

# PT. ALPHA INDO NUSA



## AIN

**MAIN CORE  
BUSINESS  
DEVELOPMENT**

### BUSINESS PLAN 1

#### WIRELESS INTERNET SERVICE PROVIDER (WISP)

With nanosatellites, the benefits that were traditionally reserved exclusively for large companies or space agencies with vast financial resources have been democratized and are now accessible to companies of all types and sizes. This is a great opportunity to be able to combine satellite internet lines with Wi-Fi internet Service lines and 5G transversal network globally to remote areas such as rural villages that are difficult to reach with a fiber optic connection.

The opportunity for wireless (Wi-Fi) installations and ongoing management of these networks has increased greatly in the past year and is projected by industry experts to grow at an annual rate of no less than 17% a year in Indonesia based on Datareportal-Hootsuite, 98% internet access are from cellphone, with speed around 13 - 21 Mbps.

Wi-Fi is quickly becoming the standard in the delivery of Internet connectivity throughout many organizations, government agencies and businesses, and now Wi-Fi had been upgraded with the latest technology to revision 6E with taking advantage of the newly opened 6 GHz band, which is strictly limited to only 802.11ax-and-up devices. On top of that, this band brings with it an additional seven 160 MHz-wide channels (currently, there are about 4 with normal Wi-Fi) bringing a great deal of additional headroom to a network. Full duplex MU-MIMO that goes both ways with multiple devices communicating back to the access point (AP) allows for commands sent to multiple devices to be acknowledged simultaneously. This reduces latency across the board and ensures a more stable connection and smoother experience for the end user.

# Product Name : "Alphaindo Airfiber" (Al-Jaber)

## *Nanosatellite - WiFi 6e - 5G Mobile Network*

### BUSINESS MAIN FOCUS

Alpha Airfiber (Al-Jaber) focus in developing West Java Province and a business product by Indonesia based corporation, PT. Alpha Indo Nusa. It specializes in realizing innovative small satellite missions. Through its unique and proven full vertical integration approach that combines design, development, production, testing, launch service and satellite operations into one organization, the company can offer the right solutions, from subsystems to full mission and constellation building. It specializes in wireless communications (Wi-Fi) for individuals, businesses & entire communities, and focused on rural area. Alpha Java Airfiber (Al-Jaber) offers custom, ground-up metropolitan, and rural area ultra-speed data up to 1Gb/s with backbone system backup by Intersat-link of The Nanosatellite.



### AL-JABER ENTERPRISE

#### Commercial & Industrial Properties

Al-Jaber Enterprise solution is a full-service plan for owners and landlords of large commercial and industrial properties. With industrial vacancy rates close to %10 and commercial office space reaching %16, property owners are looking for ways to stand out in the market and increase revenue. Quickly becoming the "fourth" utility, wireless Internet access gives property owners the ability to provide this service at a fraction of the cost of a traditional high-speed wired network. Al-Jaber Enterprise is a completely managed service that includes complete installation, 7/24 management and maintenance.



### AL-JABER MASSIVE HOTSPOT

#### Recreation Places & Road Light Lamp Hotspot

Alpha Java Airfiber (Al-Jaber) is in the unique position of being able to offer Wi-Fi 6e services to public place such as recreation area and road light lamp throughout the highway quickly and efficiently. Because of the management team's prior experience in the public place internet service with volume based or time based, and of course with lower price and high speed data quality because of the technology 5Ghz and 6Ghz. The Wi-Fi 6E standard further improves the 802.11ax network user experience with faster and more reliable Wi-Fi networks that are designed for soaring device densities and high-bandwidth applications such as video streaming, videoconferencing, and voice calls.



### AL-JABER ISP ENTERPRISE

#### Internet Service Providers (ISPs) for SMEs

ISPs play an important role in companies. Al-Jaber will partner with local MSMEs to resell Al-Jaber Enterprise ISP solutions. The benefit of partnering with an ISP is focus. The core focus of ISPs is to provide raw connectivity to their clients, both wired and wireless. In this case, MSMEs can help become a local service provider to handle network installation to customers directly through the main Al-Jaber network.



### AL-JABER NANOSATELLITE

#### Connections for Remote Areas and IoTs

Al-Jaber Nanosatellite focuses on providing internet connection to the place where normal DSL can't be reach especially for the rural areas' customers. With this newly technology satellite that cut off the weight of satellite and the price for launch, and newly open frequency with high throughput give more advantages and ready for business. With this market for service will be more reasonable for rural area and cheaper but with high quality data speed.





## What is 5G ?



5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks. 5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices. 5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. Higher performance and improved efficiency empower new user experiences and connects new industries.



5G networks are cellular networks, in which the service area is divided into small geographical areas called cells. All 5G wireless devices in a cell communicate by radio waves with a cellular base station via fixed antennas, over frequency channels assigned by the base station. The base stations, termed gNodeBs, are connected to switching centers in the telephone network and routers for Internet access by high-bandwidth optical fiber or wireless backhaul connections. As in other cellular networks, a mobile device moving from one cell to another is automatically handed off seamlessly to the current cell. 5G can support up to a million devices per square kilometer, while 4G supports only one-tenth of that capacity. Several network operators use millimeter waves called FR2 in 5G terminology, for additional capacity and higher throughputs. Millimeter waves have a shorter range than microwaves, therefore the cells are limited to a smaller size. Millimeter waves also have more trouble passing through building walls. Millimeter-wave antennas are smaller than the large antennas used in previous cellular networks. Some are only a few centimeters long. The increased speed is achieved partly by using additional higher-frequency radio waves in addition to the low- and medium-band frequencies used in previous cellular networks. However, higher-frequency radio waves have a shorter useful physical range, requiring smaller geographic cells. For wide service, 5G networks operate on up to three frequency bands – low, medium, and high.

5G can be implemented in low-band, mid-band or high-band millimeter-wave 24 GHz up to 54 GHz. Low-band 5G uses a similar frequency range to 4G cellphones, 900–600 MHz, giving download speeds a little higher than 4G: 250–30 megabits per second (Mbit/s). Low-band cell towers have a range and coverage area similar to 4G towers. Mid-band 5G uses microwaves of 4.7–2.3 GHz, allowing speeds of 900–100 Mbit/s, with each cell tower providing service up to several kilometers in radius. This level of service is the most widely deployed, and was deployed in many metropolitan areas in 2020. Some regions are not implementing the low band, making Mid-band the minimum service level. High-band 5G uses frequencies of 47–24 GHz, near the bottom of the millimeter wave band, although higher frequencies may be used in the future. It often achieves download speeds in the gigabit-per-second (Gbit/s) range, comparable to cable internet. However, millimeter waves (mmWave or mmW) have a more limited range, requiring many small cells. They can be impeded or blocked by materials in walls or windows. Due to their higher cost, plans are to deploy these cells only in dense urban environments and areas where crowds of people congregate such as sports stadiums and convention centers.

The above speeds are those achieved in actual tests in 2020, and speeds are expected to increase during rollout. The spectrum ranging from 29.5–24.25 GHz has been the most licensed and deployed 5G mmWave spectrum range in the world. The industry consortium setting standards for 5G is the 3rd Generation Partnership Project (3GPP). It defines any system using 5G NR (5G New Radio) software as "5G", a definition that came into general use by late 2018. Minimum standards are set by the International Telecommunication Union (ITU).

Download a full 8k movie

**500%**  
**faster**  
than 4G LTE

# Discover The Power of 5G

5G networks and services will be deployed in stages over the next several years to accommodate the increasing reliance on mobile and internet-enabled devices. Overall, 5G is expected to generate a variety of new applications, uses and business cases as the technology is rolled out.



## ADVANCING SOCIETIES

5G opens cutting-edge ways of improving safety and sustainability.

- Smarter electricity grids for greatly reduced carbon emissions
- More connected vehicles sharing data to prevent road collisions
- Faster deployment of emergency services to accidents
- Connected sensors that can detect and warn of natural disasters early
- Drones becoming a key tool to accelerate and support emergency situation response
- Remote expertise with specialists smoothly consulting/diagnosing patients elsewhere



## TRANSFORMING INDUSTRIES

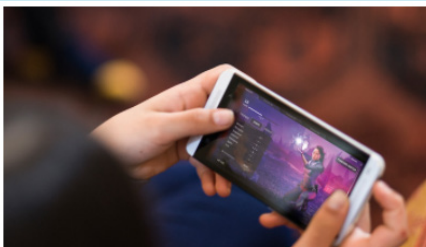
- 5G is the foundation for flexible, efficient and responsible business.
- Production lines autonomously reacting to supply and demand
- Digital replicas that can warn about real machinery faults ahead of time
- Logistic networks autonomously routing goods based on real-world conditions
- Full traceability down to the individual item at warehouses and ports
- Remote access to powerful robots and vehicles for improved safety in risky environments
- Increased use of IoT in agriculture to efficiently grow crops



## ELEVATING EXPERIENCES

5G sets the stage for more immersive entertainment and more engaging education.

- Greater realism in VR, AR and extended reality (XR) with lighter devices
- Delivering sensory experiences, like touch, through devices
- More engaging methods of teaching through immersive content
- Immersive virtual meetings to boost remote team productivity
- Stable and reliable connectivity in crowded spaces
- New angles and interactions for live and remote event spectators



5G for consumers



5G for business



5G networks

## WHAT ARE THE OPPORTUNITIES

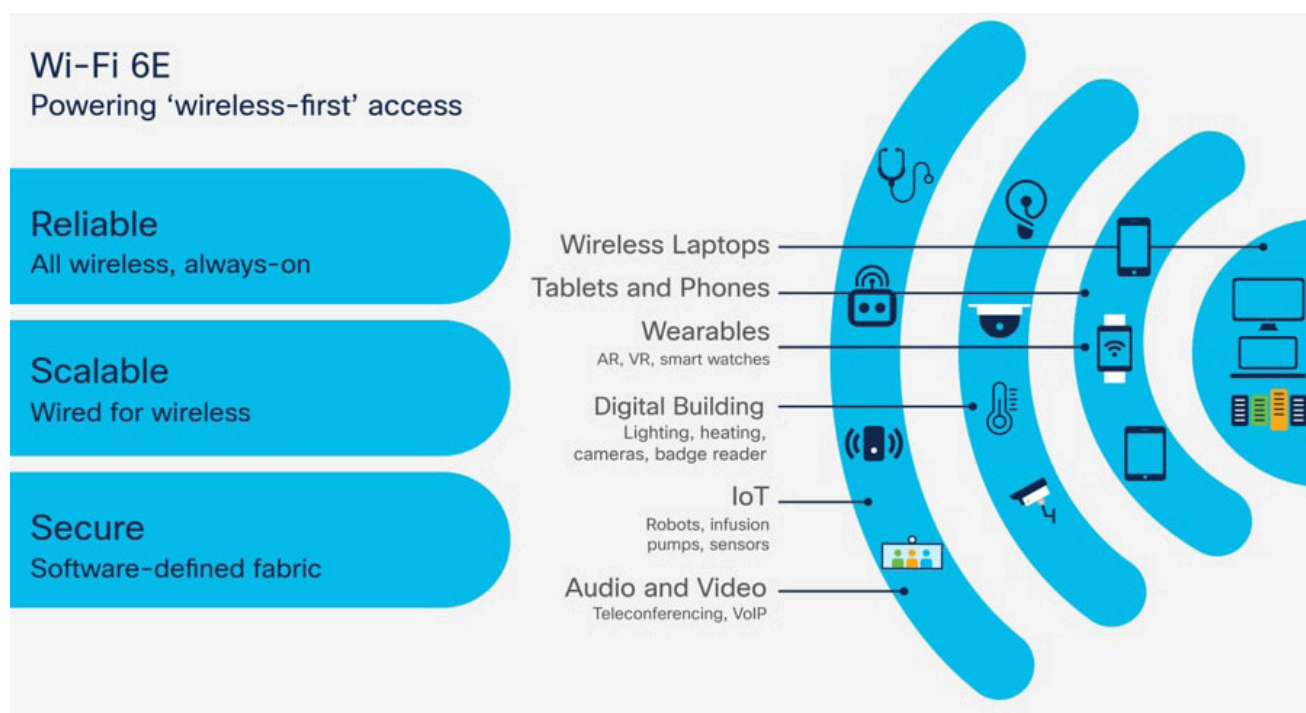
5G gives communication service providers the ability to serve a multitude of use-cases and use-places with lightning fast connectivity. From smart phones to smart factories, 5G is the open innovation platform that enables society to take the leap towards a smarter, safer and sustainable future.





## What is Wi-Fi 6E ?

Wi-Fi 6 Extended (Wi-Fi 6E) is an enhanced version of Wi-Fi 6 launched by the Wi-Fi Alliance. It extends the Wi-Fi 6 capabilities to the 6 GHz frequency band, offering up to 1200 MHz of additional spectrum. In January 2021, the Wi-Fi Alliance officially launched the Wi-Fi 6E certification, opening up the standard for new devices.



In April 2020 the Federal Communications Commission (FCC) announced the opening of the 6 GHz band for Wi-Fi and other unlicensed uses. This announcement is a good thing, and arguably one of the best things to happen in Wi-Fi since Wi-Fi 6 and Orthogonal Frequency-Division Multiple Access (OFDMA) came about. For some perspective on why this is such a milestone event for Wi-Fi, it should be noted that from its U.S. beginnings in 1985 all the way to the present, Wi-Fi has been granted a total of just 583 MHz of spectrum in both the 2.4 and 5 GHz bands combined. This spectrum accrual took place in multiple separate grants over the years. Wi-Fi has steadily grown in popularity and provides demonstrable economic benefit. Wi-Fi's capabilities have also grown, and as a result, its use in the 2.4 and 5 GHz bands has reached its limits.

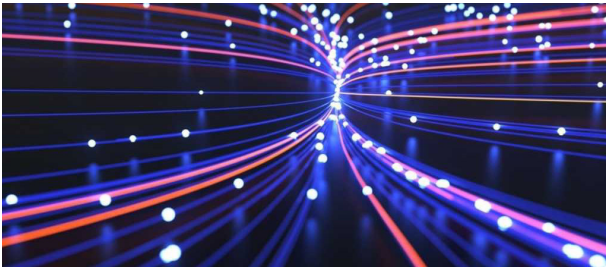
In April 2020, years into this "experiment in unlicensed use," a single announcement gave Wi-Fi 1200 MHz of spectrum, more than doubling the current Wi-Fi spectrum allocated in the U.S. The last time Wi-Fi technologies in the U.S. received spectrum from the FCC, it was granted as an experiment in coexistence to align the U.S. channel plans better with other regulatory bodies allowing operations in the U-NII2-c (extended) 5 GHz band. That grant, in 2003, made an additional 240 MHz of spectrum available to Wi-Fi in the U.S. Back then, access points and client devices both required new radios to be able to use this new frequency range. Access points were required to demonstrate an ability to detect and avoid the incumbent user in the band — fixed radar installations. This required implementing Dynamic Frequency Selection (DFS) to ensure that Wi-Fi safely accessed the channels without interfering with existing services.

Wi-Fi 6E didn't just happen overnight, and the solutions it brings have all been studied and largely targeted to solve specific challenges. Wi-Fi has made many advances that have contributed to its growing success over the years. Much as Wi-Fi 6 was created to solve some of the issues inherent with Wi-Fi 1 through 5 operations, Wi-Fi 6E will now implement spectrum rules that favor better Wi-Fi operations. This is the first new spectrum granted for Wi-Fi in the U.S. since the 802.11a (Wi-Fi 3) days. The Wi-Fi 6E specification was designed and implemented to remove the spectrum obstacles that have prevented users from taking advantage of some of the coolest features in Wi-Fi (such as 80 and 160 MHz channels).

