

PHILIPS



A new era in premium ultrasound

EPIQ Fusion/ Navigation

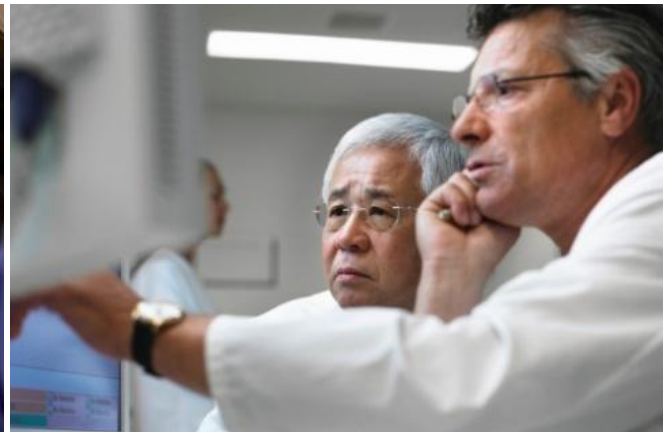
Delivering innovation that matters to you



Today's challenges for premium ultrasound

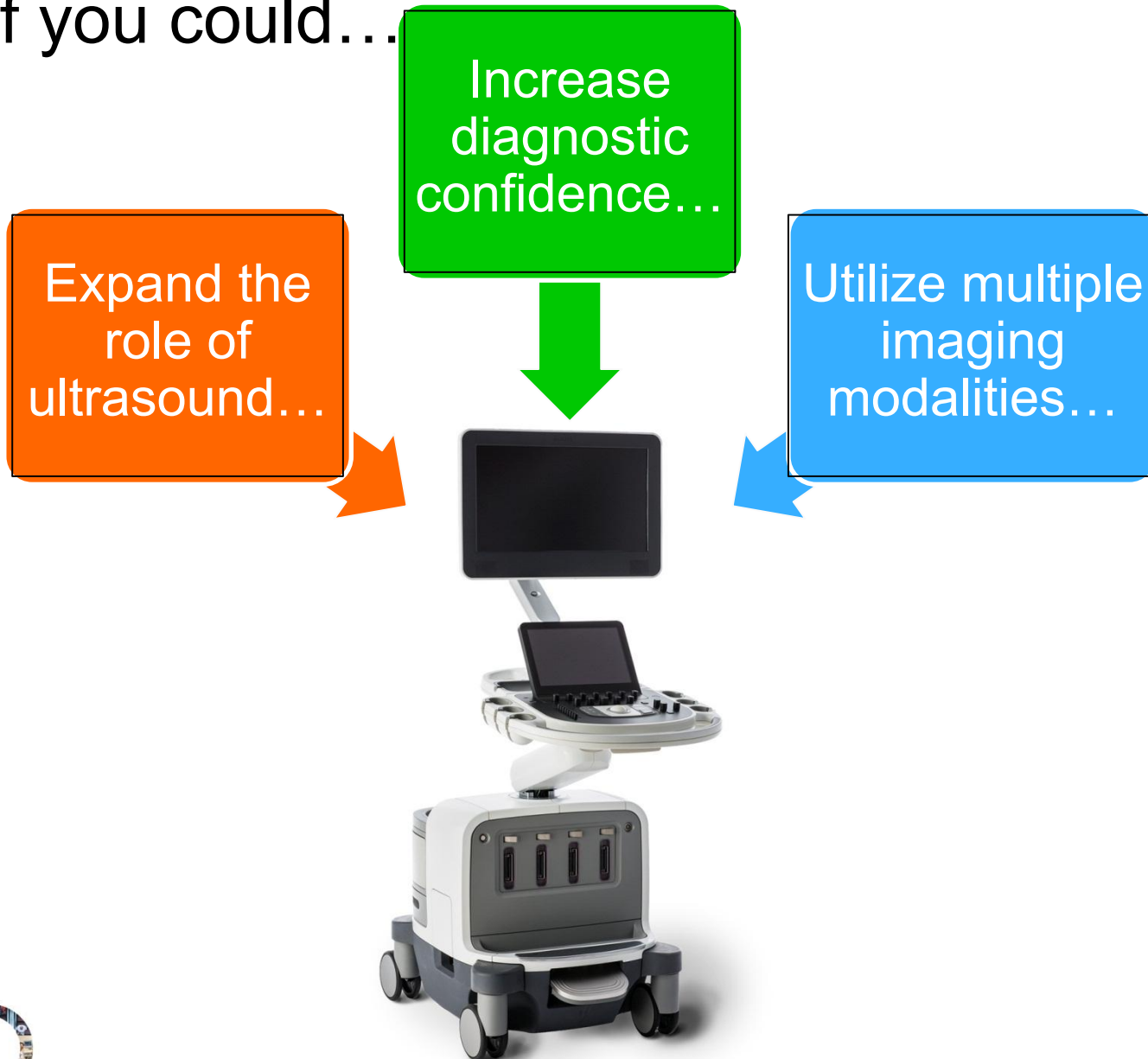
Key customer insights...

We do too many CT guided procedures that prevent me from doing routine diagnostic scans



I want to improve the utilization of ultrasound and expand my interventional services

What if you could...

