any company whose business competes with the Company. For at least one year, executives cannot be employed by any company that compete with the Company and will not disclose any information about the Company, including the products sold and the products for which the employee was responsible. These terms and conditions are specified in the Non-Disclosure Agreement, into which Company employees have been entered. Evidence of damages to the Company directly or indirectly due to employees such as utilizing its confidential knowledge or customer database, or bidding against the Company can result in litigation against said employee. If PlanetComm is aware of the former employee's new workplace or business, the Company will coordinate with and inform the new employer that the Company may claim damages in order to protect its business operations.

2. Details of connected transactions

As at December 31, 2020, the details of connected transactions are disclosed in the note number 4 of the financial statements as follows

(1) Sales and general administration

Person that may have a conflict of interest	Nature of transaction	Transaction Value (Mil. Baht) 2020	Nature and justifications of transactions
1. P&T Asset Co., Ltd.	Leasing	14.32	<p>1. Leasing of building. Total area is 3,269 square meters leased at 1,013,739 Baht per month. The Company leases the building from P&T Asset for office space. The lease rate is in accordance with an SEC approved independent appraiser. The 3-year lease agreement is effective from January 1, 2018 to December, 2020, after which the Company can renew the agreement for another 3 year term. The lease rate of the second agreement (January 1, 2021-December 31, 2023) will be increased by 10% (in accordance with the appraisal report dated September 14, 2017 by American Appraisal (Thailand) Company Limited approved by the SEC.)</p> <p>2. Leasing of warehouse. Total area is 430 square meter. Lease rate is 51,600 Baht per month from November 1, 2017 to October 31, 2020. The Company has the right to renew the agreement for another three years. The lease rate will be increased by 10% (in accordance with the appraisal report dated November 3, 2014 by American Appraisal (Thailand) Company Limited).</p> <p>3. It is a rental cost for 528 sq.m Storage Building, with rental rate at 220 Baht per sq.m. in total of 116,160 Baht per month. Duration of renting is three years and the renting will be increasing every three years at 5%. The Contract starts date on 01 January 2017 until 31 December 2019 (As according to the Appraisal Report of American Appraisal (Thailand) Limited dated 09 January 2017).</p> <p>P&T Asset agrees to extend the lease for another 3 years if the lease rate is at market rate. If the market rate is not available, the Company would engage and SEC-approved independent appraiser to appraise a new lease rate. If the new lease contract is in accordance with the rate appraised by the independent appraiser, P&T Asset agrees to extend the lease contract for another 3 years. The lease extension will be proposed to the Board of Directors. Members of the Audit Committee need to be present at all meetings to consider the approval</p>

2. Pledge transactions

Person that may have a conflict of interest	Transaction value (Mil. Baht)			Person that may have a conflict of interest
	2018	2019	2020	
P&T Asset Co., Ltd.	Mb. 490.00	Mb. 500.00	Mb. 500.00	The mortgage of the P&T Asset building has no associated compensation from the Company. The transaction is deemed appropriate and was executed because it helped the Company in securing a loan from a commercial bank for working capital.

3. Measures or procedures for approving transactions

The Company defines measures to govern connected transactions executed between the Company and persons who may have a conflict of interest. The Audit Committee reviews the justifications of a transaction by considering whether they are in line with normal business transactions and by comparing with the market price for similar transactions. If the Audit Committee does not possess expertise in reviewing the transaction, the Company would appoint an independent specialist, e.g., an external auditor, a property appraiser or a law firm, to review and report on the transaction for consideration by the Audit Committee. The Committee will then submit the transaction proposal for approval by the Board of Directors or the shareholders.

In addition, the Company does not allow its executives and stakeholders that are involved either directly or indirectly to participate in approving connected transactions. The Board ensures that the Company is in compliance with the Securities and Exchange Act, as well as, rules, regulations, instructions or conditions stipulated by the Capital Market Supervisory Board and the SET. This includes regulations relating to the disclosure of transactions and acquisition or disposal of material assets owned by the Company and its subsidiaries, as well as financial reporting standards stipulated by the Federation of Accounting Professors and the Thai Certified Public Accountants. Transaction shall be disclosed in the notes to the financial statements reviewed and audited by the Company's external auditor.

4. Future connected transactions

The Company may continue to execute connected transactions considered to be part of normal businesses operations. The Company defines a clear policy on transactions where prices and terms are similar to transactions executed with unrelated persons and companies, including property leasing and loan pledges. The Audit Committee considers transactions in accordance with rules and its justifications on a quarterly basis.

The Audit Committee also reviews transactions that may not be considered normal business practice and indicates reasons for the transaction before execution. The Committee strictly follows the aforementioned measures and approval process. Nevertheless, as for future transactions that may constitute a conflict of interest, the Board would ensure that the Company is in compliance with the Securities and Exchange Act, as well as, rules, regulations, instructions, or conditions stipulated by the Capital Market Supervisory Board and the SET. This includes regulations relating to the disclosure of transactions and the acquisition or disposal of material assets owned by the Company and its subsidiaries, as well as financial reporting standards stipulated by the Federation of Accounting Professions and the Thai Certified Accountants.

Management's Responsibility for the Financial Statements

The Management gives importance on conducting the company's duties and responsibilities in line with good governance policy, preparation of accurate and complete information for financial statements and financial information technology in the annual report. The company's Financial Statements are prepared in accordance with generally accepted accounting principles. The company selects to implement appropriate accounting policies and consistently complies with them with careful judgment. Efficient internal control system is implemented to ensure credibility of financial statements, good security system for assets protection, good preventive system against corruption and misconduct. Some related items potentially causing conflict of interests all are commercial real lists based on generally reasonable and optimal business transactions and legal compliances which the inspecting committee has reported the company's Board of Directors, operation results including their comments given and shown in the company's annual report.

The company's Board of Directors considers that the company's internal control system is satisfactory level and provides reasonable confidence in credibility of the company's financial statements as at December 31, 2020. The company's auditor performs his/her audit, based on generally accepted accounting principles with his/her opinion given for accurate financial statements significantly in accordance with generally accepted accounting principles.



Dr. Ruttikorn Varakulsiripunth
Chairman, Board of Directors



Mr. Prapat Rathlertkarn
President & Chief Executive Officer

Signed on February 25, 2020

Audit Committee Report

The Company's Audit Committee consists of four qualified Independent Directors which one of them is expertized and experienced in accounting and financing. The Audit Committee's responsibilities are assigned by the Company's Board of Directors, in line with notifications by Capital Market Supervisory Board and rules and regulations by Stock Exchange of Thailand.

In 2020, there were five times of Audit Committee's meeting completely attending the meeting which constituted a quorum. The Audit Committee's report made on quarterly basis. Discussions and reviews made by the Audit Committee, Executives, Internal Auditor and related Auditors were concluded as follows;

1. Financial Statements and Non-Financial Statements Review

The Audit Committee, Executives, Internal Auditor and related Auditors collectively reviewed quarterly and annual 2020 financial statements of Planet Communications Asia Public Company Limited. without presence by Administrative Department. The purpose of this review was to discuss about independence of responsibilities, auditor's opinions, inquiry to auditor about accuracy of financial statements, significant adjustment of financial statements which affect its financial statements in terms of properness of accounting entries and scope of audit. Disclosure of accurate, complete information and independence of auditor ensures that the financial statements was prepared in accordance with generally accepted accounting principles and related rules and regulations, accurate and reliable accounting system and financial statements including adequate and in-time disclosure for the benefit of investors and financial statements users. The Audit Committee reviewed operating performances of each department and compares its action plan and operating performance by inquiring issues, giving opinions, determining solutions to ensure proper and transparent operations.

2. Review on Risk Management Assessment

The Audit Committee reviewed to ensure that Company's risk management assessment is in compliance with its risk management policy and follow up progress of key risk management by determining risk factors. Potential effects on risk management make the Company reliable on its systematic risk management assessment and make the system comprehensive for all employees for the Company's value-added business.

3. Corporate Governance Review

The Audit Committee reviewed the Company's compliance with code of ethics and corporate governance. It was concluded that the Company's directors and employees strictly complied with its corporate rules and regulations. The Company's Board of Directors enhanced its staff at all levels to be consistently and continuously adhered to code of ethics and moral, in line with the principles by the Stock Exchange of Thailand for transparency and ethics, led to confidence by its shareholders, investors, customers, partners and all related parties.

4. Internal Control System Review

The Audit Committee reviewed internal control system to assess adequacy and properness of internal control system in accordance with internal control standards and guidelines stipulated by The Securities and Exchange Commission and the Stock Exchange of Thailand as well as review on audit results as per the approved audit plan and audit report. The Company's executives continuously monitored actions as per its recommendations, comments and the Audit Committee's opinions shown in the audit report including internal control improvements to be in accordance with changing situations. The result of internal control review showed no significant weakness or defections. It was determined by the Audit Committee that the Company's implemented internal control system and risk management system is adequate and proper. Internal control system was also assessed by auditor. The result showed no significant weakness potential affecting the Company's financial statements.

5. Review on Related Business Laws Compliance

The Audit Committee reviewed the Company's compliance with laws on Securities, rules and regulations by the Stock Exchange of Thailand and The Securities and Exchange Commission and other relevant laws on business. The result was the Company's compliance with relevant applicable laws.

6. Review on connected transactions or transactions potentially with conflict of interest

The Audit Committee reviewed the said transaction and determined that the Company's transaction was general, reasonable trading transaction free from conflict of interest and in accordance with the rules and regulations by Stock Exchange of Thailand and The Securities and Exchange Commission.

7. Review on compliance with anti-corruption measures

The Audit Committee reviewed internal control measures, as well as compliance with anti-corruption measures. Risks management and gave necessary guidelines. The Company was accepted for membership on the projects of Sector Alliance on Anti-Corruption on May 17, 2018. The internal audit in the last years included a review for internal control system to ensure that adequate and proper compliance with anti-corruption measures.

8. Appointment of Auditor

Considering knowledge, experience, competency, qualification and operating performance of A.M.T. & Associates for the past accounting year, A.M.T. & Associates is dependent and experienced in auditing the Company's financial statement under accuracy and reliability. In the Company's Shareholder's Meeting, the Audit Committee proposed to the Company's Board of Directors to review and appoint staff of A.M.T. & Associates. as the Company's auditor in 2020 including Mr. Chaiyuth Angsuwithaya as a holder of the certificated registration no. 3885 or Mrs. Natsarak Sarochanunjeen as a holder of the certificated registration no.4563 or Ms. Daranee Somkamnerd as a holder of the certificated registration no. 5007 or Ms. Jarunee Nuammae as a holder of the certificated registration no.5596 for further consideration.



Dr. Wichai Laomatvanich
Chairman, Audit Committee
Planet Communication Asia Public Company Limited
February 25, 2020

FINANCIAL STATEMENTS

INDEPENDENT AUDITOR'S REPORT

To The Shareholders and Board of Directors of Planet Communications Asia Public Company Limited

(1) Opinion

I have audited the consolidated financial statements of Planet Communications Asia Public Company Limited and its subsidiaries (the "Group") and the separate financial statements of Tongkah Harbour Company Limited (the "Company") which comprise the consolidated and separate statements of financial position as of December 31, 2020, and the related consolidated and separate statements of changes in equity, income, comprehensive income, and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of Planet Communications Asia Public Company Limited and its subsidiaries and of Planet Communications Asia Public Company Limited as of December 31, 2020, and financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards ("TFRSs").

