5G

Application Ecosystem Contact Manual

5G Business Success

Preface

As 5G networks develop and gain more popularity, the number of 5G subscribers is increasing rapidly, providing a key basis for 5G service innovation. In the consumer market, we are noticing diverse 5G applications in various forms and scenarios, such as new video, XR, CloudX, and new devices.

In such a context, how can we seize the opportunities to achieve 5G business success? We provide an open platform for operators and partners in and outside China who are championing innovations and seeking market expansion to promote the maturing and rapid implementation of the local 5G application ecosystem.

This manual introduces 11 new 5G application partners in terms of global market, cooperation model, business development, and contact information. It is intended to help operators explore the blue ocean for commercial cross-industry 5G applications and accelerate 5G business success.

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**New
Video**

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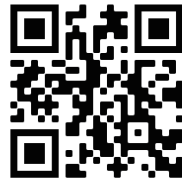**New
Device**

Insta360

Rokid

ATEL

Panodux

全度影像
PANODUX

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Enterprise Information

PANODUX is a technology company focusing on the research and development of array camera products and applications.

It aims to provide immersive interactive viewing applications with strong performance and good experience for 5G high-tech video, sports events, cultural activities and other industries by combining array camera hardware system with cutting-edge computational photography algorithm technology.

Services/Products Capabilities

It can provide bullet-time moments needed within 10s, and can create interactive experience applications with a free perspective with communication operators.
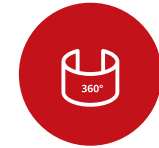
4K

Self-developed 4K resolution acquisition camera

High-precision synchronous transmission link

Bullet time effect processing process

Free-view interactive playback process

Business Development (Overseas Service Exploration)

PANODUX's products are currently sold jointly through on Huawei's global sales network. It will also set up local offices in other Asian countries and Europe to meet the shooting and purchasing needs of global customers. At the same time, it will recruit service and equipment distributors from local partners and share with them dividends of 5G high-tech video content.

Cooperation/Business Model/Case

PANODUX supports clients to build a 5G high-tech content collection system that meets your own requirements.

- Equipment sales and shooting service leasing

- Competition shooting, film and television shooting, radio and broadcast television program production

- Overall solution sales, including software and hardware

FROG
DIGITAL GROUP

Frog Digital

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Scan with Phone

Enterprise Information

Innovation Live-streaming

FROG DIGITAL has been a leading provider of live broadcasting and platform services since 2011.

Many outstanding projects

We have been involved with more than 4500 successful projects and many other outstanding projects such as KaoKonlaKao, One Man and The Sea, Elle Fashion Week, Start Up Thailand.
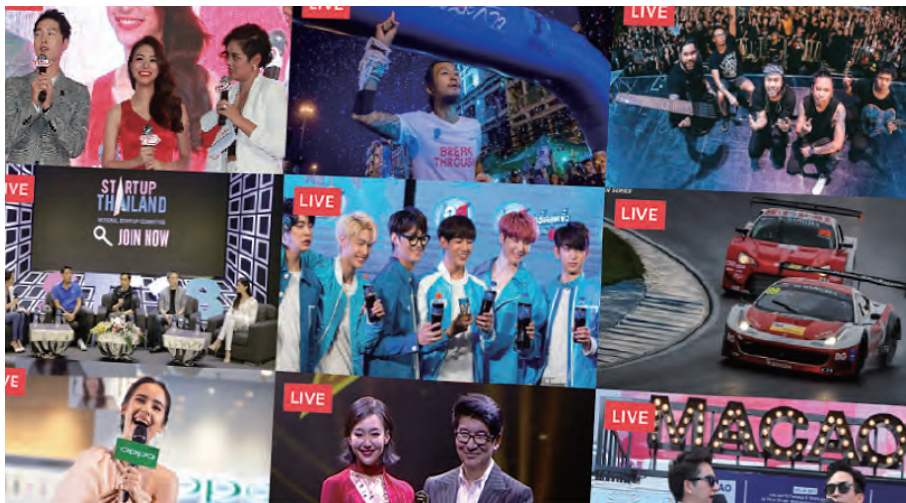
Services/Products Capabilities

Innovation Live-streaming

Frog Digital is turnkey partner, from creative inception to seamless production to impeccable streaming of your event. From Facebook Live, live 360 / VR video.

Learning Experience Platform (LXP)

Frog Digital provides an all-in-one cloud-based platform for learning and upgrading the skill set.