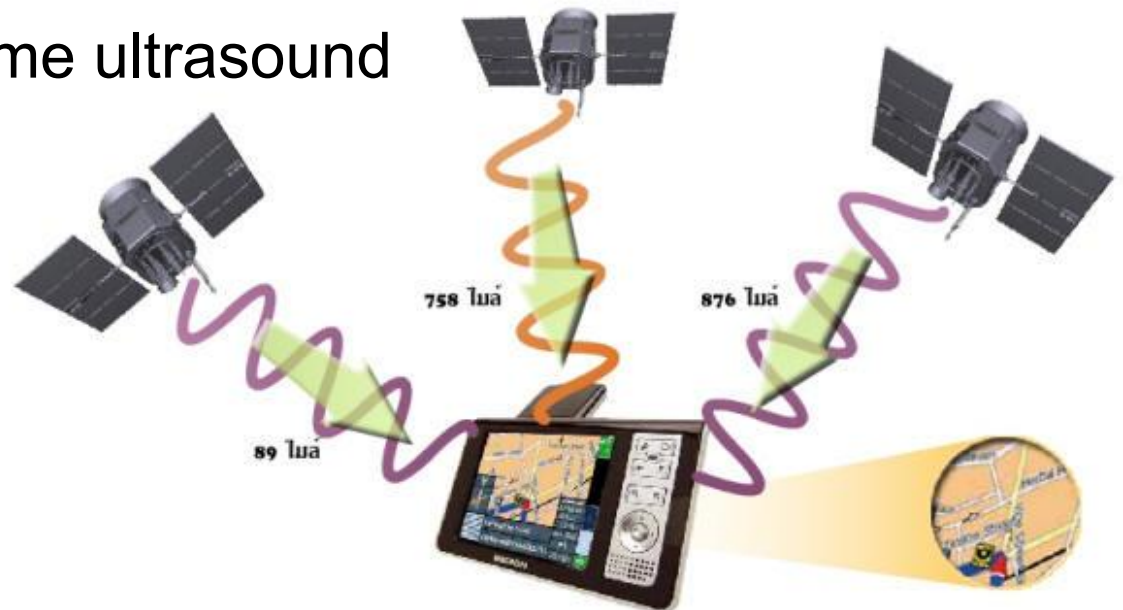


Ultrasound image fusion and instrument tracking

Technology fundamentals

Similar to automobile GPS systems:

- Satellite = Field Generator
- Receiver = Sensors in instruments
- Map = CT, MR, PET/CT
- Eyes = Real-time ultrasound



Epiq Fusion & Navigation **NEW**

- **Intuitive, simplified workflow**
- **Integrated solution**
- **Reusable Instrumentation**
- **Increased tracking volume**
- **Expanded compatibility with biopsy & ablation devices**
- **Additional transducer support**
- **Competitive pricing**



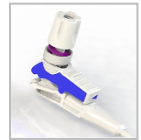
PercuNav3.0: 8 steps



PercuNav4.0: 5 steps



PercuNav5.0: 3 steps



Responding to customer needs!



EPIQ Instrumentation: CNT versus ANT

Optimize needle placement during challenging procedures

CNT (Coaxial Needle Tracker)

“Rifle” approach



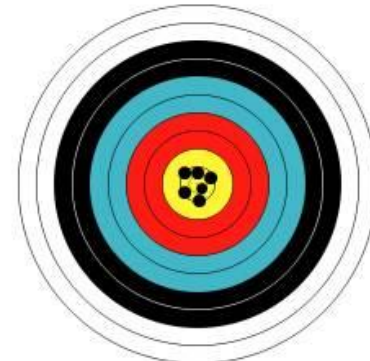
Assists physician in needle navigation for challenging procedures with small, deep, difficult-to-access lesions

Single use

Supports 13G-20G

ANT (Adaptive Needle Tracker)

“Shotgun” approach



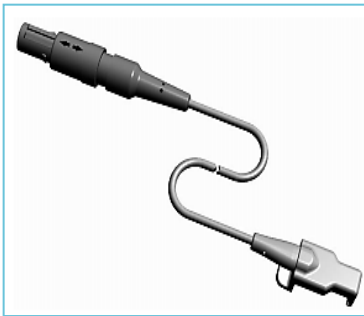
Aids physician to navigate needles towards regions of interests

Multiple use

Supports 10G-18G

Fusion and Navigation Instrumentation Portfolio

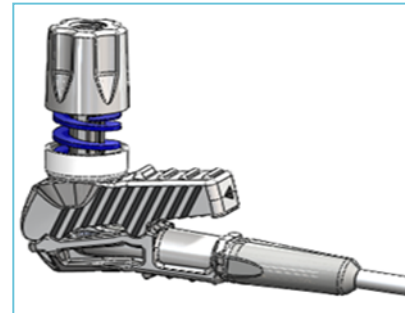
Reusable



Ultrasound Tracker
(Generic—1 to many)



