

# KAI IR Book

Total solution provider in Aerospace

**KAI**

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**KAI** KOREA AEROSPACE  
INDUSTRIES, LTD.



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# I . Era of Spotlighting on Aerospace Industry

1. Characteristics of the Aerospace Industry
2. Outlook of the Aerospace Industry



# 01 Characteristics of the Aerospace Industry



## A new growth engine for the Korean economy



### The industry of the future that converges cutting edge technologies

A core industry of the future that integrates and merges state of art technologies  
Combined and driven from electric/electronic, IT, and S/W sectors



### Advanced Industry with unlimited potential growth

Sustainable growth derived by increasing demand for air transportation that fostered by developed nations due to importance of security and economic reasons

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### A knowledge and labor-intensive industry that plays vital role in job creation

High quality job creation by long-term R&D and production that oriented by high skilled labors



### High Value-Added industry

1 unit of T-50 exported abroad has a larger contribution in the economy that 1,000 mid-sized sedans sold



### High entry barriers, but with a long and sustainable future

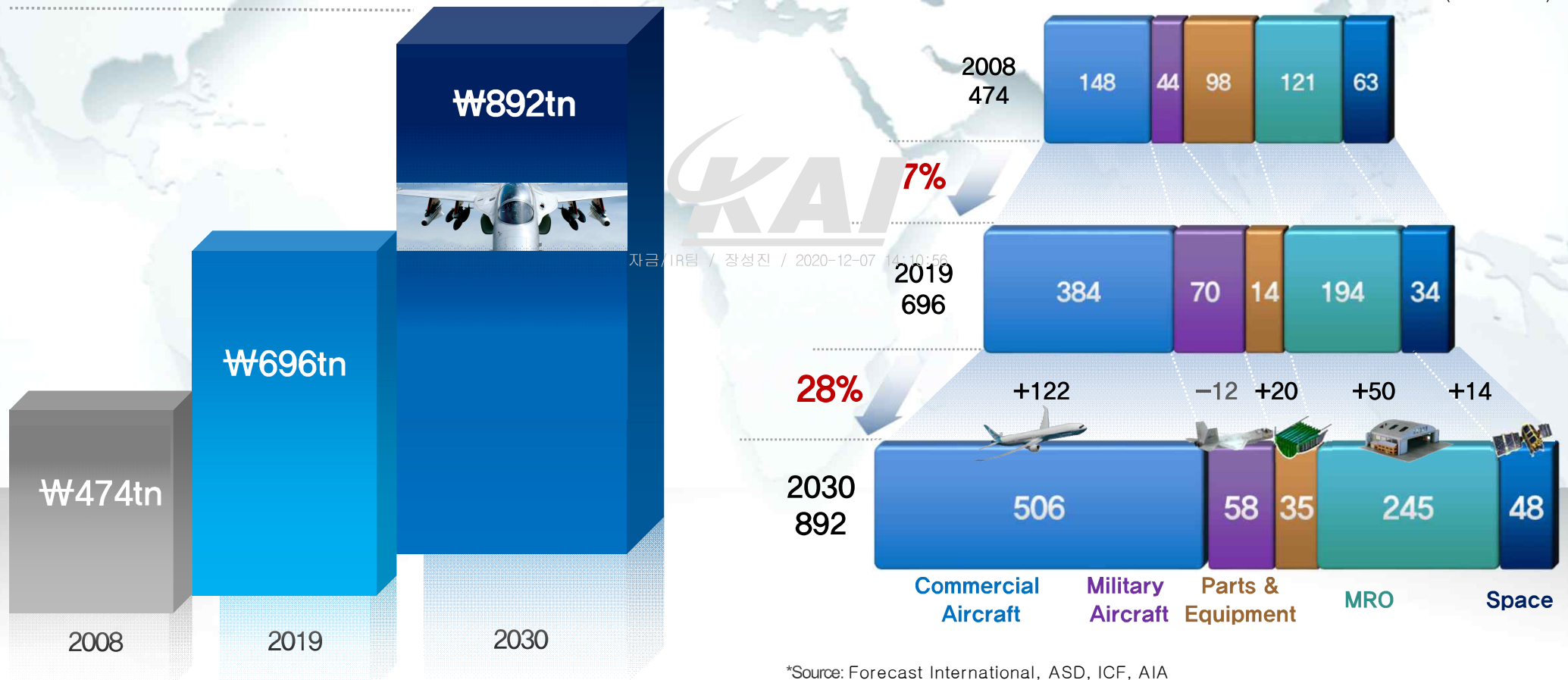
Long term production and follow-on support period after development (Average operating period for aircraft : 40 Years)

# 02 Outlook of the Aerospace Industry

Forecasting Sustainable Growth in Aerospace Industry,  
Growth Mainly Driven by Commercial Area

Global Aerospace Industry Outlook

(Unit : ₩ 1tn)



\*Source: Forecast International, ASD, ICF, AIA

## II. KAI's Investment Highlights

1. Outcome
2. Mid & Long-term Growth Engines
3. Competitiveness
4. Strategic Partnership
5. Business Diversification



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# 01 Outcome



## Commencing Large Scale Government Project, Expanding Business Area



### Started development of KFX Fighter



- Signed KF-X and kicked off EMD(Dec. 2015)
- Completion of the CDR(Sept. 2019)
- KFX fighter prototype release(Scheduled for 2021)



### Started development of LAH & LCH helicopters



- Signed LAH & LCH and kicked off EMD (Jun. 2015)
- LAH prototype release(Scheduled for 2021)



### Expansion of aircraft export business



- Exported FA-50 to Iraq(Dec. 2013) and Philippines(Mar. 2014)
- T-50 to Thailand(Sep. 2015 / Jul. 2017), 자금/IR팀 / 장성진 / 2018-12-07 14:10:06
- KT-1 to Senegal(Jul. 2016), indonesia(Nov. 2018)



### Fully launched Surion Derivatives business



- National Police Agency, Search & rescue Forest Service, Korea Coast Guard
- Amphibious type production (Dec. 2016)
- MEDEVAC Production (Dec. 2018)



### Continuous growth of commercial aircraft business



- Sales growth(₩0.8tn in 2014 to ₩1.0tn in 2019)
- Joint development and production of B787/A350



### Expansion of future(Space) business



- Korea's indigenous space launcher vehicle(Jan. 2014)
- Multi-functional satellite #7(Apr. 2017)
- Develop Military surveillance satellite (425) (Dec. 2018)



### MRO Business is in Full Swing



- Selected as MRO Specialized Firm by MOLIT ('17.12)
- Established MRO firm and Commenced business ('18)



### Enhancing Infrastructures



- Building an ecosystem for the commercial aircraft business
- Expanding domestic suppliers and proposing a job creation model



# 02 Long-term Growth Engines



Accelerating long-term growth, backed by large order backlog and the future & prospective orders to be delivered

2019  
₩16.9tn

## Secured Order Backlog

- Domestic ₩8.8tn, Aircraft Parts ₩7.6tn, Aircraft Export ₩0.5tn,

₩30tn ↑

## KAI Orders Expected

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- KFX Production(Korea/Indonesia)
- KUH Follow-on/Variant (4<sup>th</sup>, MEDEVAC, etc.)
- Aircraft Parts Follow-on
- LAH Production
- Aircraft Export Follow-on
- Satellite/Space Launcher Follow-on
- MRO(Heavy maintenance)

₩33tn ↑

## Prospective Order Wins

- LAH/LCH Exports
- Aircraft Exports
- Aircraft Parts (Super Tie1)
- Commercial Aircraft, Business Diversification
- KFX Follow-on/Exports
- KUH(Variant) Exports
- MRO(Component Maintenance)
- Business Diversification



# 03 Competitiveness

## (1) Comprehensive Infrastructure



Establishing a comprehensive Aerospace infrastructure through Korea's sole final aircraft integrator experience!