The big news, of course, is the 1200 MHz of spectrum between 5.925 GHz and 7.125 GHz, which is known collectively as the 6 GHz band. More subtly, though, an important distinction here is that this is "contiguous" spectrum. That means there are no breaks or gaps in the frequency range from beginning to end. Historically defined ranges for Wi-Fi operations have been added over time as spectrum became available and the need could be demonstrated. Desirable spectrum ranges that aren't being used are hard to come by, but technologies do change or become obsolete over time. As this happens, spectrum ranges see fewer and fewer primary users, and some ranges eventually get reassigned to other uses. Spectrum is a precious resource, and as Wi-Fi has matured, so has the technology. DFS, for instance, was developed to allow a more cognitive coexistence between Wi-Fi and existing radar systems, allowing 240 MHz (U-NII2-c) to be added for Wi-Fi operations in 2003.

# Beyond the Boundaries of WiFi 6

Simply put, WiFi 6E means WiFi 6 extended to the 6 GHz band. WiFi 6E works with the same standard as WiFi 6 but with an extended spectrum. 6 GHz is the new frequency band ranging from 5.925 GHz to 7.125 GHz, allowing up to 1,200 MHz of additional spectrum. Unlike the existing bands on which channels are currently crammed into the limited spectrum, 6 GHz band exists without overlap or interference. Access to the 6 GHz frequency brings more bandwidth, faster speeds, and lower latency, opening up resources for future innovations like in AR/VR, 8K streaming and more.



## MINIMIZED CONGESTION WITH GREENFIELD SPECTRUM

Unlike the crowded 2.4 GHz and 5 GHz bands, the wide-open 6 GHz spectrum is occupied only by efficient WiFi 6 connections, removing frustrations currently caused by overcrowding on many WiFi networks. Channels on the newly opened 6 GHz band also wouldn't overlap with each other, greatly reducing network congestion.



## WIDER LANES FOR FASTER SPEEDS

WiFi 6E allows for 7 additional 160 MHz channels that double bandwidth and throughput, enabling many more simultaneous transmissions at the highest possible speeds. This translates to users enjoying 8K movies, AR/VR gaming, and large file downloads—all without buffering.



## IMPROVED CAPACITY WITH MORE SPECTRUM

WiFi 6E offers up to 1,200 MHz of additional spectrum for 6 GHz WiFi, fulfilling the needs of ever-increasing WiFi usage. The 1.2 GHz of contiguous spectrum more than doubles the number of pathways currently available for sending and receiving data, dramatically increasing network capacity while reducing congestion.

## Benefits of Wi-Fi 6E



### Super-High Speeds

1200 MHz contiguous spectrum: 14 x 80 MHz and 7 x 160 MHz channels enable faster data transmission on wider channels.



### Ultra-Low Latency

With more channels and no congestion, Wi-Fi 6E ensures low latency for latency-sensitive applications.



### Low Interference

The new 6 GHz spectrum is clean and exclusive to Wi-Fi 6E-capable devices, eliminating interference from other wireless networks.



### Super-Large Capacity

The 6 GHz spectrum provides more non-overlapping channels and larger capacity, resolving connection and network congestion issues.

## WI-FI 6E VS WI-FI 6

Inheriting all the new technologies of Wi-Fi 6, Wi-Fi 6E extends Wi-Fi networks from the conventional 2.4 GHz and 5 GHz frequency bands to the new 6 GHz frequency band, ranging from 5.925 GHz to 7.125 GHz.\* This new spectrum range is open and clean, without overlapping channels or interference. As a result, Wi-Fi 6E provides wider frequency bands, more channels, and lower interference, achieving higher throughput, lower latency, and larger capacity. \*The actual frequency bands used depend on local laws and regulations.





## What is Nanosatellit ?

We tend to think of satellites as huge spacecraft that tower over the engineers who build them. Consider Envisat, SOHO and GOCE — all ESA satellites similar in size to a small bus. But over the last twenty years, miniature satellites called CubeSats have been shaking up the space industry, making accessing space easier and cheaper for those who could previously only dream of it.

CubeSats are typically built up from standard cubic units each measuring 10 cm x 10 cm x 10 cm — just a bit bigger than a Rubik's cube! The number of units depends on the CubeSat's mission, but tends to be between 2 and 12, resulting in a mass of just 1–10 kg. These little satellites have a fraction of the mass, and cost, of more traditional satellites.

Having initially been developed as educational tools, CubeSats are increasingly being put to active use in orbit for technology demonstration, scientific studies, and even commercial purposes. And just like typical satellites, they are custom built to fulfil the specific requirements of their mission.

CubeSats tend to hitch a ride into space using extra space available on rockets, meaning lots of launch opportunities and low launch costs. They are packed in a container which, at the push of a button, ejects them into space via a spring system. A similar technique is used to deploy CubeSats from the International Space Station (ISS), where they are launched out of the Japanese module, Kibo.

These small satellites provide affordable access to space for small companies, research institutes and universities. Their modular design means that subsystems are available off-the-shelf from different suppliers and can be stacked together according to the needs of the mission. This allows CubeSat projects to be readied for flight extremely quickly — typically within one or two years.

CubeSats are now commonly used in low Earth orbit for applications such as remote sensing and communications. But as engineers become more familiar with the technology, CubeSats are beginning to venture farther afield. Whether it's to the Moon, Mars, or even further, these tiny spacecraft are certainly changing the game when it comes to space exploration.

## HOW HEAVY IS A SATELLITE?



A  
**CUBESAT**  
is a  
**MINIATURE  
CUBE-  
SHAPED  
SATELLITE.**

### DIMENSIONS



4

**TYPES  
OF  
MISSIONS**



Technology  
demonstration



Scientific  
research



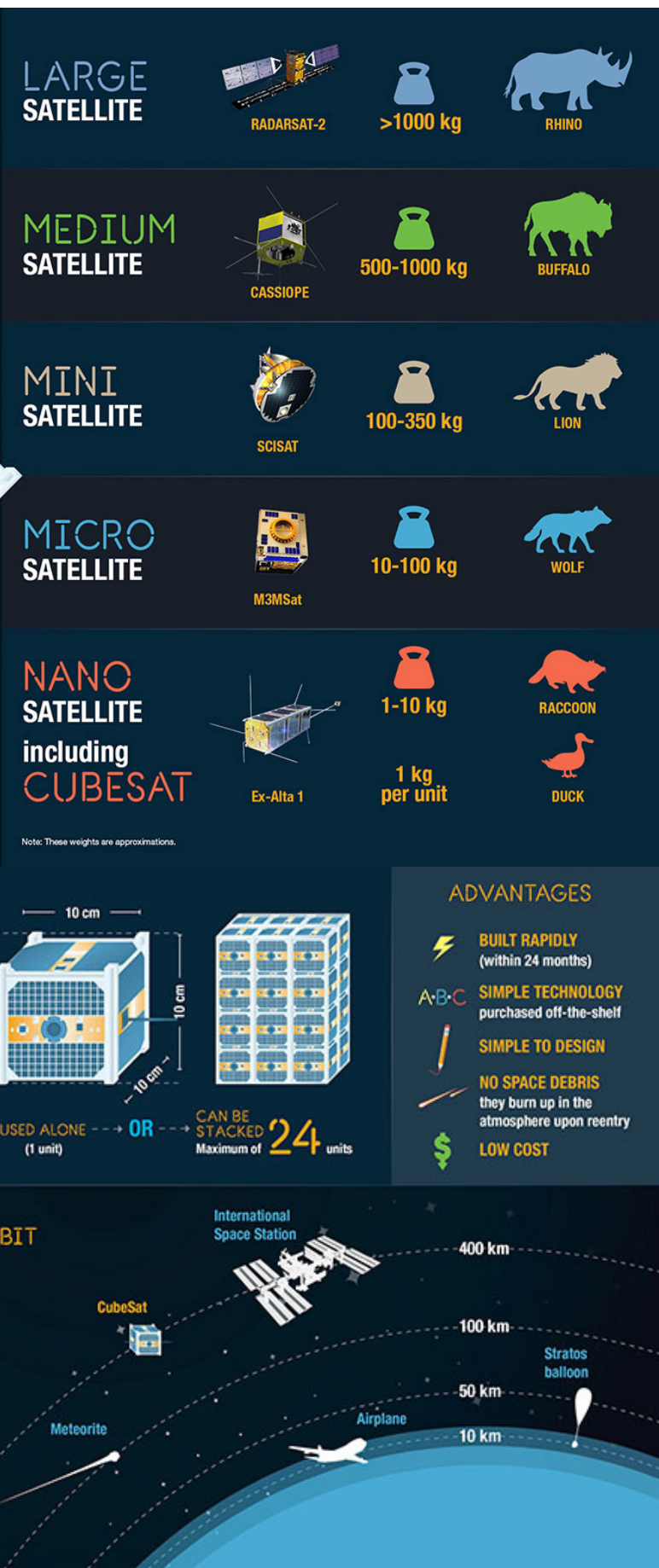
Educational  
project



Commercial

OR





## Satellite Mass Classification

Satellite mass classification

Large satellites: >1000 kg

Medium satellites: 500 to 1000 kg

Small satellites: < 500 kg

Minisatellites: 100 to 500 kg

Microsatellites: 10 to 100 kg

Nanosatellites: 1 to 10 kg

Picosatellites: 100 g – 1 kg

Femtosatellites: 10 g – 100 g

Attosatellites: 1 g – 10 g

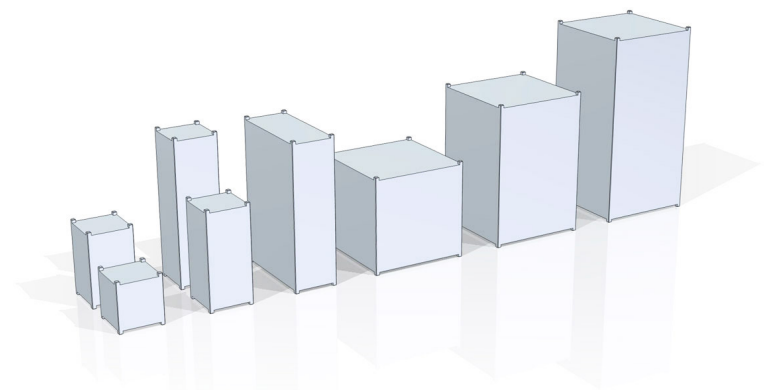
Zeptosatellites: 0.1 g – 1 g

CubeSat sizes:

From 0.25U to 27U

From ~0.2 kg to ~40 kg

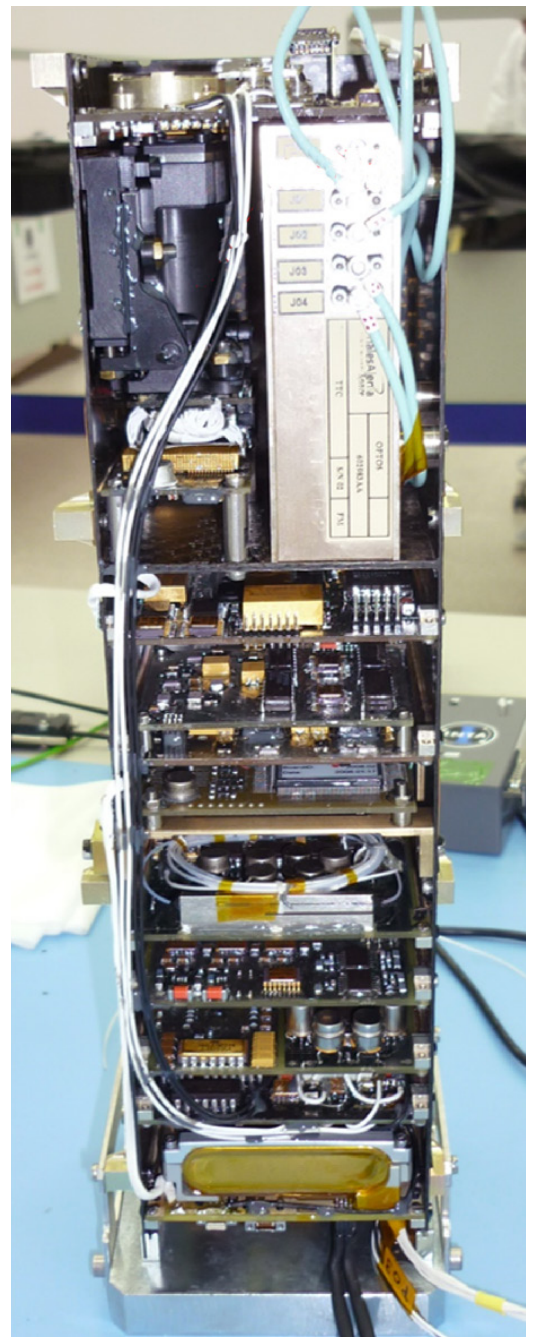
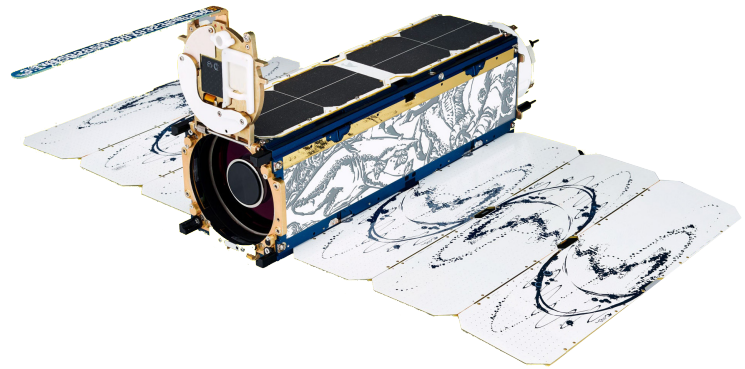
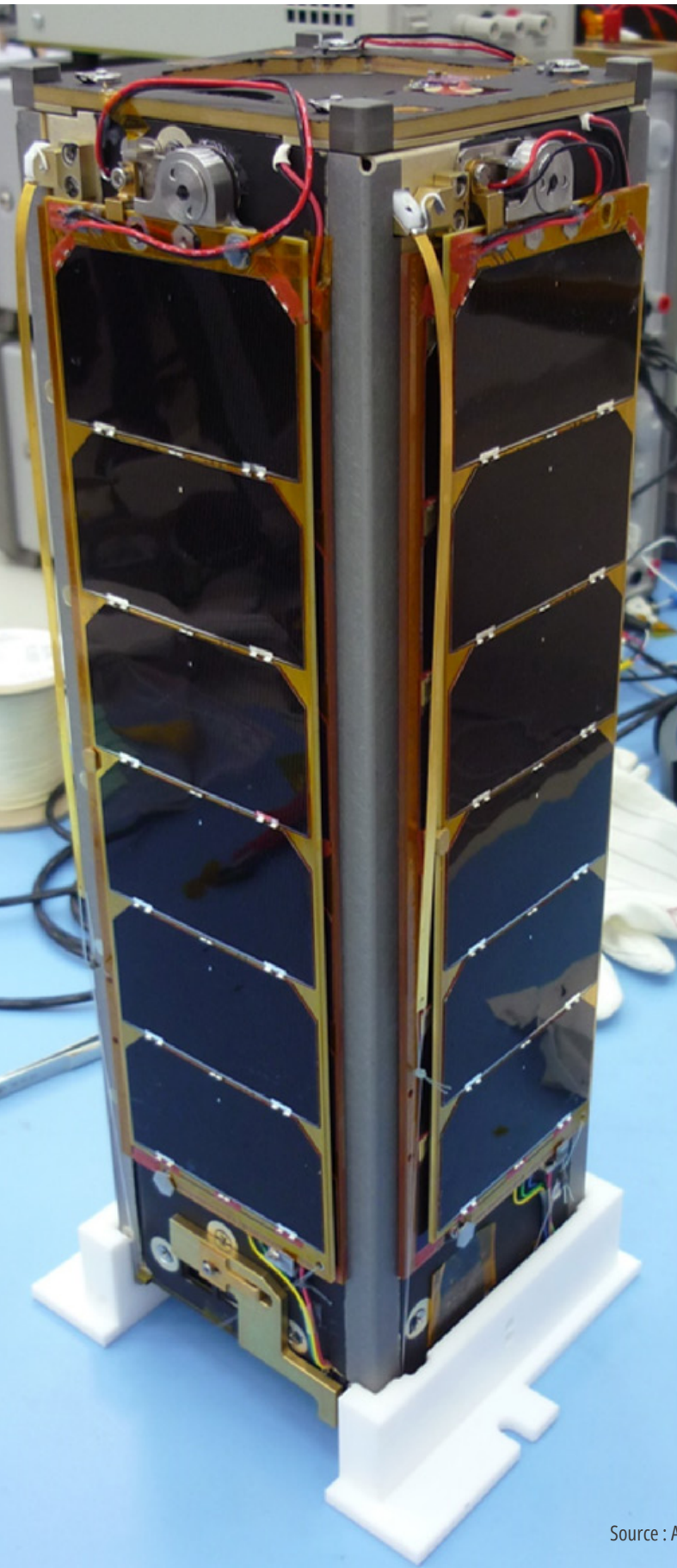
Small satellite (smallsat) is any satellite below 500 kg. This term should be used rarely, there can be large differences between sizes and capabilities