(2) Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing ("TSAs"). My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of my report. I am independent of the Group in accordance with the Federation of Accounting Professions under the Royal Patronage of his Majesty the King's Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

(3) Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Key Audit Matters included Audited Procedures are as follows:

Revenue from sales of equipment including designation and installation

Planet Communications Asia Public Company Limited ("the Company") has revenue from sales of equipment including designation and installation for the year ended December 31, 2020 of Baht 490 million. The Company recognized revenue when performance obligations satisfied over the period of the contract using an input method to measure progress towards complete satisfaction of that performance obligation by reference to the actual cost of services provided incurred to the end of the period as a proportion of the total cost of services expected to be provided at completion of the performance obligation under the term of contract. The recognition of revenue, therefore, relies on estimates on the progress towards completion of the performance obligation satisfied under each contract. Profit or loss on contracts is a key risk for the audit because of the judgment involved in preparing suitable estimates of the forecast service costs on such contracts which could affect the amount of revenue recognized in the year ended December 31, 2020.

My Audited Procedures to the Key Audit Matters

My audit procedures included understanding of the revenue recognition process and the selecting samples of the revenue contracts that could have a significant impact on the Group's financial results in order to:

- Read the contracts to consider the conditions relating to revenue recognition.
- Inquiring management about revenue recognition and project cost estimates.
- Assess the appropriateness of Management's estimated total cost of services, including the assumptions used by management by verification with reliable sources of external and internal audit evidence.
- Examine the accounting transactions related to revenue recognition that were recorded through journal vouchers, in order to detect any irregularities.
- Verify the service costs incurred with purchase documents.
- Test the calculations of the actual cost of services provided incurred to the end of the period as a proportion of the total cost of services expected to be provided at completion of the performance obligation under the term of contract.
- Compare the progress toward complete of performance obligation satisfied with the information from the Management.

(4) Other matter

The financial statements of Planet Communications Asia Public Company Limited for the year ended December 31, 2019 audited by other auditor in accordance with auditing standards, and expressed an unqualified opinion on those statements in her report dated February 26, 2020. The statements of financial position as of December 31, 2019, as presented herein for comparative purposes, formed an integral part of those financial statements. I have not performed any other audit procedures subsequent to the date of the above report

(5) Other Information

Management is responsible for the other information. The other information comprise the information included in the annual report of the Group, but does not include the financial statements and my auditor's report thereon, which is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I do not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to those charged with governance and the management of the Group.

(6) Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

(7) Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current year and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.



(Chaithuth Angsuwithaya)

Certified Public Accountant Registration No. 3885

A.M.T. & ASSOCIATES Bangkok, Thailand

February 25, 2021

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

STATEMENT OF FINANCIAL POSITION

AS AT DECEMBER 31, 2020

Baht

	Note	Consolidated Financial Statement		Separate Financial Statement	
		As at December, 31 2020	As at December, 31 2019	As at December, 31 2020	As at December, 31 2019
ASSETS					
CURRENT ASSETS					
Cash and cash equivalents	5	31,535,783	34,308,974	25,816,657	32,338,029
Trade and other current receivables					
Trade receivables - others - net	6	255,236,006	427,040,264	255,236,006	427,040,264
Other receivables - related parties	4.2	-	-	17,814,164	6,123,545
- others	7	19,136,275	21,739,063	18,854,199	21,550,323
Current contract assets	8	178,684,438	75,855,850	178,684,438	75,855,850
Supplies, net	9	46,613,718	58,867,942	46,613,718	58,867,942
Advances for purchases of goods		9,202,587	22,046,062	9,172,587	21,996,036
Other current assets	10	10,546,730	1,094,187	2,122,850	1,091,085
Total Current Assets		550,955,537	640,952,342	554,314,619	644,863,074
NON-CURRENT ASSETS					
Restricted bank deposits	11	21,400,000	21,400,000	21,400,000	21,400,000
Investment in subsidiary	12	-	-	131,999,940	6,249,963
Property, plant and equipment, net	13	147,186,416	166,462,297	33,239,000	166,058,331
Right of use assets	14	56,683,531	-	56,683,531	-
Intangible assets, net	15	9,974,120	12,185,882	9,974,120	12,185,882
Deferred tax assets	23.3	7,537,882	7,853,419	7,416,176	7,752,151
Other non-current assets		14,019,328	45,010,388	14,019,326	45,010,388
Total Non-Current Assets		256,801,277	252,911,986	274,732,093	258,656,715
TOTAL ASSETS		807,756,814	893,864,328	829,046,712	903,519,789

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
STATEMENT OF FINANCIAL POSITION
AS AT DECEMBER 31, 2020

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	Note	Consolidated Financial Statement		Separate Financial Statement	
		As at December,31 2020	As at December,31 2019	As at December,31 2020	As at December,31 2019
LIABILITIES AND SHAREHOLDER'S EQUITY					
CURRENT LIABILITIES					
Bank overdrafts and short-term borrowing from financial institution Trade and other current payables	16	129,978,433	338,359,080	129,978,433	338,359,080
Trade payables - others	17	83,954,143	52,527,633	83,942,043	58,651,147
Other current liabilities - others	17	16,256,967	10,132,398	14,955,851	3,808,099
- related parties		-	-	5,008,373	-
Contract liabilities	18	65,446,720	36,792,905	65,446,720	36,792,905
Current portion of long-term loans from financial institutions	21	-	10,500,000	-	10,500,000
Current portion of lease liabilities	19	7,831,122	2,238,252	7,642,750	2,083,234
Other current liabilities	20	2,241,223	1,668,294	1,834,945	1,627,126
Total current liabilities		305,708,608	452,218,562	308,809,115	451,821,591
NON CURRENT LIABILITIES					
Lease liabilities	19	64,759,513	14,060,438	64,759,513	13,872,066
Long-term Loan	21	10,000,000	-	10,000,000	-
Non current provisions for employee benefits	22	12,810,031	15,547,326	12,201,501	15,040,984
Total non-current liabilities		87,569,544	29,607,764	86,961,014	28,913,050
TOTAL LIABILITIES		393,278,152	481,826,326	395,770,129	480,734,641
SHAREHOLDER'S EQUITY					
Authorized share capital Common shares					
250,000,000 ordinary shares, Baht 1 par value		250,000,000	250,000,000	250,000,000	250,000,000
Issued and paid-up share capital					
250,000,000 ordinary shares, Baht 1 par value		250,000,000	250,000,000	250,000,000	250,000,000
Share premium on ordinary shares		129,163,346	129,163,346	129,163,346	129,163,346
Capital surplus on share-based payment		17,117,100	17,117,100	17,117,100	17,117,100
Retained earnings					
Appropriated: - Legal reserve	24	10,894,585	10,894,585	10,894,585	10,894,585
Unappropriated		7,303,631	4,862,971	26,101,552	15,610,117
Total Shareholders' Equity		414,478,662	412,038,002	433,276,583	422,785,148
TOTAL LIABILITIES AND SHAREHOLDERS'EQUITY		807,756,814	893,864,328	829,046,712	903,519,789

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

	Consolidated Financial Statement						Total shareholders' Equity
	Issued and paid-up share capital	Share premium on ordinary share	Capital surplus on share-based payment	Retained earnings	Other comprehensive income	Profit (loss) on remeasurements of defined benefit plans	
Balance as of January 1, 2019	250,000,000	129,163,346	17,117,100	10,442,042	6,334,082	-	413,056,570
Changes in equity for the year							-
Transferred to retained earnings					(21,982)	21,982	-
Total comprehensive profit for the year					(996,586)	(21,982)	(1,018,568)
Legal reserve	-	-	-	452,543	(452,543)	-	-
Balance as of December 31, 2019	250,000,000	129,163,346	17,117,100	10,894,585	4,862,971	-	412,038,002
Balance as of January 1, 2020	250,000,000	129,163,346	17,117,100	10,894,585	4,862,971	-	412,038,002
Changes in equity for the year							
Comprehensive income for the year	-	-	-	10,894,585	2,440,660	-	2,440,660
Balance as of December 31, 2020	250,000,000	129,163,346	17,117,100	10,894,585	7,303,631	-	414,478,662

The accompanying notes to financial statements are an integral part of these statements.

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

SEPARATE FINANCIAL STATEMENT						
	Retained earning					
	Issued and paid-up share capital	Share premium on ordinary share	Capital surplus on share-based payment	Appropriated Legal reserve	Unappropriated	Total
Balance as of January 1,2019	250,000,000	129,163,346	17,117,100	10,442,042	7,011,793	413,734,281
Changes in equity for the year						
Comprehensive income for the year	-	-	-	-	9,050,867	9,050,867
Legal reserve	-	-	-	452,543	(452,543)	-
Changes in equity for the year	250,000,000	129,163,346	17,117,100	10,894,585	15,610,117	422,785,148
Balance as of January 1,2020	250,000,000	129,163,346	17,117,100	10,894,585	15,610,117	422,785,148
Changes in equity for the year						
Comprehensive income for the year	-	-	-	10,894,585	10,491,435	10,491,435
Balance as of December 31,2020	250,000,000	129,163,346	17,117,100	10,894,585	26,101,552	433,276,583

The accompanying notes to financial statements are an integral part of these statements.

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
STATEMENTS OF INCOME
FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

	Note	Consolidated Financial Statement		Separate Financial Statement	
		December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
REVENUES					
Sales income		489,981,127	620,513,430	491,554,405	620,513,430
Service income		106,053,953	214,641,445	106,085,665	214,641,445
Other income		11,039,354	14,053,885	12,945,841	14,347,514
TOTAL REVENUES		607,074,434	849,208,760	610,585,911	849,502,389
EXPENSES					
Cost of sales		388,792,651	563,320,150	390,351,018	563,320,150
Cost of service		61,995,357	116,475,476	68,136,968	116,475,476
Selling expenses		35,772,561	45,747,891	34,810,425	44,406,264
Administrative expenses		94,932,166	104,363,854	83,669,487	95,904,927
TOTAL EXPENSES		581,492,735	829,907,371	576,967,898	820,106,817
Profit (loss) before from operating activities		25,581,699	19,301,389	33,618,013	29,395,572
Finance costs		18,408,558	16,614,610	18,373,659	16,565,567
Profit (loss) before income tax expenses		7,173,141	2,686,779	15,244,354	12,830,005
Tax expenses (income)	23.1,23.2	4,732,481	3,683,365	4,752,919	3,779,138
Profit (loss) for the periods		2,440,660	(996,586)	10,491,435	9,050,867
Net profit (loss) attributable to					
Equity holders of the parent		2,440,660	(996,586)	10,491,435	9,050,867
Non-controlling interest		-	-	-	-
		2,440,660	(996,586)	10,491,435	9,050,867
Earning per share of the Equity holders of the parent		0.01	(0.00)	0.04	0.04
Number of weighted average ordinary shares		250,000,000	250,000,000	250,000,000	250,000,000

The accompanying notes to financial statements are an integral part of these statements.

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
 STATEMENTS OF COMPREHENSIVE INCOME
 FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

	Consolidated Financial Statement		Separate Financial Statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Net profit (loss) for the periods	2,440,660	(996,586)	10,491,435	9,050,867
Other comprehensive income	-	(21,982)	-	-
Total comprehensive income (loss) for the periods	<u>2,440,660</u>	<u>(1,018,568)</u>	<u>10,491,435</u>	<u>9,050,867</u>
Total comprehensive income (loss) attributable to				
Equity holders of the parent	2,440,660	(1,018,568)	10,491,435	9,050,867
Non-controlling interests	-	-	-	-
	<u>2,440,660</u>	<u>(1,018,568)</u>	<u>10,491,435</u>	<u>9,050,867</u>

The accompanying notes to financial statements are an integral part of these statements.