### Professional Engineering Resource

Experts in all areas of aircraft development cycle

Number of Engineers 2,802 in Total  
(38% with more than 10 years' experience)



### Technological Competencies

Maintains world-class technological standards

Obtained Asia's first airbus design rights  
Certified with the Level-5 CMMI rating for avionics SW

※ CMMI : Capability Maturity Model Integration

### Aviation Infrastructure

Vertically integrated infrastructure in all facets of aircraft development, production, and testing



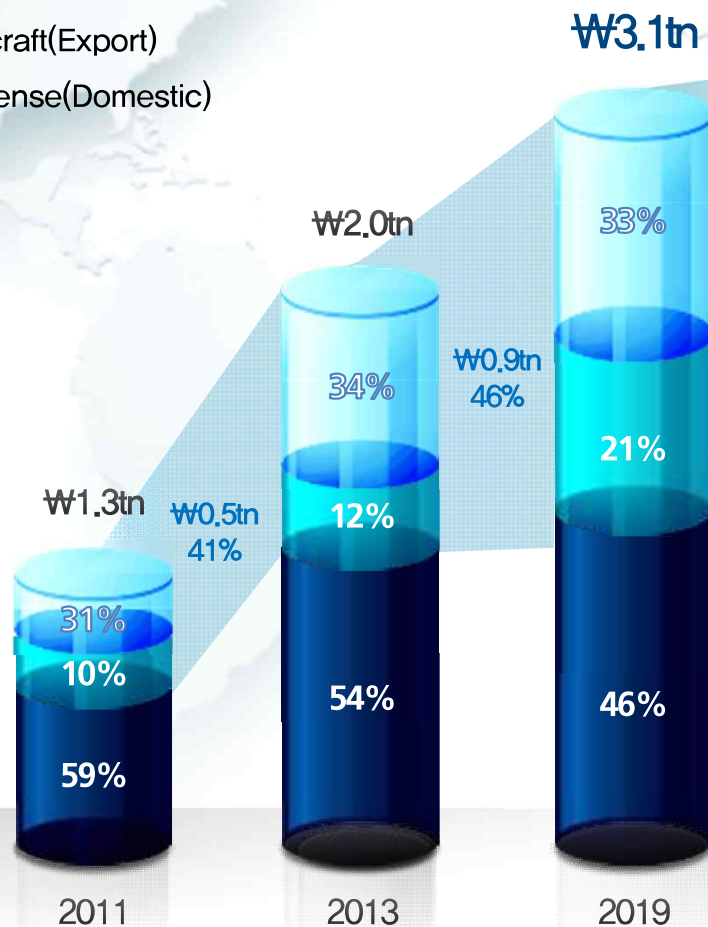
# 03 Competitiveness

## (2) Export Driven Biz Portfolio



Transforming into an export-driven aerospace company  
by delivering world-class products and services

- Aircraft Parts(Export)
- Aircraft(Export)
- Defense(Domestic)



Export  
₩1.7tn  
54%



Build-To-Print



Design & Build  
(Risk-Sharing Partner)



Indonesia Turkey



Peru



Iraq



Senegal



Philippines



Thailand



KT-1



T-50



FA-50



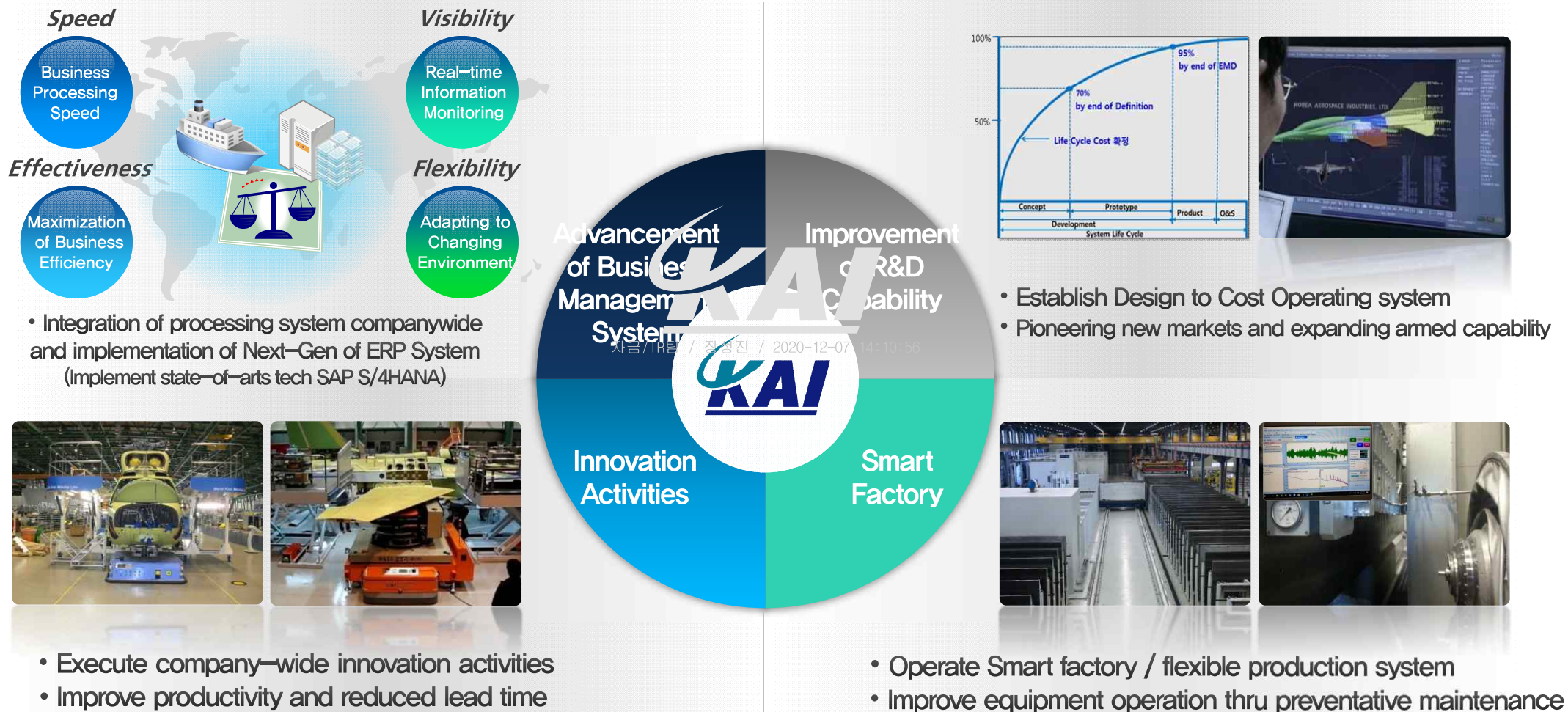
Surion

# 03 Competitiveness

## (3) Cost Competitiveness



### Enhancing cost competitiveness through continuous innovation and Improvement





# 04 Strategic Partnership



## Reinforcing synergy with world's leading aerospace companies through strategic partnerships



- Technological assistance in developing Korea's indigenous KF-X Fighter



- Reinforcing collaboration across the entire business, including MRO, space/satellite, and mid-sized regional aircrafts
- Joint development of the LAH/LCH helicopters & joint marketing for exporting Surion abroad



- Participated in the international joint development project for B787
- Sole provider of military aircraft aero structures

- Joint development of Korea's indigenous fighter jet, the KF-X/I-FX
- Strategic cooperation in MRO and commercial passenger aircraft development programs, as well as an expansion into new markets