Patient Tracker



Adaptive Needle Tracker

Single
Use



Coaxial Needle Tracker

Fusion only

Fusion and Navigation or Navigation U.S. only

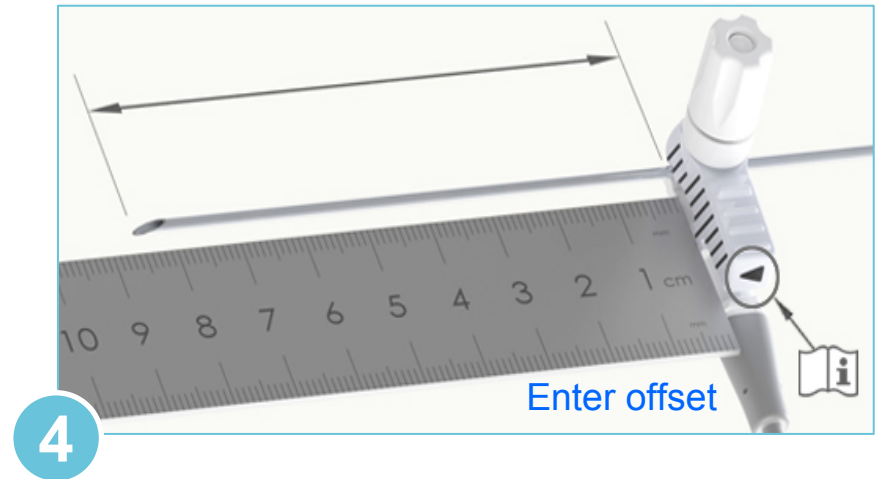
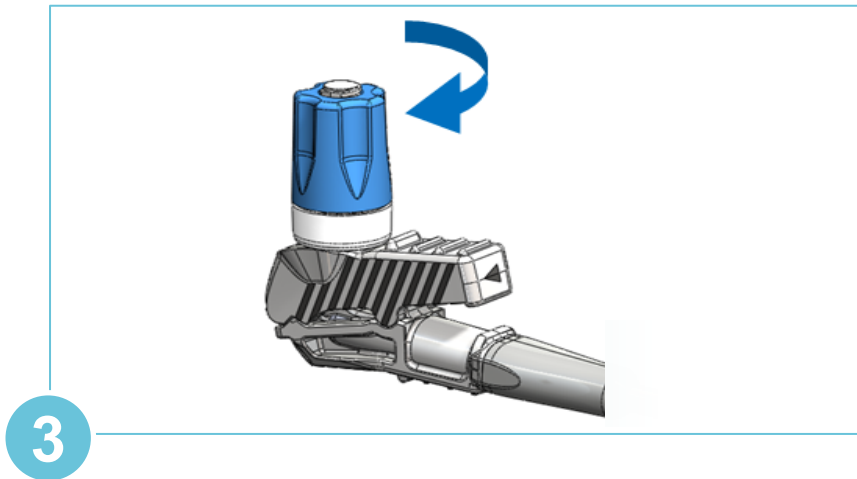
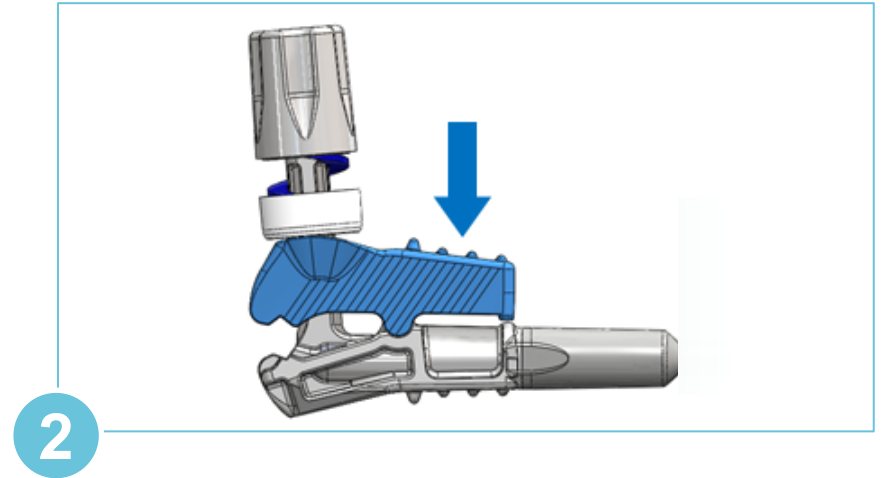
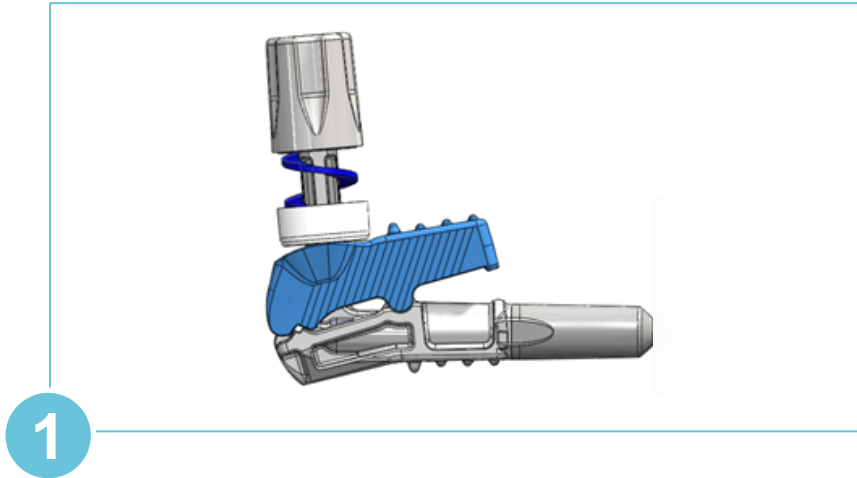
Navigation CT only

COAXIAL NEEDLE TRACKER BENCHING GUIDE

Stylet Gauge	Stylet Length	Cannula Gauge	Cannula Length	Possible OEM mechanical fit from...
13	10.6cm	12	10cm	13G/15cm
13	15.6cm	12	15cm	13G/20cm
16	10.6cm	14	10cm	16G/15cm
				17G/15cm
17	15.6cm	15	15cm	17G/20cm
				18G/20cm
18	7.6cm	16	7cm	18G/9cm
				18G/10cm
18	12.5cm	16	11.9cm	18G/15cm
20	7.6cm	18	7cm	20G/9cm
				20G/10cm
20	12.6cm	18	12cm	20G/15cm