Business Development (Overseas Service Exploration)

Frog Digital believes in forming solid partnerships. In creating mutual value stronger together win-win situation. By supporting and empowering our partners, we enable our clients to boost their business efficiency and sales figures.

Cooperation/Business Model/Case

FROM SCENE TO SCREEN

Frog Digital masters the latest technologies and makes them work for you in your business.

Localization Partner/Provider

Solutions Integration

Joint Venture

Infrastructure partner

บริษัท เมดูซา อินเตอร์เนชั่นแนล มีเดีย จำกัด
MEDUSA INTERNATIONAL MEDIA CO.,LTD.

Medusa

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Enterprise Information

🏆 Medusa is a top MCN and social media marketing agency that is based in Thailand and serves customers across Southeast Asia.

Found in 2017, it owns KIK, the second most popular online celebrity account on TikTok in Thailand.

30+ 900+ million It has 30+ million operating fans, and 900+ million video views.

Services/Products Capabilities

Medusa provides promotion and marketing services on social media in various forms, such as creative short videos, live broadcasts, and official social account operations.

Business Development (Overseas Service Exploration)

Medusa has obtained the only official full-qualification authorization of TikTok in Thailand.

Medusa has officially entered the Chinese market. It provides Chinese brands with tailored in-depth overseas branding services, empowering brands to rapidly expand the Thailand and even Southeast Asian markets and helping their local business grow efficiently.
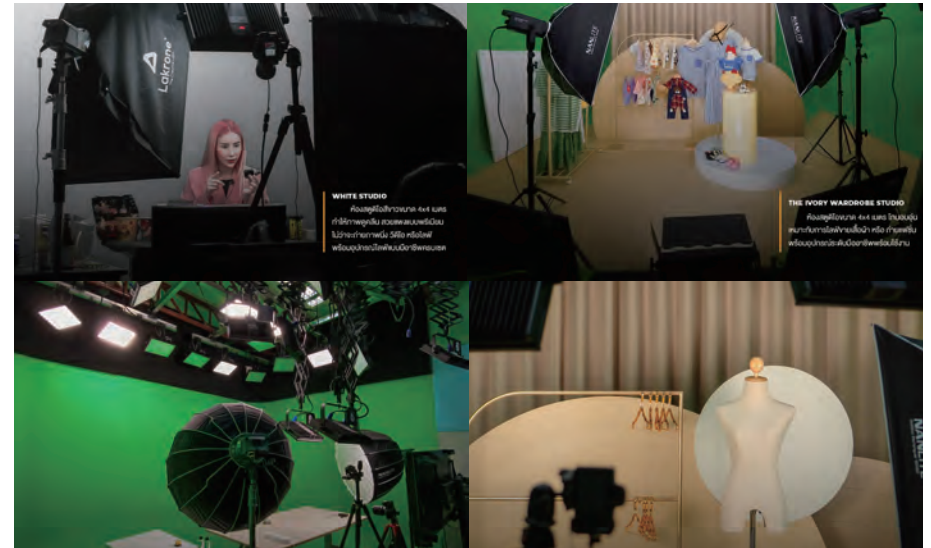
Cooperation/Business Model/Case

Influencer monetization

Brand output

E-commerce live streaming

Content marketing

Ad Planning

Influencer IP incubation

PR

E-commerce live education

TikTok
Brand operation for live streaming on platforms
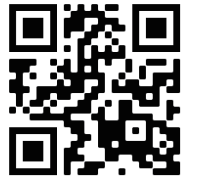Brand output for cross-border brands

EasyAR

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Enterprise Information

🪐 Found in 2012, EasyAR focuses on the spatial computing technology of metaverse.

🏆 In 2015, it released the first AR SDK for commercial purpose in China.

🎖 In 2019, it won the Excellent Application Case of World Conference on VR Industry and the Innovation Achievement Award of the World Artificial Intelligence Conference (WAIC).

Services/Products Capabilities

No.1
Smart and most popular spatial computing platform in China

200,000+
Global developers

Providing the main product/service - EasyAR Mega - the most popular smart metaverse spatial computing platform in China.

Having 200,000+ global developers on EasyAR Mega, which provides stable mapping and positioning functions as well as powerful tools.

Empowering industries such as tourism, marketing, industry, and education.

Business Development (Overseas Service Exploration)

40%
Users coming from overseas

50
Cities

1000+
Landmarks

10+
Millions square meters

EasyAR is well-known in the global AR field, with 40% users from outside China, including Europe, North America, and Southeast Asia.