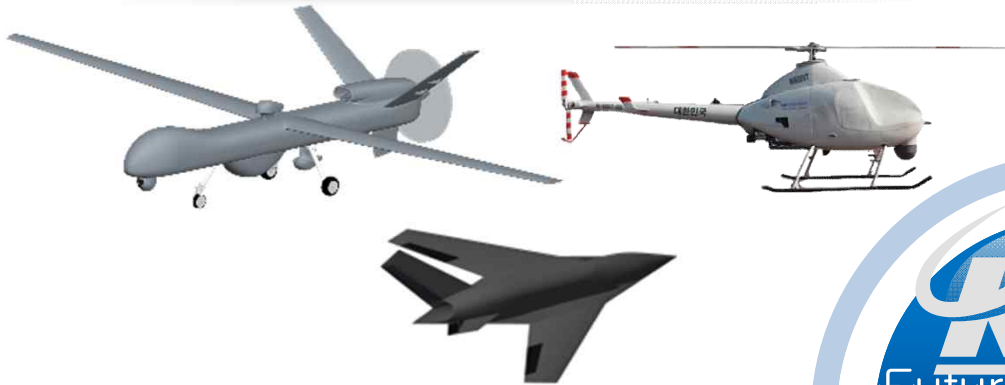




# 05 Business Diversification



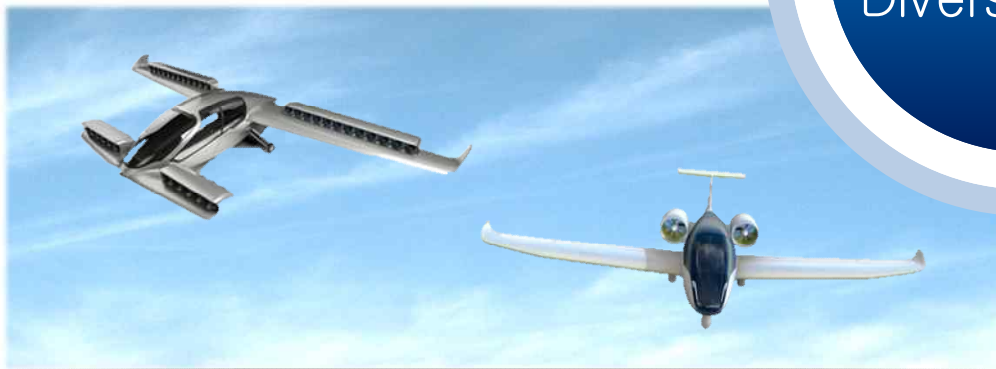
## Unmanned System



## Avionics



**KAI**  
Future Business  
Diversification



## PAV/Electronic Aircraft

## Develop Commercial Aircraft



# III. Our Growth Strategies

1. Vision
2. Roadmap



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# 01 Vision



## Total Solution Provider in Aerospace

Leap into the leading global aerospace company by 2030

An aircraft integrator in aerospace

Top 5

- No.1 Boeing
- No.2 Airbus
- No.3 Lockheed Martin
- No.4 Northrop Grumman
- No.5 BAE Systems

\*Source : Flight International (Sep.2019)

₩3.1tn

2019

Foster Core Biz

KF-X, LAH/LCH, KUH/Derivatives

Expand Export Biz  
in Global Market

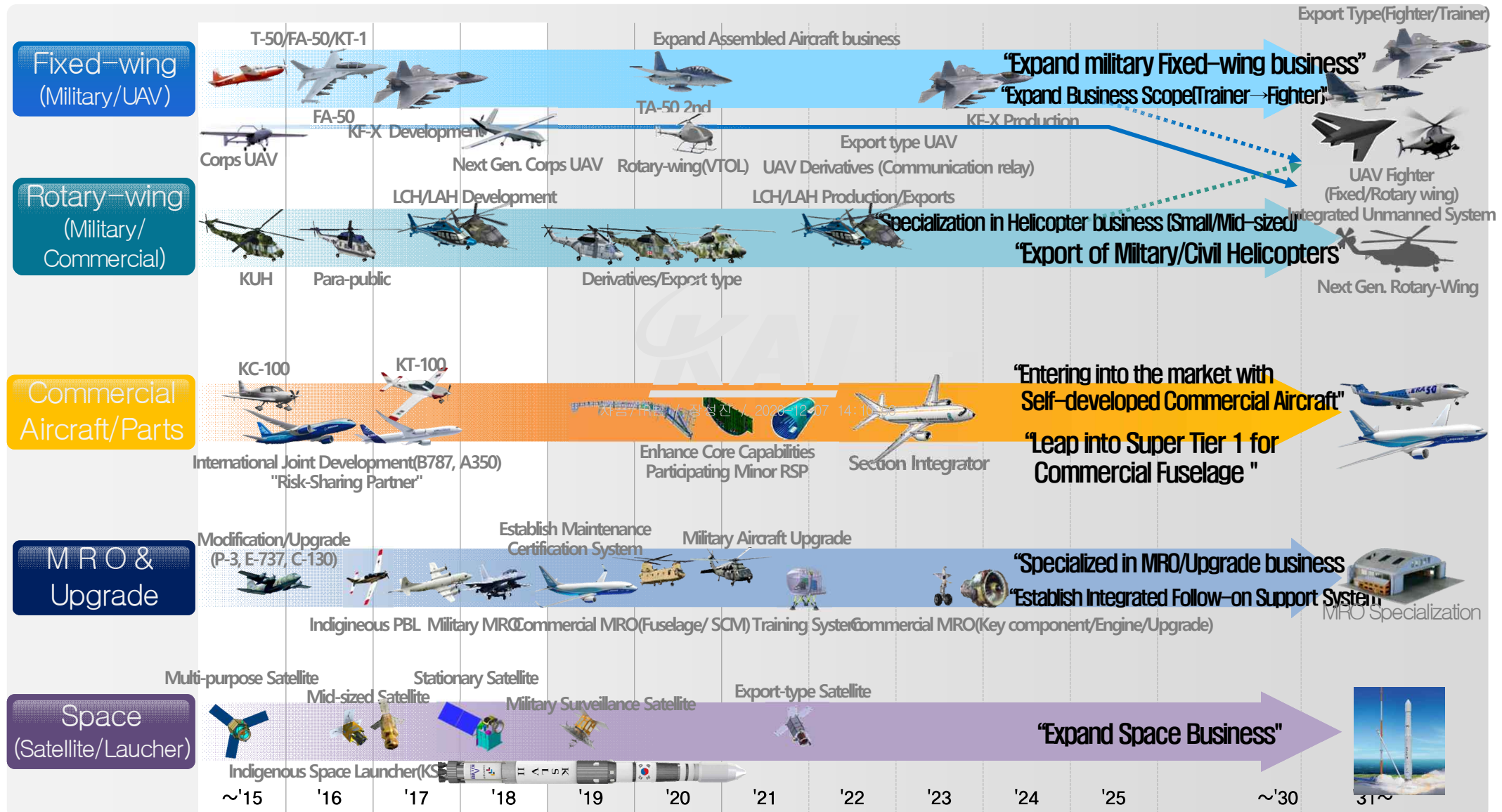
T-50/KT-1/KUH, Aero structure

2030

Diversify & Develop  
New biz for Future Growth  
UAV, Commercial Aircraft, MRO, Space,



# 02 Roadmap



## IV. Strategic Core Program

1. KFX Program
2. LAH/LCH Program
3. Aircraft Export Program
4. Commercial Aircraft Fuselage
5. MRO



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# 01 KFX Program



International joint development project for the production and export of an indigenous fighter aircraft that will replace Korea's aging fleet of fighters





# 02 LAH/LCH Program



Development, production, and export of light civil helicopters and armed variants



- Engineering & Manufacturing Development

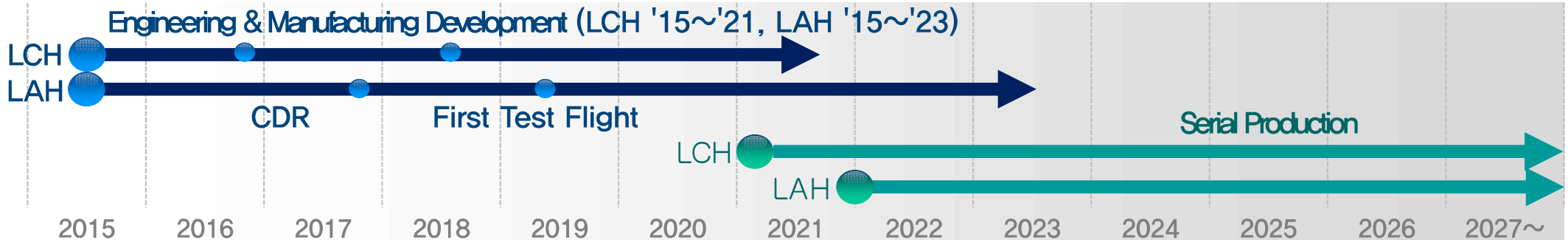
- Initial Production  
—LAH 000 units
- Follow-on Support

- Additional Production  
—LAH Variants  
—LCH Para-public
- Export
- Follow-on Support

Integrated Development of small-size military/civil Helicopter

Specializing in Helicopter business (Military/Civil, Small/Mid)

## Development & Production Roadmap



# 03 Aircraft Export Program



Expanding global market share by  
Stretching business portfolio and customer tailor-made strategy

Total Solution Provider in Aircraft Export

Target Countries

Aircraft  
+ Training  
+ Aviation Support Facility  
+ PBL & CLS  
+ Aviation Support Operations

Future

Software-driven Solutions

- Education & Training Center
- Aviation Support Facility
- Reinforcement of PBL & CLS
- Reinforcement of Aviation Support System

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Aircraft  
+ Upgrade and Increase Utility  
+ Training  
+ Aviation Support Facility

Present

Expansion of Business Scope

- Development of armament configuration and upgrade
- avionic electronics system
- Pilot/Technician Training
- Aviation Support Facilities
- Operation, Maintenance & Follow-on Support



Aircraft

Past

Hardware & Manufacturing -oriented



# 04 Commercial Aircraft Fuselage



## Strategic Partnership through Leaping into Super Tier1

Secure strategic partnership by attaining 4 core strategic technologies (Main wings/Tail/Fuselage structures/Pylon)

