



*For all lives, we care*

**DRTECH**

## **Business Performance & Outlook**

*2021. 1*

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## **1. Company Introduction**

## 2. Core Business Competency

## 3. Proprietary Technology

## 4. Business Performance & Vision

# Company Introduction : Overview

## Industry Leaders in Innovative X-ray Imaging Solutions

DRTECH manufactures and develops X-ray solutions for the global market and is a Korean stock exchange (KOSDAQ) listed company. Located in Seongnam, South Korea, DRTECH is an established global company with our operations expanding globally with 4 overseas subsidiaries, 1 factory and 2 sales & liaison office globally.

Establishment	March 29, 2000
CEO	Seong Hyun An
Employee	250
HQ · R&D Center	2F/3F/6F SPG Bldg, 166, Jeongjail-ro, Bundang Seongnam, Gyeonggi-do
Factory	Dongbang Rental, 29, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do
Global Network	DRTECH Europe GmbH DRTECH Shanghai Co.,LTD DRTECH Shanghai Factory DRTECH North America DRTECH American Service Center DRTECH Sales office in Turkey DRTECH Liaison Office in Vietnam
Date of Public Listing	December 5, 2016 (KOSDAQ)
Capital	5.2 billion KRW

HQ & R&D Center



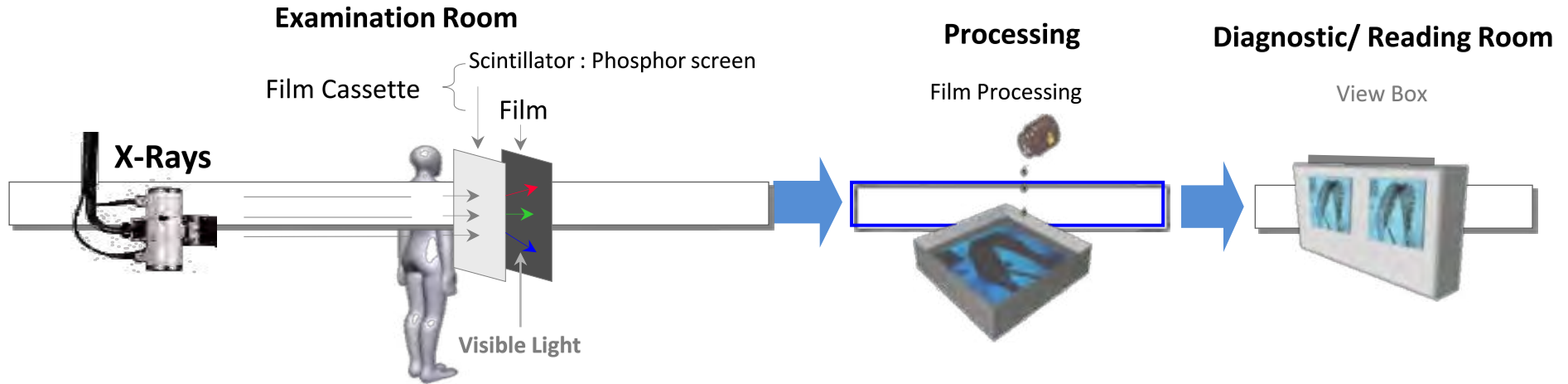
Main Factory (KR)  
· Shanghai Factory (CN)



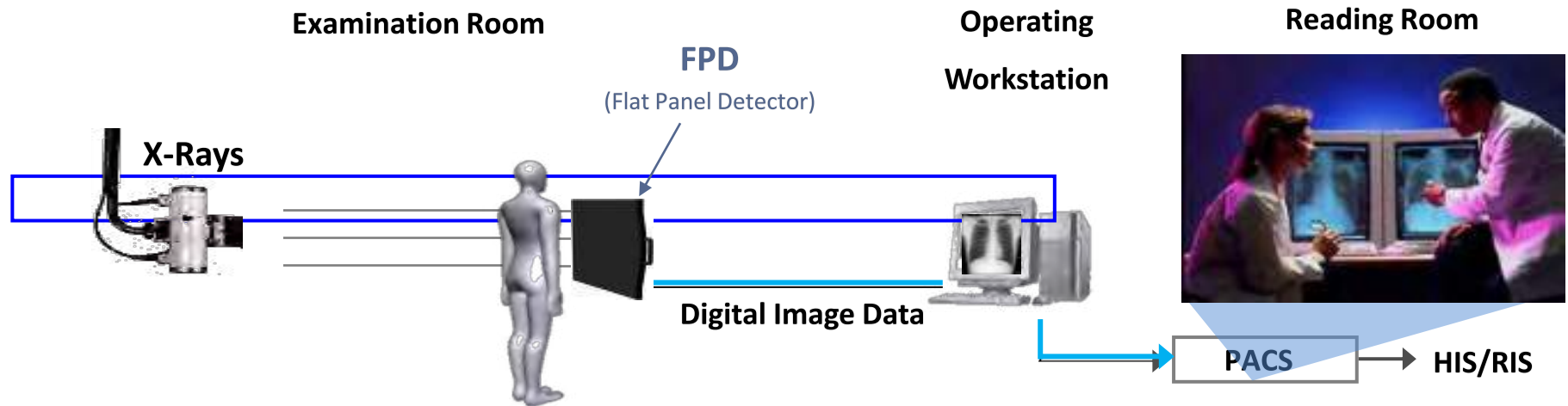
\* as of 2020. June

# Company Introduction : Introduction to X-ray Imaging Technology <sup>(1/3)</sup>

## AR (Analog Imaging)



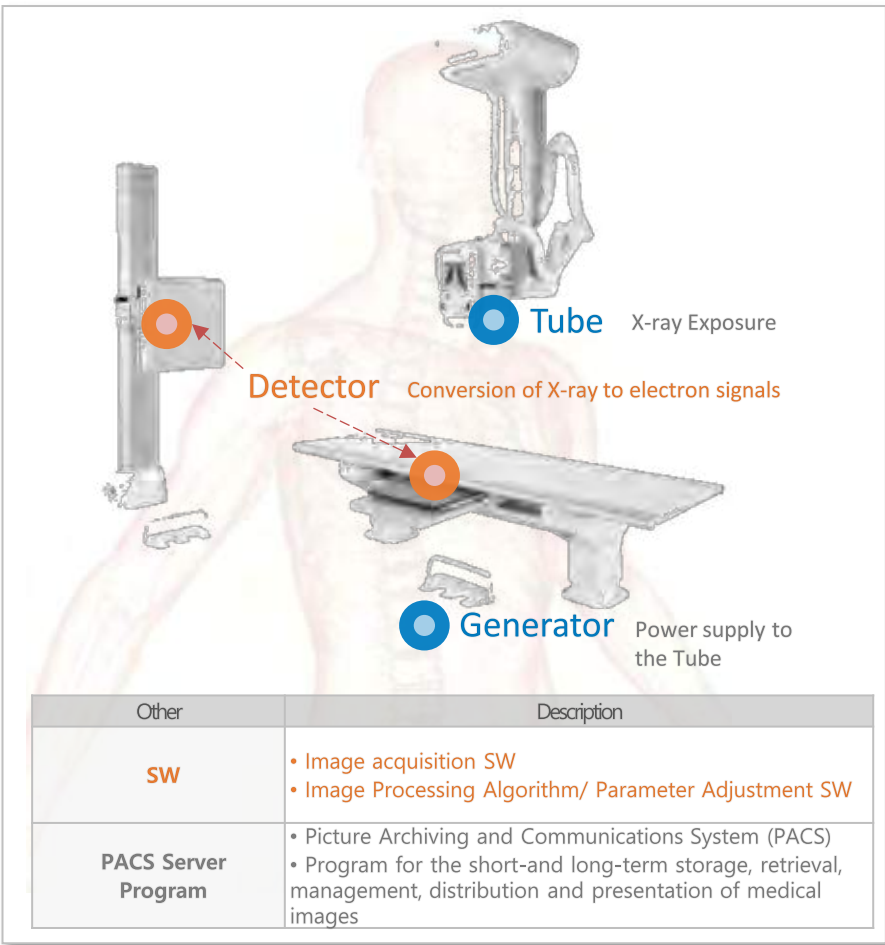
## DR (Digital Radiography)



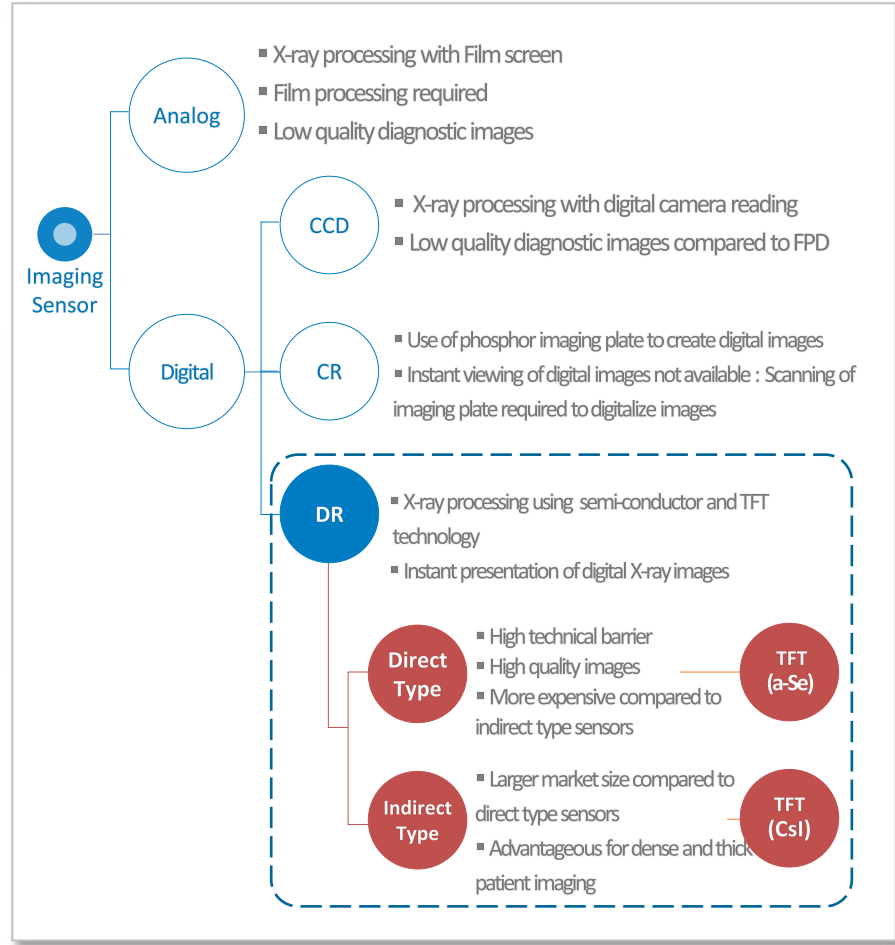
Providers of both Direct / Indirect Type FPDs

