

# MEDIATE

## Patient friendly medical intervention

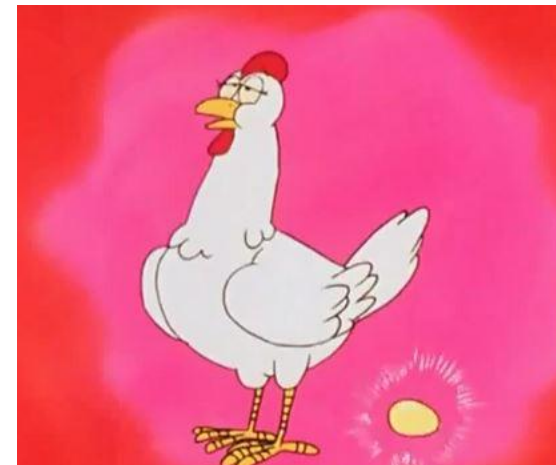
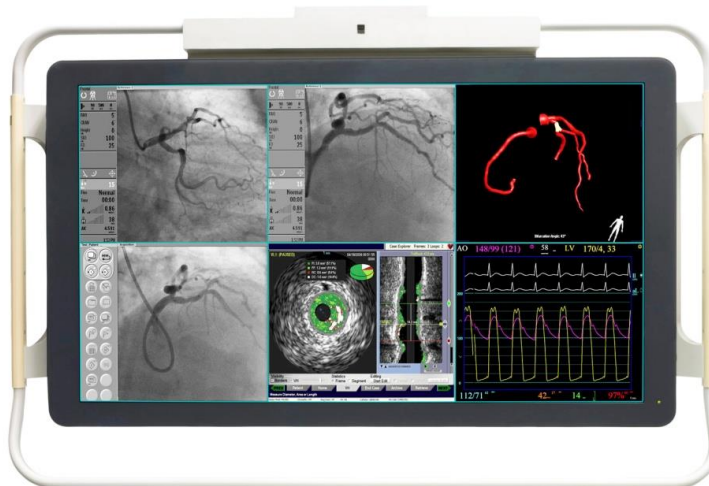
Co-summit 2015, March 10-11, 2015

Berlin, Germany

Herman Stegehuis (Philips Healthcare)

# Agenda

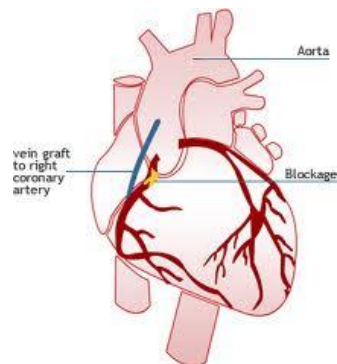
- Trends in healthcare
- Role of MEDiate
- Clinical use case scenarios
- Results
- Key success factors