### Boeing



- ✓ B787 FTE, B777X Wing Rib
- ✓ B737/P-8 HS&VF etc

### Airbus

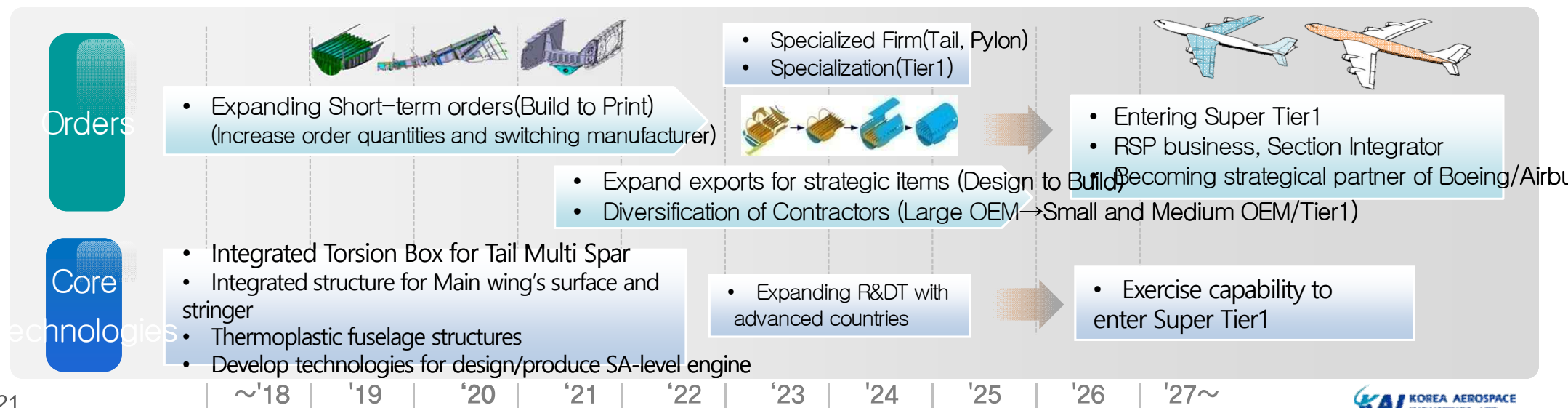


- ✓ A350 Wing Rib, Wing Bay
- ✓ A320 WBP, WTP etc

### Others



- ✓ IAI G280 Business Jet Wing
- ✓ Embraer E-2 Wing stringer
- ✓ LM C-130J AFT Nacelle
- ✓ Bombardier CRJ Door etc





# 05 MRO Business



## Accelerating Military/Commercial After-Market Business(MRO/Upgrade)

(KAI supply units : '15 400 units, '20 900 units, '25 1,700units)

### Military MRO



- ✓ Military aircraft(F-16, P-3, etc.) repair, periodic inspection, etc.

### Commercial MRO

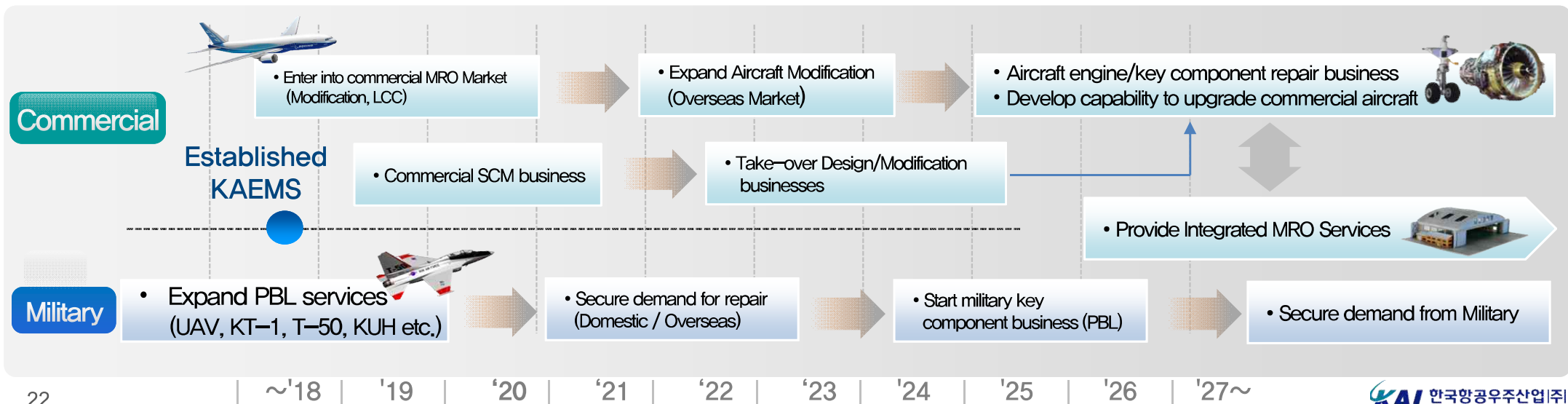


- ✓ Establish/Run KAEMS MRO specialized firm
  - ✓ Heavy maintenance
- 자급/18팀 / 장성진 / 2020-12-07 14:10:56  
→ Expansion of component repair

### Upgrade



- ✓ Upgrade services for domestic and foreign aircrafts



# V. Business Performance & Goals

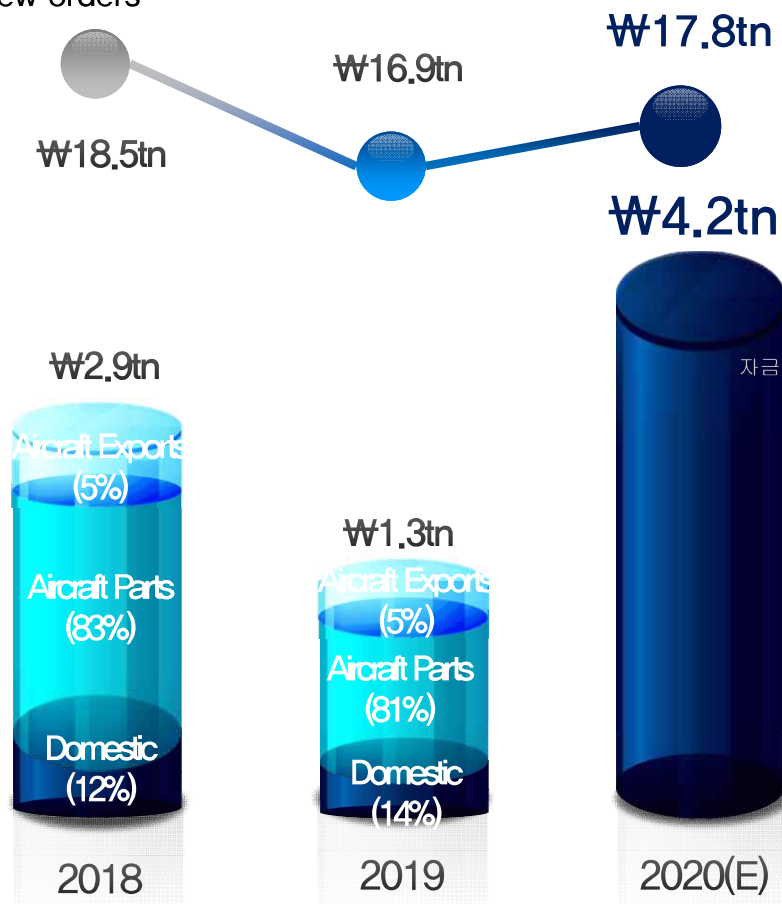
1. Orders
2. Sales
3. Operating Profits
4. 2020 Business Strategies
5. Performance of the first quarter
6. Performance of Second quarter
7. Performance of Third quarter

# 01 Orders

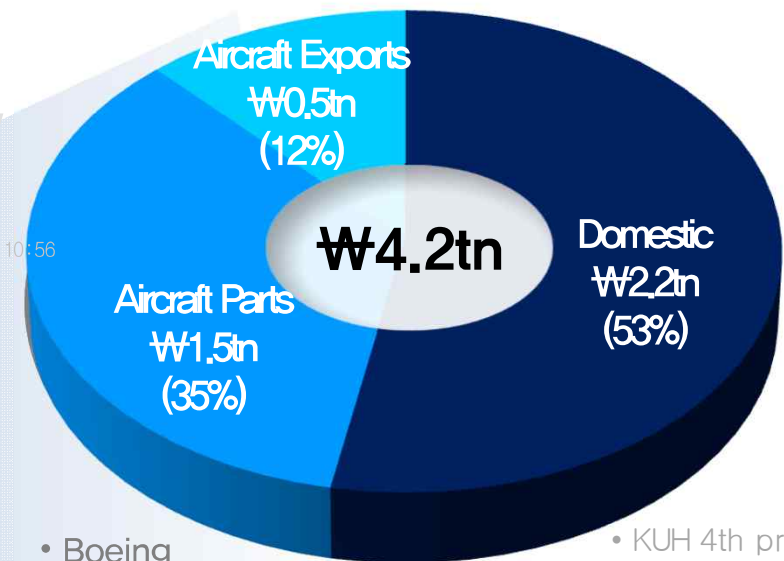


Secured ₩16.9tn order backlog in 2019, Aiming for ₩17.8tn backlog in 2020

● Backlog  
■ New orders



- KT-1 Thailand, Philippines Orders
- KUH Indonesia Orders
- Additional T-50 Thailand Orders



- Boeing
- Airbus etc.