EasyAR Mega's spatial map has expanded to include 50 cities and thousands of landmarks, covering a total area of tens of millions of square meters.

Cooperation/Business Model/Case

EasyAR adheres to the operating mode of open platform, and has created a large number of benchmarking cases and solutions in vertical industries.

Case: EasyAR supports the AR exploration of the Forbidden City. It is also the spatial computing tech provider for WAIC.

silversea MEDIA

SMG

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Enterprise Information

Silversea Media Group (SMG) is where cutting-edge technologies meet innovative experience design. SMG leverages its proprietary immersive technologies to attract consumers with the vivid realism and total interactivity of its 3D/VR/AR/XR virtual experiences.

Its MetaTwin 3D Platform provides a gateway to the Enterprise Metaverse that empowers a company's, even an industry's, seamless digital transformation.

MetaTwin's seamlessly integrated interactive elements, instant communication in virtual environments, easy social connectivity, and comprehensive data analysis will help businesses build a thriving and sustainable future in the digital era.

Services/Products Capabilities

Across most industries

MetaTwin 3D Platform object handling

Enterprise Metaverse Solutions

SMG serves most industries in retail, real estate, furniture, MICE, education, and tourism. From virtual property/store tours to virtual showrooms to metaverse events to VR/AR/XR classrooms, SMG's custom solutions open a world of possibilities for connecting, engaging, and captivating audiences.

SMG's MetaTwin 3D Platform handles object and spatial 3D digitization, 3D asset and space management, and immersive and online hybrid experiences. The platform digitally creates powerful interactive versions of clients' products, spaces, and customer/user experiences.

SMG's Enterprise Metaverse Solutions help businesses provide unique customer experiences and obtain more accurate insights on customer preferences. The data gathering and analytics functionalities help vendors garner information that can improve their decision-making and results.

Business Development (Overseas Service Exploration)

From its founding in 2017, SMG has rapidly expanded its geographic footprint and blue-chip customer base, and it has recently joined the VR/AR Association (VRARA), the most prestigious association clustering VR/AR/XR stakeholders all around the globe.

Full-time on-the-ground operations
Singapore (HQ), Malaysia, Indonesia, Vietnam

Strategic partnerships
China, Europe, Latin America

Core customers
Ministry of Education of Singapore, Housing Development Board of Singapore (HDB), Canon, Singapore Airlines, CapitaLand, M1, and UOB, among many others

Cooperation/Business Model/Case

B2B business model & Multiple solutions:
• SMG leverages a B2B business model to accelerate digital transformation.
• Off-the-shelf solution or customized upon clients' specific requirements.

SMG has served more than 500 notable clients in its focused sectors, including:
• Helped Singapore Airlines build virtual store project KrisShop Home
• Developed VR/AR content for the Ministry of Education of Singapore
• Executed successful virtual events in Indonesia's IFEX 2021 and Techfest Vietnam
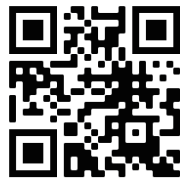
METAVERSE XR

Metaverse XR

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Enterprise Information

🏅 **1**
Leader in the
Metaverse industry

5year
Technology
development

34
Industries

72
Projects

MetaverseXR is one of the fastest growing startups in Southeast Asia and is a leader in the Metaverse industry. We deliver AR/VR/XR Metaverse services.

Dubai World
Expo 2022

Digital3.0

MetaverseXR was selected as Thailand's representative to showcase technologies at Dubai World Expo 2022.

It aims to build a digital 3.0 platform to create a digital economy that will allow people to live life and conduct business seamlessly in both real and virtual worlds.

Services/Products Capabilities

MetaverseXR provides diverse AR/VR/XR products and services for top companies across Southeast Asia.

Digital twin

Web 3.0
Metaverse solution

Virtual simulation
for education

Virtual
telemedicine

Extended reality
for gaming & tourism

AR navigation & positioning
based on mobile phones

AI virtual
influencer

AR try-on
for shopping

Virtual events

Real-time 3D volumetric
hologram for shopping

ETC

Business Development (Overseas Service Exploration)

Besides the flagship company, MetaverseXR also set up 6 spin-off startups.