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

STATEMENT OF CASH FLOW

FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

	Consolidated Financial Statement		Separate Financial Statement	
	2020	2019	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES				
Net Profit (Loss)	2,440,660	(996,586)	10,491,435	9,050,867
Adjustments to reconcile net profit (Loss) to net cash -				
- Provided from (used in) operating activities				
Depreciation	27,654,769	27,649,804	12,598,836	27,514,679
Depreciation right of use assets	6,317,349	-	6,317,349	-
Amortisation of intangible assets	2,211,763	1,752,760	2,211,762	1,752,760
(Gain) Loss from sale of property , plant and equipment	300,547	(6,060,276)	300,547	(6,060,276)
Equipment write-off	-	40,573	-	40,573
Allowance for Doubtful Account receivable	(574,327)	2,146,697	(574,326)	2,146,697
Reversal loss on diminution in inventories	1,733,936	(3,772,673)	1,733,936	(3,772,673)
Employee benefits expenses	1,468,310	4,926,884	1,366,122	4,448,019
Unrealised (gain) loss on exchange rate	-	779,204	-	779,204
Interest incomes	(171,451)	(269,411)	(170,262)	(267,041)
Income tax expense	4,732,481	3,683,365	4,752,919	3,779,138
Financial costs	18,408,558	16,614,610	18,373,659	16,565,567
Profit (loss) from operating activities before change of	64,522,595	46,494,951	57,401,977	55,977,514
operating assets and liabilities Decrease(increase) in operating assets				
Trade and other current receivables - related parties	174,981,372	(176,150,965)	163,384,089	(182,231,842)
Current contract assets	(102,828,588)	30,401,903	(102,828,588)	30,401,903
Supplies, net	10,520,288	15,271,055	10,520,288	15,271,055
Advances for purchases of goods	12,843,475	(1,932,387)	12,823,449	(1,882,362)
Other current assets	(9,452,544)	-	(1,031,765)	-
Other non-current assets	30,991,060	8,715,810	30,991,062	8,715,810
Increase (decrease) in operating liabilities				
Trade and other current payables - other companies	37,551,079	(49,110,250)	41,447,021	(49,015,671)
Contract Liabilities	28,653,815	7,768,621	28,653,815	7,768,621
Other current liabilities	572,929	-	207,819	-
Cash receipt in operating activities	248,355,482	(118,541,262)	241,569,168	(114,994,972)
Payment for withholding tax	(4,416,944)	(7,004,845)	(4,416,944)	(7,004,845)
Payment for long-term employee benefits	(4,205,605)	-	(4,205,605)	-
NET CASH PROVIDED (USED IN) OPERATING ACTIVITIES	239,732,933	(125,546,107)	232,946,619	(121,999,817)

The accompanying notes to financial statements are an integral part of these statements.

PLANET COMMUNICATIONS ASIA PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
STATEMENT OF CASH FLOW
FOR THE YEAR ENDED DECEMBER 31, 2020

Baht

	Consolidated Financial Statement		Separate Financial Statement	
	2020	2019	2020	2019
CASH FLOWS FROM INVESTING ACTIVITIES				
Cash paid to Investment in subsidiary	-	-	-	(4,999,970)
(Increase) decrease in restricted deposits at financial institutions	-	41,960,417	-	41,960,417
Investment in subsidiary	-	-	(1,685,854)	-
Cash received from sale of property , plant and equipment	19,878	264,487	-	264,487
Cash paid to purchase of property , plant and equipment	(8,699,312)	(837,163)	(4,144,176)	(803,369)
Cash paid to purchase of intangible assets	-	(667,930)	-	(667,930)
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES	(8,679,434)	40,719,811	(5,830,030)	35,753,635
CASH FLOWS FROM FINANCING ACTIVITIES				
(Increased) Decreased in Bank overdraft	(208,380,648)	132,301,050	(208,380,647)	132,301,050
Cash received from loans from financial institutions	10,000,000	-	10,000,000	-
Cash paid to loans from financial institutions	(10,500,000)	(20,200,000)	(10,500,000)	(20,200,000)
Interest paid	(18,408,558)	(16,614,610)	(18,373,659)	(16,565,567)
Cash paid to liabilities under finance lease	(6,708,935)	(2,583,526)	(6,553,917)	(2,438,831)
Interest received	171,451	269,411	170,262	267,041
NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES	(233,826,690)	93,172,325	(233,637,961)	93,363,693
NET INCREASE(DECREASE) IN CASH AND CASH EQUIVALENTS	(2,773,191)	8,346,029	(6,521,372)	7,117,511
CASH AND CASH EQUIVALENTS AT BEGINNING OF THE PERIODS	34,308,974	25,962,945	32,338,029	25,220,518
CASH AND CASH EQUIVALENTS AT END OF THE PERIODS	31,535,783	34,308,974	25,816,657	32,338,029
NON CASH ITEMS				
Transfer inventories to fiber optic network equipment	-	24,954,882	-	24,954,882
Transfer inventories to intangible assets	-	302,354	-	302,354
Assets acquisition payable	-	75,750	-	75,750
Property , plant and equipment increase from financial lease	(63,000,880)	-	(63,000,880)	-
Liabilities under financial lease increase	63,000,880	13,837,711	63,000,880	13,837,711
Transfer Property, plant and equipment to investment in subsidiaries	-	-	(124,064,123)	-

The accompanying notes to financial statements are an integral part of these statements.

NOTES TO FINANCIAL STATEMENTS

1. General Information

1.1 Corporate Information

The Company was registered as a limited company in Thailand under the Civil and Commercial Code by registered no. 0107556000345 on May 14, 2013. The Company office is located at 157 Soi Ramindra 34, Ramindra Road, Tarang Subdistrict, Bangkhen District, Bangkok. The Company operates in Thailand and main business is distribution, service, installation and maintenance of telecommunication equipment.

Planet Fiber Company Limited which is a subsidiary, established as a limited company under Thai civil and commercial Act, registration number 0105560135444 on August 6, 2017. The Company office is located at 157 Soi Ramindra 34, Ramindra Road, Tarang Subdistrict, Bangkhen District, Bangkok. The main business is Providing high speed internet and other related services on fiber optic networks.

Planet Cloud Company Limited which is a subsidiary, established as a limited company under Thai civil and commercial Act, registration number 0105562176768 on October 10, 2019. The Company office is located at 157 Soi Ramindra 34, Ramindra Road, Tarang Subdistrict, Bangkhen District, Bangkok. The main business is Sale and service of software Various applications with terminal equipment via the cloud.

1.2 Coronavirus disease 2019 Pandemic

The Coronavirus disease 2019 (COVID-19) pandemic is continuing to evolve, resulting in an economic slowdown and adversely impacting most businesses and industries. This situation may bring uncertainties and have an impact on the environment in which the group operates. The Group's management has continuously monitored ongoing developments and assessed the financial impact in respect of the valuation of assets, provisions and contingent liabilities, and has used estimates and judgement in respect of various issues as the situation has evolved.

1.3 Basis of Financial Statement Preparation

1.3.1 The financial statements have been prepared in accordance with accounting standards enunciated under the Accounting Profession Act BE 2004. The financial standard reporting and presentation have been prepared in accordance with summary form that requires in the financial statement for public companies limited as specified by the announcement of the Department of Business Development Ministry of Commerce issued under the Accounting Act BE 2000.

The financial statements have been prepared on a historical cost basis except where otherwise disclosed in the accounting policies. An English language version of the financial statements has been prepared from the statutory financial statements that were issued in Thai language. In case of conflict or difference in understanding, the financial statements in Thai language shall prevail.

1.3.2 Basis of Financial Statement Preparation

- a) The consolidated financial statements included the accounting transactions of the Company and the following subsidiaries. (together referred to as "the Group") On October 10, 2019, the Company invested in PlanetCloud Company Limited, with a registered capital of Baht 5 million (500,000 ordinary shares of Baht 10 per share) in which the Company's interest is 100%.
- b) The Company is deemed to have control over an investee or subsidiaries if it has rights, or is exposed, to variable returns from its involvement with the investee, and it has the ability to direct the activities that affect the amount of its returns.
- c) Subsidiaries is fully consolidated, being the date on which the Company obtains control, and continues to be consolidated until the date when such control ceases.
- d) The financial statements of the subsidiaries are prepared using the same significant accounting policies as the Company.

1.4 Adoption of new financial reporting standards

1.4.1 Financial Reporting Standards which are effective in the current period

During the year, the Group has adopted the revised and new financial reporting standards and interpretations which are effective for fiscal years beginning on or after January 1, 2020. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards with most of the changes directed towards clarifying accounting treatment and providing accounting guidance for users of the standards. The adoption of these financial reporting standards does not have any significant impact on the Group's financial statements. However, the new standard involves changes to key principles, which are summarised below:

(1) Group of Financial Instruments Standard

A set of TFRSs related to financial instruments consists of five accounting standards and interpretations, as follows

Financial Reporting Standards:

TFRS 7 Financial Instruments: Disclosures

TFRS 9 Financial Instruments

Accounting standard:

TAS 32 Financial Instruments: Presentation

Financial Reporting Standard Interpretations:

TFRIC 16 Hedges of a Net Investment in a Foreign Operation

TFRIC 19 Extinguishing Financial Liabilities with Equity Instruments

These TFRSs related to financial instruments make stipulations relating to the classification of financial instruments and their measurement at fair value or amortised cost (taking into account the type of instrument, the characteristics of the contractual cash flows and the Company's business model), calculation of impairment using the expected credit loss method, and hedge accounting. These include stipulations regarding the presentation and disclosure of financial instruments.

(2) TFRS 16 Leases

TFRS 16 supersedes TAS 17 Leases together with related Interpretations. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases, and requires a lessee to recognise assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is low value.

Accounting by lessors under TFRS 16 is substantially unchanged from TAS 17. Lessors will continue to classify leases as either operating or finance leases.

The Group adopted these financial reporting standards using the modified retrospective method of initial adoption of which the cumulative effect is recognised as an adjustment to the retained earnings as of January 1, 2020, and the comparative information was not restated. The cumulative effect of the change is described in Note 2 to the interim financial statements.

(3) Accounting Treatment Guidance on "Temporary relief measures on accounting alternatives in response to the impact of the COVID-19 situation"

The Federation of Accounting Professions announced Accounting Treatment Guidance on "Temporary relief measures on accounting alternatives in response to the impact of the COVID-19 situation". Its objectives are to alleviate some of the impact of applying certain financial reporting standards, and to provide clarification about accounting treatments during the period of uncertainty relating to this situation.

On 22 April 2020, the Accounting Treatment Guidance was announced in the Royal Gazette and it is effective for the financial statements prepared for reporting periods ending between 1 January 2020 and 31 December 2020.

The Group has elected to apply the following temporary relief measures on accounting alternatives:

- Not to consider the COVID-19 situation as an indication that an asset may be impaired in accordance with TAS 36, Impairment of Assets.
- Take to the COVID-19 situation as less weight of input used in the valuation techniques for measuring Level 2 and Level 3 fair values of financial assets that are debt instruments, defined in TAS 32 Financial Instruments Presentation.