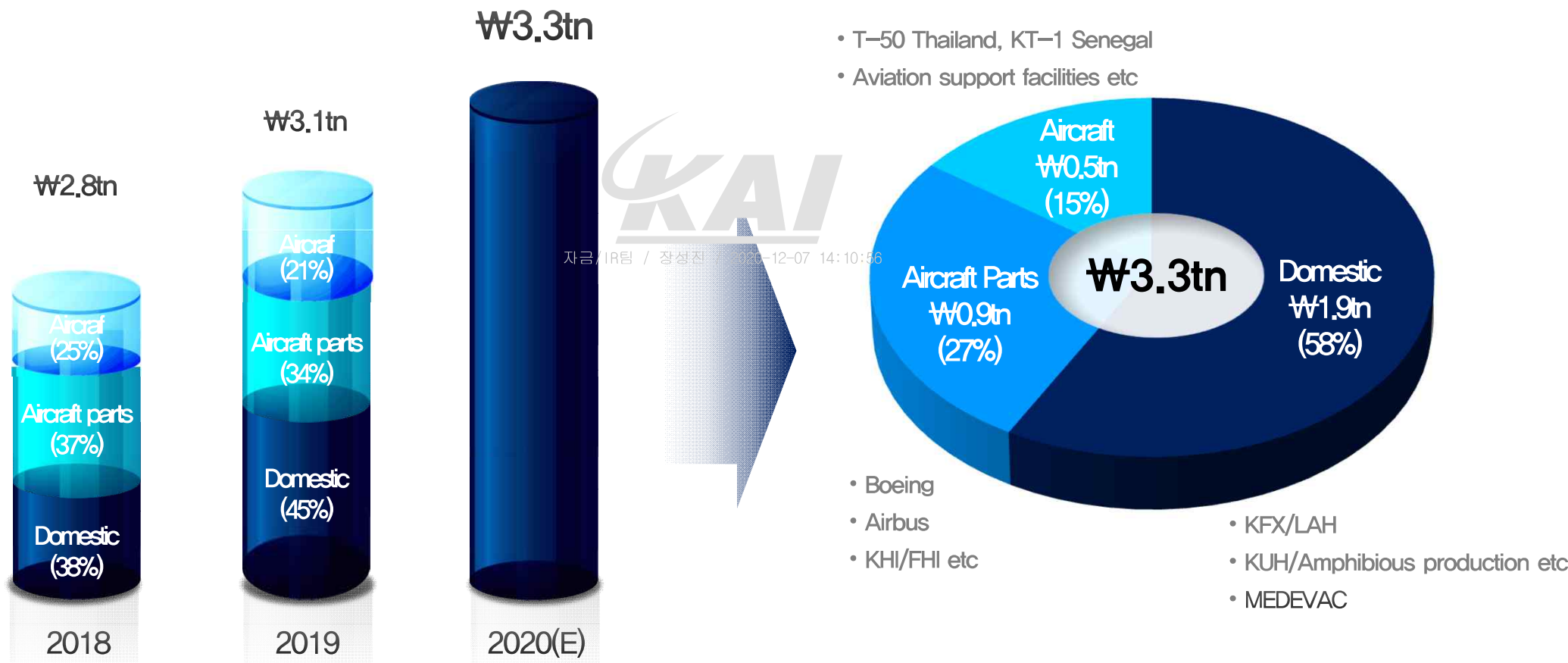
- KUH 4th production
- Tactical Trainer 2nd
- Upgrade, Para-public Helicopters Etc.



## 02 Sales



Posted ₩3.1tn sales in 2019, 2020 sales goal is eyeing ₩3.3tn



# 03 Operating Profits



Anticipate growth in operating income due to increased volume of domestic business and progress rate of development businesses

(Operating Margin) (5.3%) (8.9%)

Operating Profit 1,464

2,756



(Unit : KRW 100m)

2018

2020(E)



# 04 2020 Business Strategies



## Total Solution Provider in Aerospace

Leap into the leading global aerospace company

New Orders  
Sales

₩4.2tn  
₩3.3tn



“Establish the platform for future growth by  
Successful implementation of strategic businesses”

Focusing  
R&D  
Competency

- KFX
- LAH/LCH

Expanding  
Aircraft  
Exports

- T-50/FA-50
- KT-1
- Surion

Expanding  
Fuselage  
Structures  
Business

- Secure Strategic Technologies
- Cost Reduction
- Entering into Super Tie1

Launching  
MRO  
Business

- Est. Specialized company
- Initiate business

Expanding  
Space  
Business

- Multi-purpose satellite
- Next-generation
- Military surveillance satellite
- Korean space launcher

Expanding  
Infrastructures

- Expanding Cooperation in Commercial Area
- Integrate business site for satellite part

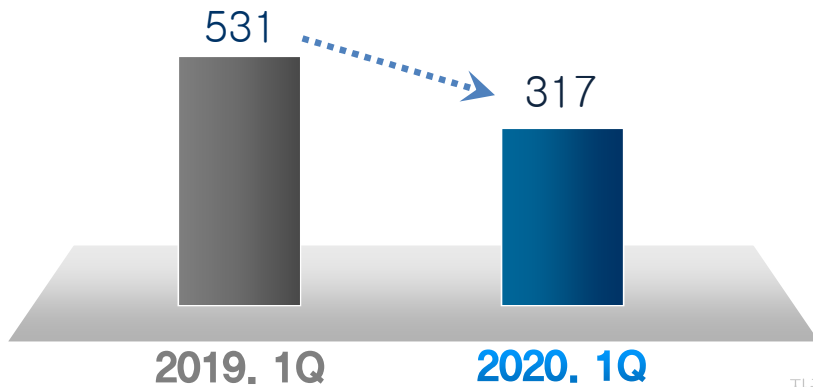


# 05 Performance of the first quarter



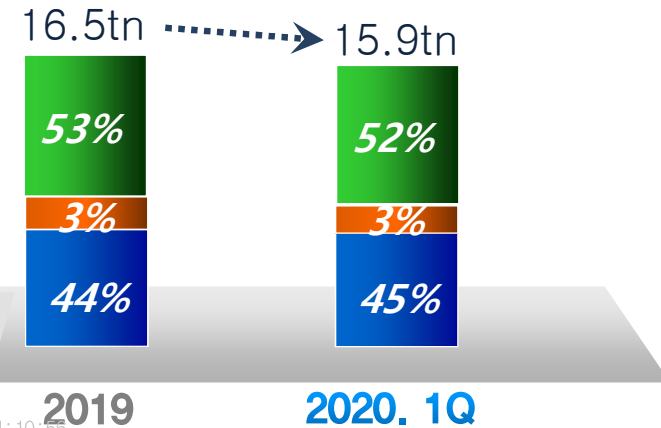
## Orders

(Unit : KRW 100 million)