Only X-ray detector manufacturer with both Direct and Indirect technology

X-ray System Configuration



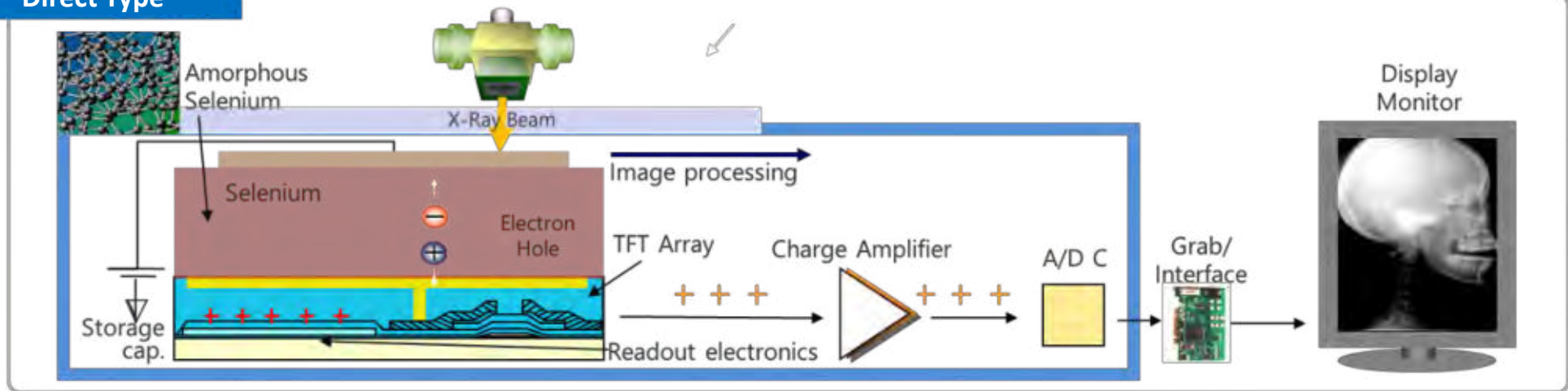
X-ray Detector Differentiation by Technology



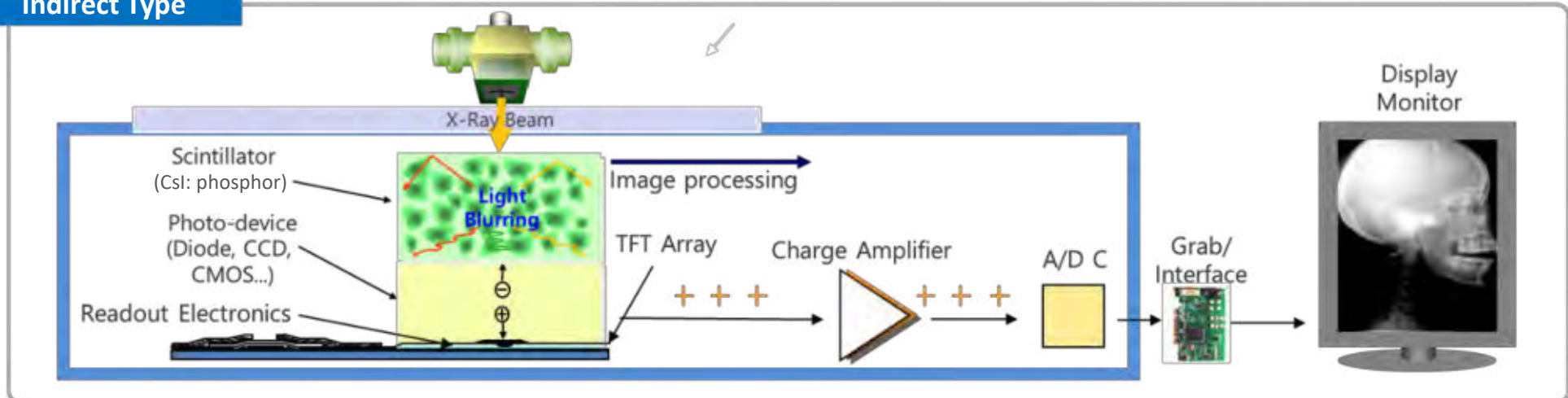


## Providers of both Direct / Indirect Type FPDs

### Direct Type

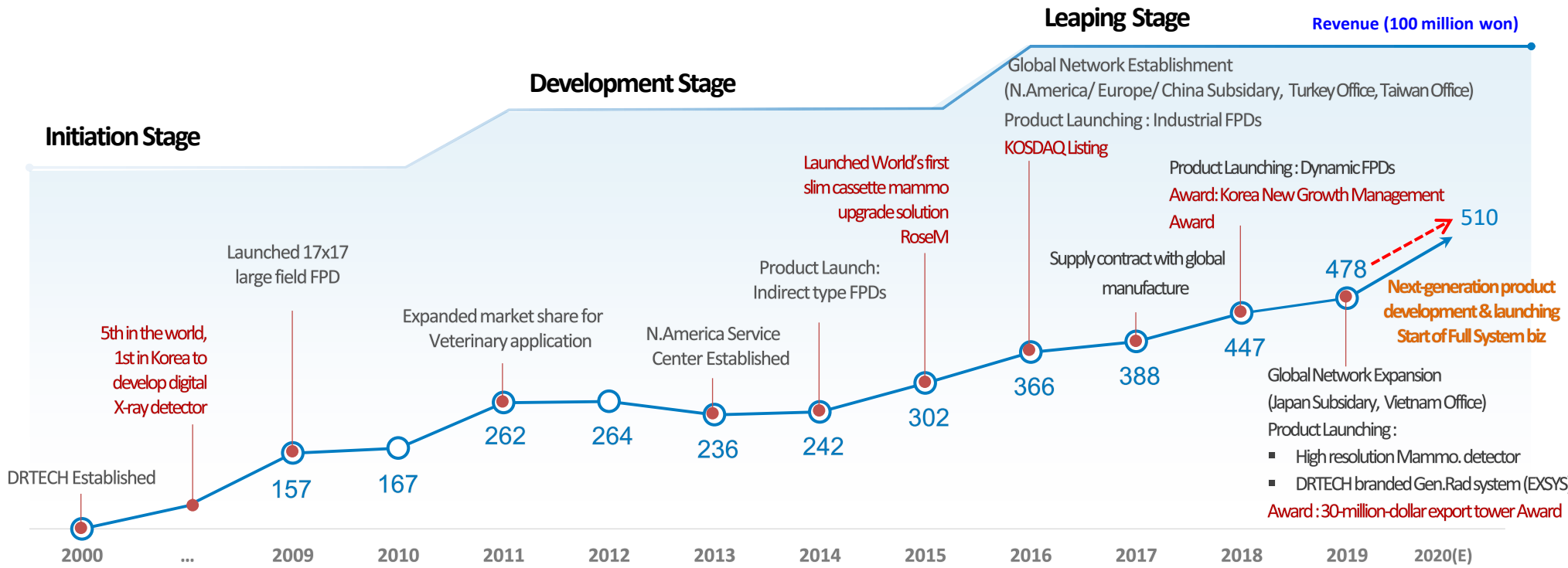


### Indirect Type



# Company Introduction : Growth History

With continuous efforts to develop innovative and high-quality products with differentiated technology, DRTECH was able to show continuous growth since our establishment and has now reached the leaping stage in our business