1.4.2 Financial Reporting Standards which are not effective for the current period

The Federation of Accounting Professions has issued the new accounting standard, financial reporting standards accounting standard interpretations and financial reporting standard interpretations, which are effective for financial statements period beginning on or after January 1, 2021 is as follows:

Accounting Standard

TAS 1 Presentation of Financial Statements

TAS 8 Accounting Policies, Changes in Accounting Estimates and Errors

TAS 10 Events after the Reporting Period

TAS 34 Interim Financial Reporting

TAS 37 Provisions, Contingent Liabilities and Contingent Assets

TAS 38 Intangible Assets

Financial Reporting Standard

TFRS 2	Share - based Payment
TFRS 3	Business Combinations
TFRS 6	Exploration for and Evaluation of Mineral Resources
TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments

Accounting Standard Interpretations

TSIC	32	Intangible Assets - Web Site Costs
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Financial Reporting Standard Interpretations

TFRIC	12	Service Concession Arrangements
TFRIC	19	Extinguishing Financial Liabilities with Equity Instruments
TFRIC	20	Stripping Costs in the Production Phase of a Surface Mine
TFRIC	22	Foreign Currency Transactions and Advance Consideration

The management of the Company has assessed that TAS 1, TAS 8, TAS 10, TAS 34, TAS 37, TAS 38, TFRS 7 and TFRS 9 will not have material impact on the financial statements when it is applied. For the other TAS, TFRS, TSIC and TFRIC are not relevant to the Company's business, therefore they do not have impact on the financial statement when they are applied.

2. Effect of change in accounting policy due to the adoption of new financial reporting standard

As described in Note 1.4.1 to the interim financial statements, during the current period, the Group has adopted financial reporting standard related to financial instruments and TFRS 16. The cumulative effect of initially applying this standard is recognised as an adjustment to retained earnings as of January 1, 2020. Therefore, the comparative information was not restated. The impacts on the financial statement from changes in accounting policies due to the adoption of these standards are presented as follows:

TFRS 16 "Leases"

The Group has adopted TFRS16 "Leases" as described in Note 1.4.1(2) to the interim financial statements as follows:

- The Group recognised a right-of-use and a lease liability previously classified as an operating lease at the present value of the remaining lease payments, discounted using the Group's incremental borrowing rate at the date of initial application(as of January 1, 2020). Therefore, the comparative information , which presented based on TAS 17, was not restated. The Group recognised the carrying amount of the right-of-use assets and lease liabilities ,previously classified as financial leases, based on the carrying amounts of the lease assets and lease liabilities immediately before the date of initial application of TFRS 16.
- Payments under leases that, have a lease term of 12 months or less at the commencement date, or are leases of low-value assets, are recognised as expenses on a straight-line basis over the lease term.

Therefore the impacts from adoption of this standard at the date of initial application(as of January 1, 2020) as follows

Thousand Baht

	Consolidated financial statements	Separate financial statement
<u>Asset</u>		
Right of use increase	57,909	57,909
	<u>57,909</u>	<u>57,909</u>
<u>Liability</u>		
Lease increase	80,996	80,996
Deferred interest increase	(23,087)	(23,087)
	<u>57,909</u>	<u>57,909</u>

3. Summary of significant accounting policy

3.1 Revenue recognition

Sales of goods

Sales of goods are recognized at the point in time when control of the asset is transferred to the customer. Sales are the invoiced value, excluding value added tax, of goods supplied after deducting discounts and allowances.

Revenue from sales of equipment including designation and installation

Revenue from sales of equipment including designation and installation are recognized when performance obligation satisfied over the period of the contract using an input method to measure progress towards complete satisfaction of that performance obligation by reference to the actual cost of services provided incurred to the end of the period as a proportion of the total cost of services expected to be provided at the completion of performance obligation under the term of contract.

The recognised revenue which is not yet due according to the contracts has been presented under the caption of "Contract asset" in the statement of financial position. The amounts recognized are reclassified to trade receivables when the Group's right to consideration is unconditional such as upon completion of services and acceptance by the customer.

The amounts which the Group has received or is due from customers with the obligation to transfer services to customers is presented under the caption of "Contract liability" in the statement of financial position. Contract liabilities are recognised as revenue when the obligation satisfied under the term of contract.

Rendering of services

Revenue from support and maintenance service contracts are recognized over a fixed period of time and therefore revenues are recognized on a straight-line basis.

Revenue from internet service are recognized when services have been rendered or upon receipt of payment.

Interest income

Interest income is recognized on an accrual basis based on the effective interest rate.

3.2 Cash and cash equivalents

Cash and cash equivalents consist of cash on hand and deposit at banks and high liquidity short-term investment which due within 3 months since acquire date and no any restriction.

3.3 Inventories

Inventories are stated at the lower of cost (AVERAGE) or net realizable value.

3.4 Investment

Investment in subsidiaries, presented in the separate financial statements, is stated at cost less allowance for impairment loss (if any).

3.5 Property, plant and equipment

Land is stated at cost less impairment loss (if any).

Property, land and equipment are stated at cost less accumulated depreciation and impairment loss (if any).

Depreciation is calculated on the straight-line method based on the estimated useful lives of the assets as follows: Buildings and

Leasehold Improvement	3	Year (According to the lease term)
Fiber optic network equipment	10-15	Year
Testing equipment	5	Year
Tools and office equipment.	3, 5	Year
Vehicles	5	Year

Depreciation is included in the calculation of operating results.

No depreciation is provided for land and assets under construction and installation.

The Group of company derecognizes land, building and equipment when asset are sold or no longer utilized future economic benefits. Gain or loss on disposal assets recognized in the Income Statement.

3.6 Intangible assets

Intangible assets are initially recorded at cost less accumulated amortization and accumulated allowance for impairment (if any).

Amortization computed on cost amounts is charged to the statement of income on a straight-line basis over the estimated useful lives in 5 - 10 years.

3.7 Transaction with related parties

Related parties with the company are persons or entity with control over the company or being controlled by company directly or indirectly or under same control as company.

In addition related parties include associated company and individuals with voting rights directly or indirectly which cause significant influence on the company Key management person Director or employees of company which has power to plan and control the operations of company.

3.8 Corporate income tax

Income tax for the year consists of current tax and deferred tax. Current tax and deferred tax are recognized in the income statement. Except for transactions related to business combination or recognized directly in the shareholder's equity or the comprehensive income.

Current income tax is tax that is expected to be paid to a taxation authority calculated from taxable profit in accordance with tax regulation use tax rate enacted or which is expected to become effective on the reporting date.

Deferred income tax recording by calculating temporary difference between value of asset and liabilities at the end of the reporting period and the tax base of asset and liabilities.

Deferred income tax are measured using tax rate expected to apply temporary difference when reverses based on the law enacted or effective reporting date.

A deferred tax asset is recognized to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilized. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realized.

3.9 Employee benefits

The Company recognize salaries, wages, bonuses, contributions to the social security fund, provident fund and other benefits as expenses when incurred.

Severance Payment as specified in Thai Law are recognized as expenses in the income statement along the service period of employees. The Company post-employment benefit obligations are estimated by a qualified actuary under the actuarial assumption using the Projected Unit Credit Method. However, the actual benefit obligation may be different from the estimate.

The Company recognized the actuarial gains or losses arising from defined benefit plan in the period incurred in other comprehensive income.

The Company and its subsidiaries recognized termination benefits when it is demonstrably committed, without realistic possibility of withdrawal, to a formal detailed plan to either terminate employment before normal retirement date, or to provide termination benefits as a result of an offer made to encourage voluntary redundancy.

Past service costs are recognized in the income statement when the Company and its subsidiaries' plan amendment or curtailment occurs, or recognition in related restructuring costs or termination benefits.

3.10 Accounting judgments and estimates

The preparation of financial statements in conformity with generally accepted accounting principles may require the management to make subjective judgments and estimates for impact of future uncertainty that might have financial effect to the presentation and notes to the financial statements. Thus, the actual results may differ from the estimates.

3.11 Financial instruments

Classification and measurement

Financial assets that are debt instruments are measured at amortised cost.

Financial assets which are the equity instruments are measured at fair value through profit or loss. through other comprehensive income. The accumulated gain (loss) on measurement of these investments will not be reclassified to profit or loss.

Financial liabilities are classified and measured at amortised cost.

Derivatives are classified and measured at fair value through profit or loss.

Impairment of financial assets

The Group assesses on a forward-looking basis the expected credit loss associated with its financial assets measured at amortised cost. The Group applies general or simplified approach for credit-impaired consideration which depends on the significant of credit risk.

Initial adoption

The Group adopted these financial reporting standards which the cumulative effect of initially applying is recognized as an adjustment to the retained earnings (and other component of equity) as of January 1, 2020.

3.12 Leases

At inception of contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Right of usage assets

The group recognizes rights of usage assets at the commencement date of the leases. Right-of-use assets are stated at cost, less any accumulated depreciation and impairment losses (if any), and adjust for any remeasurement of lease liabilities (if any). The cost of right-of-use assets includes the amount of lease liabilities recognized through initial measurement, initial direct costs incurred, and lease payments made at or before the commencement date, less any lease incentives received.

The cost of right-of-use assets also includes an estimate of costs to be incurred by the lessee in dismantling and removing the underlying asset, restoring the site on which it is located or restoring the underlying asset to the condition required by the terms and conditions of the lease.

Unless the Group is reasonably certain that it will obtain ownership of the leased asset at the end of the lease term, the recognised right-of-use assets are depreciated on a straight-line basis from the commencement date of the lease to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term.

Lease liabilities

At the commencement date of the lease, the Group recognises lease liabilities measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification or reassessment.

Lease payments included in the measurement of the lease liability comprise

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- Variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- Amount expected to be payable by the lessee under residual value guarantees;
- Exercise price of purchase options, if the lease is reasonably certain to exercise the options; and
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease.

Short-term leases and Leases of low-value assets

Payments under leases that, have a lease term of 12 months or less at the commencement date, or are leases of low-value assets, are recognised as expenses on a straight-line basis over the lease term. The Group uses this group of financial report standards and recognizes the accumulated effects from initial used by restating to retained earnings as of 1 January 2020, not restating the comparing previous year's financial statements.

Initial adoption

The Group adopted these financial reporting standards using the modified retrospective method of initial adoption of which the cumulative effect is recognised as an adjustment to the retained earnings as of January 1, 2020, and the comparative information was not restated. The cumulative effect of the change is described in Note 2 to the financial statements.

For the year ended December 31, 2019

- Finance lease agreement

Leases of property, plant and equipment which transfer substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the lower of the fair value of the leased property or the present value of the minimum lease payments. The outstanding rental obligations, net of finance charges, are included in other long - term payables, while the interest element is charged to the statements of income over the lease period. If there is no reasonable certainty that the leases will obtain ownership by the end of the lease term, the asset acquired under finance lease shall be fully depreciated over the shorter of the useful life of the asset or the lease term.

- Operating Lease

Lease of assets under which all the risks and reward of ownership are effectively retained by the lessor are classified as operating lease. Lease payments under an operating lease are recognized as expense on a straight - line basis over the lease term.

3.13 Basic earnings (loss) per share

Basic earnings (loss) per share are calculated by dividing net profit (loss) with the number of issued and paid-up shares at the end of the year.