CubeSats sizes from 1U to 16U



## CubeSat, Satellite Technology



## BTS Tower 5G Interlink Satellite



## Omni Direction Mimo Technology



## Pole Tower 5G Wifi 6E Subscriber



# PRODUCT SERVICE

## OUR CONSENT

*This year is the beginning of a paradigm shift in how Internet services, hardware and security are all delivered to users throughout the world with newly released technology by IT Industrial. Alpha Java Airfiber (Al-Jaber) has an opportunity to be one of the first movers in this rapidly growing market*

## MARKET LANDSCAPE

The opportunity for wireless (Wi-Fi) installations and ongoing management of these networks has increased greatly in the past year and is projected by industry experts to grow at an annual rate of no less than %17 a year in Indonesia based on Datareportal-Hootsuite, %98 internet access are from cellphone, with speed around 21 - 13 Mbps. The total industry is expected to grow to 72\$ million annually by the year 2025 based on the data of Katadata. Alpha Java Airfiber (Al-Jaber) has an opportunity to be one of the first movers in this rapidly growing market. Because of the fragmented nature of the market in its current state, the threat from potential competitors is not necessarily a bad thing. Additional competitors in the market will help grow industry awareness and help drive overall sales within the industry.



## ALPHA JAVA AIRFIBER AL-JABER ENTERPRISE

Al-Jaber Commercial Enterprise and Al-Jaber Residential Enterprise services are both packaged in such a way to allow property owners or individual business owners to increase the value of their property or business by providing tenants or customers with access to high-speed wireless Internet access. These packages are specifically designed to add value to the owner's enterprise. It is not the goal of Alpha Java Airfiber (Al-Jaber) to install networks on speculation and market its services directly to the end user. Instead, these services are offered to the commercial or residential owner as a way to increase revenue for themselves through greater demand for their services as a result of installing a wireless network, or by actually charging a fee themselves for user access. This can be done in several different ways, from increasing base rent or lease rates and including it as an amenity of the property, to adding it as an additional access fee. Al-Jaber Enterprise service allows all working areas of the building, property, or business to have wireless Internet access.

### SERVICES ADVANTAGES :



**PROVIDES BANDWIDTH ON  
DEMAND**



**ADDITIONAL CUSTOMER-  
PREMISE EQUIPMENT (CPE)  
ROUTERS TO MANAGE YOUR  
BANDWIDTH**



**MULTI ROUTER TRAFFIC  
GRAPHER (MRTG)  
TECHNOLOGY TO MONITOR  
DATA TRAFFIC**



**CLOUD DATA STORAGE  
UP TO 100 GB**



#### Feature:

- Ethernet-based fiber optic network. Available RJ45 interface.
- Public or Static Internet Protocol (IP) Address
- Scalable bandwidth from 3 Mbps to 1 Gbps
- Communicate in real-time with minimal time lag through our symmetric bandwidth of simultaneous uploads and downloads
- Guaranteed speed and safety
- 24 hours customer support

**AL-JABER ENTERPRISE  
MONTHLY SERVICES  
INCLUDED IN ALL PLANS**



## ALPHA JAVA AIRFIBER AL-JABER MASSIVE HOTSPOT

Wi-Fi 6E is the upcoming standard for an extension of Wi-Fi 6 (also known as 802.11ax), enabling the operation of features in the unlicensed 6 GHz band, in addition to the currently supported 2.4 GHz and 5 GHz bands. Before revision Wi-Fi uses radio technology called 802.11a, 802.11b, 802.11g in order to provide secure, reliable, fast wireless connectivity. All Wi-Fi networks operate in the unlicensed 2.4 and 5 GHz radio bands, with an 11 Mbps (802.11b), or 54 Mbps (802.11a) data rate, or with products that contain both bands (dual band).

Recreation Places & Road Light Lamp will become the target: Alpha Java Airfiber (Al-Jaber) is in the unique position of being able to offer Wi-Fi 6e services to public place such as recreation area and road light lamp throughout the highway quickly and efficiently. Because of the management team's prior experience in the public place internet service with volume based or time based, and of course with lower price than competitor but the data speed quality is more higher because of the technology 5Ghz and 6Ghz.

### SERVICES ADVANTAGES :



#### GLOBAL HOTSPOT

Have your own private, secure and portable WiFi connection wherever you go. Al-Jaber wireless Hotspots use patented technology to seamlessly connect to local mobile networks. No SIM cards or tedious configuration needed.



#### WIFI APP

After creating your account and connecting a Al-Jaber Hotspot, you can manage your account, buy and pause service plans, monitor your data usage or connect to customer support via live chat anytime. The WiFi app is available on the Apple App Store and the Google Play store.



#### WIFI PLAN

Find the best WiFi option for you. Choose Pay-Per-GB for maximum flexibility, buy a -24hour Daypass for day trips, or subscribe to our monthly data plans for frequent users wanting monthly coverage. VPN service also available for extra security and privacy.



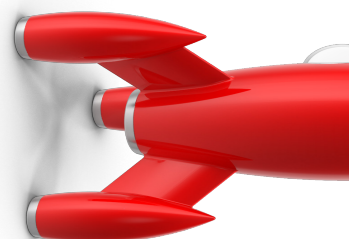
#### ENJOY WIFI ANYWHERE

With our multi-carrier mobile network and licensed spectrum, you can connect to the strongest available signal in your area. Stay connected from across town or village areas.



#### Feature:

1. Unlimited data.
2. Stop more scams from ever reaching you.
3. Turn your phone into a mobile hotspot.
4. In-flight texting and data. Text, access Visual Voicemail, and more—all at 30,000 feet.
5. Reliable connectivity abroad.





## ALPHA JAVA AIRFIBER AL-JABER ISP ENTERPRISE

Al-Jaber ISP Enterprise solution utilizes the same Enterprise installation and monthly management as described above, but it is positioned differently for the ISPs. Since Alpha Java Airfiber (Al-Jaber) is a wholesale provider of wireless Internet access and does not directly market its services to the end users of any network, an SMEs ISP partnership is a great fit. SMEs ISPs have similar relationships already created with commercial and residential owners and this is an easy add-on sale when discussing options with these clients. Al-Jaber ISP Enterprise service simply allows the SMEs ISP to offer directly to client through the AL-Jaber ISP Enterprise line rings. The installation and management is the same, except the primary connection is still provided through the Al-Jaber ISP. The SMEs can receive additional revenue as a Alpha Java Airfiber (Al-Jaber) reseller (at %10), while adding new customers and maintaining focus on local custom SMEs environment.

### Feature:

Give convenience for users with fiber optic and wireless access media, at a fixed monthly rate without any additional costs for traffic usage used for all products. Other advantages:

- Fast & stable internet connection,  
With our fiber optic network, we guarantee that your connection will be much faster and more stable, worry-free, and surf more comfortable.
- Unlimited Quota  
With unlimited quota, you can surf as much as you want without worrying about additional fees or hidden costs.
- Reliable network,  
By using a ring topology and using multiple upstream both domestically and internationally will ensure the smoothness and stability of the user.

## SERVICES ADVANTAGES :

1. Guaranteed 99.6 Connection so you don't have to worry about frequent downtime which often becomes a nuisance for your internet usage activities.
2. Technical Support Service 24 hours x 7 Days which will always ensure the best service to you.
3. Static IP Public
4. Symmetrical upload & download speed (same size).
5. NMS (Network Monitoring System), which is a service to monitor your internet traffic utility.
6. Early Notification System (email & sms) informs customers of service interruptions or maintenance early.





# Nanosat Interlink Service

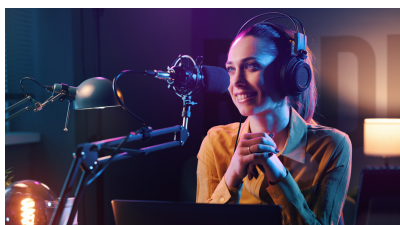


## NANO-SATELLITE SERVICE PROVIDER

*The world is changing very fast, technology is developing with its breadth, data access speed is getting higher and almost unlimited. We are here to help you follow along, whether it's in broadcasting video, radio, online streaming, even connecting every remote corner of the country. Because we are some of you who have evolved and used technology as part of scientific propaganda, all for you.*



## OUR SERVICE OFFER :



### VIDEO - DELIVERING TV CHANNELS TO OVER 90 MILLION HOMES

Our Nano-Satellites are right on the path of the video broadcasting chain, from outside broadcasts to local broadcasts at home. In this fast-paced market environment, where innovation must be made to drive a differentiated and engaging viewing experience, satellite is the unrivaled path to reach every channel everywhere, and a source of bandwidth for feature-rich media services such as HDTV and Ultra HD. For this new generation of services, satellite is a special way to provide users with the highest quality television in areas that are unserved or underserved by terrestrial networks.



### CONNECTIVITY - CONNECTING PEOPLE ALL AROUND THE WORLD

Access to social and economic benefits through interlink satellite broadband internet for all homes and business areas that have not been touched by local networks has become the biggest challenge currently being faced by the national government as well as regional and local authorities in improving the regional economy. Satellites are a vital key component in this ecosystem, providing terrestrial networks with guaranteed high-speed communications for all remote resident communities. They deserve and deserve high connectivity, and are connected to major internet arterial networks and mobile infrastructure, and the only technology capable of connecting is satellite.



### IOT - SIMPLE, INEXPENSIVE CONNECTIVITY FOR ASSETS VIA SATELLITE

Across all industry lines, billions of remote assets will soon be connected at high speed to increase productivity, reduce costs, and create new revenue streams, in ways previously unthinkable. From industrial applications, to Smart Cities, agriculture, Point-of-Sales, and the latest security solutions; from the most valuable industrial assets to the smallest devices - data will power the world of tomorrow. Nanosat will be at the core of the Internet of Things revolution, connecting businesses to assets in ways that were never possible before, connecting even the tiniest parts of every home around the world. Whether fixed or mobile, across land and sea, Nanosat will revolutionize the way businesses access and use data from assets, wherever they are located, in a simple and affordable way.

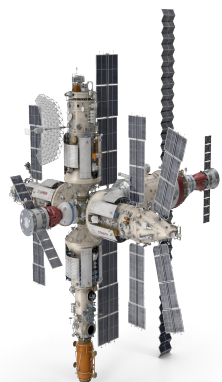
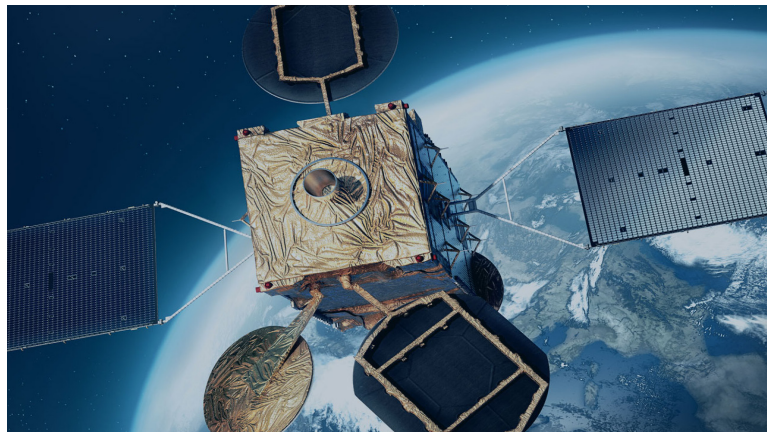
## ALPHA JAVA AIRFIBER AL-JABER NANOSATELLITE

Al-Jaber Nanosatellite focuses on providing internet connection to the place where normal DSL can't be reach especially for the rural areas' customers. With this newly technology satellite that cut off the weight of satellite and the price for launch, and newly open frequency with high throughput give more advantages and ready for business. With this market for service will be more reasonable for rural area and cheaper but with high quality data speed.

By partnering with Al-Jaber through its products as a hardware and network solution provider, MSMEs can stay focused on their core competence, namely selling internet services and in return Al-Jaber will utilize the customer database as a shared consumer. As Al-Jaber will provide the primary connection to locations where wireless networks are requested, this partnership further strengthens Al-Jaber's role as a product of PT. Alpha Indo Nusa in the field of ISP in providing connectivity to these locations.

In all situations, Al-Jaber relies on local MSMEs to provide the raw feed to any wireless installation, whether it be to the POP directly from the provider's port or directly to the consumer powered from the nearest wireless base station.

Al-Jaber Enterprise Nanosatellite solutions can provide network connectivity at speeds ranging from 50mbps to 1Gbps for each connection. This connectivity can be distributed throughout the area without the need to reconnect current wired connections. It is not only faster than the old wired network, it is also easier to upgrade and upgrade the technology as it improves.



### Feature:

- Remote Sensing & Imaging
- Mobile Communications
- Broadband Connectivity
- GPS & Navigation
- Emergency Response & Disaster Relief
- Broadcast: Satellite TV & Radio
- IoT and M2M
- Satellite Telehealth

### PLAN SECTOR A - INTERNET TV

All Speeds up to 300 Mbps	Paperless billing or prepay required.
- High-speed internet	Additional taxes, fees, and surcharges
- Crystal-clear landline	apply. Get the fastest internet speed
- Entertaining TV packages	available at your location.

### PLAN SECTOR B - TELEMETRY IOT

All Speeds up to 100 Mbps	Paperless billing or prepay required.
- High-speed data rate	Additional taxes, fees, and surcharges
- Remote Sensing & Imaging	apply.
- All Telemetry IOT	

### PLAN SECTOR C - MSME ISP

All Speeds up to 500 Mbps	Paperless billing or prepay required.
- All You Need Available	Additional taxes, fees, and surcharges
	apply. Minimum contract 2 Years
	Subscription.