2002 RSNA Chicago



2007 RSNA Chicago



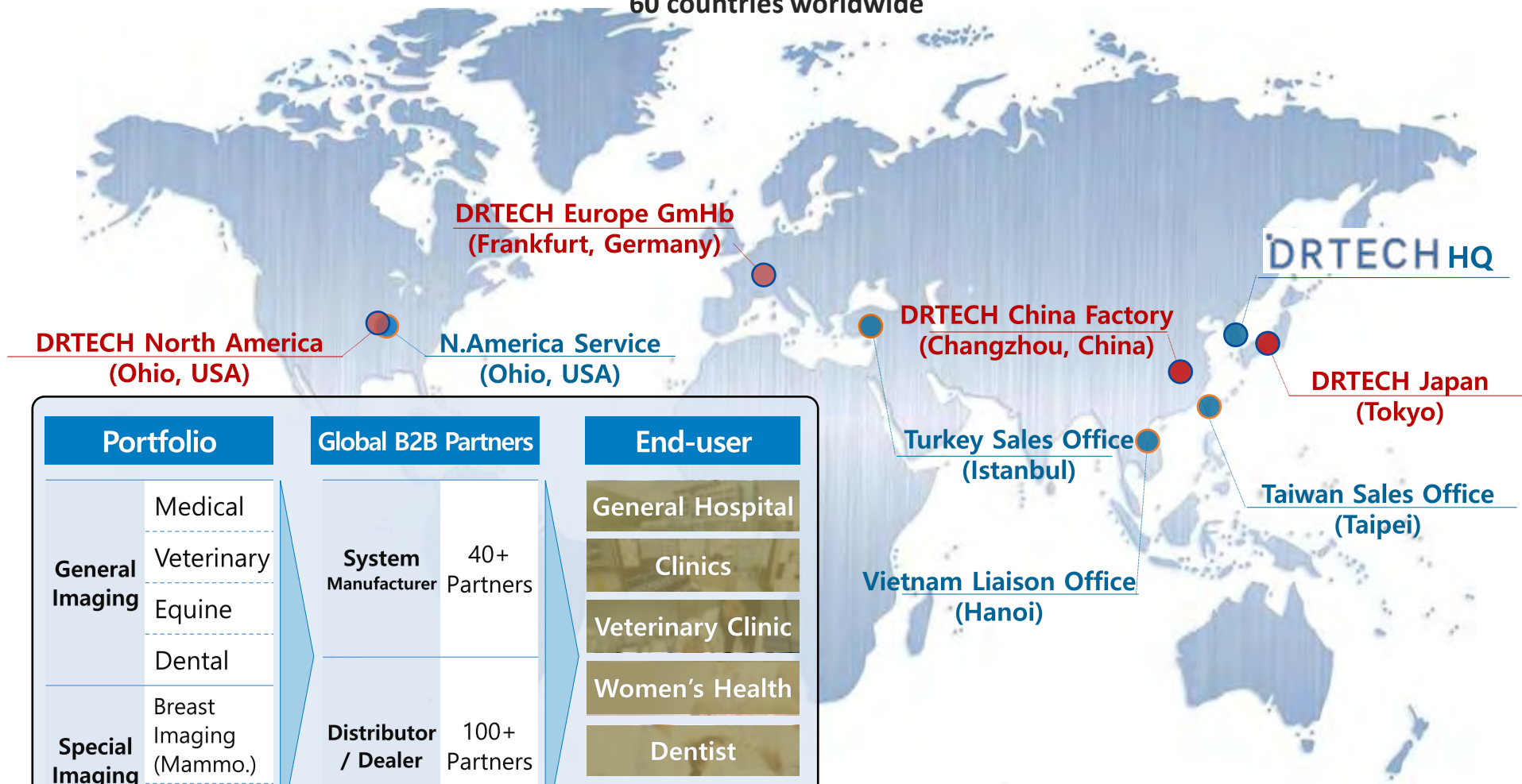
2018 KIMES Seoul



2019 CMEF Qingdao

# Company Introduction: Global Network

With subsidiaries located in 4 major international locations, DRTECH's solutions are being exported and used in over 60 countries worldwide



Portfolio		Global B2B Partners		End-user	
General Imaging	Medical	System Manufacturer	40+ Partners	General Hospital	
	Veterinary			Clinics	
	Equine			Veterinary Clinic	
	Dental			Women's Health	
Special Imaging	Breast Imaging (Mammo.)	Distributor / Dealer	100+ Partners	Dentist	
	Industrial			Industrial	





### Main Factory (Korea)

- Proprietary production technology and know-how accumulated over 20 years
- Stabilization of direct-type mass production yield
- Manufacturing of high value products and upgradable products are being produced at the main factory



### DRTECH China Factory (Shanghai)

- Cost reduction & faster CFDA approval → **Increased Competitiveness**
- Establishment of local SCM → **Cost Reduction**
- Localized service response → **Increased Customer Satisfaction**

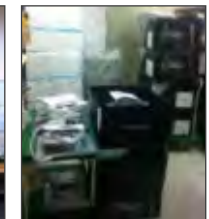
### Assy' & Packing Process

IQC, Assembly

MAP

OQC

Packing



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**2. Core Business Competency**

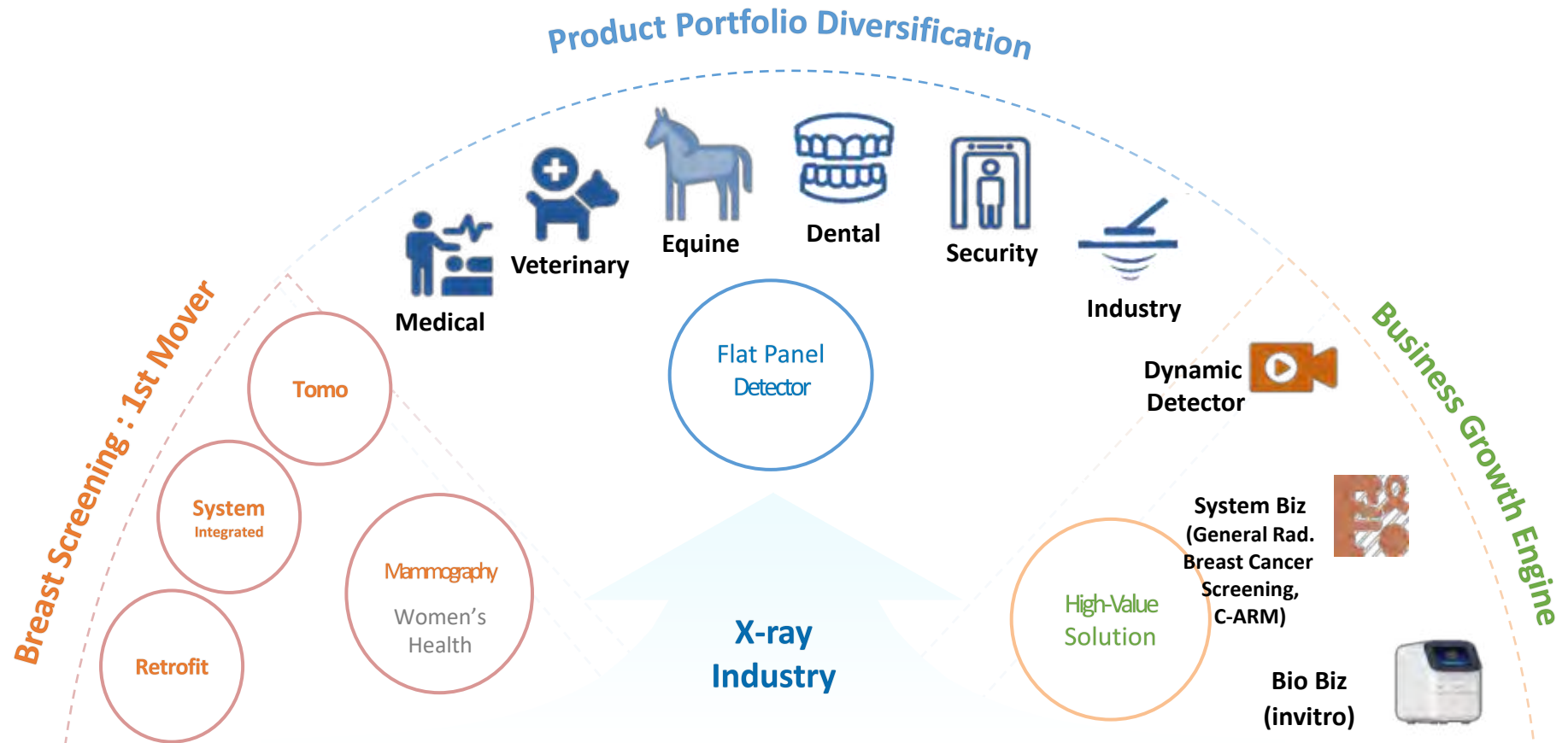
3. Proprietary Technology

4. Business Performance & Vision

# Core Business Competency : Business Area Classification

DRTECH provides various imaging solutions that meet the diverse imaging needs of our global customers.

DRTECH has established a business strategy with a comprehensive portfolio that will provide continuous business growth



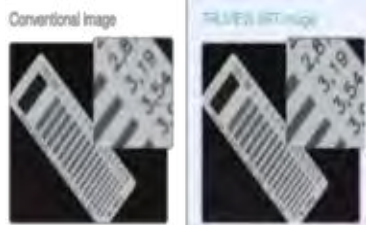
# Core Business Competency : Mammography Detector (Retrofit: Indirect)

Entered the global mammography market with World's first slim cassette type digital mammography upgrade solution

*"Instantly upgrade your existing analog mammography system to a digital system."*



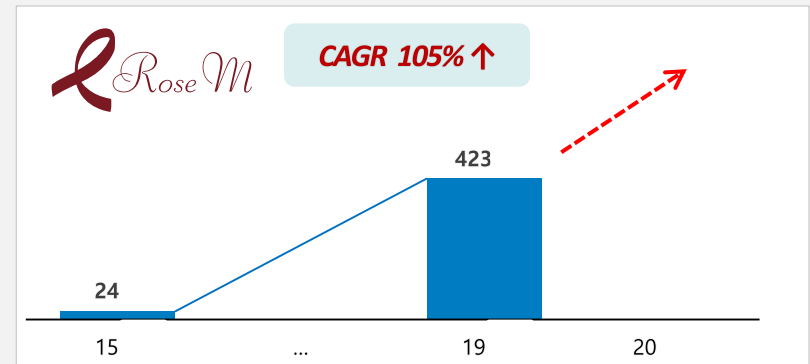
**TRUVIEW ART Image Processing**  
Increased Image quality (Sharpness)



**Cost Reduction :**  
Maintenance and commodities



- **RSM C series FPDs** are the first digital mammography upgrade solution to be launched in the global mammography market . Since its launch in 2015 sales of RSM C series detectors have rapidly increased and it is being distributed by global system manufacturers and global players under an ODM supply contract.