MetaBOT
Mechanical engineering
on Metaverse

Innotech
Education platform

Imagination Software
XR game & XR ARENA

MetaverseXR San Francisco
Education platform

Meta AR
AI, 3D virtual influencer
meta human platform

Block 3.0
Blockchain,
Web 3.0 on Metaverse

Cooperation/Business Model/Case

MetaverseXR has 3 cooperation models:

Software development service: Developing new technologies for partners and clients.

Partnership & joint venture: Providing advanced innovative technologies for partners who are at the top tier in their industry and conducting business with them.

XR & Metaverse solution platform subscription model: Containing more than 40 XR/AR technologies, available for businesses and end users to adopt at a low cost.

CYBERREX

Cyberrex

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Enterprise Information

Found in 2015, Cyberrex Design is a Bangkok Thailand based VR, AR, MR, and Interactive Content creator.

Cyberrex had received awards in both International and Domestic competitions.

Cyberrex are specialized in Extended Reality, Interactive Media and 360 Degree content, working with varieties type of project such as Brand Marketing, Internal Training, Educational, Real Estate, Retails, Healthcare, Telecommunication(5G), Government associated campaign etc.

CYBERREX
AWARD-WINNING
AR • VR • MR STUDIO
VIRTUAL REALITY • AUGMENTED REALITY
MIXED REALITY • INTERACTIVE MEDIA
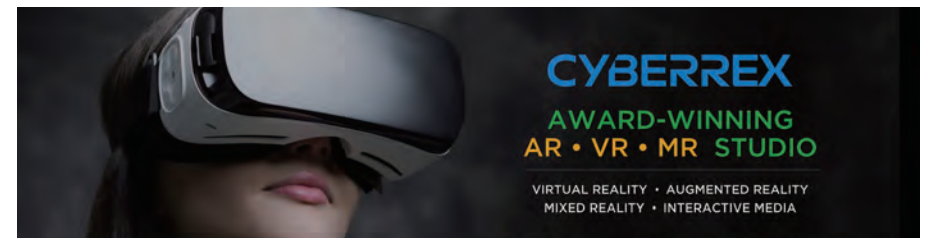
Services/Products Capabilities

Software

Hardware

Software creation such as Metaverse, Interactive Museum, Augmented Reality, Virtual Reality, Mixed Reality, 360 Content, Virtual Tour, Interactive Media, Touch Screen Content, and Simulator Content.

Hardware product such as 360 Degree Immersive projector, Mixed Reality glasses, Touch Screen monitors, Photo Booth service, 360 Dome Theater, VR Headset, Motion Capture, 360 Degree Camera, LED screen, and Touchless Kiosk.

Business Development (Overseas Service Exploration)

As one of the first company to provide Extended Reality content in Thailand, we had gained experience in working in wide range of projects for over 7 years. We worked with many international companies based in Thailand. We strived to expand our business internationally and provides our service to a global market.

Cooperation/Business Model/Case

Our team of Designers, Programmer, UX/UI, Creative team can work together with our partner to create high quality project. We have English speaking team that can communicate and understand what client needs. We are also open for investment or collaboration to create product or Platform.

Netboom

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Enterprise Information

Netboom is a leading cloud gaming company in China.

The core team is at the top level in the field of cloud computing virtualization technology.

You can actually play on our cloud gaming platform instantly with no download required.

Netboom mission: To solve the terminal problem of 1 billion gamers around the world.

Services/Products Capabilities

Netboom APP intro

No devices limited: Netboom cloud gaming enables users to play 3A masterpieces on any device, anywhere, regardless of how low-power your hardware is.

No spec. requirement: We promises you won't have to worry about updates, patches or upgrades.

No download needed: One click to play games in your Steam library, making streaming games a reality.

Netboom - Better Experience, Easy Access in the 5G era

Experience Convenient: Support mainstream brand handles such as Xbox; support all brands of keyboard and mouse.

Rich content: On average, 7 games are launched and deployed on the shelves every day. Plan substantive tests; Recommend games based on user preferences.

Virtual machines cost less than $0.50 per hour: The comprehensive cost of cloud servers and network bandwidth is much lower than that of all peers; 3A games achieve 50FPS and 1080P image quality performance - comparable to the local running effect.

Experience stability: In the early free beta test phase, the next-day retention performance was 35%-higher than the standard line for mobile games; Latency is as low as 25ms in the server deployment area - in line with popular player expectations.

Business Development (Overseas Service Exploration)

10 million downloads

1.2 million paid users

$**75** million payment

With over 10 million downloads of Netboom products worldwide and 1.2 million paid users spending $75 million on their cloud gaming services.