4. Business transactions with related person and company

The Company and subsidiary have significant business transactions with related person and company. The business transactions are in accordance with normal business practice and agree upon. The related parties are as follows;

			Percentage of shares	
Company's name	Business type	Relationship	December 31 2020	December 31 2019
<u>Subsidiary company</u>				
Planet Fiber Co., Ltd.	Providing high speed internet and other related services on fiber optic networks	Share Holding and common Directors	99.99	99.99
Planet Cloud Co., Ltd.	Sale and service of software Various applications with terminal equipment via the cloud	Share Holding and common Directors	99.99	99.99
<u>Related Companies</u>				
P&T Asset Co., Ltd.	Rental and real estate operations belonging to Themselves or rented from someone other than as a residence	Common Directors	-	-
North Phuket Land Co., Ltd	Property Development	Common Directors	-	-

4.1 Transactions with related parties

The Company has business transactions with related parties, which relate to the company through shares holding and has co-shareholders and / or co-directors. The business transactions are in accordance with normal business practice and agree upon. The related parties transactions are as follows;

Description	Pricing Policy
Office rental income	Contract price, referring to the independent appraiser price.
Utility	Charged price from government and allocate to subsidiary.
Purchases of property	Agreed price
Rental of land and head office building	Price as appraised by an independent appraiser in the list the SEC.
Sale of service	Agreed price

During the year, ended December 31, 2020 and 2019, the Company has significant business transactions with subsidiary. (Which has been eliminated in preparation of Consolidated financial statements) and related parties (relate through shares holding and has co-shareholders and / or co-directors) the significant business transactions are as follows:

	Thousand baht			
	Consolidated financial statements For year ended December 31		Separate financial statement For year ended December 31	
	2020	2019	2020	2019
<u>Subsidiary company</u>				
Revenue				
Service income	-	-	572	296
Office rental income	-	-	20	-
Expense				
Service fee	-	-	14,128	-
<u>Related parties</u>				
Rental of land and head office building	12,845	14,240	12,845	14,240
Other income	1,604	1,656	1,604	1,656

4.1.1 Management remuneration Consisting of salary, bonus, life insurance, attendance fee and director pension for the year ended December 31 ,2020 and 2019 Management remunerations are as follows:

Thousand baht

For year ended December 31

	Consolidated financial statements		Separate financial statement	
	2020	2019	2020	2019
Short-term benefits	24,056	20,441	22,127	18,512
Post-Employment benefits	493	665	493	665
Other long-term benefits	-	-	-	-
Total	24,549	21,106	22,620	19,177

4.2 Other receivables - related parties and parties consist of

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
<u>Related parties</u>				
Director	-	-	-	-
Total	-	-	-	-
<u>Subsidiary company :</u>				
Planet Fiber Co., Ltd.	-	-	16,221	5,309
Planet Cloud Co., Ltd.	-	-	1,593	814
	-	-	17,814	6,123
Total other receivable	-	-	17,814	6,123

5. Cash and cash equivalents

Balance of cash and cash equivalents as at December 31, 2020 and 2019 consist of:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Cash on hand	101	101	92	92
Bank Deposit Saving Account and- Current Account	31,435	34,208	25,725	32,246
Total	31,536	34,309	25,817	32,338

Bank Deposit Saving Account interest rate 0.04 - 0.4 per year

6. Trade receivable - net

As of December 31, 2020 and 2019 Trade receivable – net, consist of;

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Trade receivable – other parties	259,096	434,279	259,096	434,279
Postdate cheque	2,805	-	2,805	-
	261,901	434,279	261,901	434,279
Less: Allowance for Doubtful Account	(6,665)	(7,239)	(6,665)	(7,239)
Trade receivable – net	255,236	427,040	255,236	427,040

The outstanding balance of trade account receivable were classified by aging as followings:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Notes received	299	-	299	-
Undue	197,397	51,670	197,397	51,670
Overdue:				
1 - 90 Day	40,473	96,583	40,473	96,583
91 - 180 Day	5,883	192,620	5,883	192,620
181 - 365 Day	3,224	1,298	3,224	1,298
Over 365 Day	14,625	92,108	14,625	92,108
Total	261,901	434,279	261,901	434,279
Less: Allowance for expected credit losses	(6,665)	(7,239)	(6,665)	(7,239)
Net	255,236	427,040	255,236	427,040

In October, 2020: The company has received payment from Bliss-Planet Joint Venture amount of 108 million Baht, which is a trade receivable of the company with aging over 365 days, total 80.61 million Baht.

7. Account receivable other

Balance of other current receivable as at December 31, 2020 and 2019 consist of:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Advance payments	3,777	4,464	3,506	4,306
Deposit	-	13,500	-	13,500
Employee loan	158	177	147	177
Retention deposit	373	315	373	283
Prepaid expenses	14,828	3,283	14,828	3,284
Total	19,136	21,739	18,854	21,550

8. Assets resulting from the contract

Assets resulting from a contract refer to the rights that an entity will receive compensation in exchange of goods or services which has been transferred to customers the said right does not exceed the normal operating period of the business or not more than 12 months from the end of the reporting period, namely accrued income, the value of work completed but not yet billed to customers.

9. Inventories – net

Balance of supplies as at December 31, 2020 and 2019 consist of:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Finished goods	45,577	47,915	45,577	47,915
Work in process of projects	8,787	19,356	8,787	19,356
Goods in transit	7,097	4,711	7,097	4,711
Total	61,461	71,982	61,461	71,982
Less Allowance for doubtful	(14,847)	(13,114)	(14,847)	(13,114)
Inventories - net	46,614	58,868	46,614	58,868

10. Other current assets

Other current assets as at December 31, 2020 and 2019 are as follows:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Input vat refundable	8,383	-	-	-
Input VAT	2,163	1,089	2,122	1,087
Other	1	5	1	4
Total	10,547	1,094	2,123	1,091

11. Restricted bank deposits

The Group has pledged these deposits as security against bank guarantees issued by banks on behalf of the Group and as security for credit facilities obtained from banks.

12. Investments in subsidiary

Investments in subsidiary as at December 31, 2020 and December 31, 2019 consist of:

Separate financial statement

	Paid-up Capital		% of holding		Cost Method		Dividend For the year ended December 31	
Company	Dec 31, 2020	Dec 31, 2019	Dec 31, 2020	Dec 31, 2019	Dec 31, 2020	Dec 31, 2019	Dec 31, 2020	Dec 31, 2019
	Million Baht		%	%	Million Baht	Million Baht	Million Baht	Million Baht
- Planet Fiber Co.,Ltd.	127.00	5.00	99.99	99.99	127.00	5.00	-	-
- Planet Cloud Co.,Ltd.	5.00	1.25	99.99	99.99	5.00	1.25	-	-
Net					132.00	6.25	-	-

According to 1/2020 minute meeting of management meeting, company had resolution to transfer all assets which relate to the investment in building that company use to provide its internet services to Planet Fiber Co., Ltd (subsidiary) and increase the capital as much as the value of the assets transferred which equal to 120 Million Baht.

13. Property, plant and equipment – net

Property, plant and equipment as of December 31, 2020 and 2019 are as follows:

Consolidated financial statements							(Unit: Thousand baht)
	Leasehold Improvement	Fiber optic network equipment	Testing equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construction	Total
<u>Cost</u>							
Balance as of December 31 2019	4,858	151,417	95,651	80,591	24,380	7,264	364,161
Increase	-	966	1,962	630	-	5,141	8,699
Transfer	-	5,856	-	-	-	(5,856)	-
Disposal	-	-	(1,389)	(2,796)	-	-	(4,185)
Balance as of December 31 2020	4,858	158,239	96,224	78,424	24,380	6,549	368,675
<u>Accumulated depreciation</u>							
Balance as of December 31 2019	(4,858)	(35,054)	(73,535)	(75,314)	(8,938)	-	(197,699)
Depreciation for the year	-	(15,531)	(7,214)	(2,651)	(2,258)	-	(27,654)
Disposal	-	-	1,075	2,789	-	-	3,864
Balance as of December 31 2020	(4,858)	(50,585)	(79,674)	(75,176)	(11,196)	-	(221,489)
<u>Book Value</u>							
Balance as of December 31 2019	-	116,363	22,116	5,277	15,442	7,264	166,462
Balance as of December 31 2020	-	107,654	16,550	3,249	13,184	6,549	147,186

Separate financial statements							(Unit: Thousand baht)
	Leasehold Improvement	Fiber optic network equipment	Testing equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construction	Total
<u>Cost</u>							
Balance as of December 31 2019	4,858	151,417	95,651	80,557	23,721	7,264	363,468
Increase	-	-	1,328	519	-	2,295	4,142
Disposal	-	-	(1,389)	(2,796)	-	(2,064)	(6,249)
Transfer to investment in subsidiaries	-	(151,417)	-	(4,576)	-	(5,411)	(161,404)
Balance as of December 31 2020	4,858	-	95,590	73,705	23,721	2,084	199,957
<u>Accumulated depreciation</u>							
Balance as of December 31 2019	(4,858)	(35,054)	(73,535)	(75,311)	(8,652)	-	(197,410)
Depreciation for the year	-	(1,465)	(7,162)	(1,844)	(2,126)	-	(12,599)
Disposal	-	-	1,075	2,789	-	-	3,864
Transfer to investment in subsidiaries	-	36,519	-	2,908	-	-	39,427
Balance as of December 31 2020	(4,858)	-	(79,622)	(71,460)	(10,778)	-	(166,718)
<u>Book Value</u>							
Balance as of December 31 2019	-	116,363	22,116	5,246	15,069	7,264	166,058
Balance as of December 31 2020	-	-	15,968	2,244	12,943	2,084	33,239

Depreciation expense for year ended December 31, 2020 and 2019 presented in cost of sale and administrative expenses are as follows:

	Thousand baht			
	Consolidated financial statement		Separate financial statement	
	For the year ended December 31		For the year ended December 31	
	2020	2019	2020	2019
Cost of sale	19,154	17,033	5,060	17,033
Sale and Administrative expenses	8,500	12,369	7,540	12,234
Total	27,654	29,402	12,600	29,267

14. Right of use assets

The Group has usage rights assets. Which arises from the first application of the Thai Financial Reporting Standard No.16 since January 1, 2020. The remaining balance of the right-use assets as at December 31, 2020 is shown separately in the statement of financial position. With details as follows:

Thousand baht	
Consolidated/Separate Financial Statement	
Net book value as of December 31,2019 (audited)	-
Effects of the adoption of TFRS16 :	
- Recognized from operating leases	57,909
Net book values as of January 1,2020	57,909
Add Increased during year – at cost	5,092
Less Depreciation for the period	(6,317)
Net book values as of December 31,2020	56,684

Right of use assets include office building and warehouse which in accordance to the long term rental contract with of related company.

15. Intangible assets – net

The balance of intangible assets as at December 31, 2020 and 2019 are presented in the statements of financial position as follows

Thousand baht	
Consolidated/Separate Financial Statement	
<u>Cost</u>	
Balance as of December 31 2019	16,094
Increase	-
Disposal	-
Balance as of December 31 2020	16,094
<u>Accumulated depreciation</u>	
Balance as of December 31 2019	(3,908)
Depreciation for the year	(2,212)
Disposal	-
Balance as of December 31 2020	(6,120)
<u>Book Value</u>	
Balance as of December 31 2019	12,186
Balance as of December 31 2020	9,974

16. Bank overdrafts and short-term loan borrowing from financial institution

Short-term borrowings from financial institutions as at December 31, 2020 and 2019, consisted of:

Thousand baht

	Consolidated Financial Statement		Separate Financial Statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
short-term loan borrowing	129,978	338,359	129,978	338,359
Total	129,978	338,359	129,978	338,359

Short-term deposit from financial institutions bears interest at the rate of 2.200-5.405 percent per annum.