# MEDIATE

## Trends in healthcare

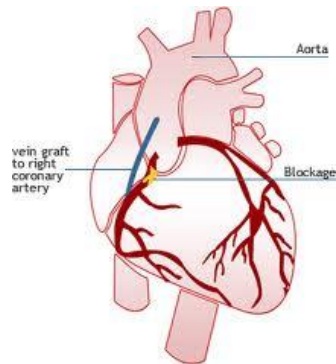
From open surgery



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## Trends in healthcare

From open surgery

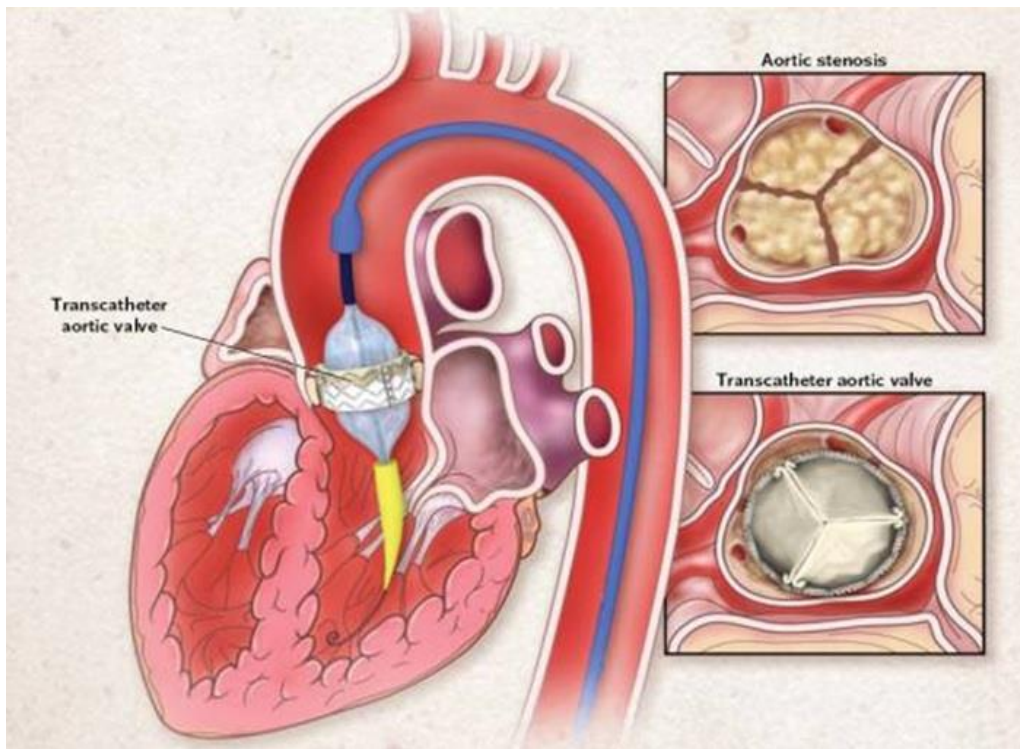


To minimally invasive surgery

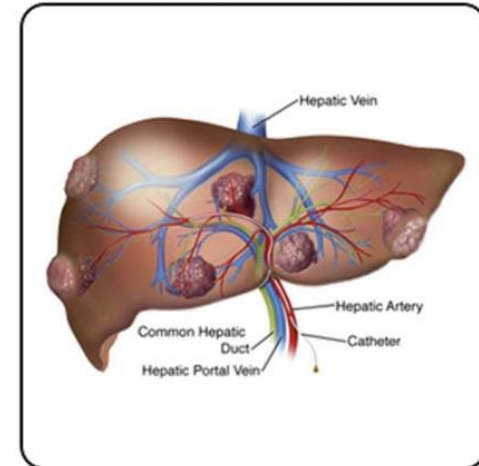




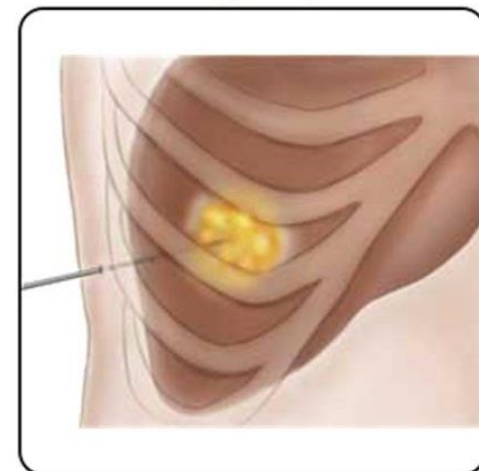
### Expanding field of applications



### Liver tumors



Therapies: RFA, MWA, Brachy-, Cryo-



### Benefits of minimal invasive surgery:



- Improves quality of life
- May enable treatment when open surgery is no option
- Reduces costs significantly

- 10% of GDP in Europe is spent on healthcare
- Increasing number of patients, complexity, costs:
  - Ageing population
  - More chronic and degenerative diseases
  - More combinations of diseases
  - Healthcare professional staffing shortages



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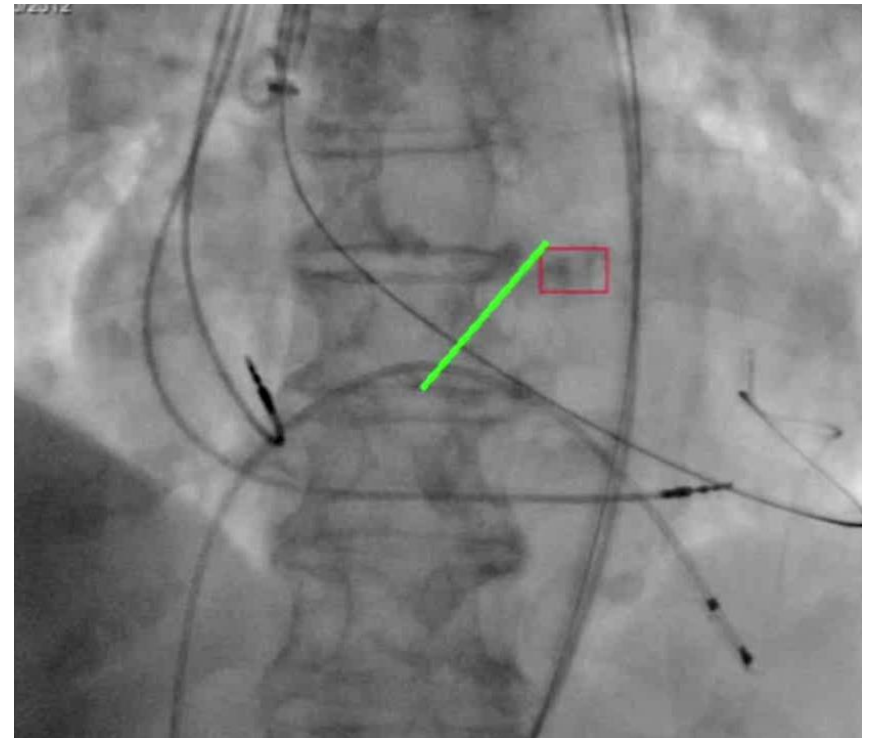
## Role of MEDIATE