### PLAN SECTOR RURAL - ECONOMIC

Download speeds up to  
**12 Mbps**

Upload speeds up to 3 Mbps

**INCLUDES:**  
**Unlimited**  
Standard Data

High-Speed Data:  
varies by location

**GOOD FOR:**  
Email and web browsing on  
up to 2 small screen devices.

Download speeds up to  
**25-50 Mbps**

Upload speeds up to 3 Mbps

**INCLUDES:**  
**Unlimited**  
Standard Data

High-Speed Data:  
varies by location

**GOOD FOR:**  
Email, web browsing and occasional  
streaming on up to 3-4 small,  
medium, or large screen devices.

Download speeds up to  
**100+ Mbps**

Upload speeds up to 3 Mbps

**INCLUDES:**  
**Unlimited**  
Standard Data

High-Speed Data:  
varies by location

**GOOD FOR:**  
Email, web browsing and occasional  
streaming on 4+ small, medium, or  
large screen devices.



#### 24/7 Technical Support

Get help right when you need it with Al-Jaber tech experts. Help is available over the phone or online chat.



#### In-Home Wi-Fi

Connect multiple devices and freely move from room to room with fast in-home Wi-Fi, brought to you by up-to-date CenturyLink equipment.



#### No Contract & No Data Caps

No contract means you can pay month-to-month until you cancel, and you won't have to pay any cancellation fees. Plus, unlimited data with no data caps.

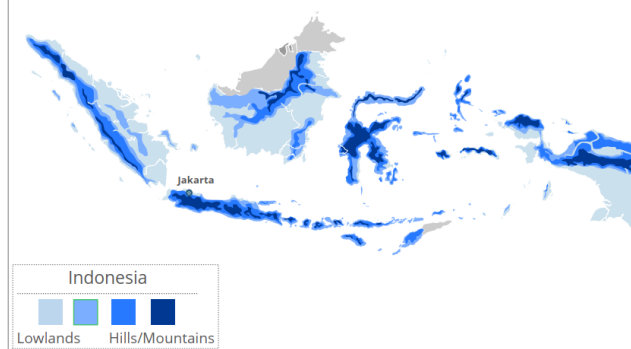


# Indonesia Telecommunications Overview & Internet Connection Landscape

## INDONESIA CONNECTIVITY MAPPING

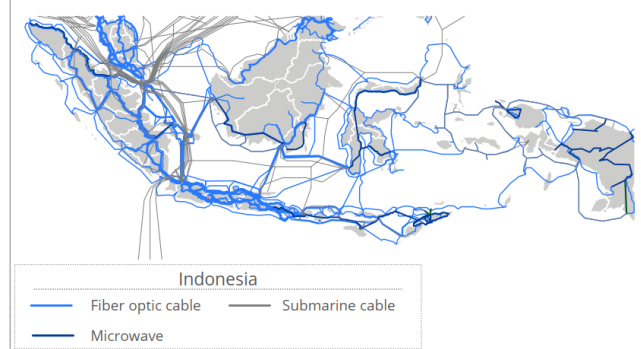
The world's largest island country, it consists over 17 thousand islands, with 4 distinct topographical regions...

One of the main challenges to developing ICT Infrastructure in Indonesia is its geography. This includes the number of islands, size of the territory to cover, the numerous remote and difficult to reach areas, and the number of low-income and uneducated inhabitants



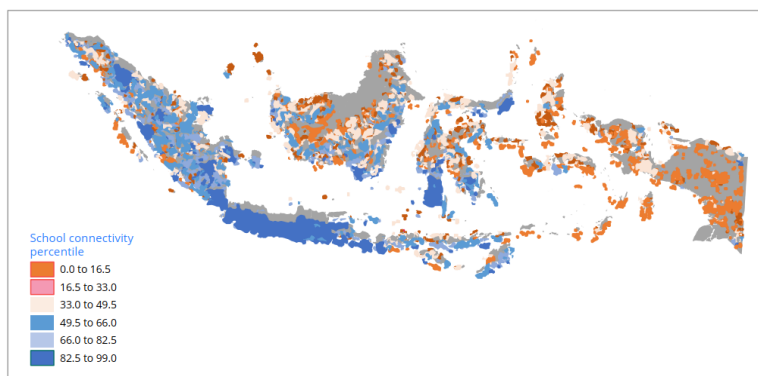
... and significant variances in connectivity set up, with the East being less connected

Due to the limited funding capability of both the government and the private sector, infrastructure development cannot fully meet the demand in Indonesia. Thus, isolated and impoverished parts of the country are unconnected



## INTERNET CONNECTION LANDSCAPE

School connectivity varies between islands, it's estimated that ~19% schools across Indonesia are not connected to internet ...

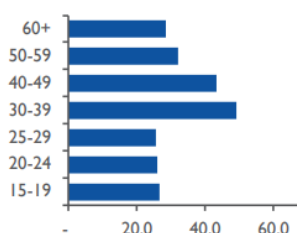


MECRT - Ministry of Education, Culture, Research and Technology  
Schools - Include primary, secondary and high school

... while no connectivity is more intense in the sparsely populated islands ...

- According to MECRT, there are ~42,000 or 19% schools across Indonesia that are not connected to internet
- 70% of these unconnected schools covered by a base transceiver station, while the 12,600 (30%) schools are not, which means the schools are completely removed from connectivity
- The unconnected school proportion is much higher in the sparsely populated islands, like Papua where it has the lowest population density, the Ministry estimates 71% of schools in Papua are not connected to the internet
- Moreover, in the sparsely populated islands, where overall connectivity coverage is low, schools have more structural challenges to connect and higher cost to serve

## Age Pyramid

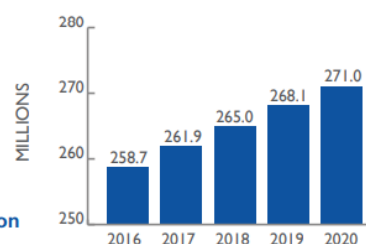


## Residence by Region

Indonesia population - 261.1 million



## Indonesian Population



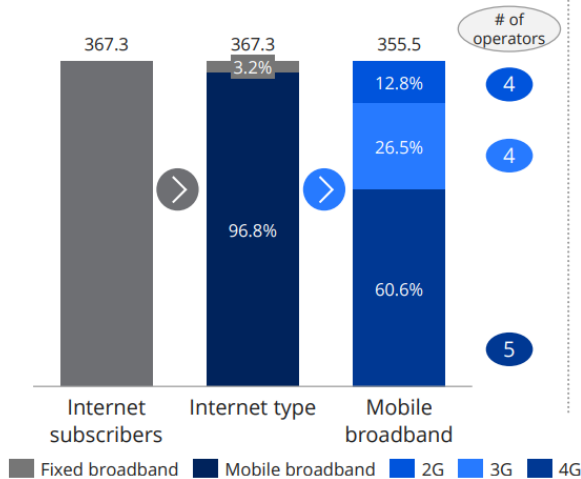
## Key Metrics

Break down of Average Monthly Per Capital Expenditure 2016 - 2022

## TELECOMMUNICATION MARKET SHARE

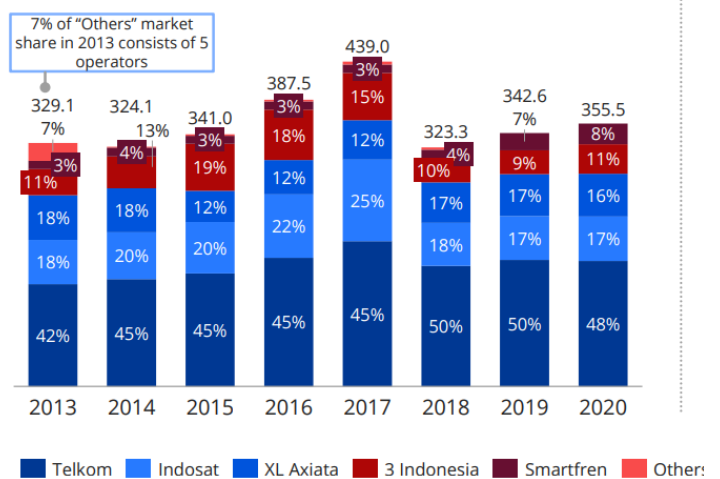
~97% internet subscription using mobile broadband, while nearly ~40% MBB subscribers still cannot access 4G

2020 internet subscribers (in m)



Telco industry has consolidated from ten operators in 2013 to five operators in 2020

Mobile broadband subscriptions (in m), split by market share (%)



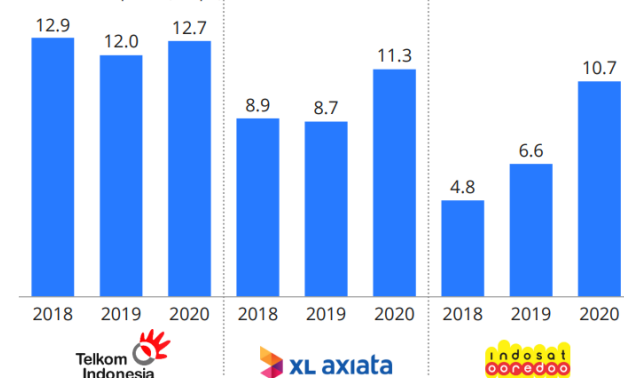
Source: Omdia, BCG analysis

[www.gigaconnect.org](http://www.gigaconnect.org) | [info@giga.partners](mailto:info@giga.partners)

## COMPETITIVE NETWORK SPEEDS

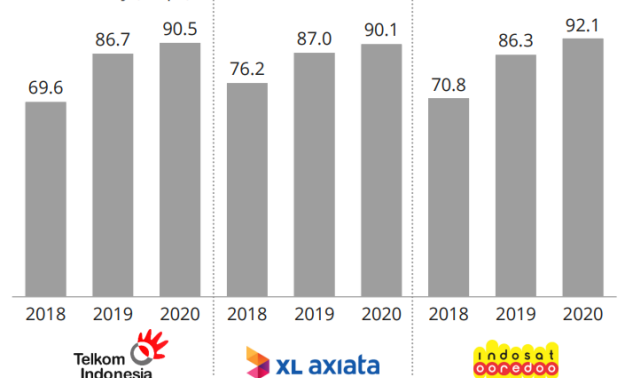
Smaller players continue increasing their network quality to compete with the market leader ...

4G Download speed (Mbps)



... While increasing the availability of 4G over time

4G Availability (Mbps)



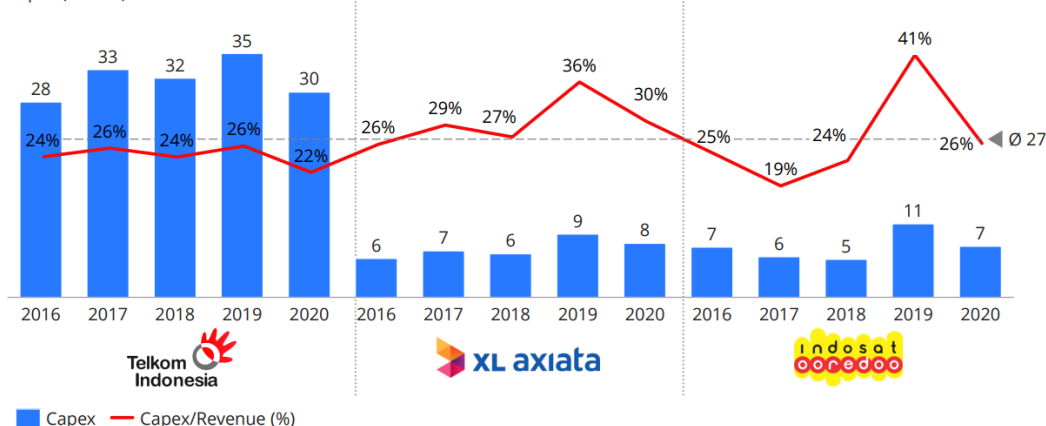
4G Download speed - This metric shows the average download speed for each operator on LTE connections as measured by users

4G Availability - The proportion of time users have an LTE connection available to them on each operator's network. It's measure of how often users can access the 4G network

## COMPETITIVE CAPEX REVENUE

Telco players aggressively increased their capex in 2019 to expand 4G base stations nationwide; Capex/revenue intensity higher in the smaller players as they are trying to increase network coverage & quality

Capex (IDR Bn)



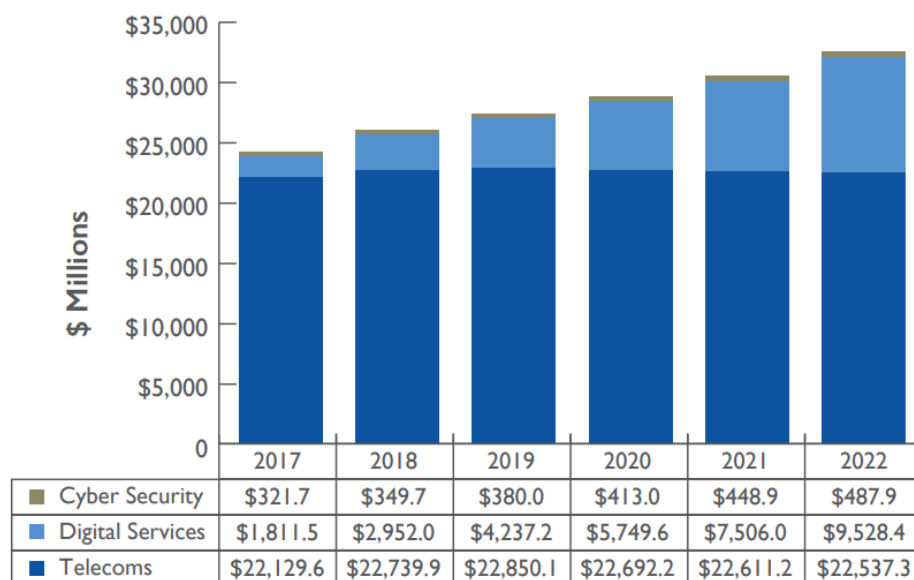
- XL and Indosat to continue 4G network expansion, especially outside Java and increase the network quality
- While Telkom has an established mobile network outside Java already, its CapEx remain constant to expand its fixed broadband network
- Passive infrastructure sharing requirement in new Omnibus Law provides long-term positive for the industry capex efficiency



# Indonesian Telecommunications Markets and Opportunities

## MARKET FORECAST

The Indonesian telecoms market is forecast to grow from USD 22.13 billion in 2017 to USD 22.54 billion in 2022 at a CAGR of %0.37. The digital services market is expected to grow at a CAGR of %38.33 from USD 1.88 billion to 9.53 billion over the same period, and cybersecurity is expected to grow at a CAGR of %5.53 from USD 573.5 million to 750.5 million. The information and communication (ICT) sector experienced year-over-year growth of %9.81 from USD 34.0 billion in 2016 to USD 37.3 billion in 2017. Government backing will be very important for the future growth of ICT services going forward. The government has proactively supported the ICT sector through a number of initiatives focusing on infrastructure development, policy enabling and legislation.