On July 2, 2019, the Company entered into the short-term loan agreements with Export – Import Bank of Thailand (“EXIM”) of Baht 240 million in order for payment of goods and other supplies for the National Broadcasting and Telecommunications Commission’s hi-speed internet in the remote area (Zone C) group 2 north 2 project (“NBTC project”). For guarantee of the loan repayment, EXIM defines certain condition under the loan agreement as follows;

1. Transfers the right of money collection of Bliss-Planet Joint Venture from NBTC project to EXIM through an agreement of transfers the right of money collection among Bliss-Planet Joint Venture with Bliss-Tel Public Company Limited, Bliss Innovation Company Limited, Sloat Company Limited and the Company. Moreover, Bliss-Tel Public Company Limited agrees to repay the remaining loan in case that the money collection of from NBTC project is not sufficient to repay loan amount.
2. Secured by the pledge of bank deposits of Bliss-Tel Public Company Limited amount of Baht 24.90 million.
3. Guarantee by Bliss-Tel Public Company Limited.

In year, 2020: The company has paid it short term loans to Bliss-Planet Joint Venture at amount of 152.72 million Baht.

Part of short-term borrowings from financial institutions are secured by the pledge of bank deposits as mentioned in Note 11 to financial statements and the mortgage of land of a related company.

17. Trade and other current payables

The outstanding balance of trade and other current payable as of December 31, 2020 and 2019 are as follows

Thousand baht

	Consolidates financial statements		Separate financial statements	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Trade payable	83,954	52,528	83,942	58,651
Other payable				
Accrued expenses	5,357	4,786	4,056	3,771
Retention deposit	930	37	930	37
Deposit received in advance	9,692	-	9,692	-
Others	278	5,309	278	-
Total other payable	16,257	10,132	14,956	3,808
Total	100,211	62,660	98,898	62,459

18. Contract liabilities

The mentioned liabilities from contracts are the obligations, which the company “promise to provide services to customers”. The mentioned obligations are available not more than company’s normal operating cycle or not more than 12 months from the end of reporting period and more than company’s normal operating cycles more than 12 months from the end of reporting period such as the revenue received in advance which billed amount 65.49 million Baht (Separate 65.49 million Baht)

19. Liabilities under Financial Lease

The Company has financial lease payable which consists of 5 lease agreements to procure Vehicle, Photocopiers for business use with 48-120 installments monthly rental respectively.

The financial lease liabilities as of December 31, 2020 and 2019 consist of

	Thousand baht	
	งบการเงินรวม	งบการเงินเฉพาะกิจการ
Lease liabilities	20,340	19,971
Less Deferred interest expenses	(4,042)	(4,016)
Lease as at December 31, 2019	16,298	15,955
Effects of the adoption of TFRS 16		
Lease liabilities	80,996	80,996
Less Deferred interest expenses	(23,087)	(23,087)
Lease as at January 1, 2020	74,207	73,862
Increase(Decrease) for period :		
Add deferred interest increase	7,376	7,376
Less interest expenses	(2,284)	(2,284)
Lease liabilities Increase(Decrease) for period :	5,092	5,092
Add interest expenses	4,870	4,852
Less payments	(11,578)	(11,405)
Lease liabilities as at December 31, 2020	72,591	72,403
Less Current portion	(7,831)	(7,643)
Lease liabilities net of current portion	64,760	64,760

expenses relating to leases recognized in profit or loss for the year ended December 31, 2020 are as follows

	Thousand baht	
	For the year ended December 31, 2020	
	Consolidates financial statements	งบการเงินเฉพาะกิจการ
Depreciation of the usage rights assets	6,317	6,317
Interest expenses from debt under lease agreements	4,870	4,852
Total	11,007	10,989

Details of the payment amount of liabilities under financial lease in Separate financial statements as of December 31, 2020 and 2019 are as follows:

Thousand baht

Consolidated financial statements				Separate financial statements		
	December 31, 2020			December 31, 2020		
	Principle	Deferred Interest	Total	Principle	Deferred Interest	Total
Payment due within one year	12,327	(4,496)	7,831	12,132	(4,489)	7,643
over 1 year but not over 5 years	84,810	(20,050)	64,760	84,810	(20,050)	64,760
Total	97,137	(24,546)	72,591	96,942	(24,539)	74,403

Thousand baht

Consolidated financial statements				Separate financial statements		
December 31, 2019				December 31, 2019		
	Principle	Deferred Interest	Total	Principle	Deferred Interest	Total
Payment due within one year	3,442	(1,204)	2,238	3,268	(1,185)	2,083
over 1 year but not over 5 years	16,898	(2,838)	14,060	16,703	(2,831)	13,872
Total	20,340	(4,042)	16,298	19,971	(4,016)	15,955

20. Other current liabilities

The outstanding balance of other current liabilities as of December 31, 2020 and 2019 are as follow:

Thousand baht

	Consolidated financial statements		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Withholding tax	505	912	460	870
Out-put tax, net	1,549	-	1,188	-
Others	187	757	187	757
Total	2,241	1,669	1,835	1,627

21. Long-term loans from financial institutions – net

Thousand baht

		Consolidated financial statements		Separate financial statement	
		December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
	Beginning Balance	-	10,500	-	10,500
	Add loan increase	10,000	-	10,000	-
	Less Repayment	-	-	-	-
	Balance	10,000	10,500	10,000	10,500
	Less Current Portion due within one year	-	(10,500)	-	(10,500)
	Net	10,000	-	10,000	-

The Company has long-term loans from a local financial institution which the company have no collateral and the payment due is within 2 years with interest rate equal to 2% per annum.

22. Non-current provisions for employee benefits

Movement of the present value of the employee benefits as of December 31, 2020 and 2019 are as follow:

Thousand baht

	Consolidated financial statement		Separate financial statement	
	December 31,2020	December 31,2019	December 31,2020	December 31,2019
Beginning balance of the periods	15,547	10,593	15,041	10,593
Past service cost				
Current service cost and interest cost	-	3,005	-	2,994
Gain (loss) from actuarial assumption	1,469	1,949	1,367	1,454
Benefits paid during the years	(4,206)	-	(4,206)	-
Ending balance of the years	12,810	15,547	12,202	15,041

Expenses recognized in profit or loss for year ended December 31, 2020 and 2019 are as follows:

Thousand baht

For the years ended December 31

	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
Past service cost	-	3,005	-	2,994
Current service cost	1,134	1,570	1,047	1,087
Interest cost	335	379	320	367
Total	1,469	4,954	1,367	4,448

The company hires an actuarial to calculate employee obligation according to the accounting standards which the assumptions used in the calculation the provisions for post-employment benefit obligations in accordance with Labor Protection Act, which increases compensation for employee whom duration of employment over 20 years, will receive 400 days of compensation. The actuarial assumptions used in the calculations as of December 31, 2020 and 2019 are as follows:

Consolidated and Separate financial statement		
	2563	2562
Discount rate	2.50%	1.50-2.50%
Expected rate of salary increase	2.78 %	2.78 %
Voluntary resignation rate	0-31.00 %	0-31.00 %
Mortality rate	TMO 2017	TMO 2017

* Based on weighted rate by age group of employee

** Referred to Thai Mortality Ordinary Tables of 2017 (TMO 2017 : Thai Mortality Ordinary Tables of 2017)

The sensitivity analysis of key assumptions in forecasting according to actuarial insurance

Key assumption in forecasting according to actuarial insurance used to analyze sensitivity are discount rate, rate of salary raise and death assuming that other assumptions remain the same. For the year 2020, the impact of sensitivity analysis from changes in related assumptions above that are reasonably possible are as follows:

- If the discount rate increases (decreases) by 0.5 %, employee benefit obligation will decreases by Baht 0.57-12.73 million (increases by Baht 0.59-13.56 million).
- If the rate of salary raises increases (decreases) by 0.5 %, employee benefit obligation will increases by Baht 0.60-13.67 million (decreases by Baht 0.56-12.63 million).
- If the rate of resignation of employee raise increases (decreases) by 0.5 %, employee benefit obligation will increase by Baht 0.59-12.64 million (decreases by Baht 0.59-13.39 million).

In the sensitivity analysis report above, the present value of employee benefit obligation is calculated by using the same method as calculation of employment benefit obligation acknowledged in Statements of financial position.

As of April 5, 2019, at the National Legislative Assembly meeting has agree with bill labor protection which has important topics to increase of compensate payment to employee who has work over than 20 years will receive a new rate from 300 days to 400 days and announced in the Government Gazette on May 5, 2019. As for this change, the Company has corrected the post-employment benefits obligation scheme to be consistent with the said draft. As a result, from the correction, there is an increment in the Provision for Employee Benefit amounting Baht 3.01 million in consolidated financial statement and Baht 2.99 million in Separate financial statement. Therefore, the Company recognized increase provision of employee benefit and recorded the effect as cost of service in the past to as expenses in statement of income.

23. Corporate income tax

The Company and its subsidiary has calculated its net taxable profit (loss) by taking both any forbidding expenditures and any reduced or exceptionable accounting transactions to adding - up or deducting from net profit (loss) under accounting base.

The corporate income tax rate being used in the period 2020 and 2019 are 20%, respectively, and the rate used in calculate Deferred Income Tax is 20%.

23.1 Income tax expenses year ended December 31, 2020 and 2019 consist of;

Thousand baht				
For the years ended December 31				
	Consolidated financial state-ment		Separate financial statement	
	2020	2019	2020	2019
Current Tax Expense				
Current year	4,417	-	4,417	-
Deferred tax expense				
Relating to origination and				
Reversal of temporary difference	315	3,683	336	3,779
Total	4,732	3,683	4,753	3,779

23.2 The reconciliation of the income tax expense and the result of the multiplying of the accounting profit with tax rate for year ended December 31, 2020 and 2019 are presented as the following:

	Thousand baht			
	Consolidated financial statement		Separate financial statement	
	For the years ended December 31			
	2020	2019	2020	2019
Accounting profit before deduct tax exemption income	5,669	2,687	15,244	12,830
Less Tax exemption income	-	-	-	-
Accounting profit before corporate income tax	5,669	2,687	15,244	12,830
Corporate income tax rate	20%	20%	20%	20%
Tax calculated at the income tax rate 20%	1,134	537	3,049	2,566
Effects to deferred tax	315	3,683	336	3,779
Effects from non- deductible expenses -				
- Non deductible expense	4,644	-	2,729	(2,029)
- Deficit	(1,361)	(537)	(1,361)	(537)
(Income) expense of tax reported in the state-ments of income	4,732	3,683	4,753	3,779

23.3 Components of deferred tax assets and deferred tax liabilities comprised of the following items.

	Thousand baht			
	Consolidated financial statement		Separate financial statement	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Deferred tax assets:				
Allowance for Doubtful Ac-count	1,734	1,849	1,734	1,849
Inventories	2,969	2,623	2,969	2,623
Employee benefits obligation	2,563	3,109	2,441	3,008
Deficit	272	272	272	272
Total	7,538	7,853	7,416	7,752

24. Legal reserve

In compliance with the Public Company Act, B.E. 2535 (1992), the Company has to set aside a portion of annual net profit for legal reserve not less than 5% of annual net profit less deficits brought forward (if any) until this reserve is not less than 10% of authorized capital. Such reserve is not allowed to pay for dividend.

25. Segment information

Operating segment information is reported in a manner consistent with the internal reports that are regularly reviewed by the chief operating decision maker in order to make decisions about the allocation of resources to the segment and assess its performance.