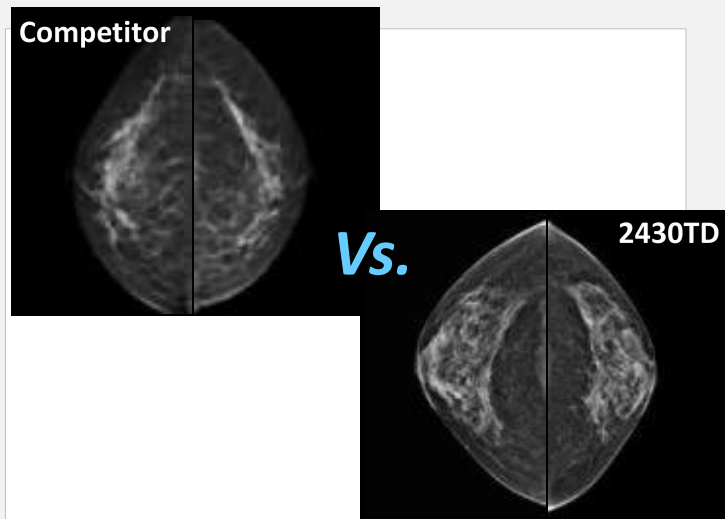
- **Awards**
  - 2019 : 3,000 thousand export tower award (**KITA**)
  - 2018: Korea New Growth Management Award (**MOTIE**)
  - 2018: Seongnam Chamber of Commerce Technology and Quality Award (**SNCCI**)
  - 2016: IP-R&D Award Ministry of Industry & Energy (**KIPO**)
  - 2016: IR52 Jang Young-shil Award (**MSIT**)
  - 2016: Hidden Champion Patent Award (**Korea IP Strategic Organization**)

# Core Business Competency : Mammography Detector *(System Integration)*

DRTECH is industry leaders in mammographic imaging with our full line-up of innovative and competitive mammography detector solutions which differentiate DRTECH from our competitors.

## RSM TD(True Define) Series : Indirect

- 2D & 3D(Tomo) mode available
- Reliable Lossless AED & AWC (Perfect X-ray recognition)
- Highly sharp images with excellent micro-calcification detectability
- Increased image quality with **TRUVIEW M** (AI Image processing for Mammography)



## Premium RSM UD(Ultimate Define) : Direct

- 2D & 3D(Tomo) mode available
- Reliable Lossless AED & AWC (Perfect X-ray recognition)
- a-Se technology and smallest pixel size of 65um
- High resolution and crystal-clear images for expression of micro abnormalities and calcifications





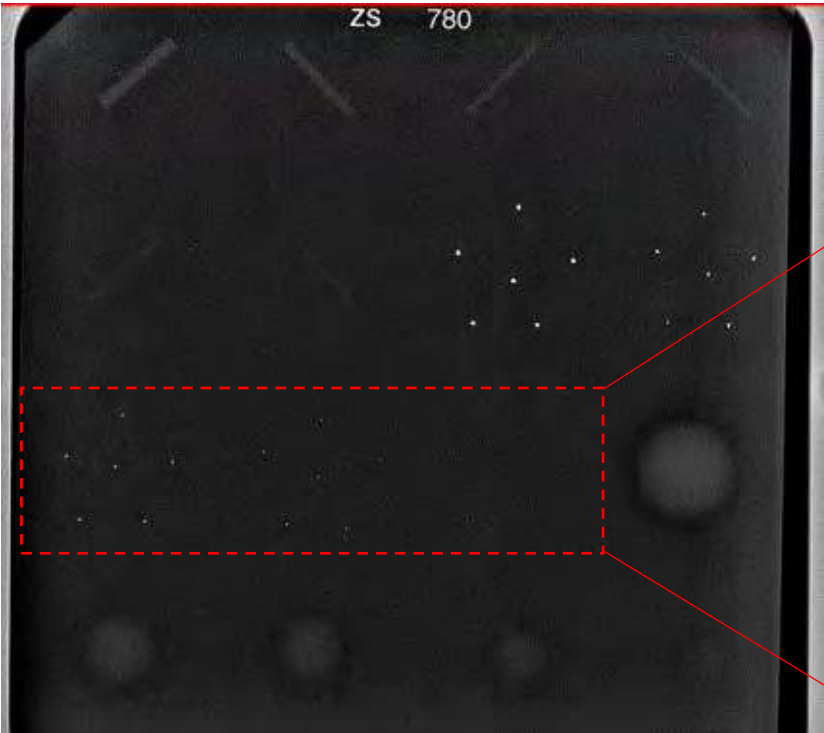


World Best

Benign Tumor



Malignant Tumor



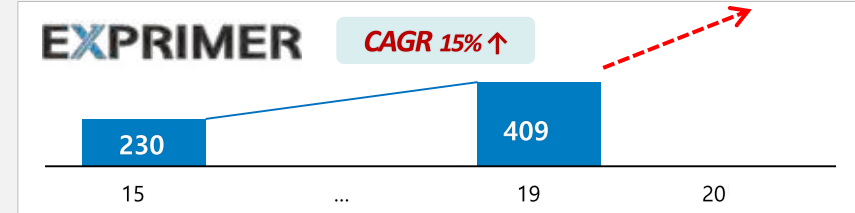
# Core Business Competency : Medical and Dental Detector

Despite being late comers to the Indirect FPD market, DRTECH has established itself as a competitive player with innovative and first in class technologies

## Medical (Indirect/ Direct)



- No. 1 market share in domestic detector market with proven high performance and high-quality diagnostic images
- Advanced series products launched in 2019 has higher low dose DQE performance compared to competitors allowing for higher image quality even with reduced patient dose



- **Awards :**
  - 2018: Korea New Growth Management Award (MOTIE)
  - 2017: iF Design Awards
  - 2015: SW quality Awards [Best quality]

## Dental (Indirect/ Direct)



- Direct type products with its highly sharp image quality is preferred by customers requiring cephalometric images for plastic surgery, Otorhinolaryngology purposes.
- Indirect type product which was launched in 2018, has successfully entered the conservative Japanese market being supplied to a top Japanese dental system manufacturer.

# Core Business Competency : Veterinary & Equine

Remains to have No.1 market share in USA Veterinary imaging market & has expanded the market share in global veterinary market with the newly launched product for Equine

## Veterinary (Direct/ Indirect)



- Direct type detectors can acquire highly sharp images which is advantages when acquiring images of small animals with fine and detailed structures. DRTECH's products are being supplied to a top veterinary imaging solutions provider for a long time.
- As the social adoption rate of companion animals increase, sales of indirect type detectors for veterinary purpose is increasing
- **Secured technology to provide world-class high quality images even with low dose exposure conditions**
- **Awards**
  - 2012: 20 million dollar export tower award (**KITA**)
  - 2009 : IR52 Jang Young-Shil Awards (**MSIT**)

## Equine (Indirect)



- Equine is a specialized market within the veterinary market requiring high technology and premium quality images
- Continuous successful bidding at Korean Racing Association
- Supply contract with German Top Player : E company

Successful launch of Equine specialized imaging solution (2430We+Image acquisition SW for equine) in Japan, Europe and USA

# Core Business Competency : Security & Industrial

Identification of the industrial detector market as new strategic target market,  
Full line up of industrial detectors developed and launched

## Security (Indirect)



- **Explosive Ordnance Disposal (EOD)** application detectors are usually required in a military setting and is used when inspecting for suspected explosives.
- Currently the market is expanding mainly in more developed countries.
- DRTECH launched its first EOD product in 2016 and has successfully signed a supply contract with one of the World's top 3 security companies based in the UK.
- Entered the conservative Japanese market and the product is being used for defense against potential terrorism

## Industry (Indirect)



- **Non-Destructive Testing · NDT** application is mainly used in industry to evaluate the properties of a material, component or system without causing damage using X-ray.
- **Requires high level of technological expertise and reliability know-how.** DRTECH has completed development of high-energy detectors for NDT
- **Supply contract made with leading German NDT provider and to major domestic industrial player**

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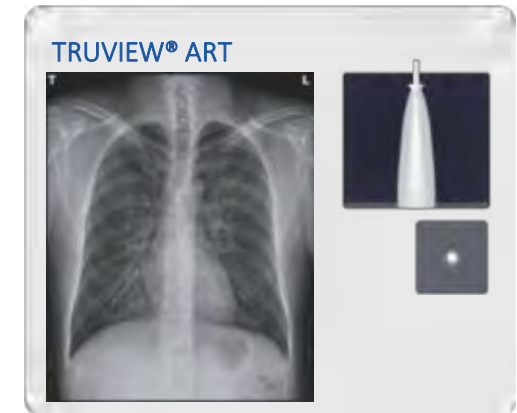
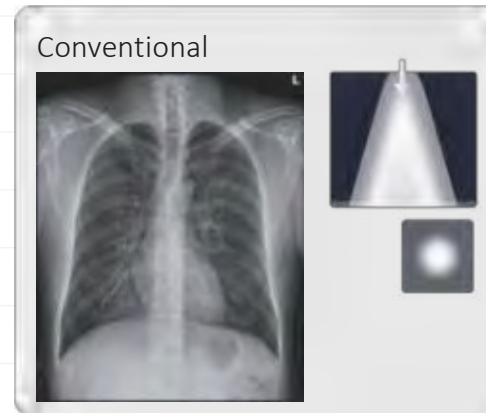
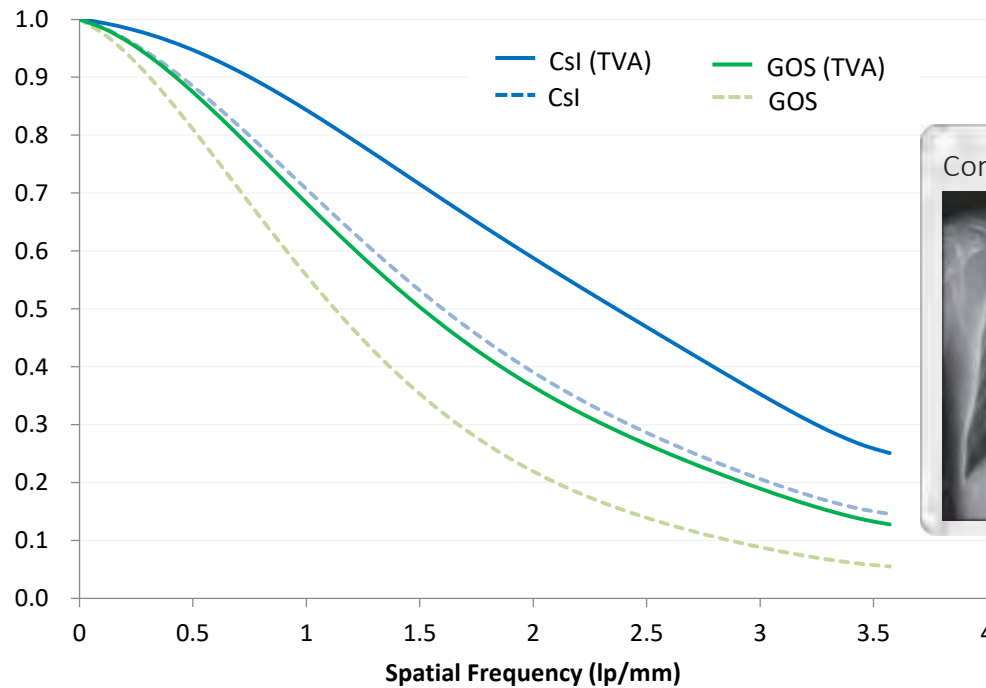
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## TRUVIEW® ART : Advanced image Reconstruction Technology