Source: Frost & Sullivan Indonesia Market Tracker, Statista

## TELECOMMUNICATIONS

- The Indonesian telecoms market is competitive, facing reduced profit margins and saturated voice and SMS markets. However, data and value-added services are set to grow to an estimated USD 22.5 billion by 2022.
- Fixed-line broadband penetration is low compared to its mobile counterpart at %1.7 and %30, respectively.
- The majority of mobile subscriptions use 2.5G technology, but both 3G and 4G uptake is increasing. Prepaid subscribers represent %98.3 of the total.

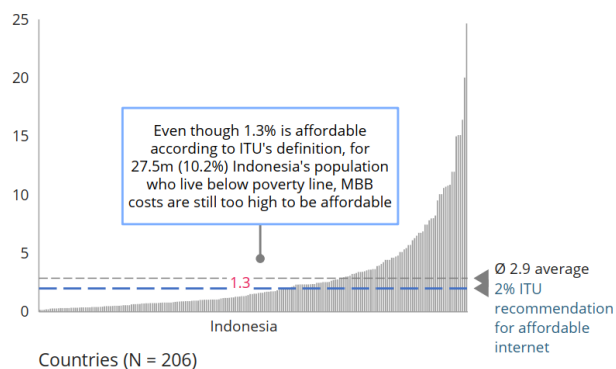
## TELECOMMUNICATIONS

- Digital services are disrupting traditional business models, with the majority coming from eCommerce, digital finance, and cloud services.
- Investment in local SMEs by angel investors and venture capitalists has grown since 2013 due to adoption of digital technologies.
- Digital finance is the fastest growing digital service, set to total USD 1.25 billion by 2022, followed by cloud services at USD 1.2 billion by 2022.

## MARKET PRICE CONDITION

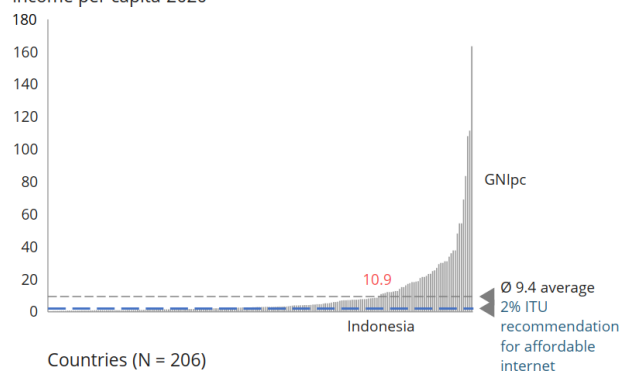
1.3% of GNIpc spent on 1.5 GB mobile broadband data basket, which is below ITU recommendation for affordable internet ...

Spent on data-only mobile-broadband (1.5GB) as % of gross national income per capita-2020



... on the other hand, fixed broadband costs are still considerably high, with 10.9% of GNIpc spent on a 5 GB FBB data basket

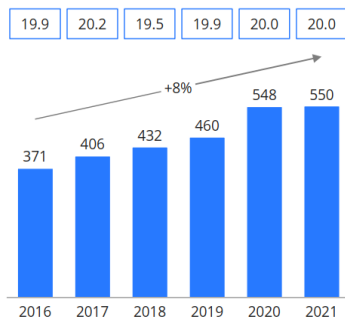
Spent on fixed broadband (5GB) as % of gross national income per capita-2020



## G2B OPPORTUNITIES WITH BOT (BUILD-OPERATE-TRANSFER) MODEL

Education spending allocation has been maintained at ~20% from total spending in the last 6 years ...

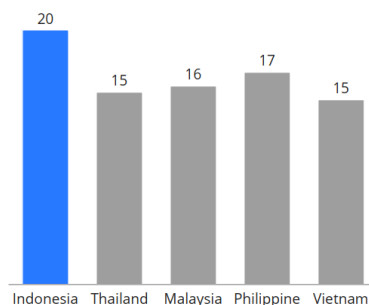
Government education spending (IDR Tn) and the allocation to total government spending (%)



MECRT - Ministry of Education, Culture, Research and Technology

... which is considerably higher allocation than neighbor countries ...




Govt education spending allocation to total government budget (%)



... but a 1% increase can already make a large difference

- In 2021, government allocates IDR ~7.4 Tn (1.3%) to support digitalization and building connectivity infrastructure for public education services
- Only 15% of education budget is managed by MECRT, while a huge portion (54%) is directly managed by local governments (including the IDR ~7.4 Tn budget), bringing more complexity in aligning the government strategic agenda
- However, a 1% in education budget would already mean an IDR 5.5 Tn increase, which could be directly used to pay for connectivity

## BOT ROLE

	Explanation of role	Financial consequences	Considered players
 Large player	<ul style="list-style-type: none"> <li>• Large player provides general network, along main infrastructure and cities</li> <li>• Allows local player to add onto their network and provides access</li> <li>• Large player does not have to provide maintenance, which is a bottleneck in the current system</li> </ul>	<ul style="list-style-type: none"> <li>• In return for opening the network, large player gets a share of the revenue obtained by local player from connecting the community</li> </ul>	<ul style="list-style-type: none"> <li>• Main mobile players are Telkom Indonesia, XL Axiata, and Indosat who have 4G coverage in most urban areas</li> <li>• Most of the fiber is owned by Telkom Indonesia, the market leader in Indonesia.</li> </ul>
 Local player	<ul style="list-style-type: none"> <li>• Local player provides local network, connecting schools, households and other important community buildings</li> <li>• Can add onto general network from larger player, thereby reducing costs</li> <li>• Local player is responsible for maintenance and upgrades of network</li> </ul>	<ul style="list-style-type: none"> <li>• Local player obtains revenue from providing connectivity to schools and community</li> <li>• Local player shares part of revenue with large player in return for network use</li> </ul>	<ul style="list-style-type: none"> <li>• There are currently many (informal) local players that have a network in place but cannot compete for school connectivity because government usually offers nation-wide projects to firms</li> </ul>
 School	<ul style="list-style-type: none"> <li>• The schools and community get reliable connectivity through a player that knows local needs and restrictions</li> <li>• Optional: local player trains community members to provide maintenance and training to community (community collaboration model)</li> </ul>	<ul style="list-style-type: none"> <li>• Schools and community pay a fair price for connectivity</li> <li>• When community members provide training and maintenance, internet use will go up and maintenance cost will go down, leading to a more competitive price for connectivity</li> </ul>	<ul style="list-style-type: none"> <li>• This model would be most effective in rural areas with larger villages and relatively close to 4G/fiber nodes</li> </ul>

## BEST MODEL IMPLEMENTATION FOR ALPHA JAVA AIRFIBER (AL-JABER)

### Meso

Not-for-profit Company or local Ministry/government

#### Obtains funding to:

- Seed & establish the micro level ISP business
- Train & develop capacity to ensure sustainability
- Continuous support on legal, regulatory, technical, advisory, backhaul, etc.

### Village level

Village ownership

- Village-based ISP
- Co-operative
- Partially funded by village budget

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### The village model has a few advantages

This version is more robust than the Zenzeleni model as it keeps its strengths

- The overarching NPO, local Ministry or government provides continuous guidance and training. It also helps with initial funding
- At the town level, villagers are taught and paid to keep the network running, leading to better engagement and long-term sustainability

And overcomes the weaknesses of the Zenzeleni model

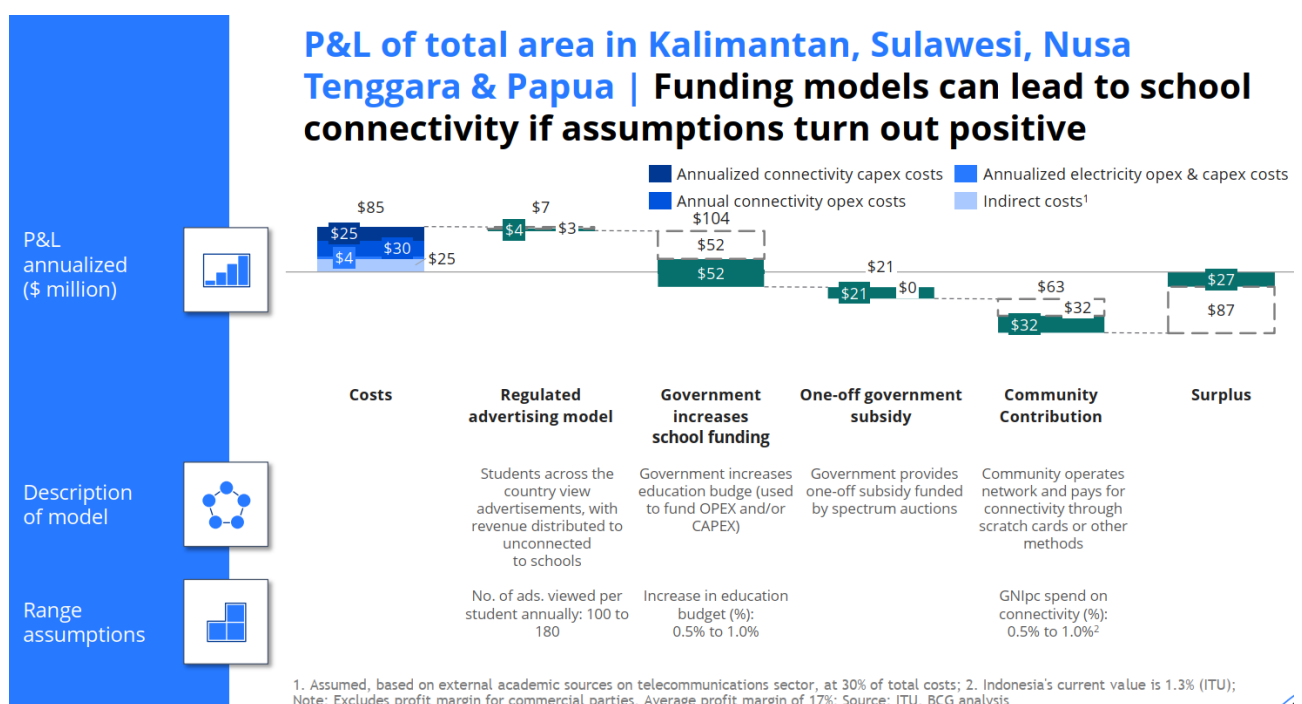
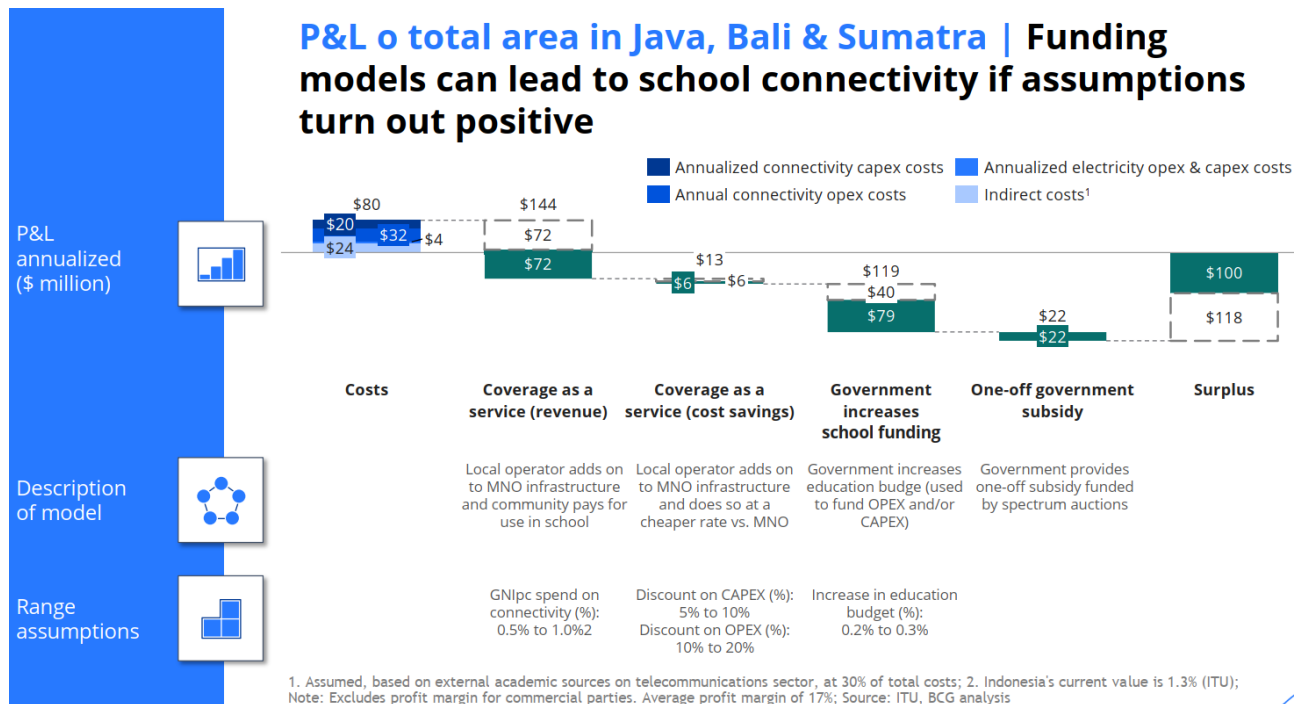
- New laws allow villages to invest budget in connectivity, thus CapEx requirements are more easily met because the villages can contribute to funding as well
- This also allows for better scalability across villages

Similar pilots have been proven successful in Indonesia

- The Common Room has done some pilot studies that empowers communities to maintain their own networks. ISP Awinet provides infrastructure and training, and connectivity is sold through vouchers



# ASSUMPTION OF BOT PROFIT & LOSS (P&L) FOR INDONESIA TELECOMMUNICATIONS



# PRIVATE SECTOR INCOME PROJECTION

## TOTAL INVESTMENT VALUE BASED CAPEX & OPEX

TABLE : CAPEX				
NO	DESCRIPTION	VOLUME	UNIT	PRICE (USD)
1.	TABLE 1 : INFRASTRUCTURE	1	Time	134.310.345
2.	TABLE 2 : BRANCH OFFICE VEHICLE, DEVICE & ACCESSORIES	1	Time	11.379.310
3.	TABLE 3 : TAX, SUBSCRIPTION, REGULATION AND LICENSE (Yearly)	1	Year	45.426.034
TOTAL INVESTMENT (USD)				191.115.690
TOTAL INVESTMENT (IDR)				2.771.177.500.000

TABLE : OPEX				
NO	DESCRIPTION	VOLUME	UNIT	PRICE (USD)
1.	TABLE 4 : PERSONNEL COST (Monthly)	24	Month	27.759
2.	TABLE 5 : OFFICE, SALES, SUBSCRIPTION COST (Monthly)	24	Month	712.138
TOTAL INVESTMENT (USD)				17.757.517
TOTAL INVESTMENT (IDR)				257.484.000.000