For management purposes, the Group is organised into business units based on its products and services has the following three reportable segments:

1. Products and Solution segment, which sell from being a reseller and selling projects as a system integrator and manufacturer.
2. Services segment, which provides after sales services and other services to general customers by the company's technical support team.
3. Service Provider segment, which provides high speed internet through fiber and cloud communications managed services as subscription.

No other operating segments have been aggregated to form the above reportable operating segments.

The chief operating decision maker separately monitors the operating results of the business units for the purpose of making decisions about resource allocation and assessing performance. Segment performance is measured based on operating profit or loss and on a basis consistent with that used to measure operating profit or loss in the financial statements. However, the Group's financing activities, which give rise to finance costs and finance income, selling and administrative expenses, and income taxes are managed by no allocation to operating segments.

The following table presents revenue and profit information regarding the Group's operating segments for the years ended December 31, 2020 and 2019.

Consolidated financial statement (Thousand baht)

For the years ended December 31, 2020				
	Sales income	Service income	Income from service providers	Total
Revenue:				
Sale and service	489,981	78,605	27,449	596,035
Cost of sale and service	(388,801)	(36,444)	(25,542)	(450,787)
Gross profit	101,180	42,161	1,907	145,248
Selling expenses				(35,773)
Administrative expenses				(94,932)
Profit (loss) before from operating activities				14,543
Other income				11,039
Finance costs				(18,409)
Profit (loss) before tax expense				7,173
Tax expenses (income)				(4,732)
Profit (loss) for the periods				2,441
Fix assets – net				660,571
Common assets				147,186
Total assets				807,757

Consolidated financial statement (Thousand baht)

For the years ended December 31, 2019

	Sales income	Service income	Income from service providers	Total
Revenue:				
Sale and service	620,513	184,470	30,171	835,155
Cost of sale and service	(563,320)	(87,979)	(28,496)	(679,796)
Gross profit	57,193	96,491	1,675	155,359
Selling expenses				(45,747)
Administrative expenses				(104,364)
Profit (loss) before from operating activities				5,248
Other income				14,054
Finance costs				(16,615)
Profit (loss) before tax expense				2,687
Tax expenses (income)				(3,683)
Profit (loss) for the periods				(996)
Fix assets – net				727,402
Common assets				166,462
Total assets				893,864

Geographic information

The Group operates in Thailand only. As a result, all of the revenues and assets as reflected in these financial statements pertain exclusively to this geographical reportable segment.

Major customers

During the nine-month period ended December 31, 2020 The Company and its subsidiary has income from 10 major customers, total amount approximately Baht 341.29 Million baht equivalent to 57 % of total revenue

During the nine-month period ended December 31, 2020 international sales and service revenue accounted for approximately 6 percent (2019: 2 percent) of sales and service revenue.

26. Expenses by nature

The significant expenses for the years ended December 31, 2020 and 2019, are categorized by their natures as follows;

	Thousands of baht			
	Consolidated financial statement		Separate financial statement	
	For the years ended December 31			
	2020	2019	2020	2019
Employee expenses	98,924	106,628	88,003	98,858
Depreciation and Amortization	28,944	29,403	21,128	29,267
Operation Lease	5,484	14,404	5,435	14,372
Raw materials used	365,531	534,420	365,978	534,420
Change in inventories of finished goods and work in process	(12,906)	(33,122)	(12,906)	(33,122)

27. Provident fund

The Group and its employees have jointly established a provident fund in accordance with the Provident Fund Act B.E. 1987. Both employees and the Group contribute to the fund monthly at the rate of 5% of basic salary. The fund, which is managed by TISCO Asset Management Company Limited, will be paid to employees upon termination in accordance with the fund rules. The contributions for the year 2020 and 2019 amounting to Baht 2.11 million (Separate financial statements: Baht 1.99 million) and Baht 1.45 million (Separate financial statements: Baht 1.36 million), respectively, were recognized as expenses.

28. Commitments and contingent liabilities

28.1 Bank guarantees

As at December 31, 2020, there were outstanding bank guarantees of Baht 132.84 million (Baht 132.84 million for the Company) issued by banks on behalf of the Group in respect of certain performance bonds as required in the normal course of business to guarantee contractual performance.

As at December 31, 2020, there were letter of credit issued by bank for its supplier amount of Baht 9.12 million.

28.2 Agreement

Bliss-Planet Joint venture agreement

The Company entered into the joint venture agreement with Bliss-Tel Public Company Limited named "Bliss-Planet Joint venture" for bidding of the National Broadcasting and Telecommunications Commission's hi-speed internet in the remote area (Zone C) group 2 north 2 project. The agreement contained the significant conditions as follows:

- The role and responsibilities of joint venture concerning investment for the project, income and expenses, and controlling the project operation, are undertake by Bliss-Tel Public Company Limited.
- The counterparty agrees to authorize Bliss-Tel Public Company Limited to be the sole authority in the selection of Vendor / Supplier / Contractor as well as the selection of buyers or use materials, equipment, including hiring various subcontractors to perform project work and selecting a high speed internet service provider.
- Bliss-Planet Joint venture agreed to purchase a material and equipment from the Company as agreed with Bliss-Tel Public Company Limited and the Company is granted a priority entity to submit a sub-contractor agreement quotation to Bliss-Tel Public Company Limited. In case the Company's quotation price is same price as others, Bliss-Tel Public Company Limited has to select the Company as a sub-contractor for this project.

The Company has no investment in such joint venture.

The company has the outstanding receivables as of December 31, 2020 of 80.61 million baht.

The hi-speed internet in the remote area (Zone C) group 2 north 2 project.

The Company has commitment as a joint venture, Joint Venture (Bliss-Planet Joint Venture) entered into an agreement for the National Broadcasting and Telecommunications Commission's hi-speed internet in the remote area (Zone C) group 2 north 2 project in the amount of Baht 1,998 million (including VAT and other expense). The project has planned to finish within 5 years and 360 days from the signing contract date.

29. Financial instruments

29.1 Financial risk management policy

The Company's financial instruments, principally comprise deposits with financial institutions, trade receivables and payables, receivable and payable - principals. The financial risks associated with these financial instruments and how they are managed is described below.

Credit risk

(A) Trade receivables

The Company is exposed to credit risk primarily with respect to trade. The Company manages the risk by adopting appropriate credit control policies and procedures and therefore does not expect to incur material financial losses. The maximum exposure to credit risk is limited to the carrying amounts of trade receivables and receivable - principals as stated in the statements of financial position.

(B) Deposits with financial institutions

The Company is exposed to risk arising from deposit with financial institutions. However, the counterparties are banks. With a good credit rating, for which the Company considers to have low credit risk.

Liquidity risk

The Company monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Company's operation and to mitigate the effects of fluctuations in cash flows.

The remaining contractual maturities of financial liabilities at the reporting date are as follows:

Unit: Million Baht

Contractual cash flows (Consolidated Financial Statement)						
	Carrying amount	1 year or less	More than 1 year but Less than 2 years	More than 2 years but Less than 5 years	More than 5 years	Total
<u>As of December 31, 2020</u>						
Non - derivative financial liabilities						
- Other payables	16,257	16,257	-	-	-	16,257
- Lease liabilities	72,591	7,832	8,021	27,958	28,780	72,591
- Revenue Department	1,549	1,549	-	-	-	1,549
	90,397	25,638	8,021	27,958	28,780	90,397
Derivative financial liabilities	-	-	-	-	-	-

Unit: Million Baht

Contractual cash flows (Separated Financial Statement)						
	Carrying amount	1 year or less	More than 1 year but Less than 2 years	More than 2 years but Less than 5 years	More than 5 years	Total
<u>As of December 31, 2020</u>						
Non - derivative financial liabilities						
- Other payables	14,956	14,956	-	-	-	14,956
- Lease liabilities	72,402	7,643	8,021	27,958	28,780	72,402
- Revenue Department	1,187	1,187	-	-	-	1,187
	88,545	23,786	8,021	27,958	28,780	88,545
Derivative financial liabilities	-	-	-	-	-	-

Market riskRisk from interest rate

The Company's exposure to interest rate risk relates primarily to its cash at financial institutions. However, since most of the Company's financial assets and liabilities bear floating interest rates or fixed interest rates which are close to the market rate, the interest rate risk is expected to be minimal.

As at 31 December 2019 and 2018, significant financial assets and liabilities classified by type of interest rate are summarised in the table below, with those financial assets and liabilities that carry fixed interest rates further classified based on the maturity date, or the repricing date if this occurs before the maturity date.

Unit: Million Baht

Consolidated financial statement								
	Floating interest rate		Fixed interest rate		Non-interest bearing		Total	
	2020	2019	2020	2019	2020	2019	2020	2019
<u>Financial asset</u>								
Cash and cash equivalents	1.33	4.08	5.49	5.65	24.72	24.58	31.54	34.31
Trade and other current receivable-net	-	-	-	2.95	274.38	445.83	274.38	448.78
Restricted deposit at financial institutions	6.4	6.4	15	15	-	-	21.4	21.4
<u>Financial liabilities</u>								
short-term loan borrowing from financial institution	-	-	129.98	338.36	-	-	129.9	338.36
Trade and other current payable	-	-	-	-	105.21	62.86	105.21	62.86
Long-term loan borrowing from financial institution	10	10.5	-	-	-	-	10	10.5
Lease liabilities	-	-	65.68	16.3	-	-	65.68	16.3

Unit: Million Baht

Separate financial statement								
	Floating interest rate		Fixed interest rate		Non-interest bearing		Total	
	2020	2019	2020	2019	2020	2019	2020	2019
<u>Financial asset</u>								
Cash and cash equivalents	0.15	3.39	5.49	5.65	20.17	24.58	25.81	33.62
Trade and other current receivable-net	-	-	-	2.95	291.91	452.86	291.91	455.81
Restricted deposit at financial institutions	6.4	6.4	15	15	-	-	21.4	21.4
<u>Financial liabilities</u>								
short-term loan borrowing from financial institution	-	-	129.98	338.36	-	-	129.98	338.36
Trade and other current payable	-	-	-	-	103.90	62.46	103.90	62.46
Long-term loan borrowing from financial institution	10	10.5	-	-	-	-	10	10.5
Lease liabilities	-	-	65.68	15.96	-	-	65.68	15.96

Foreign currency risk

The Group's exposure to foreign currency risk arises mainly from trading transactions and borrowings that are denominated in foreign currencies. The Group seeks to reduce this risk by entering into forward exchange contracts, which mature within one year.

As at December 31, 2020 and 2019 the balances of financial assets and liabilities denominated in foreign currencies are summarised below.

Consolidated and Separate financial statement

Foreign currency	Financial asset		Financial liabilities		Exchange rate	
	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
	(Million)	(Million)	(Million)	(Million)	(Baht per 1 foreign currency)	
US dollar (million)	0.31	0.39	1.53	1.86	30.0371	30.1540
Euro (million)	-	-	0.03	0.10	36.8764	33.7311
Pound sterling (million)	-	-	0.12	0.16	40.6403	39.5217

As at December 31, 2020, forward exchange contracts outstanding are summarized below.

Consolidated and Separate financial statement

December 31, 2020

Foreign currency	Bought amount	Contractual exchange rate bought	Contractual maturity date
	(Million Baht)	(Baht per 1 foreign currency)	(Million)
US dollar	2.28	29.925 – 30.34	July 16, 2020 – March 23, 2020

The fair value of forward exchange contracts as at December 31, 2020 amounted to Baht 11.21 million. (2019: Baht 12.03 million).