EPIQ Adaptive Needle Tracker

Leading edge navigation

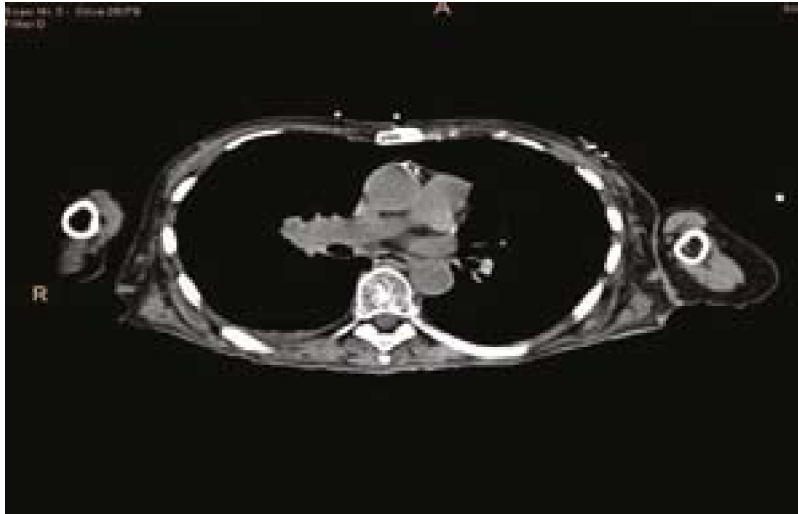


New Cross Sectional Navigation capabilities

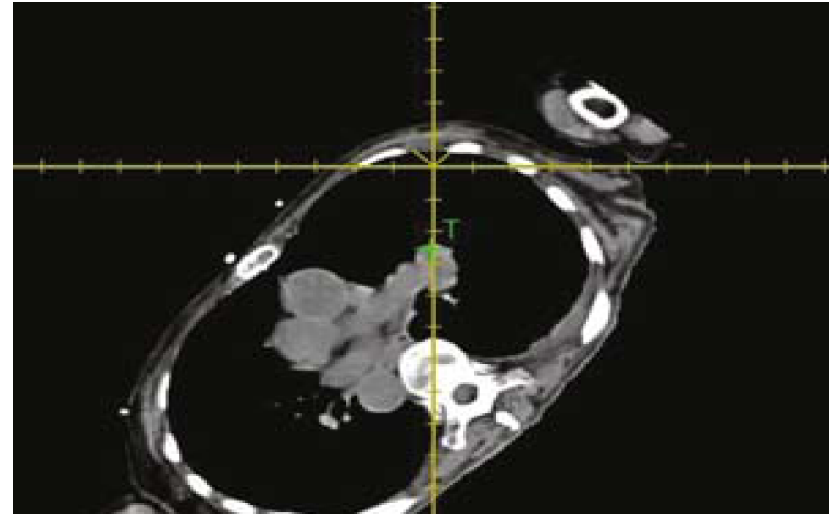
CT – PercuNav Lung Biopsy

Image fusion

Locate – Plan – Guide



CT Scan – area of interest



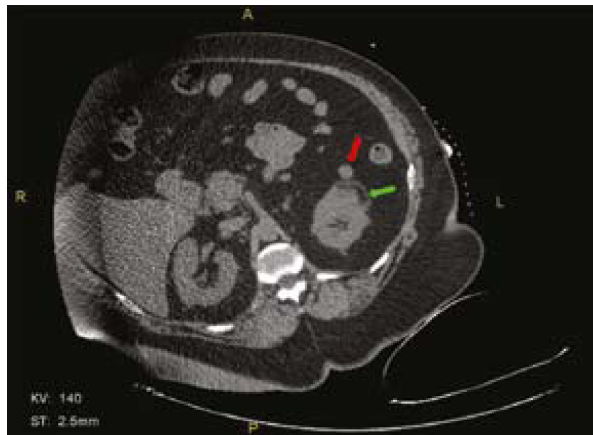
Needle tracked biopsy

New Cross Sectional Navigation capabilities

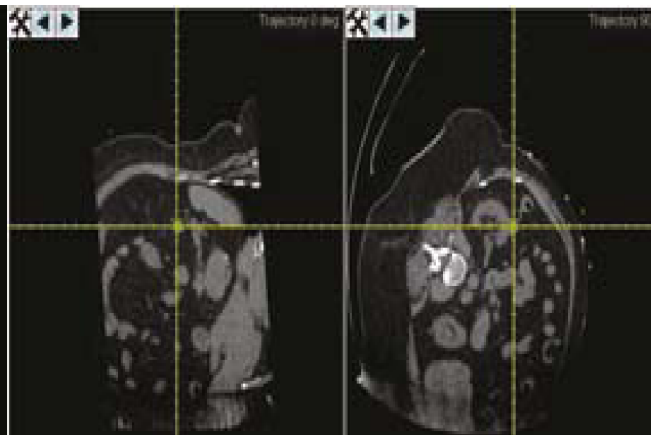
Fused CT - PercuNav RFA

Image fusion

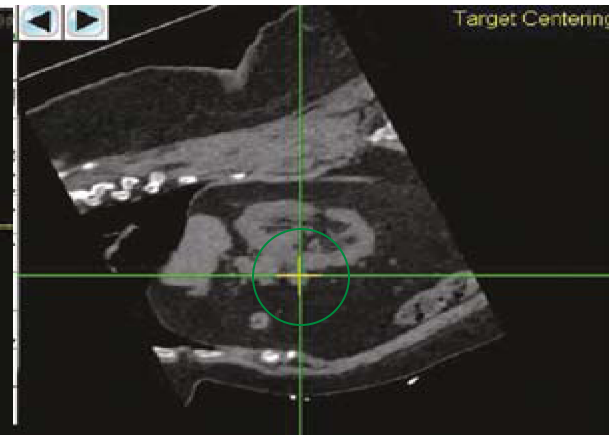
Locate – Plan – Guide



CT Scan of lesion (red arrow)
adjacent to previous RFA
zone (green arrow)