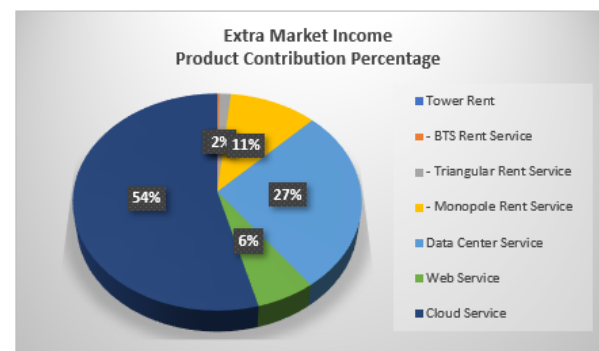
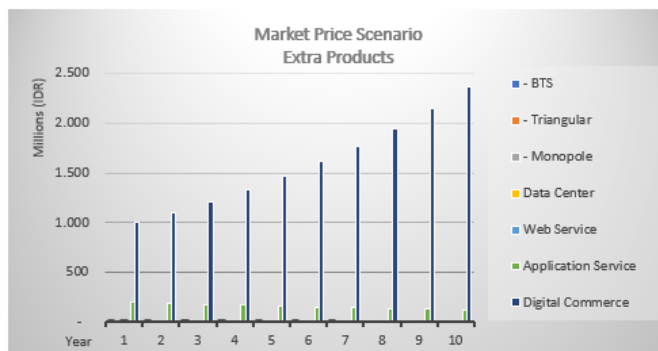
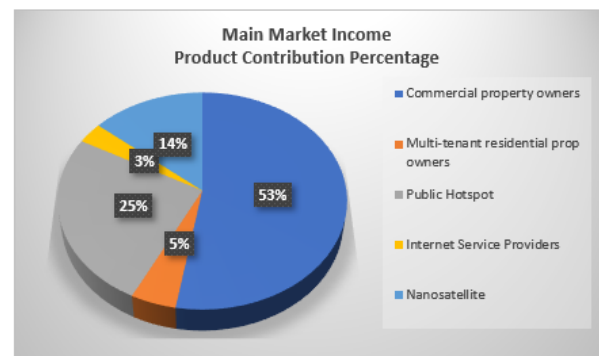
TOTAL INVESTMENT (USD)				208.873.207
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## INCOME

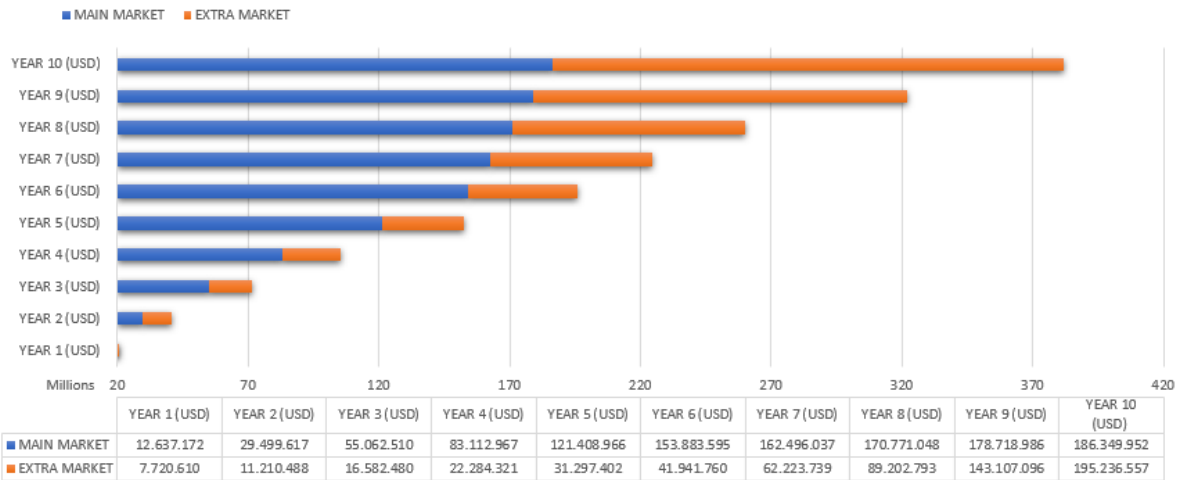
TABLE : MAIN MARKET INCOME												
NO	MAIN MARKET	YEAR 1 (USD)	YEAR 2 (USD)	YEAR 3 (USD)	YEAR 4 (USD)	YEAR 5 (USD)	YEAR 6 (USD)	YEAR 7 (USD)	YEAR 8 (USD)	YEAR 9 (USD)	YEAR 10 (USD)	MARKET RATIO
1	Commercial property owners	6.918.274	15.615.270	29.951.230	43.066.572	63.972.035	84.667.697	92.967.163	100.908.338	108.502.086	115.758.983	52,69%
2	Multi-tenant residential prop owners	490.877	1.445.167	2.833.534	4.166.908	5.673.815	6.674.985	6.544.012	6.415.609	6.289.726	6.166.312	4,67%
3	Public Hotspot	2.970.596	7.217.407	12.773.274	20.915.032	31.106.123	37.750.561	38.178.573	38.611.438	39.049.210	39.491.946	25,62%
4	Internet Service Providers	931.034	1.768.966	2.520.776	3.192.983	3.791.667	4.322.500	4.106.375	3.901.057	3.706.004	3.520.704	3,12%
5	Nanosatellite	1.326.391	3.452.808	6.983.696	11.771.472	16.865.325	20.467.851	20.699.913	20.934.607	21.171.961	21.412.007	13,89%
Total		12.637.172	29.499.617	55.062.510	83.112.967	121.408.966	153.883.595	162.496.037	170.771.048	178.718.986	186.349.952	100,00%
		3.758.413	24.379.272	70.563.023	144.797.231	257.327.439	402.332.275	555.949.554	717.841.844	887.682.072	1.065.153.265	Iavg
		2%	12%	35%	72%	129%	201%	278%	359%	444%	533%	Deviation

TABLE : EXTRA MARKET INCOME												
NO	EXTRA MARKET	YEAR 1 (USD)	YEAR 2 (USD)	YEAR 3 (USD)	YEAR 4 (USD)	YEAR 5 (USD)	YEAR 6 (USD)	YEAR 7 (USD)	YEAR 8 (USD)	YEAR 9 (USD)	YEAR 10 (USD)	MARKET RATIO
1	Tower Rent											
	- BTS Rent Service	5.586	7.076	8.403	9.579	10.617	11.527	13.688	15.604	19.765	21.124	0,03%
	- Triangular Rent Service	44.690	56.607	67.221	76.632	84.933	92.213	109.503	124.834	158.123	168.994	0,27%
	- Monopole Rent Service	223.448	283.034	336.103	383.158	424.667	461.067	547.517	624.169	790.614	844.969	1,36%
2	Data Center Service	506.781	770.307	1.189.161	2.033.465	3.380.636	5.505.607	9.806.862	16.769.734	31.862.495	51.079.562	10,80%
3	Web Service	3.960.794	5.182.568	6.350.903	7.471.554	8.545.776	9.574.967	11.733.866	13.804.356	18.044.660	19.901.923	27,31%
4	Cloud Service	496.552	723.310	1.120.345	1.404.912	1.887.408	2.305.334	3.066.094	3.869.848	5.376.176	6.252.770	6,03%
5	Digital Commerce	2.482.759	4.187.586	7.510.345	10.905.021	16.963.366	23.991.046	36.946.210	53.994.247	86.855.262	116.967.215	54,20%
Total		7.720.610	11.210.488	16.582.480	22.284.321	31.297.402	41.941.760	62.223.739	89.202.793	143.107.096	195.236.557	100,00%
		7.720.610	18.931.098	35.513.578	57.797.899	89.095.301	131.037.060	193.260.800	282.463.593	425.570.688	620.807.245	Iavg
		4%	9%	18%	29%	45%	66%	97%	141%	213%	310%	Deviation

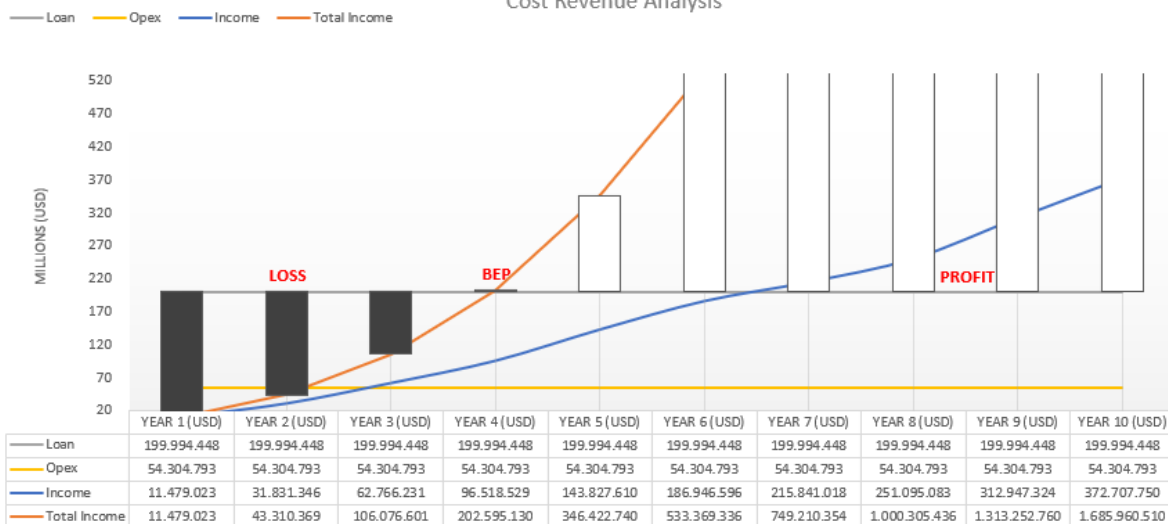
## PRODUCTS PRICES AND MARKET INCOME



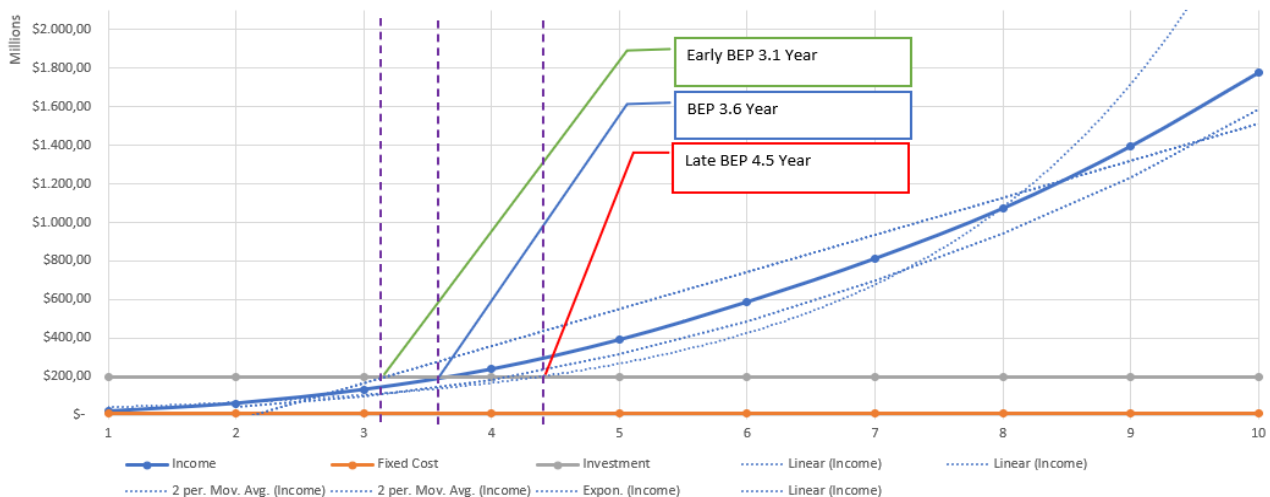
### Products Revenues



### Cost Revenue Analysis



### Break Event Point - Alpha Java Airfiber (Al-Jaber)









## THANKS FOR ALL

Everyone has their own decision in pioneering success. There are those who believe that everything can be started from the lower stages in a company. But not a few also believe that success can be achieved by building their own business.

Yes, creating new opportunities in increasing the coffers of money with your own ideas and creativity. Although the benefits look much greater, the effort made is also no less large.

Choosing to do business will lead you to various twists and turns. In the process there will also be many values and knowledge that you can take for life. Trust is also one of the capital that can be the wheel of your business.

Sometimes you also have to give up a lot of things for the sake of the effort you are doing. But it will not be in vain if accompanied by prayer and maximum enthusiasm. So, don't be discouraged when you meet obstacles in your business.





# THE WORLD'S SPACEPORT

## Ideal location

The Guiana Space Center (CSG) offers ideal conditions for launching any payload to any orbit at any time. Located at 5 degrees North latitude, its proximity to the equator provides an extra boost of energy due to the Earth's rotation – a slingshot effect that is greater here than at most other launch sites.

## State-of-the-art facilities

The CSG provides modern Payload Preparation Facilities that are recognized for their high quality in the space industry. The facilities are capable of processing several spacecrafts from different customers simultaneously, thanks to vast clean-rooms and commodious infrastructure. Designed to support the rockets' multiple launch capability and high launch tempo, the preparation facilities meet the needs of customers using any of the three vehicles in the Arianspace family and its two next-generation launch vehicles.

## A new launching complex

The Ariane 6 launch site (ELA-4) is a dedicated area designed for launch vehicle final preparation, the upper composite integration with launch vehicle and the final launch activities. It includes the launch pad (ZL4), the launch vehicle assembly and integration building (BAL) and support buildings. The Ariane 6 launch site is located approximately 10km to the North-Ouest of the CSG Technical Center.

## Strict security

The French government, the CSG, and Arianspace follow strict security measures that meet the most rigorous international and national agreements and requirements.

Arianspace activities are characterized as highly security sensitive ones by the French government and consequently very strict and rigorous measures are implemented with the support of national authorities to satisfy both national and international requirements. They apply to the three launch systems: Ariane 5, Soyuz, and Vega, and strictly limit access to spacecraft.

Specifically, the security regime is compliant with requirements governing the export of U.S. manufactured satellites or parts under the ITAR regulation.

## Safety mission

The CSG entities apply rigorous Safety Rules during each launch campaign: this includes authorization of equipment use, operator certification, and permanent operation monitoring. Any potentially dangerous activity is to be reported to the CSG responsible, which in turn, makes certain that safety equipment and emergency response teams are poised to deal with any hazard.

## Environmental protection

For many years, all CSG actors have been committed to protecting the environment, through strict measures during spacecraft preparation, launch, and flight. The impact of the launch vehicle in flight on the environment and the careful disposal of hazardous waste are thoroughly monitored.

©Arianspace - Ariane 5 - September 2019

## TECHNICAL OVERVIEW

# ARIANE 5



# ARIANE 5

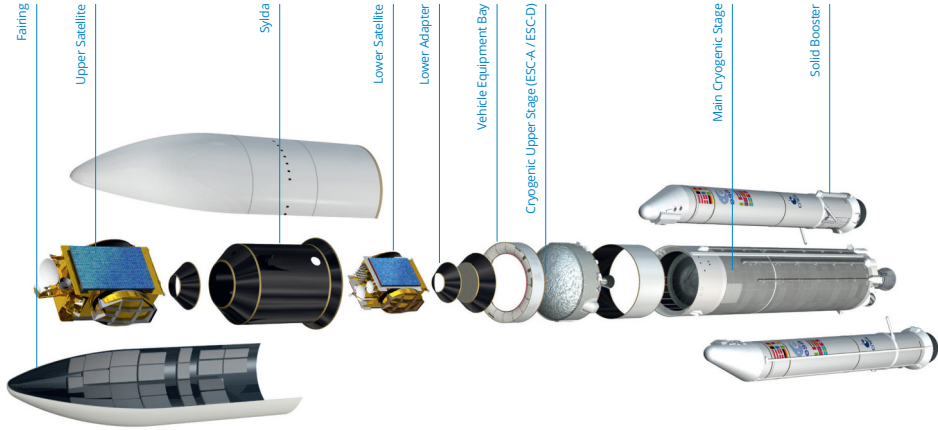
The heavy-lift champion, Ariane 5, is the world reference in terms of reliability and availability.