5 million users AP Region

1.5 million users in Middle East

3 million users North America

Our DCs have been deployed on the southeast Asia, Middle East, and North America to cover global users.

Cooperation/Business Model/Case

Two cooperation models with Telcos:

1. Subscription Bundling and aggregation such as premium tariff or add-on package: Use Netboom cloud resources to authorize activation code

2. White Labelling to offer own-branded gaming service: Netboom provides OEM and telcos provide cloud resources

Success Case: Thailand True

Insta360

Insta360

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Enterprise Information

Found in 2015, Insta360 is a world-renowned innovative camera maker with expertise in panoramic technology and AI image processing.

Its slogan "Think Bold" highlights its dedication to championing bold ideas both internally with its products and externally with its users.

Services/Products Capabilities

Action cameras: Insta360 is reinventing action cameras for a new generation of creatives, adventure travelers, and athletes.
• Pocket 360-degree action cam Insta360 X3
• Action cam Insta360 ONE RS with interchangeable lens
• Tiny 27-gram action cam Insta360 GO 2

Specialized 360-degree cameras:
• ONE RS 1-Inch 360 Edition
• Co-engineered with Leica
• Raising the bar for 360-degree capture
• Boasting dual 1-inch sensors and 6K video resolution
• Sphere 360-degree camera
• Turning drones invisible for creative reframing possibilities

Professional VR cameras: Titan and Pro 2 represent the frontier of VR production.
• Titan：Cinema-grade quality to VR
Stunning 11K resolution
• Pro 2：8K resolution
Fast, portable, and efficient

AI-powered webcams:
Link is an AI-powered 4K webcam that offers a powerful combination of premium image quality and a seamless user experience. With the pandemic shifting work to homes at an unprecedented rate, Insta360 saw the opportunity to help people work from home better with its expertise in AI image processing.

Awards:
• iF Design Award: Insta360 GO 2
• Good Design Award (JP award): Insta360 RS Twin, RS 1-Inch 360, and Link

Business Development (Overseas Service Exploration)

Insta360 has offices in L.A., Tokyo, Berlin, Shenzhen, and Hong Kong.

Insta360 has the largest share of the global 360-degree camera market (41%), according to research firm Frost & Sullivan. Its products are sold in more than 200 countries and regions. Key markets include the U.S., Japan, Germany, China, and the U.K.

Insta360's strategic planning is broadly focused on consumer and professional cameras and accessories, while targeted primarily on consumer-end intelligent camera products. Meanwhile, it is applying its technologies to industries, enabling applications such as virtual tour and VR live streaming.

Cooperation/Business Model/Case

Integration with virtual tour and construction platforms
Insta360 R and X Series cameras are integrated with leading virtual tour and construction site monitoring platforms like Matterport, OpenSpace, Cupix, and DroneDeploy.

AI-powered editing suite
Insta360 has been working hard to make it easier for its users to edit footage by developing many AI editing tools on its app. The most interesting tool is perhaps "Shot Lab", which uses AI to create cool effects like swapping out the sky or cloning a body in videos.

Grand event live streaming
In collaboration with Verizon, Insta360 Pro 2 cameras were used to livestream the NFL Super Bowl LVI Halftime Show and the Oscars 2022 ceremony in 360-degree VR.

Professional VR filmmaking
With Meta and Redbull, Insta360 Titan cameras were used to film "Alex Honnold: The Soloist VR", a VR movie that tells the story of Honnold's death-defying rock climbing.

Rokid

Rokid

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Enterprise Information

Established in 2014, Rokid is a product-oriented platform company dedicated to human-computer interaction.

In 2018, it was rated as a national new and high-tech enterprise.

As the explorer and pacemaker in the trade, it currently devotes itself to the R&D of hardware and software products of AR goggles as well as the ecological architecture based on YodaOS - XR.

Through multidisciplinary study such as speech recognition, natural language processing, computer vision, visual display, chip platform and hardware design, we integrate the advanced AI and AR technologies with industrial application to provide fullstack solutions for various customers in vertical business, thus greatly improving the users' experience, promoting enterprises' efficiency and providing guarantee for public security. Our AI and AR products have been widely put in use in more than 70 countries and regions.