Fair value of forward foreign contracts is within level 2 of the value hierarchy.

The fair values of foreign exchange forward contracts have been calculated using market price rates quoted by the banks as if such forward contracts were to be terminated at the financial position date.

Fair values of financial instruments

Since the majority of the Group's financial instruments are short-term in nature or carrying interest at rates close to the market rates, their fair values are not expected to be materially different from the amounts presented in statement of financial position.

The fair value of derivatives has been determined by using a discounted future cash flow model and a valuation model technique. Most of the inputs used for the valuation are observable in the relevant market, such as spot rates of foreign currencies, yield curves of the respective currencies and interest rate yield curves. The Group had considered to counterparty credit risk when determining the fair value of derivatives.

During the current period, there were no transfers within the fair value hierarchy.

30. Capital Management

The objectives of the Group in capital management are to maintain their abilities to continue as a going concern and to maintain appropriate capital structure. In addition, they have to maintain debt to equity ratio as stipulated in loan agreements.

The Group has a debt-to-equity ratio as of December 31, 2020 in the consolidated financial statements of 0.95: 1 (31 December 2019 equals 1.17: 1) and in separate financial statements is 0.95: 1 (31 December 2019 equals 1.14: 1).

31. Prior year adjustments and reclassification

The Company reclassified certain accounts in the financial statements for comparison purpose. In order to be consistent with the accounting classification of the current period Which does not affect the profit for the year or shareholders' equity as previously reported The following significant reclassifications have been made:

Thousands of baht

	Consolidated financial statement			Separate financial statement		
	Before reclassification	reclassification	After reclassification	Before reclassification	reclassification	After reclassification
Trade receivables - others - net	433,163	(6,123)	427,040	433,163	(6,123)	427,040
Other receivables - others	22,834	(1,094)	21,739	22,641	(1,091)	21,550
Other receivables - related parties	-	6,123	-	-	6,123	-
Other current assets	-	1,094	1,094	-	1,091	1,091
Trade payables - others	(64,029)	5,378	(52,528)	(58,651)	-	(58,651)
Trade payables - related parties	-	-	-	-	-	-
Other current liabilities- others	(6,422)	(3,710)	(10,132)	(5,435)	1,627	(3,808)
Other current liabilities	-	(1,669)	(1,669)	-	(1,627)	(1,627)

32. Approval of the interim Financial Statements

The interim financial statements have been approved by the Company's board of directors on February 25, 2021.



Mr. Prapat Rathlertkarn
President & Chief Executive Officer



Mr. Trevor John Thompson
President & Chief Technology Officer

Shareholders and dividend payment policy

Number of registered capital and paid registered capital

As at December 31, 2020 PLANET's registered capital was 250.00 million Baht. The issued and paid-up share capital was 250.00 million Baht, divided as 250.00 million ordinary shares of 1.00 Baht par value.

List of ten major shareholders as at December 31, 2020

Shareholder Name	Number of Share	% of Total Share
Mr. Prapat Rathlertkarn's family	78,950,000	31.58
1 Mr. Prapat Rathlertkarn	70,200,000	
2 Mrs. Chanisa Rathlertkarn	6,250,000	
3 Miss Patnaree Rathlertkarn	2,500,000	
Mr. Trevor John Thompson's family	78,950,000	31.58
1 Mr. Trevor John Thompson	70,200,000	
2 Mrs. Jongjit Anek-ka	6,250,000	
3 Mr. Danai Thompson	833,334	
4 Mr. Darun Thompson	833,333	
5 Miss Alisa Thompson	833,333	
Mr. Satit Rathlertkarn	9,217,000	3.687
Mrs. Ratana Suwan	5,120,000	2.05
Mr. Thanakom Tanwat	2,975,600	1.19
Mr. Tanatip Vivattanakijcharoen	2,768,400	1.11
Mr. Surapoj Suwanpanich	1,642,700	0.66
Mr. Narong Wangcharoenwong	1,570,100	0.63
Mr. Nithivaj Charatpiyavit	1,472,300	0.59
Ms.Unchalee Pichitbunchonchai	1,292,700	0.52

*Remarks :

(1) Limitation for Foreigner Assets Entitlement PLANET' limitation for foreigner assets entitlement is 49% of paid capital. As at December 31, 2020, foreigner holding PLANET assets is figured at 28.22% of its paid capital.

(2) Group of principal shareholders having significantly behavioral influence on defining PCA policies and business operations. Mr. Prapat Rathlertkarn's family, Mr. Trevor John Thompson's family, and Ms. Ratana Suwan entirely holding about 65.21% shares are the Group of principal shareholders which two of seven Directors have significantly behavioral influence on defining PLANET policies and business operations.

Issuance of other assets

- none -

Dividend payment policy

According to PLANET policy, the dividend payment is not less than 50% of net profit after corporate income deduction. However, the dividend payment rate can be less than the stipulated rate in case that it is necessary that PLANET shall spend such net profit for its business expansion.

Details of dividend payment are as follows:

Details	2018	2019	2020
1. Net (Loss) Profit (Baht)	5,875,075	(996,586)	2,440,660
2. Net Profit after legal reserved (Baht)	5,506,033	(1,449,129)	2,440,660
3. Number of Shares (Million Shares)	250	250	250
4. Dividend Payment (Baht per share)			
- Interim dividend	No Dividend Payment	No Dividend Payment	No Dividend Payment *
- Annual dividend			
5. Total dividend payment (Baht)	-	-	-
6. Dividend Payout Ratio (%)	-	-	-

Remarks: (*)

The omit dividend payment against the 2020 performance outcomes would be considered and approved by the 2021 Annual General Meeting of the shareholders

General Information and Other Information

(1) Securities issuer

Name:	Planet Communications Asia Public Company Limited
Head office Address :	157 Ramindra 34, Ramindra Road, Tha Rang Subdistrict, Bang Khen District, Bangkok 10230
Establish date :	April, 27, 1994
Listed date in mai :	June, 23, 2014
Industry/Sector :	Technology
Nature of business :	Provision of service of telecommunication and digital TV, covering 3 groups of products:

(1) Distribution of full-ranged products (Solutions) consisting of telecommunication systems, wireless networks, wired network and multimedia systems, as well as television and digital television broadcasting systems and products under the name PlanetComm

(2) Service, which is a full-range of services including giving consult for customization, design, installation, training, maintenance services and systems or devices repairs

(3) Be a service provider, such as, PlanetFiber for providing fiber internet services for condominiums, Planetcloud for providing "monthly payment", office equipment and systems through cloud office

Registration No:	0105537049391
Homepage:	www.planetcomm.com
Tel :	02-792-2400
Fax :	02-792-2499

(2) Securities Registrar

Name :	Thailand Securities Depository Co., Ltd. (TSD)
Head office Address :	93, Rachadapisek Road, Dindaeng, Bangkok 10400
Homepage :	www.set.or.th/tsd
Tel :	02-009-9000
Fax :	02-009-9991

(3) Auditor

Name :	A.M.T. Associates
Head office Address :	Ground Floor, Silom Plaza, 491/27 Silom Road, Silom Subdistrict, Bangrak District, Bangkok 10500
Homepage :	-
Tel :	02-234-1678, 02-234-1676, 02-237-2132
Fax :	02-237-2133

(4) Consultants

(4.1) Internal Control Consultant

Name : P&L Internal Audit Co., Ltd.
Head office Address : 92/204 Ratanathibet Road, Nanthana Garden Housing Development, Tha It Lane, Village No. 5,
Bangrak noi Subdistrict, Muang Nonthaburi District, Nonthaburi 11000
Tel : 02-526-6100, 02-526-7811
Fax : 02-526-6100

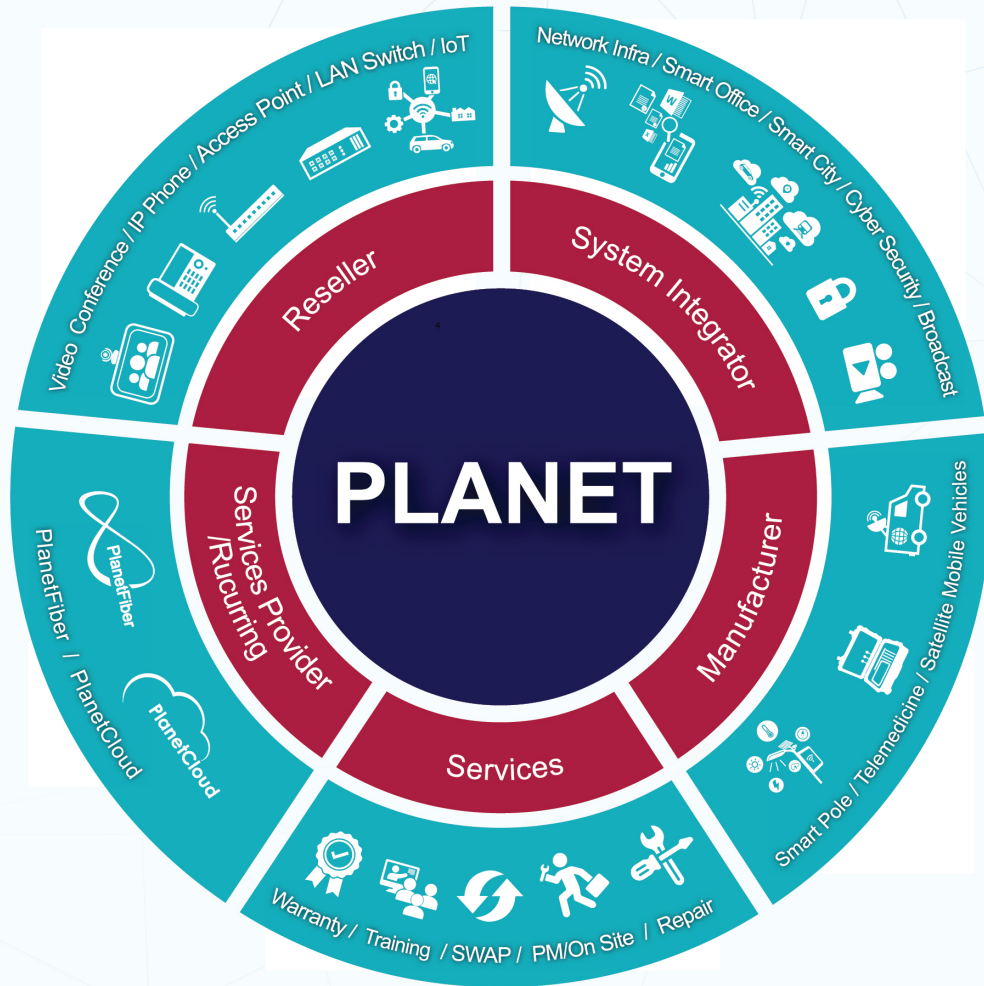
(4.2) Legal consultant

Name : Woraset and Partners Company Limited
Head office Address : 77/31, Moo 3, Bangkruay Sainoi Road, Bangsithong Subdistrict, Bangkruay District, Nonthaburi 11130
Tel : 02- 9101324
Fax : -

Name : Thai Advisory Office Company Limited
Head office location : 72 PVA Building 5th Floor, Soi Ladprao 42, Ladprao Road, Samsennok Subdistrict, Huaykwang District, Bangkok 10310
Tel : 02-975-9917-8
Fax : 02-975-9917-8

Notes:

Investors could find more company's information in Form 56-1 via www.set.or.th or www.planetcomm.com



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