Today, Ariespace uses only one version of the launcher, the Ariane 5 ECA, which ensures that its production is standard and availability is regular.

The Ariane 5 ECA can launch more than ten tons to geostationary transfer orbit and is the reference for the on-time delivery of satellites.

The Ariane 5 ECA launcher consists of the Main Cryogenic Stage, two Solid Boosters and an Upper Cryogenic Stage. Using a limited number of engines, this architecture is both simple and robust.

With more than 100 launches, the Ariane 5 has become the world's benchmark for heavy lift launch vehicles.

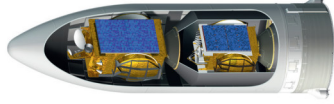


Industrial Prime Contractor: **ArianeGroup**

Performance	GTO	Elliptical L2 Lagrange
Payloads, kg	>10,000	6,600
Inclination (i), deg	6	6
Altitude of perigee (Zp), km	250	300
Altitude of apogee (Za), km	35,943	1 200,000
Argument of perigee (Wp), deg	178	-



Single launch configuration



Dual launch configuration

## Large payload carrying capacity

The Ariane 5 fairing at 17-m high and with an external diameter of 5.4 m is exceptionally large for the commercial launch market. This enables Ariane 5 to launch all types of satellites now in service as well as those in development.

## Customized to any mission

The Ariane 5 launch vehicle provides standard interfaces that fit most spacecraft buses and satellites; allowing for the easy transfer or switch between any of the Ariespace family's launch vehicles. In addition to its world-reference dual launch system and multiple-separations platforms, various dedicated adapters or dispensers can be provided by Ariespace to address specific customer's needs and requirements.

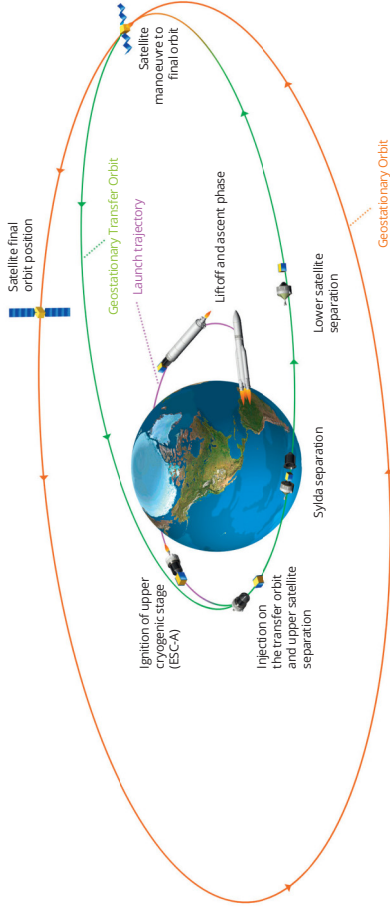
## Back-up capabilities for 3-ton-class satellites

The advent of Soyuz launches at CSG provides additional capacity to adjust the launch offering for geostationary satellites. The Ariespace back-up policy allows the 3-ton class satellites to be launched either on Ariane 5 on a dual launch configuration or on Soyuz as a dedicated launch. Therefore, Ariespace increases the flexibility of its offer and the added value for the customer.

## The fastest track to GTO

The typical duration of the GTO mission is between 25 and 35 minutes, depending on the separation phase events.

## Standard Ariane 5 mission profile for geostationary transfer orbit

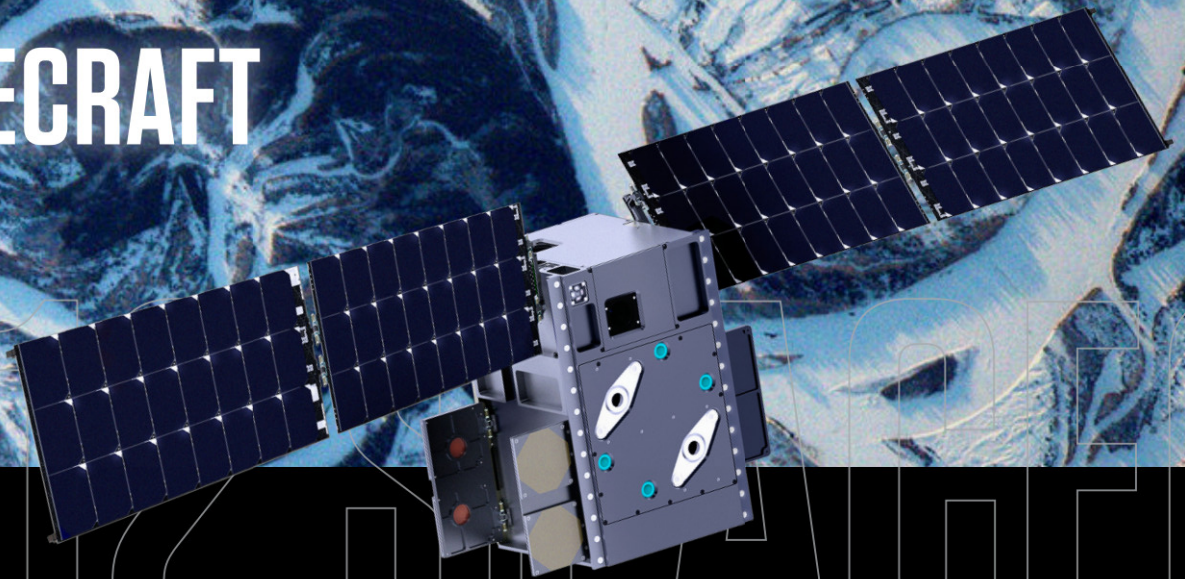






Spacecraft Buses,  
Systems & Solutions

# XB12 SPACECRAFT



## CLASS

12U

## ENERGY STORAGE

6.8-17 Ah

## POINTING ACCURACY

$\pm 0.002^\circ$  (1-sigma), 3 axes, 2 trackers

## ORBIT ALTITUDE / ORBIT LIFETIME

LEO > 5 years | GEO > 2 years

## SOLAR ARRAY POWER

98W - 118W

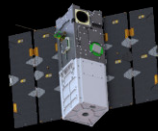
## AVAILABLE PAYLOAD VOLUME

8U (typical)





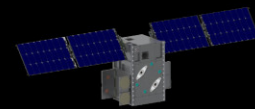
# SPACECRAFT SUMMARY



**XB3**



**XB6**



**XB12**

CLASS	3U	6U	12U
AVAILABLE PAYLOAD VOLUME	1.5U (typical)	4U (typical)	8U (typical)
POINTING ACCURACY	$\pm 0.003$ deg (1-sigma) for 2 axes; $\pm 0.007$ deg (1-sigma) for 3rd axis	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers
POINTING STABILITY	1 arc-sec over 1 sec		
ORBIT KNOWLEDGE	4m, 0.05m/s		
DATA INTERFACES	Serial, LVDS, Spacewire, HDLC or SPI available		
ONBOARD DATA STORAGE	4GB with expandable beyond for the 6U and 12U (by adding the high speed data recorder)		
ENERGY STORAGE	6.8 Ah	6.8 – 17 Ah	6.8 – 17 Ah
SOLAR ARRAY POWER	28W - 42W	98W - 118W	98W - 118W
HIGH CURRENT CAPABILITY	Unregulated up to 60W	Unregulated up to 120W	Unregulated up to 120W
UPLINK	Nominal 100 Kbps, CCSDS formatting		
DOWNLINK	Up to 4 Mbps	Up to 20 Mbps	Up to 20 Mbps
ORBIT ALTITUDE / ORBIT LIFETIME	LEO > 5 years   GEO > 2 years		
PROPULSION	Multiple electric and chemical propulsion systems available		
SCALE			

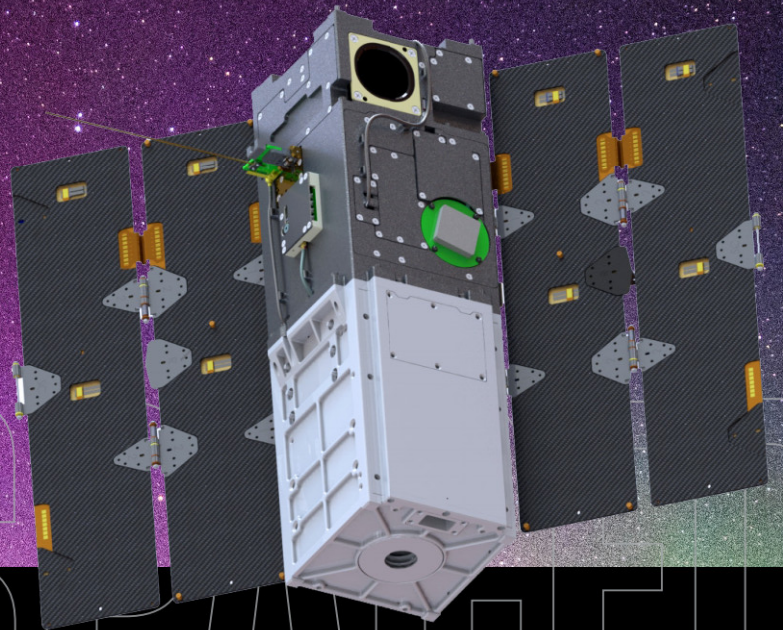
Our family of XB Spacecraft offers complete end-to-end solutions for your mission needs. Featuring an extremely precise, highly powerful integrated spacecraft bus platform — ranging from a 3U CubeSat to an ESPA-Grande satellite — our versatile systems are built to accommodate any and all types

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# XB3 SPACECRAFT



## CLASS

3U

## ENERGY STORAGE

6.8 Ah

## POINTING ACCURACY

$\pm 0.003$  deg (1-sigma) for 2 axes, 1 Tracker

## ORBIT ALTITUDE / ORBIT LIFETIME

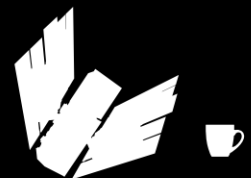
LEO > 5 years | GEO > 2 years

## SOLAR ARRAY POWER

28W - 42W

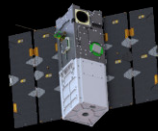
## AVAILABLE PAYLOAD VOLUME

1.5U (typical)





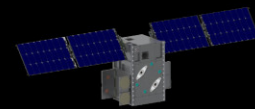
# SPACECRAFT SUMMARY



**XB3**



**XB6**



**XB12**

CLASS	3U	6U	12U
AVAILABLE PAYLOAD VOLUME	1.5U (typical)	4U (typical)	8U (typical)
POINTING ACCURACY	$\pm 0.003$ deg (1-sigma) for 2 axes; $\pm 0.007$ deg (1-sigma) for 3rd axis	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers
POINTING STABILITY	1 arc-sec over 1 sec		
ORBIT KNOWLEDGE	4m, 0.05m/s		
DATA INTERFACES	Serial, LVDS, Spacewire, HDLC or SPI available		
ONBOARD DATA STORAGE	4GB with expandable beyond for the 6U and 12U (by adding the high speed data recorder)		
ENERGY STORAGE	6.8 Ah	6.8 – 17 Ah	6.8 – 17 Ah
SOLAR ARRAY POWER	28W - 42W	98W - 118W	98W - 118W
HIGH CURRENT CAPABILITY	Unregulated up to 60W	Unregulated up to 120W	Unregulated up to 120W
UPLINK	Nominal 100 Kbps, CCSDS formatting		
DOWNLINK	Up to 4 Mbps	Up to 20 Mbps	Up to 20 Mbps
ORBIT ALTITUDE / ORBIT LIFETIME	LEO > 5 years   GEO > 2 years		
PROPULSION	Multiple electric and chemical propulsion systems available		
SCALE			

Our family of XB Spacecraft offers complete end-to-end solutions for your mission needs. Featuring an extremely precise, highly powerful integrated spacecraft bus platform — ranging from a 3U CubeSat to an ESPA-Grande satellite — our versatile systems are built to accommodate any and all types

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# MICROSAT SPACECRAFT

**X-SAT**  
SATURN CLASS

## CLASS

24" launch vehicle interface

## POINTING ACCURACY

$\pm 0.002^\circ$  (1-sigma), 3 axes, 2 Trackers

## SOLAR ARRAY POWER

Hyperion 15, two wing: 1000W  
Hyperion 15, one wing: 500W

## PAYLOAD MASS CAPABILITY

200 kg

## ENERGY STORAGE

40.8 Ah or 54.4 Ah

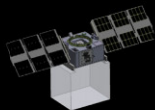
## ORBIT ALTITUDE / ORBIT LIFETIME

LEO ( $\geq 5$  years), GEO ( $\geq 2$  years),  
Deep Space ( $\geq 2$  years)

## AVAILABLE PAYLOAD VOLUME

30.0" X 30.0" X 40.0" (typical)  
Larger volume available within  
rideshare envelope and in dedicated launch  
vehicle fairings

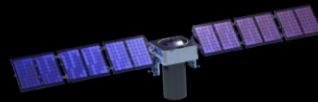
# SPACECRAFT SUMMARY



**X-SAT**  
MERCURY CLASS

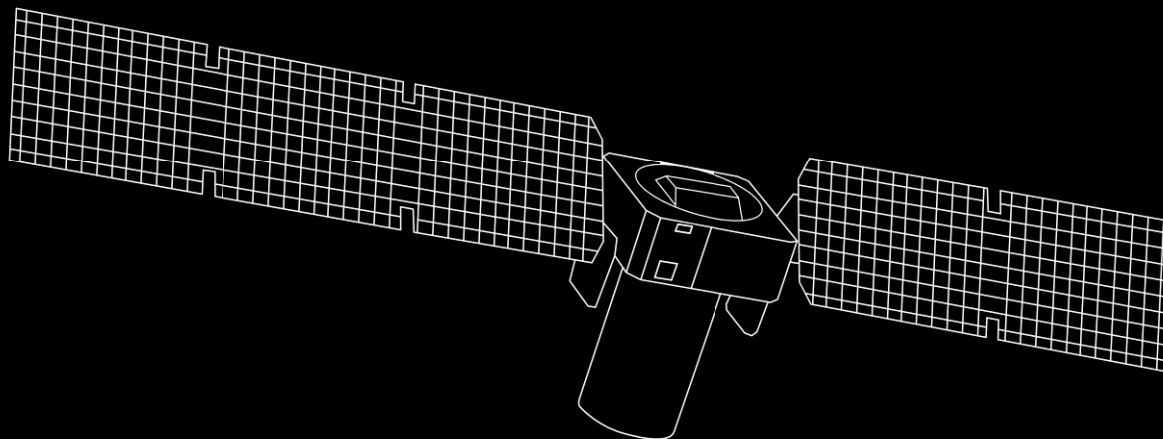


**X-SAT**  
VENUS CLASS



**X-SAT**  
SATURN CLASS

CLASS	8" launch vehicle interface (optional 11.32" available)	15" launch vehicle interface	24" launch vehicle interface
PAYLOAD VOLUME	14.0" X 17.0" X 17.0" (launch dependent)	20.5" X 16.4" X 27.0" (1 array) 17.0" X 16.4" X 27.0" (2 array) Larger volume available depending on launch vehicle	30.0" X 30.0" X 40.0" (typical)  Larger volume avail- able within rideshare envelope and in ded- icated launch vehicle fairings
POINTING ACCURACY	$\pm 0.002^\circ$ (1-sigma), 3 axes, 2 Trackers		
ENERGY STORAGE	10.2 Ah	10.2 Ah	40.8 Ah or 54.4 Ah
SOLAR ARRAY POWER	48W/wing, 98W max	THEA, two wing: 384W THEA, one wing: 192W	Hyperion 15, two wing: 1000W Hyperion 15, one wing: 500W
ORBIT ALTITUDE / ORBIT LIFETIME	LEO ( $\geq 5$ years), GEO ( $\geq 2$ years), Deep Space ( $\geq 2$ years)		



We are a complete end-to-end spacecraft company and a leading provider of turnkey small satellite solutions, including nanosatellites, CubeSats and Microsats.