Services/Products Capabilities

Rokid Air

1. 120-inch screen, 3D visual experience

As a private theater that can be put into a pocket, Rokid Air AR glasses are equipped with 43°FOV, 120" UHD display, high-quality directional speakers, and surround sound to bring fully immersive experience.

2. Fantastic AR mobile games to deliver a brand new gaming experience
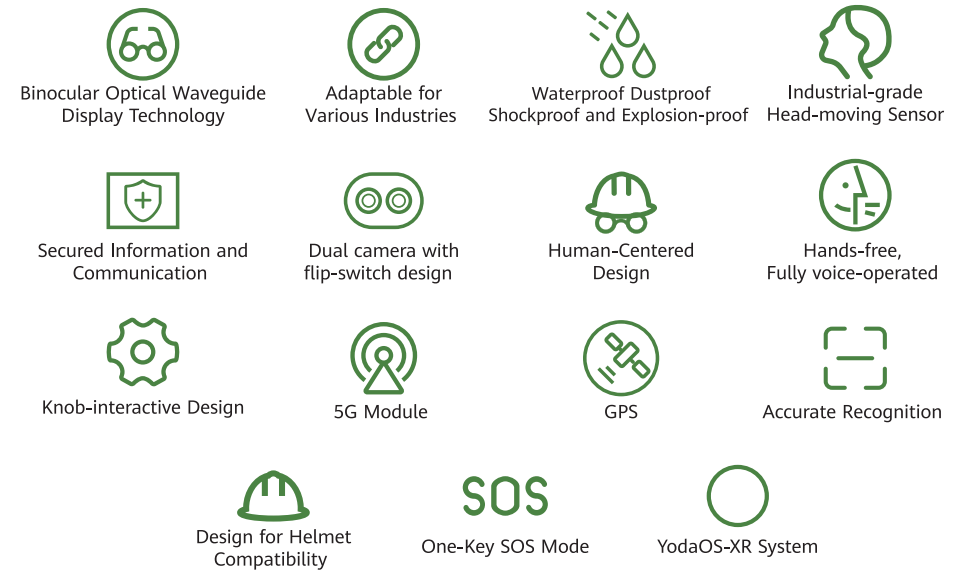
The Rokid App Store continues to offer more AR game contents, creating 3D spatial gaming experiences in the real world. Rokid's products support mobile games and can be connected to gamepad peripherals to improve gaming experience, bringing a large FOV effect with low latency and high quality.

3. Online office scenarios, large-screen meetings

For online office scenarios, light and portable peripherals (portable keyboard/touch pad) can quickly create a private and flexible mobile office environment.

And online sharing through various office applications and large-screen can bring immersive remote communication can be realized.

Binocular Optical Waveguide Display Technology

- Binocular Optical Waveguide Display Technology
- Adaptable for Various Industries
- Waterproof Dustproof Shockproof and Explosion-proof
- Industrial-grade Head-moving Sensor
- Secured Information and Communication
- Dual camera with flip-switch design
- Human-Centered Design
- Hands-free, Fully voice-operated
- Knob-interactive Design
- 5G Module
- GPS
- Accurate Recognition
- Design for Helmet Compatibility
- One-Key SOS Mode
- YodaOS-XR System

Business Development (Overseas Service Exploration)

70+
countries and regions

Rokid AI and AR products have been put into use in more than 70 countries and regions.

Cooperation/Business Model/Case

Rokid AR Workflow Platform

Guangdong Midea Microwave Manufacturing Co. Ltd. took the lead in introducing intelligent AR glasses developed by Rokid in the digital and intelligent transformation stage to improve the efficiency and accuracy of spot inspection, reduce the waiting time for maintenance, and make up the skill shortage of employees.

Besides, the low-code workflow configuration platform developed by Rokid has been adopted. The digital operation of the entire value chain throughout R&D, manufacturing, procurement, and other steps has been realized.

28%
The internal overall efficiency has been increased

15%
The product quality has been increased

53%
The delivery time has been shortened

40%
The end-to-end inventory has been reduced

With a series of innovations, Midea Group has once again demonstrated its outstanding intelligent manufacturing capability, helping China's smart manufacturing lead the world.

ATEL

ATEL

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Enterprise Information

Asiatelco Technologies Co. (ATEL) is a leading wireless terminal product provider that serves customers worldwide.

Its innovative products and solutions are widely used for reliable broadband access, IoT/M2M applications, and voice communication with 2G/3G/4G/5G wireless technologies. ATEL is well recognized as a high-tech company in areas of communications, networking, computing, and software services.