Navigation of tracked co-axial
biopsy introducer



Targeted navigation

Navigation To The Lesion

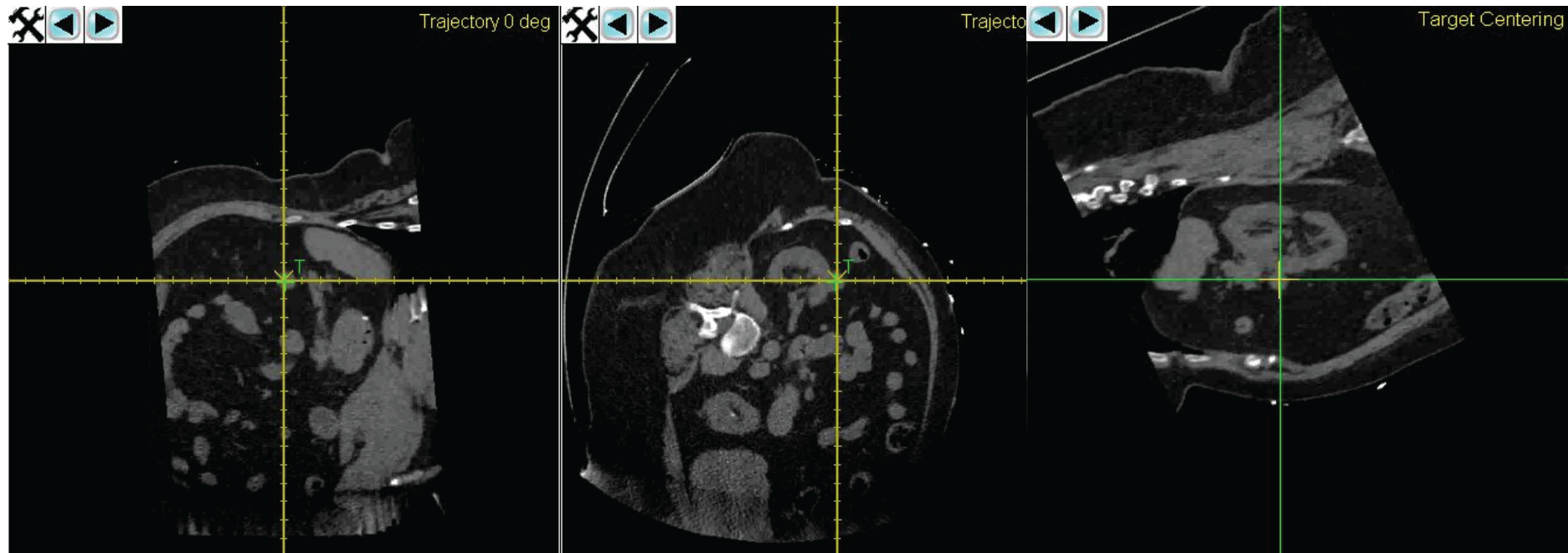
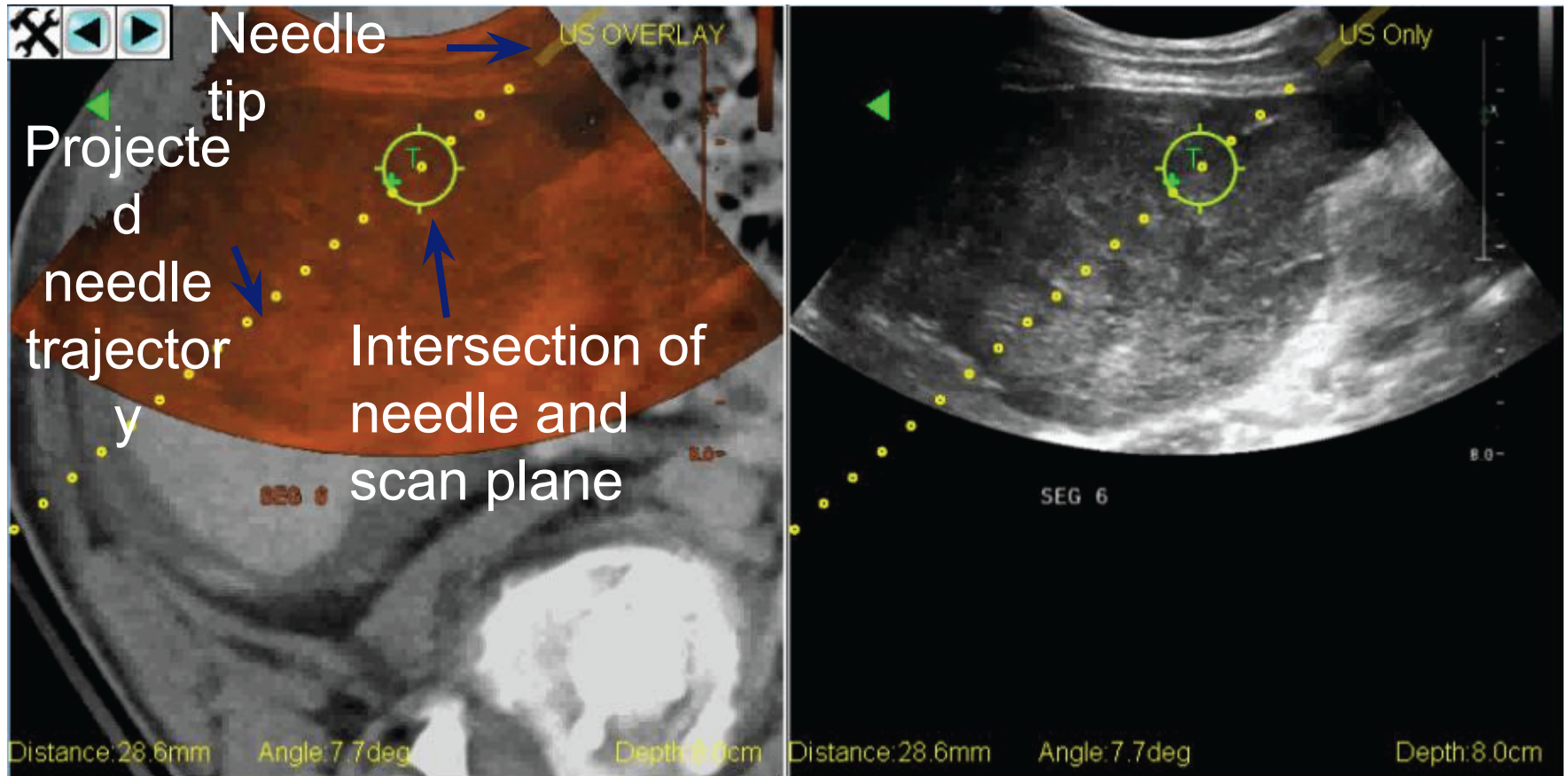
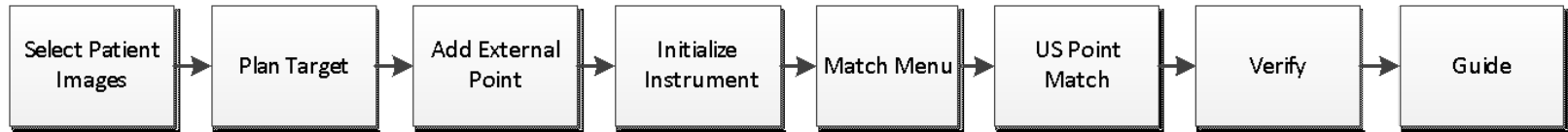