## Backlogs

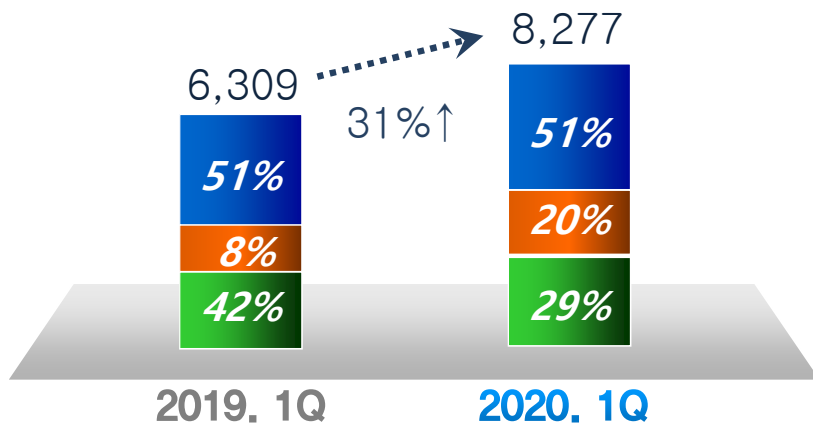
Defense Aircraft export Commercial



## Sales

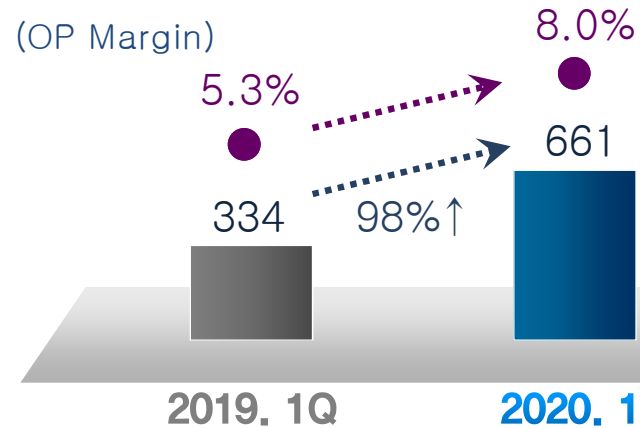
(Unit : KRW 100 million)

Defense Aircraft export Commercial



## Operating Profit

(Unit : KRW 100 million)



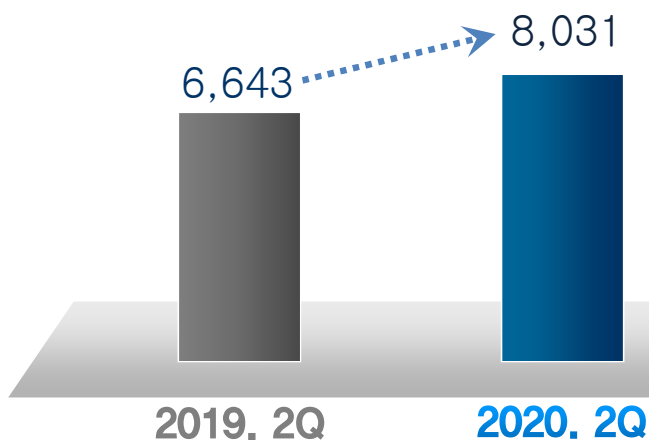


# 05 Performance of Second Quarter



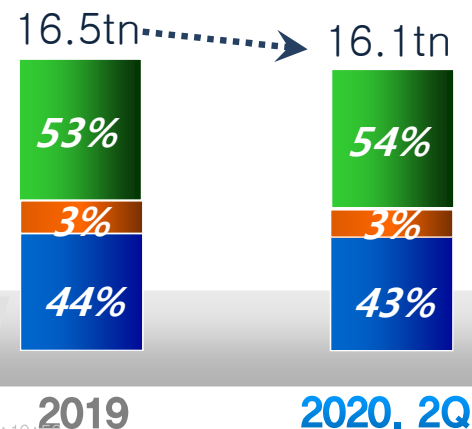
## Orders

(Unit : KRW 100 million)



## Backlogs

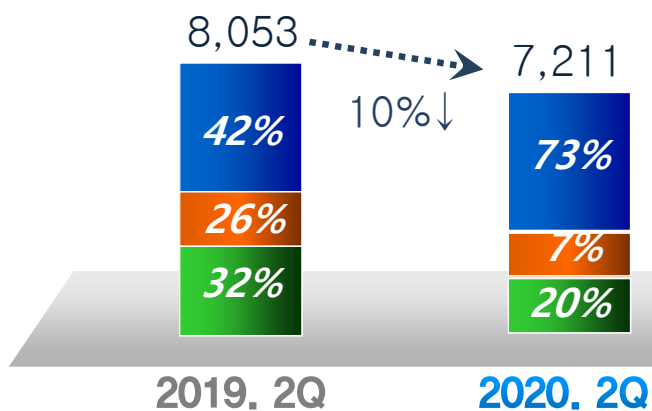
■ Defense ■ Aircraft export ■ Commercial



## Sales

(Unit : KRW 100 million)

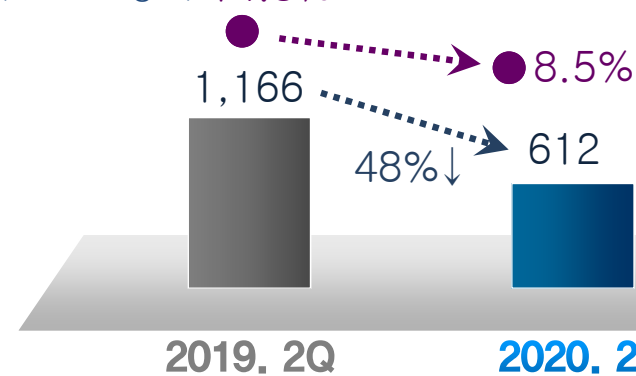
■ Defense ■ Aircraft export ■ Commercial



## Operating Profit

(Unit : KRW 100 million)

(OP Margin) 14.5%

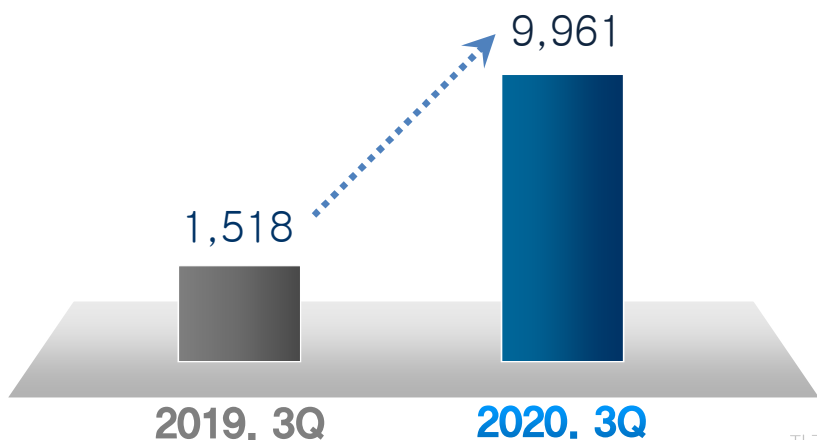


# 05 Performance of Third Quarter



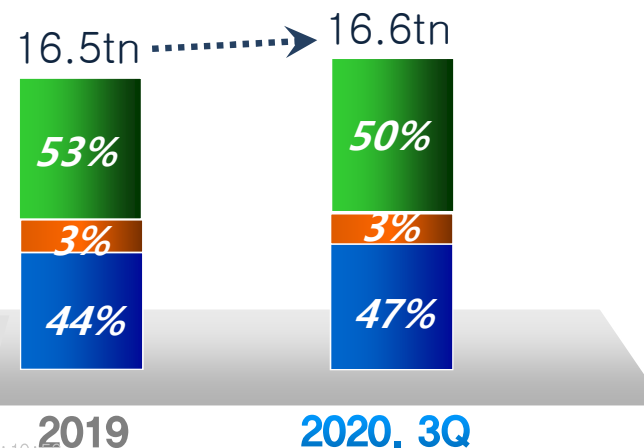
## Orders

(Unit : KRW 100 million)



## Backlogs

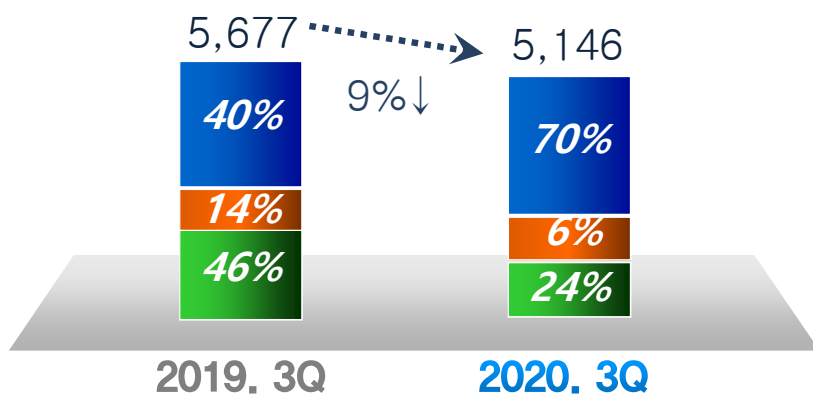
■ Defense ■ Aircraft export ■ Commercial