Since 2015, ATEL became part of Star-net company, which was established in 1996 and has grown into a group company with more than 10,000 employees worldwide. It is publicly listed in China and currently is valued at about US$4.0 billion. Its sales revenue in 2021 reached more than US$2.5 billion.

Services/Products Capabilities

IoT division   Broadband division   Smart device division

ATEL has 3 R&D divisions.

The first is IoT division, which includes different types of tracker devices and industrial IoT gateways.

The second is broadband division, which focuses on designing 4G/5G broadband devices, including indoor and outdoor routers, mobile hotspots, and USB dongles.

The third is smart device division, which is dedicated to designing Android-based terminals, such as 5G/4G phone, POS machines and smart panels for vending machines, refrigerators, or dash cameras.

High-speed 5G Network

Better Network, Better Life

Plug and Play

Easy to have internet everywhere

Key Facts about ATEL Factory

1. ISO9001-2008, ISO14001-2004, OHSAS18001-2001, QC080000, TS14969 ... certified

2. Star-net production unit located in the Fuzhou Industrial Zone, with a floor area of over 80,000 m² and still expanding

3. More than 1,500 employees in the factory

4. 26 high-speed SMT lines, with a daily capacity of more than 150,000 units

5. 15 assembly lines and 7 insertion assembly lines

6. State-of-the-art material/quality inspection equipment and process

7. Well-defined/-executed QC and process control system and fully networked management system

8. Networked supply management system

9. Component/Part and product tracking throughout production process

Business Development (Overseas Service Exploration)

19+
years growth

60
countries

Over the last 19+ years of growth, ATEL has expanded to more than 60 countries and has built a strong, effective, and efficient team in R&D and manufacturing.

Innovation

Quality

Flexibility

On-time delivery

Competitive pricing

ATEL team performs well in turn-key services. Innovation, quality, flexibility, on-time delivery, and competitive pricing are key success factors at ATEL and are vital to customer satisfaction.

Shanghai
Head office

8 overseas offices
USA, Ireland, Netherlands, Portugal, Spain South Africa, Pakistan, Philippines, respectively.

It has globally-positioned sales and technical support teams.

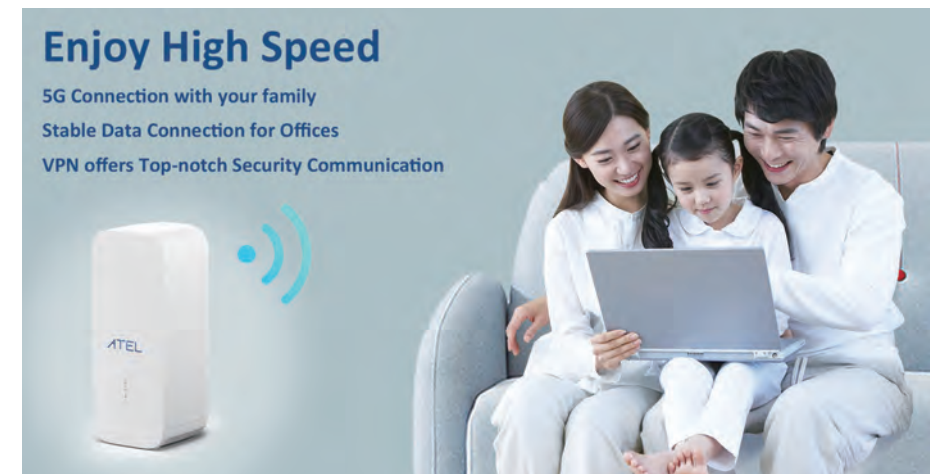## Cooperation/Business Model/Case

ODM
tailored products

OEM
off-the-shelf products

With strong R&D and production capabilities, ATEL can provide one-stop customization service.

Two business modes

ODM: tailor a product exactly based on customer requirement.

OEM: offer off-the-shelf products to reduce the time-to-market.

Enjoy High Speed
5G Connection with your family
Stable Data Connection for Offices
VPN offers Top-notch Security Communication

Case

Polsat Plus, the biggest operator in Poland, is a satellite TV and 4G/5G broadband service provider. It requested ATEL to design a device that combines satellite TV and 4G/5G broadband signal and leverages TV coaxial cables for Internet data transmission and satellite TV.

ATEL helps Polsat increase its FWA subscribers by more than 300,000/year, making this project the most successful one for Polsat.