Image Fusion With Tip Tracking

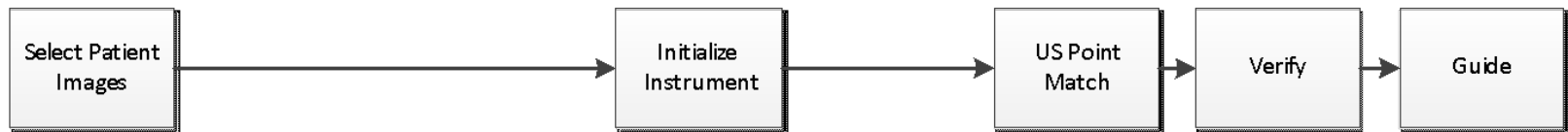


Ultrasound with Historic CT - Sample Workflow

PercuNav 3.0: 8 steps



PercuNav 4.0: 5 steps



PercuNav 5.0: 3 steps



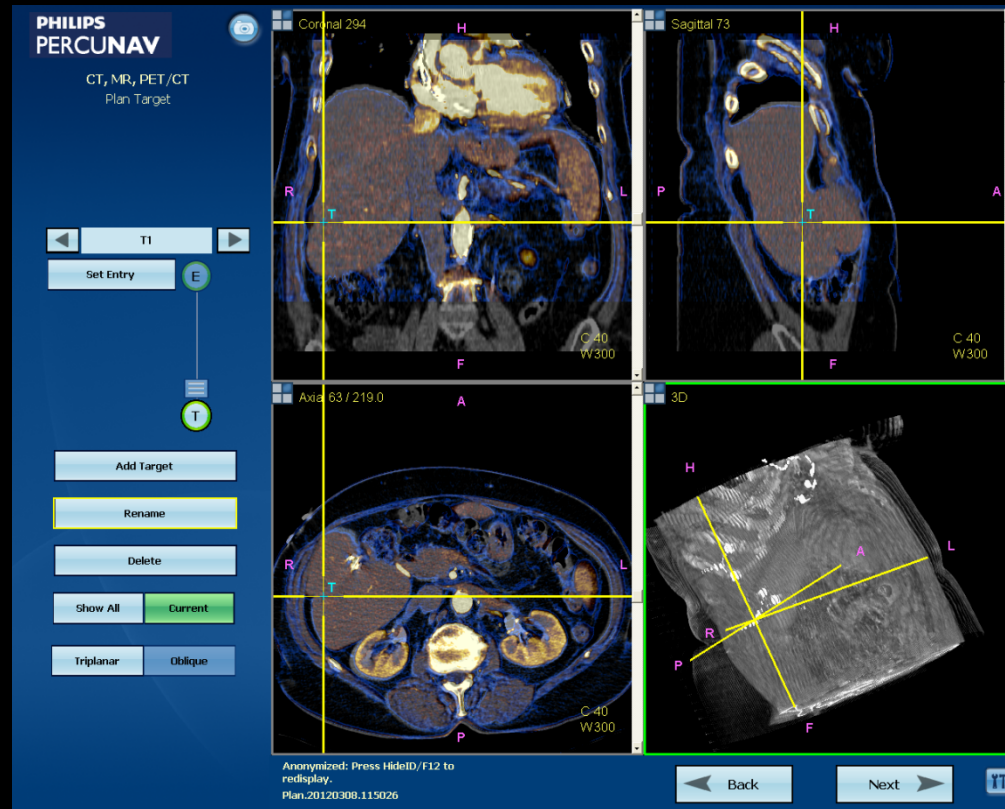
Complexity relative to PercuNav 3.0

8 Steps, reduced to 3 steps

- 63% less complex for 5.0, 38% less complex for 4.0



Multi Modality Co Registration



Arterial phase of Contrast enhanced CT co-registered to pre-procedural non-contrast CT for improved lesion visualization in target planning

Image fusion and instrument guidance – NEW FEATURES

Workflow Improvements for faster more reliable fusion imaging setup - 40% less steps

Manual RFA Planning manual planning of entry and burn zones.

Supports ultrasound color Doppler

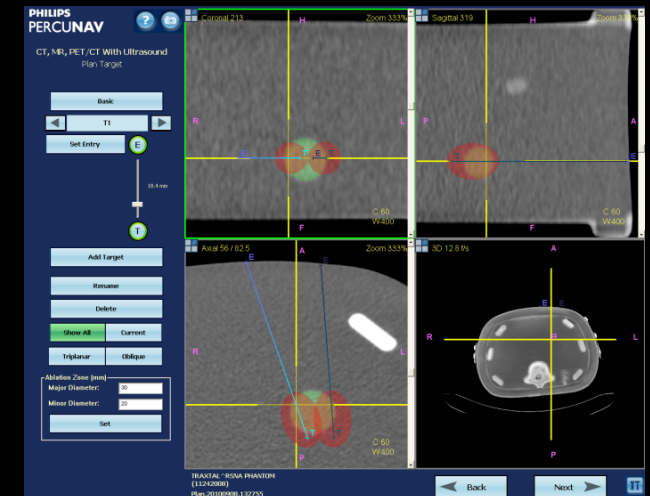
Now supports X6-1 transducer

Now utilizes entire wide screen format

Quick Help



Advanced RFA planning-multiple burns



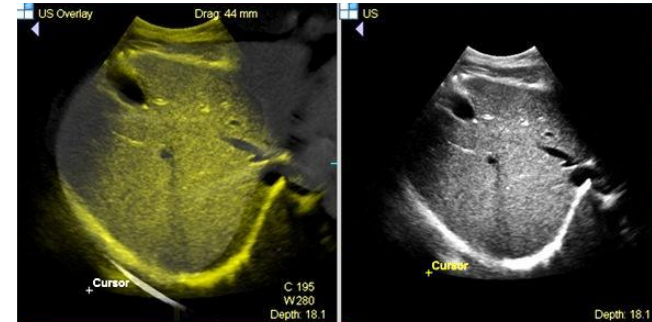
Movable burn zone templates

EPIQ Fusion

Fast, effective, and fully integrated

Empower confident decisions, even in the most challenging cases.