For indirect type detectors, the image sharpness is degraded due to light dispersion.

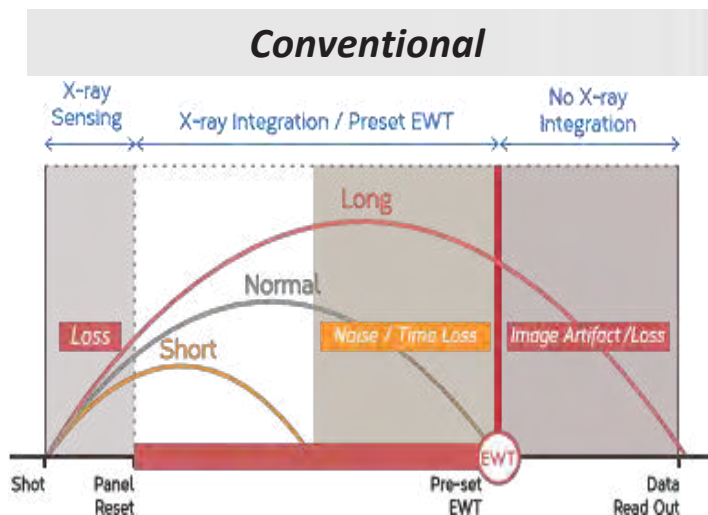
However, with DRTECH's reverse filtering image reconstruction algorithm TRUVIEW® ART, light dispersion is minimized increasing image sharpness proven with 30% increase in the MTF.



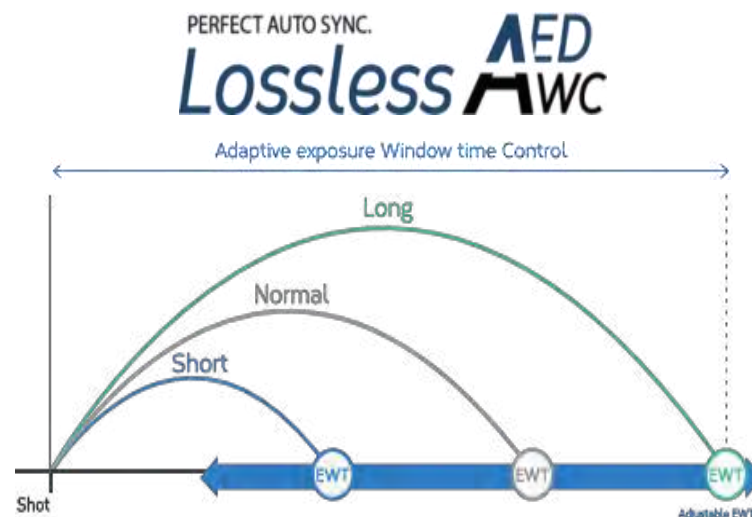
Lossless AED/AWC increases dose efficiency and image quality by detecting X-ray start and finish with perfect precision



World Best

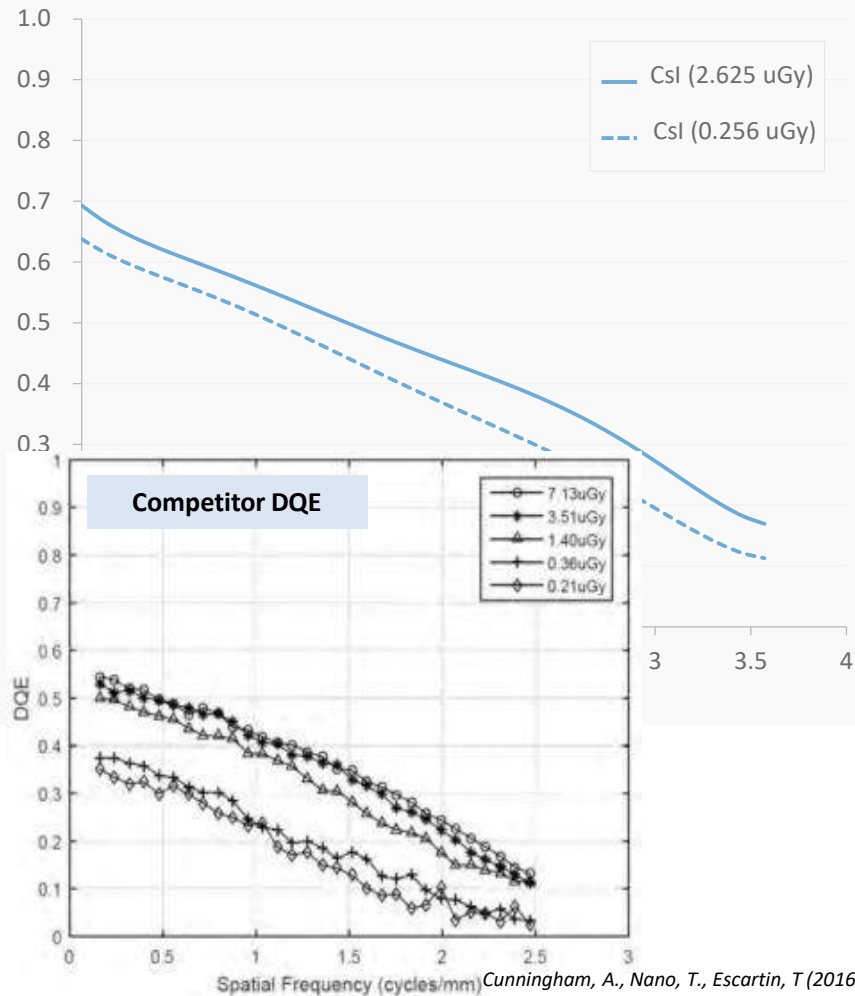


1. Semi-Auto sync. with AED and preset EWT
2. Non-adjustable EWT
3. Three step detector operation scheme  
( X-ray sensing / Panel reset / X-ray Integration)
4. Exposure longer or shorter than preset EWT degrades image quality

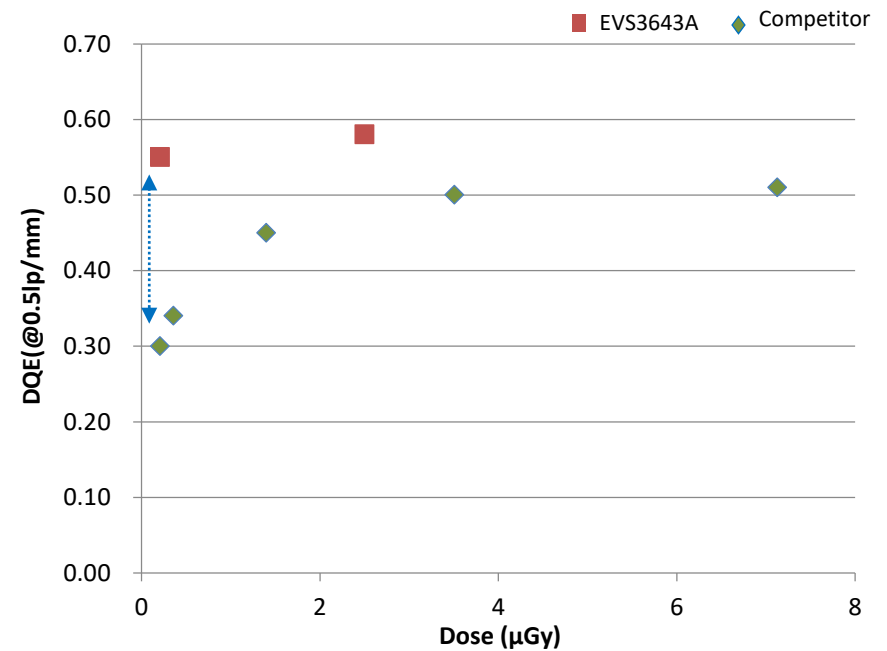


1. Perfect AED without Dose Loss
2. Perfect Auto X-ray Sync. without integration
3. Faster speed with detection of X-ray Exposure finish
4. No manual EWT setting required
5. Stable image, Noise reduction and abnormal artifact removal