## Sales

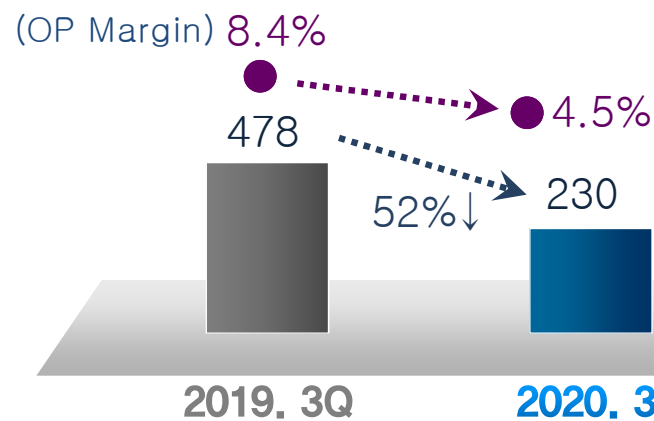
(Unit : KRW 100 million)

■ Defense ■ Aircraft export ■ Commercial



## Operating Profit

(Unit : KRW 100 million)



# Appendix.

1. Company Overview
2. Major Businesses





# 01 Company Overview(1)



## Foundation



- Established by government policies to nurture the future growth driver of Aerospace industry with promoting the competitive edge in global market.
  - Consolidation of Aerospace Divisions of Daewoo Heavy Industries, Hyundai Space & Aircraft, and Samsung Aerospace

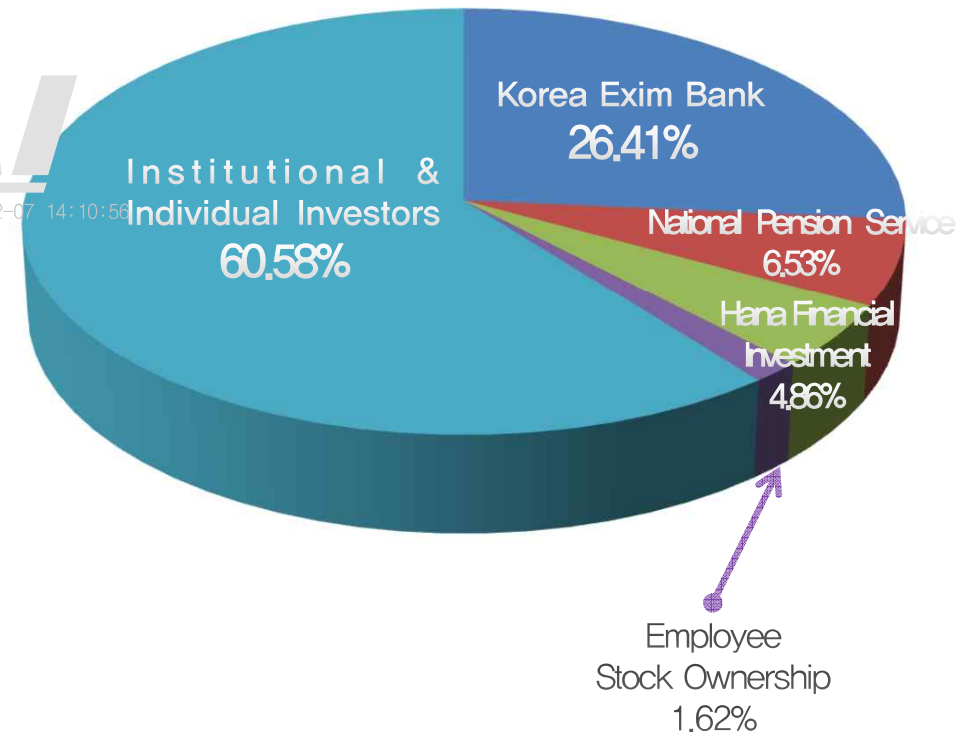
- Main Businesses : Aircraft, Airframe, Satellite, MRO, etc.



## Ownership

(As of 31.Dec 2019)