- Easily fuse US/CT/MR/PET with live ultrasound
- Intuitive, simple, fewer clicks
- *NEW* reusable instruments and fast workflow now makes fusion more accessible and affordable for all imaging departments
- Low radiation dose ✓



EPIQ Navigation

State-of-the-art, leading edge navigation

Performance enhancing tool for challenging intervention cases.

Hard to visualize small lesion biopsy or difficult ablations close to critical structures

- Larger working field (x3)
- Reusable Adaptive Needle Tracker
- Expanded range of tip-tracked needles (CNT)
- Reusable Ultrasound Tracker for additional transducer support

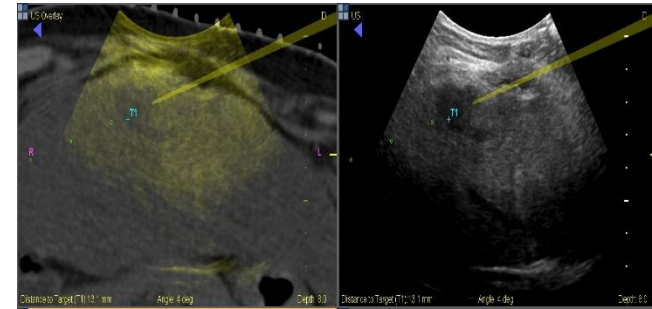


Image Fusion

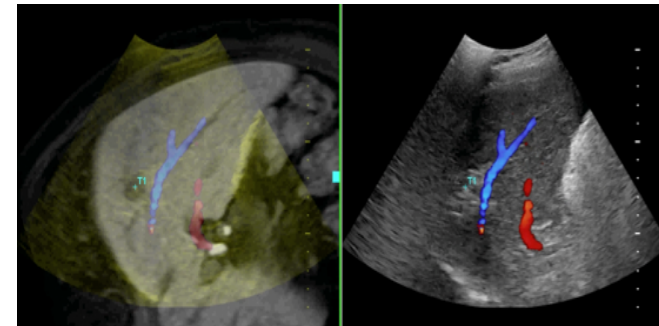
Combining patient images from different data formats such as CT, MR, PET, and ultrasound

Spatial: Combination of images from different modalities (CT/MR/PET) with the live ultrasound image

- Provides additional anatomic/navigational information
- Confident diagnoses in challenging cases

Temporal: Blend of images from different time points for your patient

- Monitor disease progression or regression
- Positively influence treatment pathways

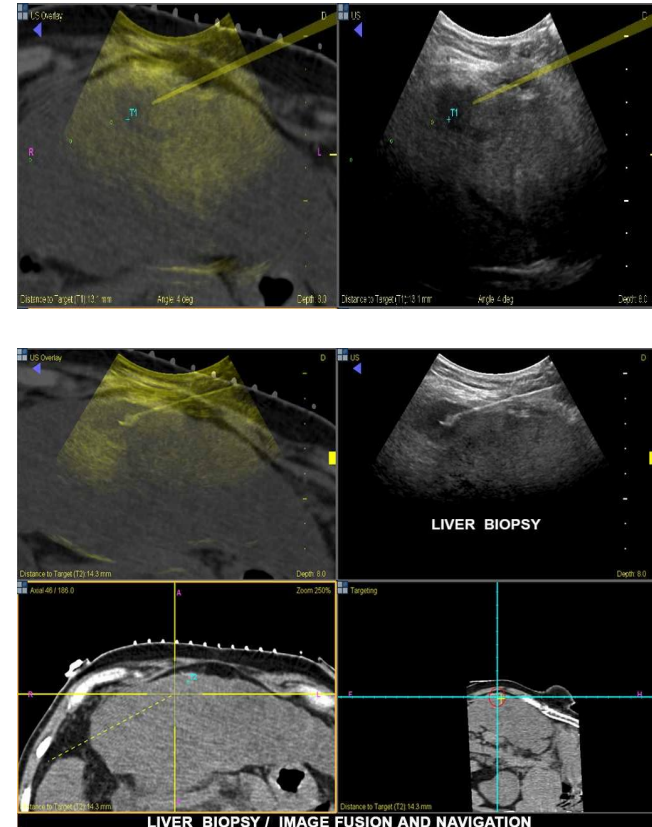


Interventional Navigation

Performance enhancing tool for challenging interventional cases

Track interventional devices and guide to a region of interest when performing needle-based procedures

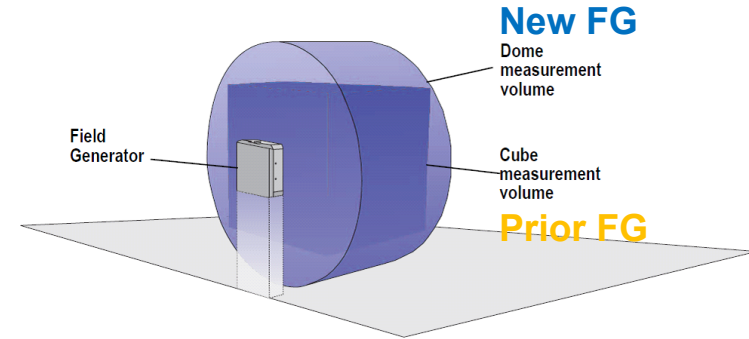
Hard to visualize small lesion biopsies or difficult ablations close to critical structures.
Used in Ultrasound-only, CT-only, or Fusion modes



Epiq Fusion & Navigation

Improvements to PercuNav

- **Intuitive, simplified workflow**
 - 63% less complexity than 3.0 – 8 steps, now 3 steps
- **3X increase in Field Generator tracking volume** for more working space and better tracking of instruments (minimized interference)
- **Reusable instrumentation now available**
- **Expansion** of medical device vendor support through use of and **Adaptive Needle Tracker (ANT)**
- **Compatible with a wider range of biopsy & ablation devices** through use of **Coaxial Needle Tracker (CNT)**
- Additional transducer support via **1 ultrasound tracker** (1 size fits many approach)