High DQE at Low dose conditions enable patient dose reduction



**30% vs. 55%**  
High DQE achieved by low noise electronics and optimization



## New panel Technology

## New Panel Technology :

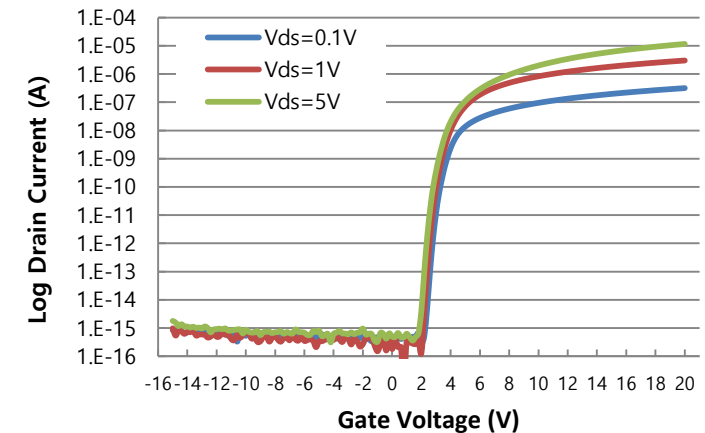
**IGZO** (Indium Gallium Zinc Oxide)

- 2003 : Started development with transparent display technology
- 2012 : Sharp was first to start production incorporating IGZO-TFT

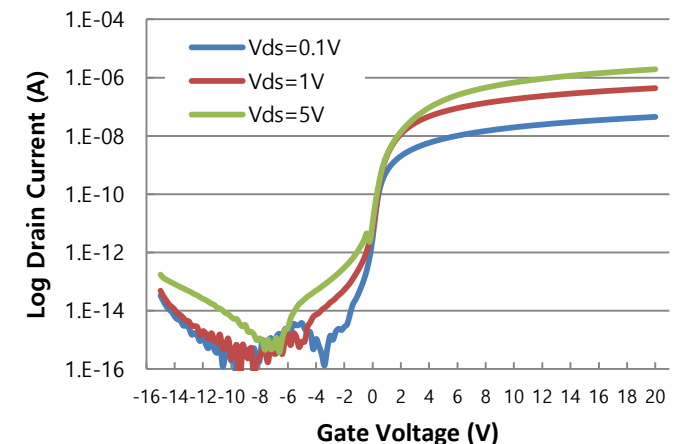
## IGZO material Advantage

- Uniform amorphous phase in large area
- Low Leakage current(Low noise) & High mobility(High frame rate)
- Radiation damage test : 10Gy(≡ Detector exposure dose 100Gy)  
→ Pass(No change in leakage current)

**IGZO TFT**



**a-Si TFT**



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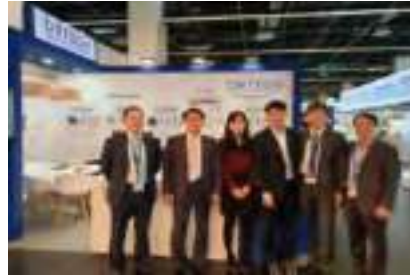
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# Business Achievement & Vision : Major International Exhibitions

## IDS Dental Exhibition (Germany)



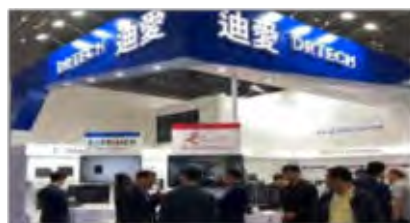
- **Date & Location** : 2019. 3.12 ~ 3.16, Koln, Germany
- **Promoted Products:**  
F330N, EVS 2430, EXPD 1616, EVS Advanced series

## Equine Association Conference (Japan)



- **Date & Location:** 2019. 11.25 ~ 11.26, Tokyo, Japan
- Representation at the conference for 2 consecutive years. Promoted Equine/Exotic Animal specialized product EVS 2430We and presented clinical evidence seminar for veterinarians
- **Successful differentiation with competitors with full equine solution package (Ambulatory Imaging Kit)**

## CMEF International Medical Device Convention (China)



- **Date & Location** : 2019.10.18~10.22, (Tsingtao, China)
- Great interest and product inquiry received from Chinese local manufacturers (System Manufacturer/Dealer)

## RSNA Radiology Society North America (USA)



- **Date & Location** : 2019. 12.1~12.5 (Chicago, USA)
- Launched new generation products with IGZO TFT Technology (EVS 4343 AP/WP, EVS 3643 AP/WP)

## Jang Young-Shil Award 2019 for High Resolution Mammography Detector



RSM 2430UD



- Received 91st Jang Young-Shil Awards with 'RSM 2430UD'.
- IR52 Jang Young-Shil award is awarded in the name of the Ministry of Science and ICT and is widely recognized to be one of the highest awards given for innovation in Korea.
- Recognized as an innovative product, RSM2430UD is direct type (a-Se) detector for 2D and 3D mammography providing crystal clear high diagnostic mammographic images for breast cancer screening and diagnostics.

## Proven No. 1 at global company evaluation

EVS 3643A



- Evaluated as No.1 product out of various products by global manufacturers.
- Supply contract signed and supply will begin in July 2020
- Product recognized for its differentiated technology such as high low dose DQE, TRUVIEW ART and Lossless AED/AWC

## \$30 Million export tower award

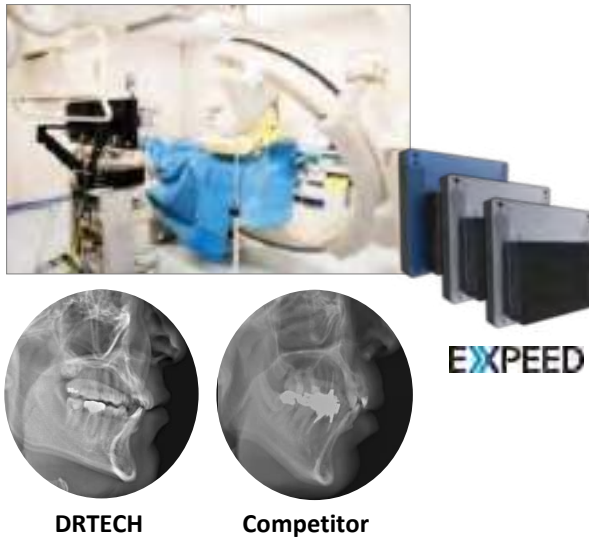


- Annual export amount exceed (18.07~'19.06) \$30 million dollars

# Business Achievement & Vision : New Growth Momentum \_Dynamic Detector

For the second growth phase, DRTECH has expanded its detector portfolio and entered the dynamic detectors market

## Dynamic (Indirect)



- High-performance detector with 98um pixel with world first integration of 'IGZO' and 'LTPS' TFT technology. Provides high resolution medical images with low dose for reduced patient dose.
- First launched in 2018 at RSNA Exhibition USA and received great interest from system manufacturers and is under evaluation.



Low Dose Dental Image (80kVp 8mA)



TRUVIEW® AI

TRUVIEW® AI uses innovative AI technology to achieve low noise image processing to remove unnecessary noise which may cause image degradation

- Improves SNR (signal to noise) performance by 40% proving noise free crystal-clear low dose imaging with high quality diagnostic images even at low dose conditions .
- Evaluated by Japan's top system maker and proven to outstand from other technology from competitors

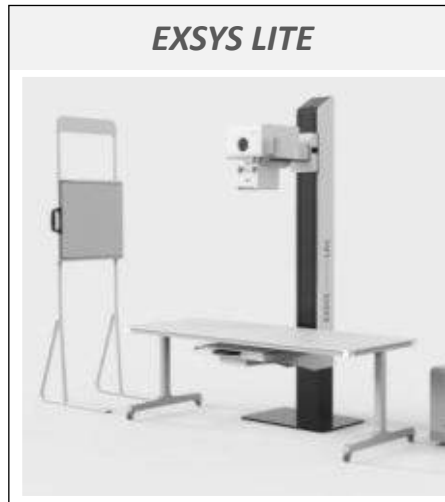
# **Business Achievement & Vision : New Growth Momentum** ***\_X-ray system for Gen. Rad***

Plan to expand the X-ray system portfolio to include portable and mobile systems as well as full general radiography X-ray system solutions . Launched first X-ray system late 2019 and sales have been increasing steadily



**Portable System**

- Low dose and exceptional space usage with compact size
- High portability
- X-ray imaging without a separate X-ray room



**Value System**

- Small and compact full system
- Trendy design
- Efficient space management
- Cost-effective solution for high quality diagnostic images



**Mid-Low Position System**

- Low Dose imaging technology enabling high quality images at low dose
- AI image processing technology for low noise high quality images



**Mid Position System**

- Only domestic manufactured system with DES technology
- AI image processing technology for low noise high quality images

## **Business Achievement & Vision : New Growth Momentum\_X-ray system for Gen. Rad**

Plan to expand the X-ray system portfolio to include portable and mobile systems as well as full general radiography X-ray system solutions . Launched first X-ray system late 2019 and sales have been increasing steadily

**DRTECH Mobile Basic**



**Mid-Low Position System**

- Portability perfect for small spaces
- Compact Design for easy mobility
- Easy and convenient usage

**DRTECH Mobile Premium**



**Mid Position System**

- Ultra light design for easy mobility
- User friendly functions for easy operation
- Safe and smooth movement for increased safety
- Trendy and high-end design

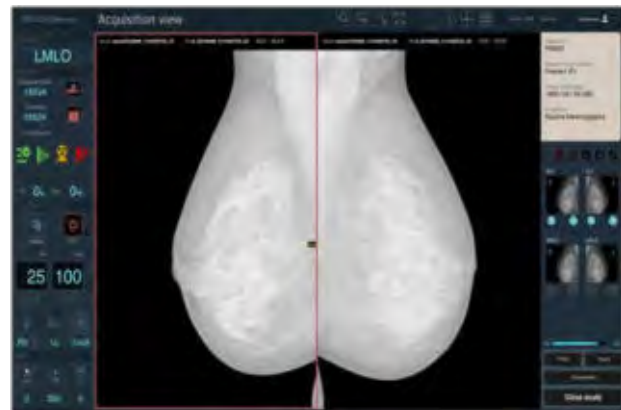
**...TBD**



# Business Achievement & Vision : New Growth Momentum **Mammography System**

Expanded business area from core component (Mammo. detector) to high value product  
Full Field Mammography system to launch secondary business growth