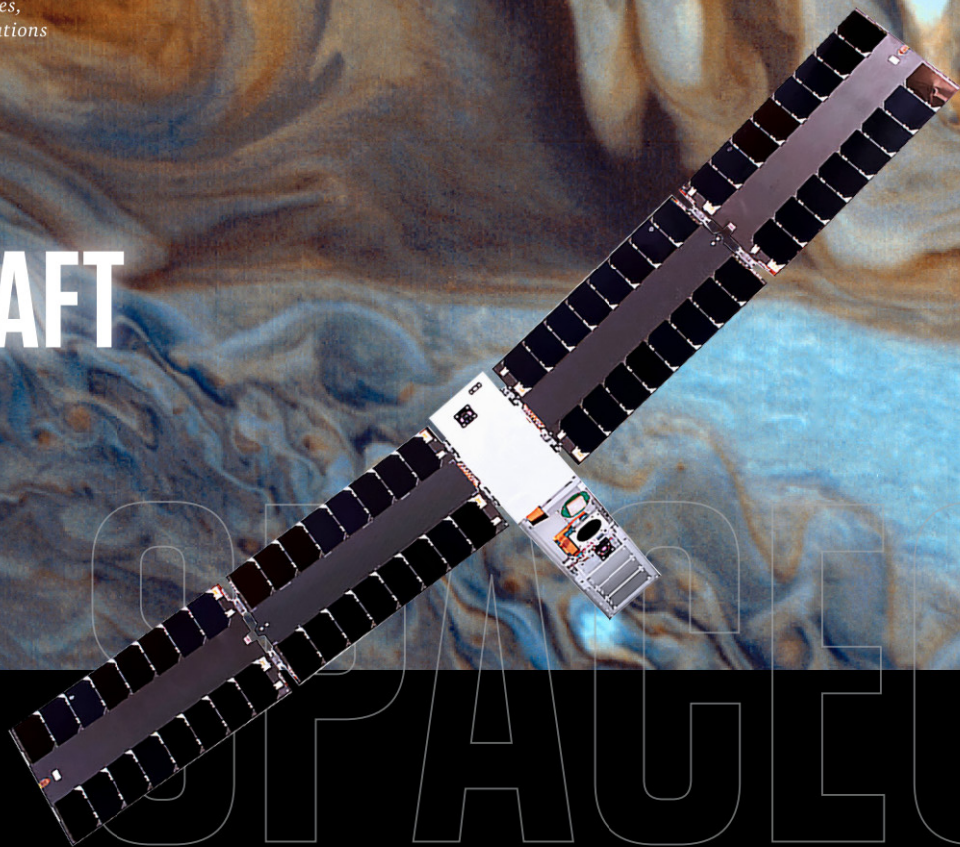
Our attitude determination and control components are one-of-a-kind, allowing for industry-leading precision pointing platforms.





Spacecraft Buses,  
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# XB6 SPACECRAFT



## CLASS

6U

## ENERGY STORAGE

6.8-17 Ah

## POINTING ACCURACY

$\pm 0.002^\circ$  (1-sigma), 3 axes, 2 trackers

## ORBIT ALTITUDE / ORBIT LIFETIME

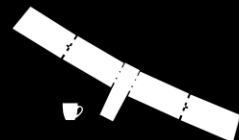
LEO > 5 years | GEO > 2 years

## SOLAR ARRAY POWER

98W - 118W

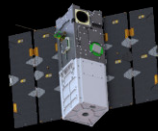
## AVAILABLE PAYLOAD VOLUME

4U (typical)





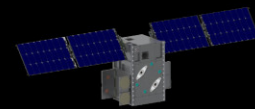
# SPACECRAFT SUMMARY



**XB3**



**XB6**



**XB12**

CLASS	3U	6U	12U
AVAILABLE PAYLOAD VOLUME	1.5U (typical)	4U (typical)	8U (typical)
POINTING ACCURACY	$\pm 0.003$ deg (1-sigma) for 2 axes; $\pm 0.007$ deg (1-sigma) for 3rd axis	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers	$\pm 0.002$ deg (1-sigma) 3 axes, 2 Trackers
POINTING STABILITY	1 arc-sec over 1 sec		
ORBIT KNOWLEDGE	4m, 0.05m/s		
DATA INTERFACES	Serial, LVDS, Spacewire, HDLC or SPI available		
ONBOARD DATA STORAGE	4GB with expandable beyond for the 6U and 12U (by adding the high speed data recorder)		
ENERGY STORAGE	6.8 Ah	6.8 – 17 Ah	6.8 – 17 Ah
SOLAR ARRAY POWER	28W - 42W	98W - 118W	98W - 118W
HIGH CURRENT CAPABILITY	Unregulated up to 60W	Unregulated up to 120W	Unregulated up to 120W
UPLINK	Nominal 100 Kbps, CCSDS formatting		
DOWNLINK	Up to 4 Mbps	Up to 20 Mbps	Up to 20 Mbps
ORBIT ALTITUDE / ORBIT LIFETIME	LEO > 5 years   GEO > 2 years		
PROPULSION	Multiple electric and chemical propulsion systems available		
SCALE			

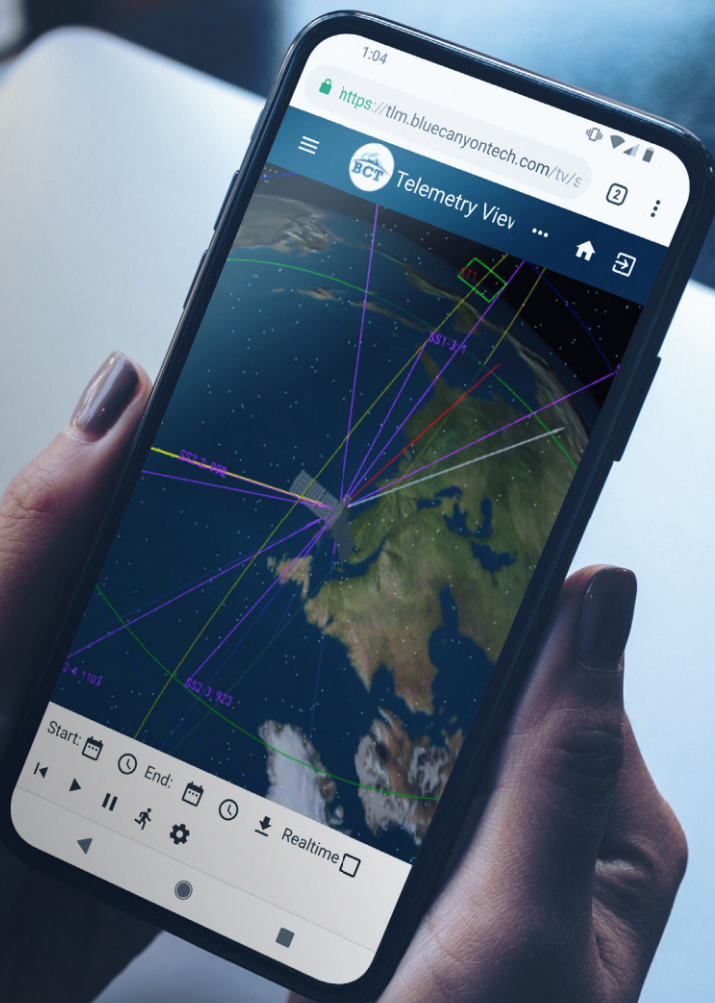
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# XGS OPERATIONS



## FEATURES

- Provides scripts, C&T, and tools used throughout system test & operations
- Supports multiple missions and constellations
- Supports multiple ground stations and radios
- Automated and accessible

## SCHEDULING

- Quickly and easily schedule tasks
- Autonomously schedule repeating tasks
- Autonomous constraint and resource de-confliction

## MONITORING & VISUALIZATION

- Access to telemetry anytime, anywhere, and from any device
- Automated analysis and quick access to spacecraft attitude, position, and health

## AUTOMATED EXECUTION

- Access to telemetry anytime, anywhere, and from any device
- Automated analysis and quick access to spacecraft attitude, position, and health

## CUSTOMER DATA DELIVERY

- Customizable packages of payload and telemetry data for delivery to customers
- Industry-standard secure delivery

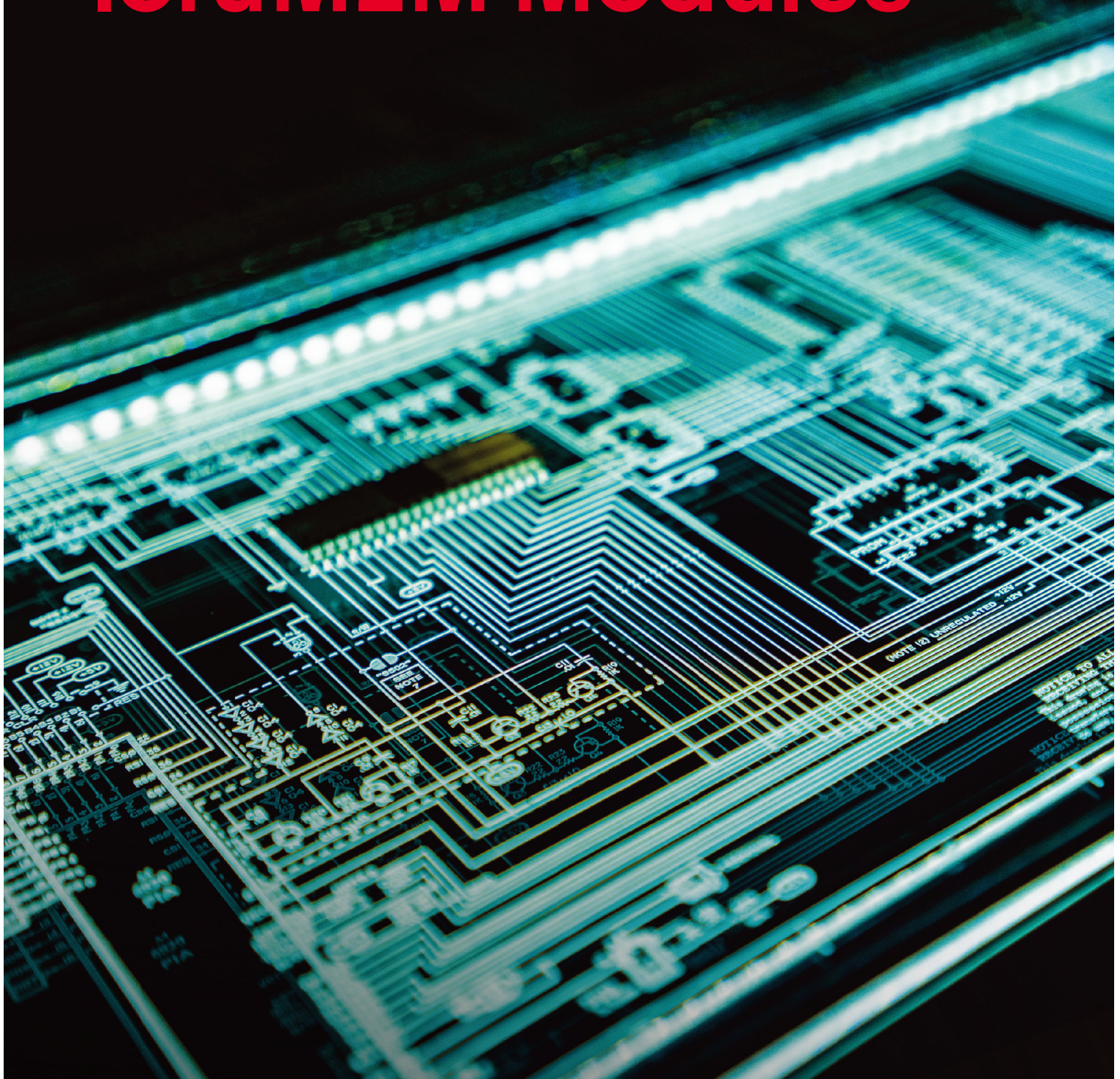




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The Leading Global Supplier of

**IoT&M2M Modules**







LTE

5G

NB-IoT

LTE-M

Wi-Fi

GNSS

### About Quectel Wireless Solutions

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we create superior cellular and GNSS modules and antennas backed by outstanding support and services. Our growing global team of over 3,000 professionals, the largest in the IoT modules industry worldwide, ensures we are first to market and continue to set the pace of development. Listed on the Shanghai Stock Exchange (603236.SS), our international leadership is devoted to advancing IoT across the globe.

For more information visit: [www.quectel.com](http://www.quectel.com) or find us on Linked In, Twitter and Facebook.

UMTS/  
HSPA(+)

C-V2X

Antenna

LPWA

GSM/  
GPRS

# Quectel's IoT Vertical Framework



## Telematics and Transport

Automotive OEM  
Vehicle Tracking  
Asset Tracking  
Ship Tracking  
Fleet Management  
OBD  
Vehicle Digital Video Recorders (DVR)  
Special Purpose Vehicles (SPV)  
Usage-Based Insurance (UBI)



## Energy

Electricity Meters  
Gas Meters  
Water Meters  
Heat Meters  
Smart Grids  
Wind Turbines  
Solar Panels  
Charging Piles



## Payment

Wireless POS  
Cash Registers  
ATMs  
Vending Machines  
Top-up Machines



## Safety

Alarms  
Intrusion Detection  
Smoke Detectors  
Gas Detectors  
Motion Sensors  
Asset Protection



## Smart Cities

Street Lighting  
Traffic Lights  
Sharing Economy  
Smart Elevators  
Smart Parking  
Parking Meters  
Toll Collection Systems  
Digital Signage  
Smart Bins  
Outdoor LED Lighting



## Gateways

DTUs  
Consumer Routers  
Industrial Routers  
VOIP  
Wi-Fi Hotspots



## Industry

Industrial PDAs/ Scanners  
Industrial PCs  
Rugged Tablet PCs  
Pipeline Monitoring  
Robots  
Flowmeters  
Unmanned Aerial Vehicles (UAV)  
Industrial Refrigerators  
Indoor Air Monitoring  
Water Valves/ Pump Controls



## Life & Healthcare

Personal Trackers  
Pet Trackers  
Wearables  
Home Automation  
Elderly Monitoring  
Remote Medical Equipment  
Glucometers  
Blood Pressure Monitors  
Recreational Machines  
Patient Monitoring Laptops



## Agriculture & Environment

Trail Cameras  
Food Traceability  
Farmland Monitoring  
Farm Machinery Management  
Meteorological Stations  
Wildlife Tracking  
Irrigation  
Environmental Monitoring

# THANK YOU FOR THE BUSINESS

## COMPANY

**PT. ALPHA INDO NUSA**

THE LEADING GATE OF TECHNOLOGY AND GOODS

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Phone : + 622130499661

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Email : [alpha@alphaindonusa.com](mailto:alpha@alphaindonusa.com)

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Jl. Jend Gatot Subroto No.27

Karet Semanggi, Setiabudi, Jakarta Selatan, Indonesia 129309



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