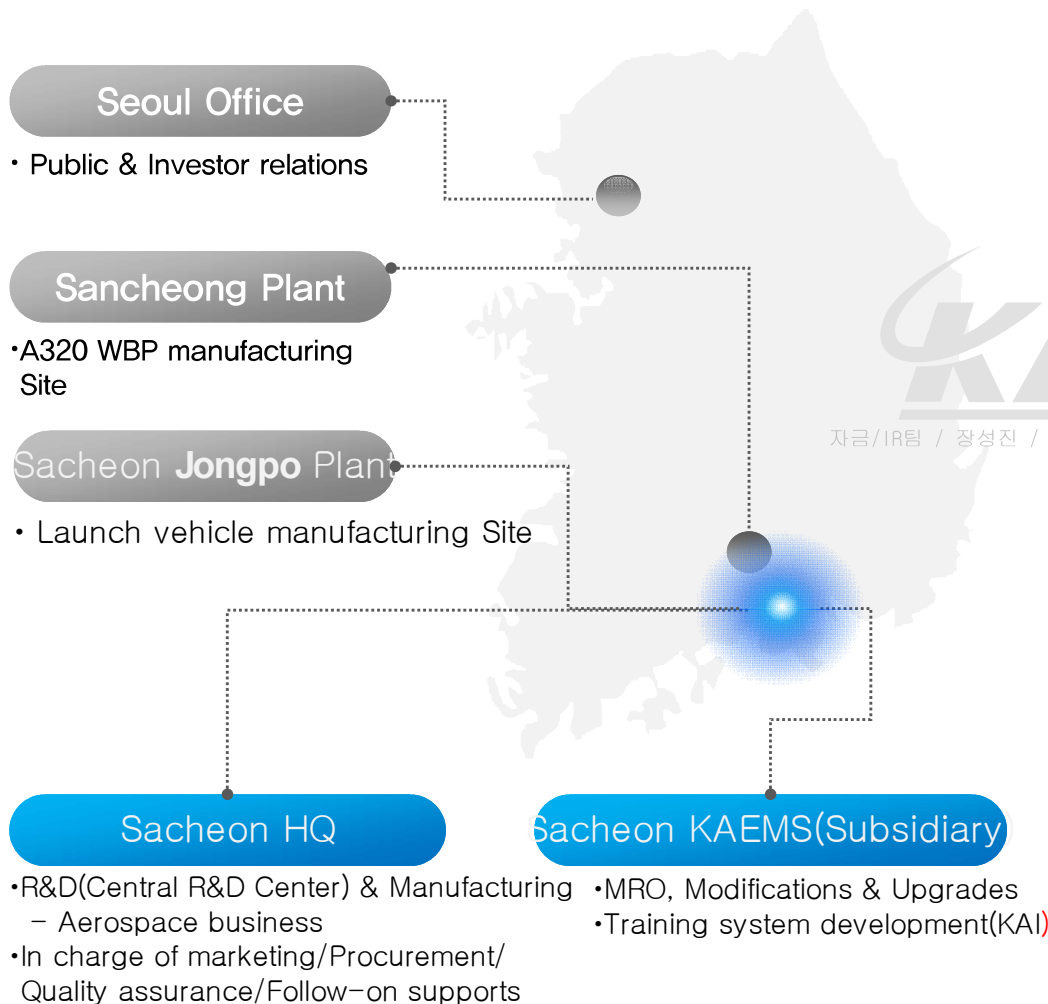
- Total Shares : 97,475,107



# 01 Company Overview (2)

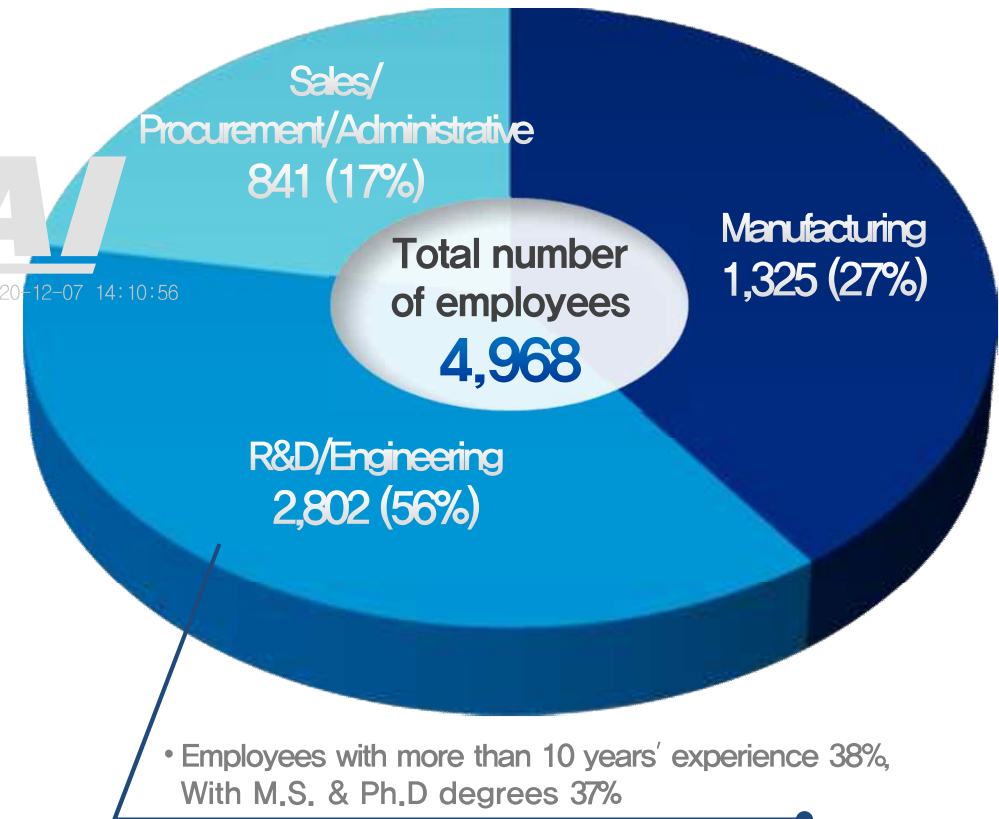


## Facilities



## Human Resource

(As of Jan 31, 2020)



# 02 Main Businesses (1) Military



## KT-1 Basic Trainer



- **KT-1** : Completed development & serial production, Exporting to overseas
  - Development : '88~'97 , Serial Production : 99~'04
  - Exports : Indonesia / Turkey / Peru / Senegal (Total 84)

## KA-1 Tactical Control Aircraft



- **KA-1** : Completed development & serial production, Upgrades scheduled
  - Improved KA-1 Development & Serial Production('00~'06)
  - Follow-on Upgrades : Equipped machine guns('09~'11)

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## T-50 Advanced Trainer / TA-50 Lead-in Fighter



- **T-50/TA-50** : Completed development & serial production, Exporting to overseas
  - Development : '97~'06 , Serial Production : '03 ~'12
  - Exports : Indonesia / Iraq (Total 40)

## FA-50 Light Combat Aircraft



- **FA-50(T-50 Variant)** : Completed development, In serial production
  - Development : '08~'12, Serial Production : '11~ '16
  - Exports : Philippines / Thailand (Total 24)



# 02 Main Businesses (2) Military



## KUH Surion Utility Helicopter



- Completed development and currently in serial production
  - Development : '06~'12, Serial Production : End of '10~
  - Variants under development(Para-public/Amphibious/MEDEVAC)
- \* Currently manufacturing variants for the National Police Agency(delivered) and Forest Service, Search&Rescue, Coast Guard

## Unmanned Aerial Vehicle (UAV)



- Completed development & production of corps class UAV, Next-gen, under development
  - corps class UAV development & serial production('91~'05), Follow-on Upgrades('11~'13)
  - Currently developing next-gen, corps class UAV('12~'19)

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## Korean Indigenous Fighter (KF-X)



- Indigenously develop fighter jet to replace aged fleet of F-4 and F-5
  - Develop State-of-Arts tech fighter jet for beyond KF-16+α performance('15~'26)
  - Joint development with Indonesia

## LAH/LCH

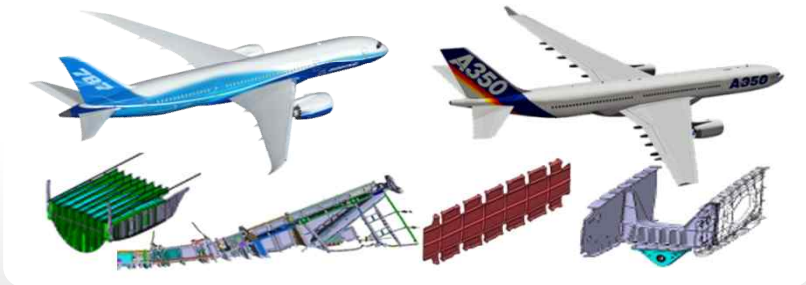


- Coordinate international joint development of LAH and LCH
  - International joint development of LCH('15~'21)
  - Modification & development of armed-variant LAH('15~'23)

# 02 Main Businesses (3) Commercial



## International Joint Development of Commercial Aircraft



- Participating International Joint development projects as tier1 partner
  - Joint development & production of Airbus A350 Wing Rib
  - Joint development & production of Boeing 787 Sec. 11, FTE

## Aerostructure for Commercial & Military Aircrafts



- Aerostructure production for large commercial & military aircrafts
  - Aero structures for large commercial jets, such as Airbus and Boeing
  - Sole production of F-15 wing/forward fuselage, AH-64 fuselage

## KC-100 Light Commercial Aircraft



- Completed small aircraft development for BASA agreement
    - Development: '08~'13, R&D project awarded by MOLIT
    - Currently producing trainer jets for Korea Air Force Academy
- \* BASA : Bilateral Aviation Safety Agreement

## Civil Aircrafts (Small-/Mid-sized)



- Develop KAI-brand civil aircrafts and enter global market
    - Mid-sized commercial Aircraft (50 seats+, FAR part 25)
- Reviewing feasibility of self development



# 02 Main Businesses (4) MRO/Upgrade/Space



## Military Aircraft MRO & PBL Services



- PBL for indigenous aircrafts, MRO service for military aircrafts
    - KT-1/KA-1, T-50 Variants/FA-50, UAV PBL
    - MRO service for ROKN's P-3 and US Navy's H-53 Helicopter and USAFs F-16
- \* PBL : Performance Based Logistics

## Upgrade & Modification for Large Military Aircrafts



- Upgrade & modification programs for large military aircrafts
  - Upgrade program for ROKN's P-3 and Modification of ROKAF's E-737
  - Upgrade program for ROKAF's C-30 Transport Aircraft('13~'15)

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## Commercial MRO (Modification/Upgrade)



- Large-sized Commercial Aircraft MRO Service
  - Commercial Aircraft Modification and Upgrade(Fuselage/Bogie/Engine Etc.)
  - Conduct business through specialized MRO firm(KAEMS)

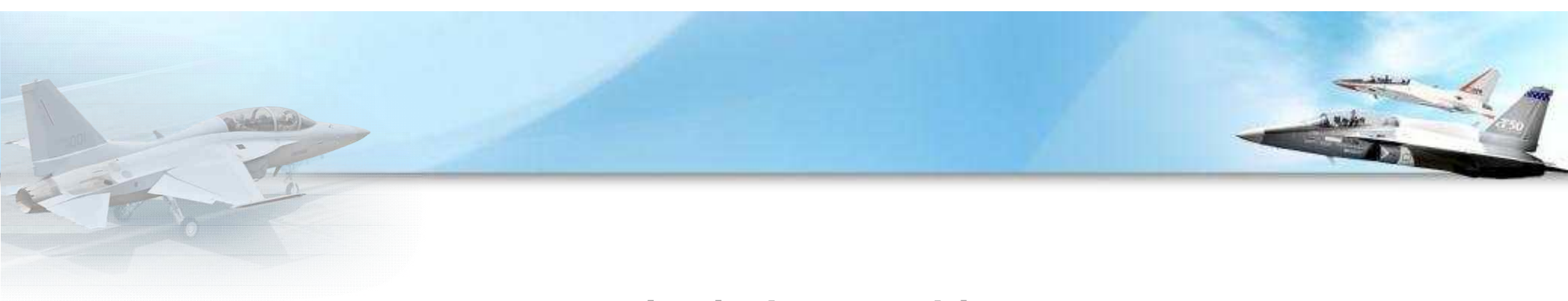
\* Establish Aircraft MRO specialize firm('18.6)

## Multipurpose Satellite / Mid-sized Satellite / Space Launcher



- Development of satellite/space launcher body frames and parts
  - Mid-sized Satellite(Np.1, '15~), Military surveillance Satellite('18~)
  - Designated to be in charge of the final assembly of the Korea's indigenous space launch vehicle('14~'21)





Total solution provider  
in Aerospace

We ask for your continued interest and support in KAI as  
we embark on our journey to be a world's leading aerospace company

**Thank you**

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