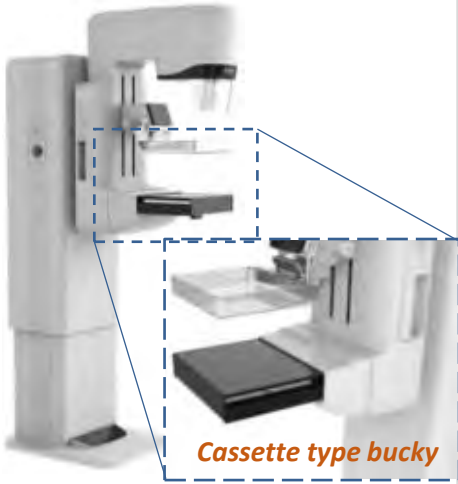
## Launched AIDIA Series (2D Full field Digital Mamamography System )



- Achieved Korean FDA (MFDS) approval for DRTECH's first Full field digital Mammography System; *AIDIA in first half 2020*. Beginning with the domestic market, will expand sales globally with existing and new system manufacturer partners.
- Developed product matching the specification of global top mammography manufactures both in the image quality and usability.
- Plan to expand the business into *3D Tomosynthesis by 2021*. Technological expertise for 3D Tomo. development already achieved.

# Business Achievement & Vision : New Growth Momentum\_Mammography System

AIDIA Analog




Cassette type bucky

“Premium analog mammography system with all the convenience functions of digital AIDIA. Combined with RoseM Cassette, is a cost-effective solution for digital upgrade”

Type	Analog
Detector	CR/Film Cassette RSM C
Tube	
Filter	
Display	


AIDIA TD Basic



“Cost efficient digital mammography solution for experts with budget burden”  
Encompasses all the fundamental digital mammography functions without the cost burden”

Type	Digital 2D
Detector	RSM 2430TD
Tube	
Filter	
Display	

AIDIA TD



“Premium mammography system  
Optimized usability and proven high-quality images with indirect type detector technology”

Type	Digital 2D
Detector	RSM 2430TD
Tube	
Filter	
Display	

AIDIA UD



“High resolution mammography images with 65μm direct type detector. Superior solution for breast imaging”

Type	Digital 2D
Detector	RSM 2430UD
Tube	
Filter	
Display	

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## Bio Diagnostics Business

(Separate Information Package)

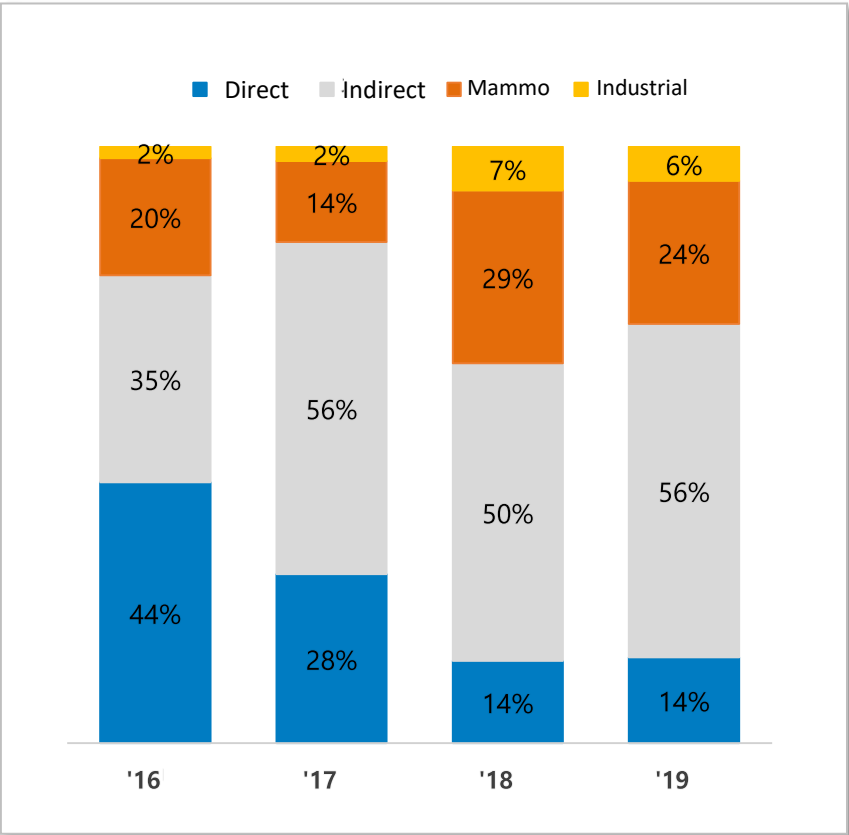
# Key Business Achievements Summary

- 1** Achieved top technological competence in a-Se technology → Performance and technology secured for competition with Global No.1 mammography player's a-Se technology
- 2** Full line-up of Mammography detectors (Retrofit/TD/UD) → High value products, Proven technological expertise and performance.
- 3** World class Low Dose DQE, TRUVIEW® ART, AI image processing and IGZO technology  
Achieved World's top technological know-how in indirect type products
- 4** Expanded product portfolio from static only to dynamic detector  
(Supply contract completed with system manufacturers)
- 5** Expanded business area from imaging components (detector) to full system manufacturing  
(Completed setting up of infrastructure for business expansion)
- 6** Actively investing in Bio Diagnostic Business as future growth mechanism  
(UIMD, DAPS Project etc.)

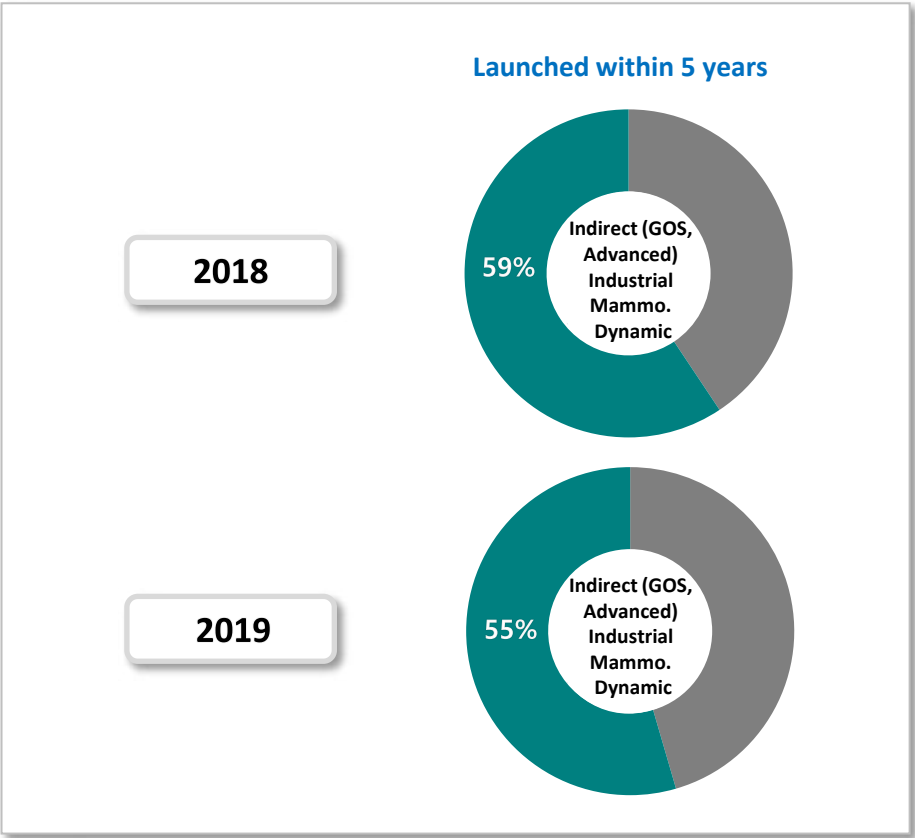
# Key Business Achievements : Revenue by Product Type

Continuous growth was achieved with the launching of new products every year. Net revenue is expected to grow despite the continuous degradation of the market price due to expected strong sales numbers of high-value products and dissipation of fixed costs.