PercuNav iU22 → EPIQ Fusion & Navigation

Features		Benefits	
	PercuNav 3.0 /4.0 on iU22	Fusion & Navigation (F&N) 5.0 on EPIQ	Clinical/Customer Value
Field Generator		3x dome volume for better tracking and minimized interference	Better IQ & less intrusive during the procedure
Instruments	Consumables (1 time use only)	Reusable instruments for better economic value	Lower per procedure cost; greater accessibility
OEM Needle Support	Limited only to Temno & Covidien (Valleylab)	Expanded needle tracking support via Adaptive Needle Tracker (ANT) and Coaxial Needle Tracker (CNT)	Greater range of compatibility with interventional devices/vendors
Workflow	8 step & 5step process	3-step process	More intuitive, simplified & efficient workflow



Epiq Fusion & Navigation

Advantages

- Reduced set-up for Fusion & Navigation - HW is fully integrated on Epiq
- ***NO Click registration***
 - Fast, automatic registration and now NEW ***reusable*** patient trackers
 - Plane match registration – maintains patient correlation throughout the scan, very steady image
 - No need to register again due to respirations/patient movement
 - No manipulation required
- Ability to correlate up to 3 different imaging modalities in real time to locate occult lesions faster – CT, MRI, PET, U/S
- **Increased Field Generator (FG) tracking volume by 3x previous FG tracker** for more working space and better tracking of instruments (minimize interference)
 - Confidently navigate through complex anatomy with greater assurance while performing interventional procedures

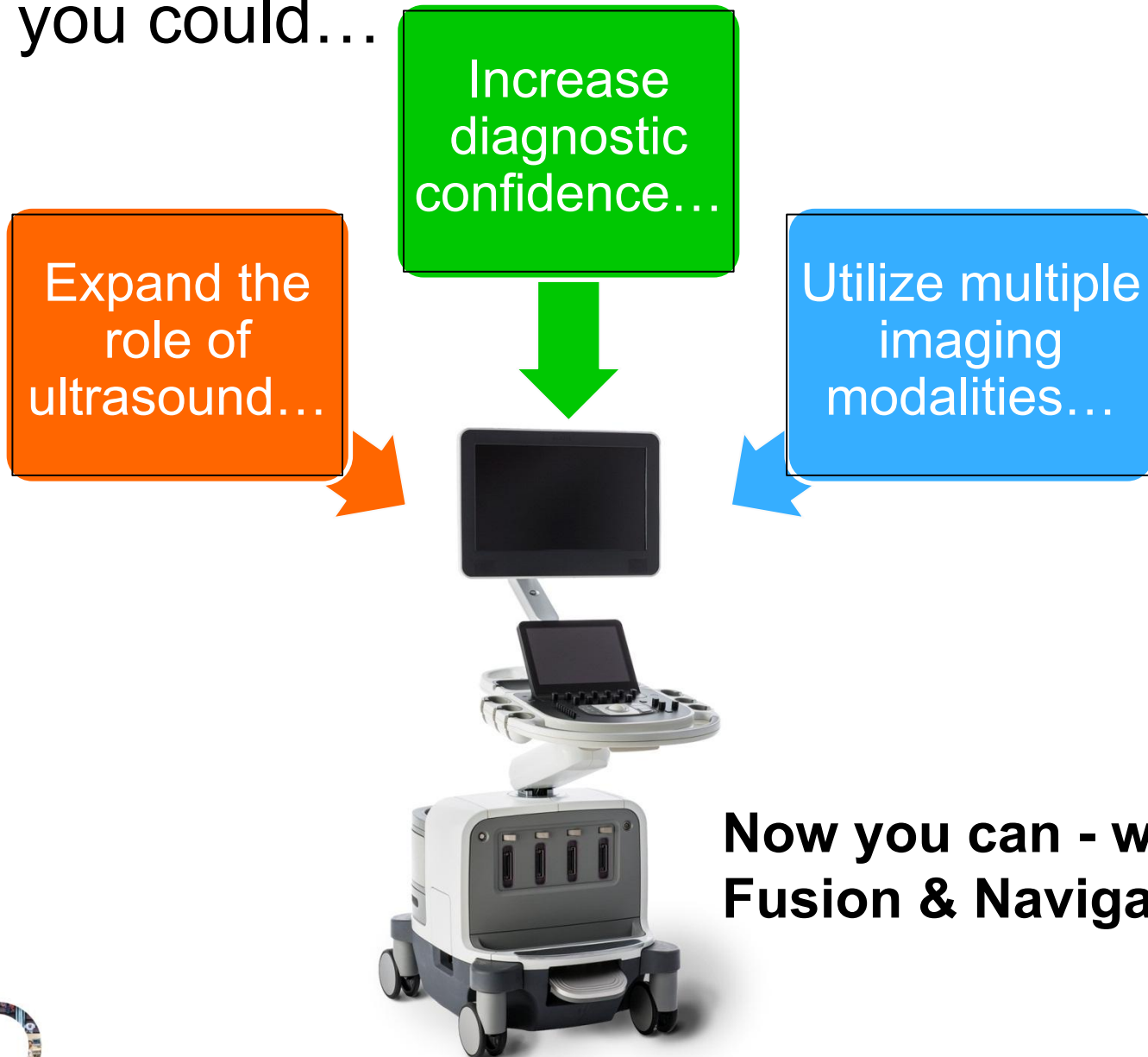


Key Differentiators

Features	Philips	Competitor
Image fusion (CT, MR, PET/CT)	✓	✓
Instrument navigation	✓	✓
Motion Compensation (Patient Tracking)	✓	
External Automatic registration using RegPatches	✓	
Registration using axial, sagittal, and coronal planes (Internal Landmark)	✓	✓
Co-registration	✓	
Query Retrieve	✓	✓
External manual registration using multi-modality fiducials	✓	✓
Instrument navigation (Tip)	✓	✓ **
Drag to match	✓	

GE partners with CIVCO for **re-usable instrumentation tracking (eTRAX).

What if you could...



**Now you can - with EPIQ
Fusion & Navigation!**