Revenue proportion by Product Type



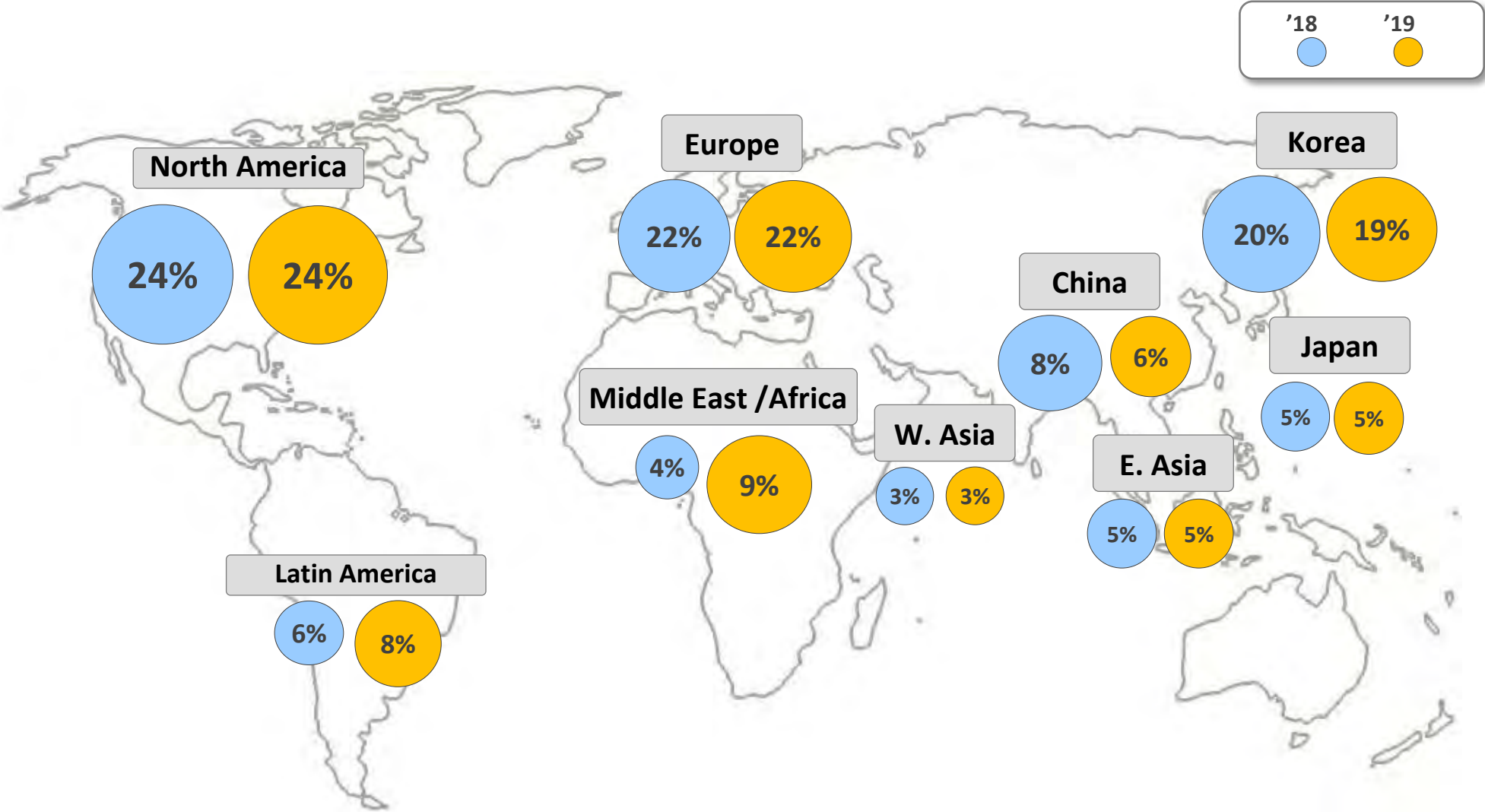
New Products proportion within revenue



Newly Launched Product Revenue : Sum of product revenue for products launched within 5 years (2015~2019).



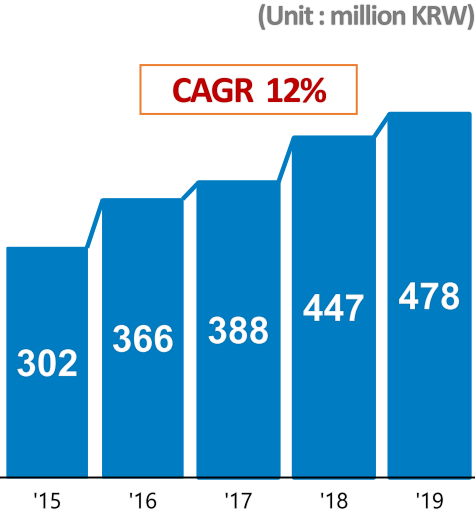
Division of revenue by region maintained similar to that of previous years, however revenue for Africa, Middle East and Latin America increased compared to the previous year



# Key Business Achievements : Financial Achievement

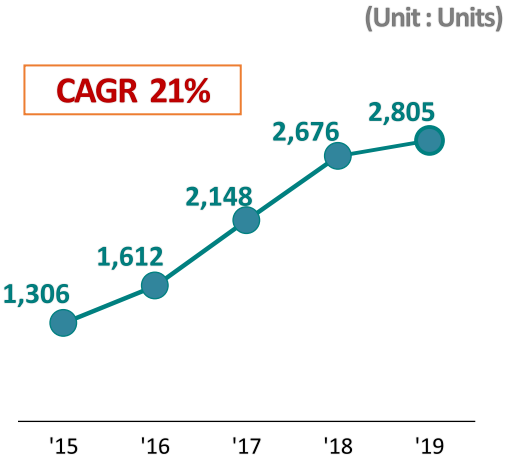
## Sales Revenue

- Mammography and Indirect type detectors total sales revenue increased at the rate of **CAGR 12%**.
- Sales revenue is expected to grow further in the future with increased sale volume and expanded product portfolio



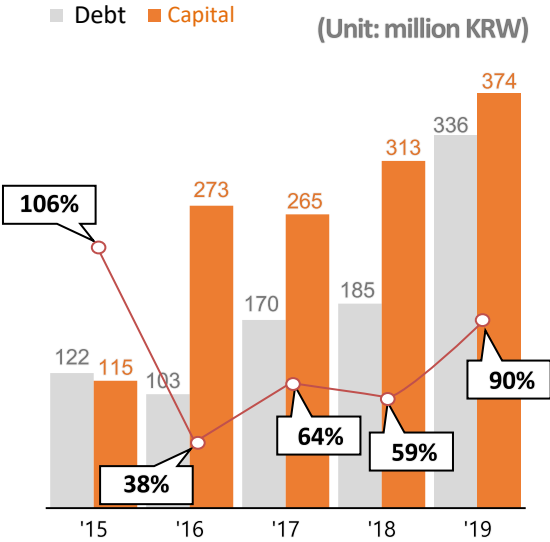
## Sales Volume

- Mammography and Indirect type detectors total sales volume growth at the rate of **CAGR 21%**.
- Mammography detector volumes are increasing with sales by global partner
- Advanced series indirect detectors sales have increased since its launch with the increase in industrial detector sales

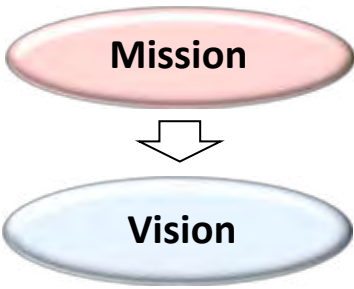


## Debt/ Capital (Debt Ratio)

- Debt ratio is maintained at sustainable level (Below 100%)



# Company Mission / Vision



***“ Provide trust for our clients and wellbeing for our customers with high-quality imaging solutions. ”***

***“ Global Hidden Champion in Digital Radiography Solutions”***

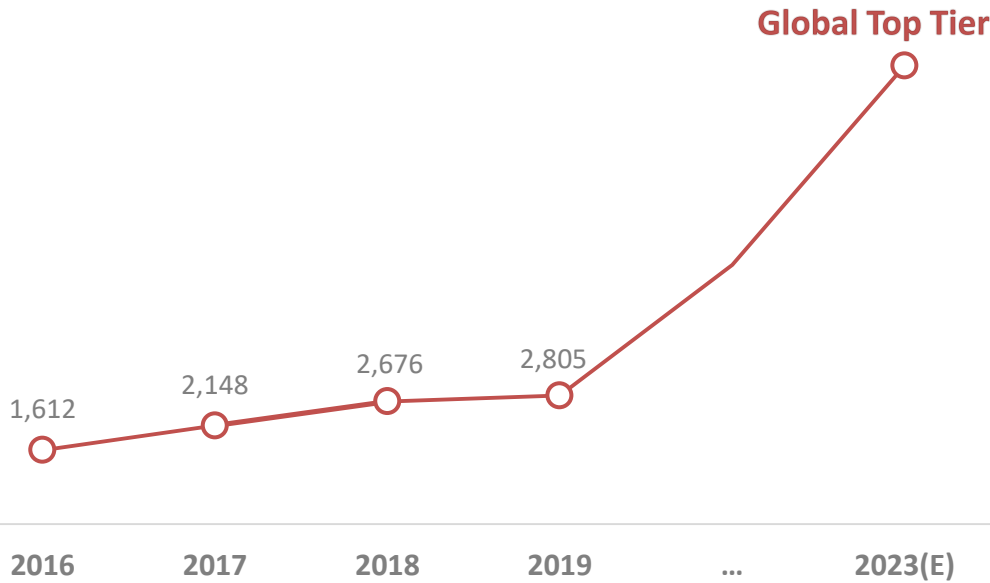
- Provide diverse solutions matching customers needs
- Utilize technological expertise gained with several years of direct type business
- Technological differentiation for indirect type products



Global  
TOP 4

Diagnostic  
Imaging  
Solution  
Provider

(Unit : Total Sales Volume)



## *“ Forward thinking management challenging ourselves towards a new future Paradigm ”*



**CEO**  
**Seong Hyun, AN**

KAIST Industrial Engineering Masters  
University of Washington MBA  
Pre) LG Electronics/ LG Display  
Pre) DMS Vice President



**Executive Director**  
**Hong Soo, AN**

Production Executive Director  
Pre) LG Electronics  
Pre) DMS Vice President



**Senior Executive VP**  
**Woo Yeol, KIM**

PhD. Electronic Physics (Tokyo University)  
Pre) LG Display Director  
Pre) KISCO Technology/Products director



**Executive Director**  
**Yun Soo, PARK**

President/European Subsidiary  
University of Washington MBA  
Pre) LG Electronics Director



**Senior Executive VP/ CTO**  
**Choul Woo, SHIN**

Masters in Ceramic engineering  
Pre) LG Display Director  
Pre) KISCO Technology/Products director



**Executive Director**  
**Soo Chul, PARK**

President/ North & South America Region  
Pre) LG Electronics/ LG Display Director  
Pre) Newoptics Vice President



**Executive Director**  
**Beom Jin, MOON**

Technical & Customer Support Executive  
Director  
Pre) LG display



**Executive Director / CFO**  
**Gil Soo, LEE**

Pre) LG Electronics/ LG Display  
Pre) Hynix Semiconductor  
Pre) DMS/KMAC

***Thank you***