Solutions for:

- Image guidance



X-ray  
US  
MRI  
CT  
OCT





# MEDIATE

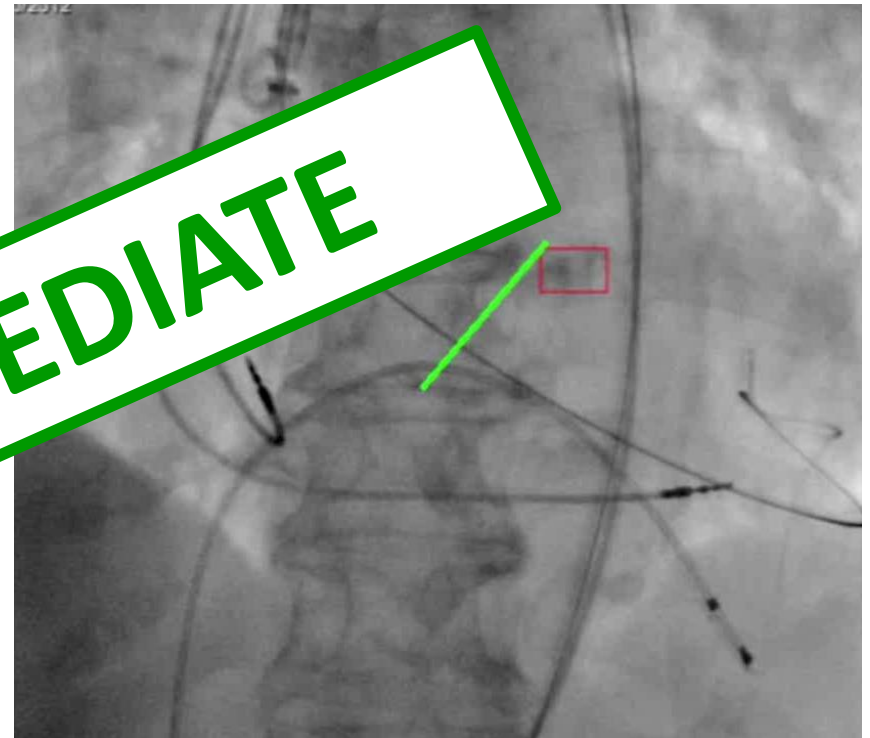
## Role of MEDIATE

Solutions for:

- Image guidance

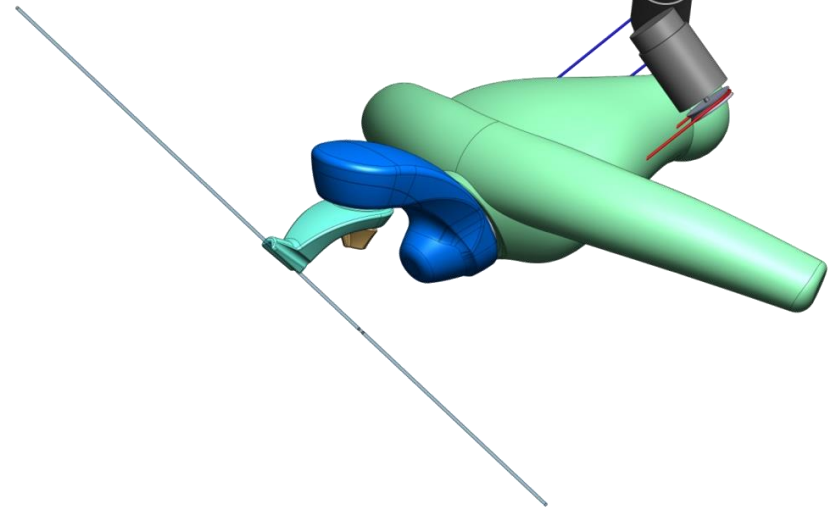
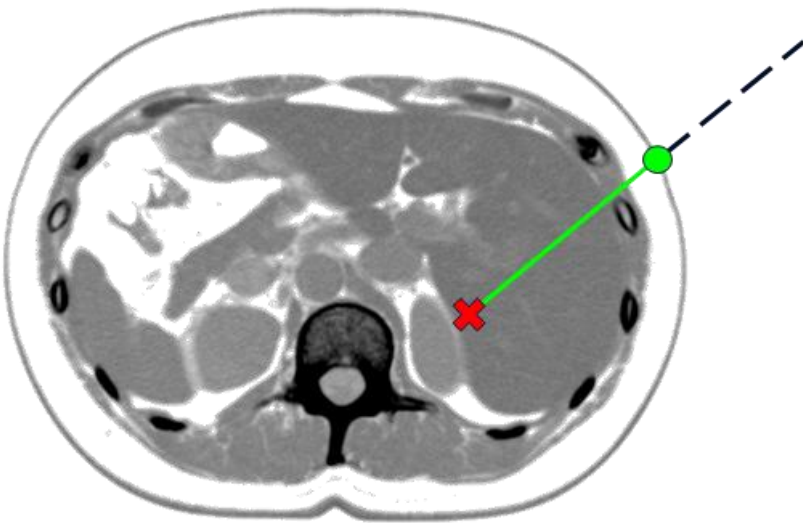


X-ray  
US  
MRI  
CT  
OCT



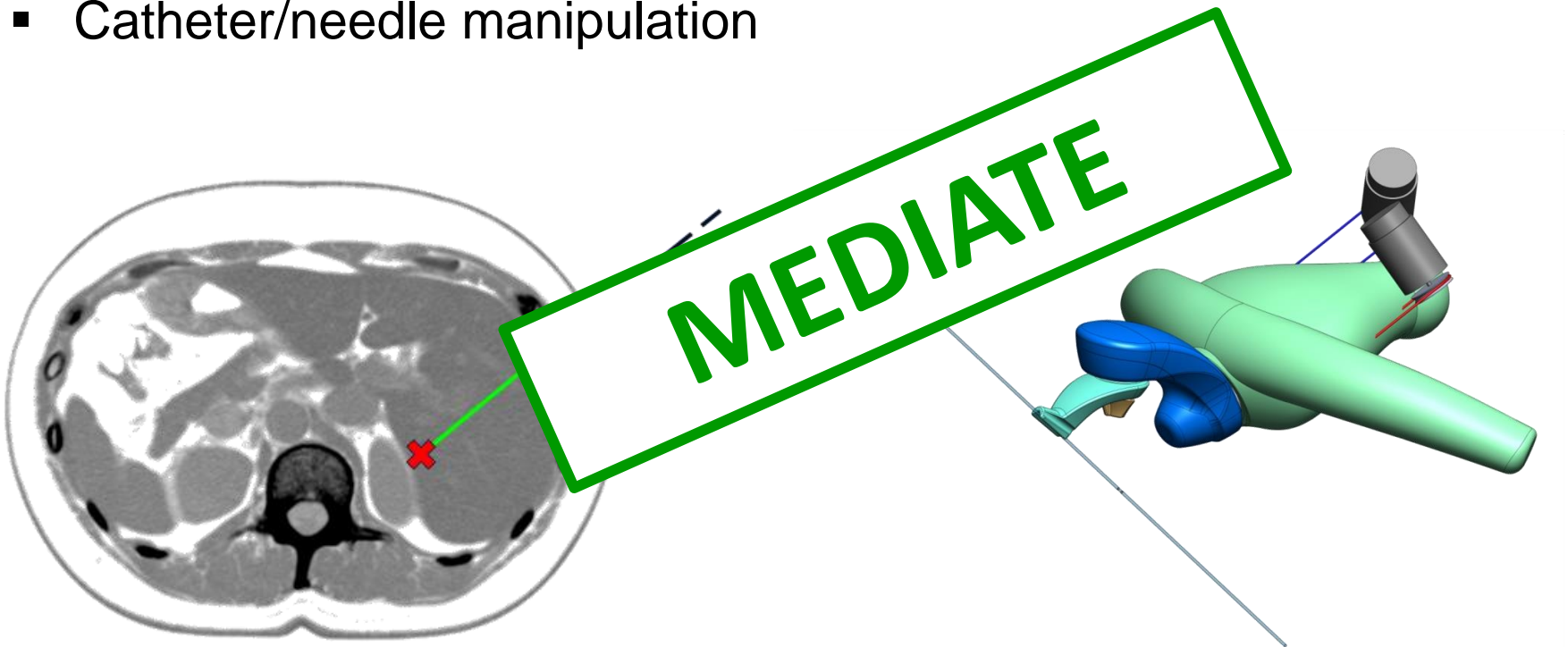
Solutions for:

- Catheter/needle manipulation



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- Catheter/needle manipulation





State of the art:  
From many independent  
screens and solutions

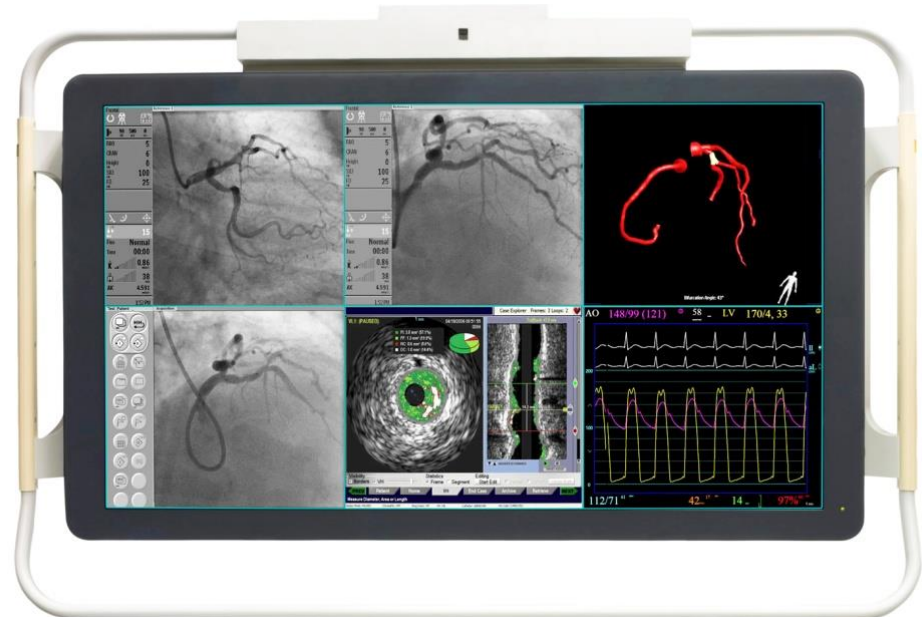




an architecture for an  
integrated intervention room



State of the art:  
From many independent  
screens and solutions



To one integrated workspot with  
an optimized UI





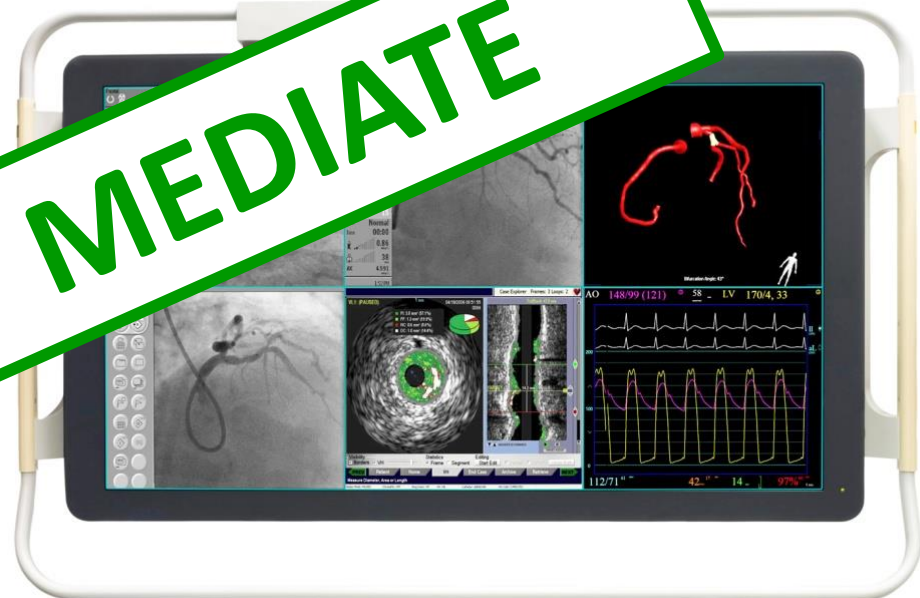
an architecture for an  
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State of the art:  
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**MEDIATE**



To one integrated workspot with  
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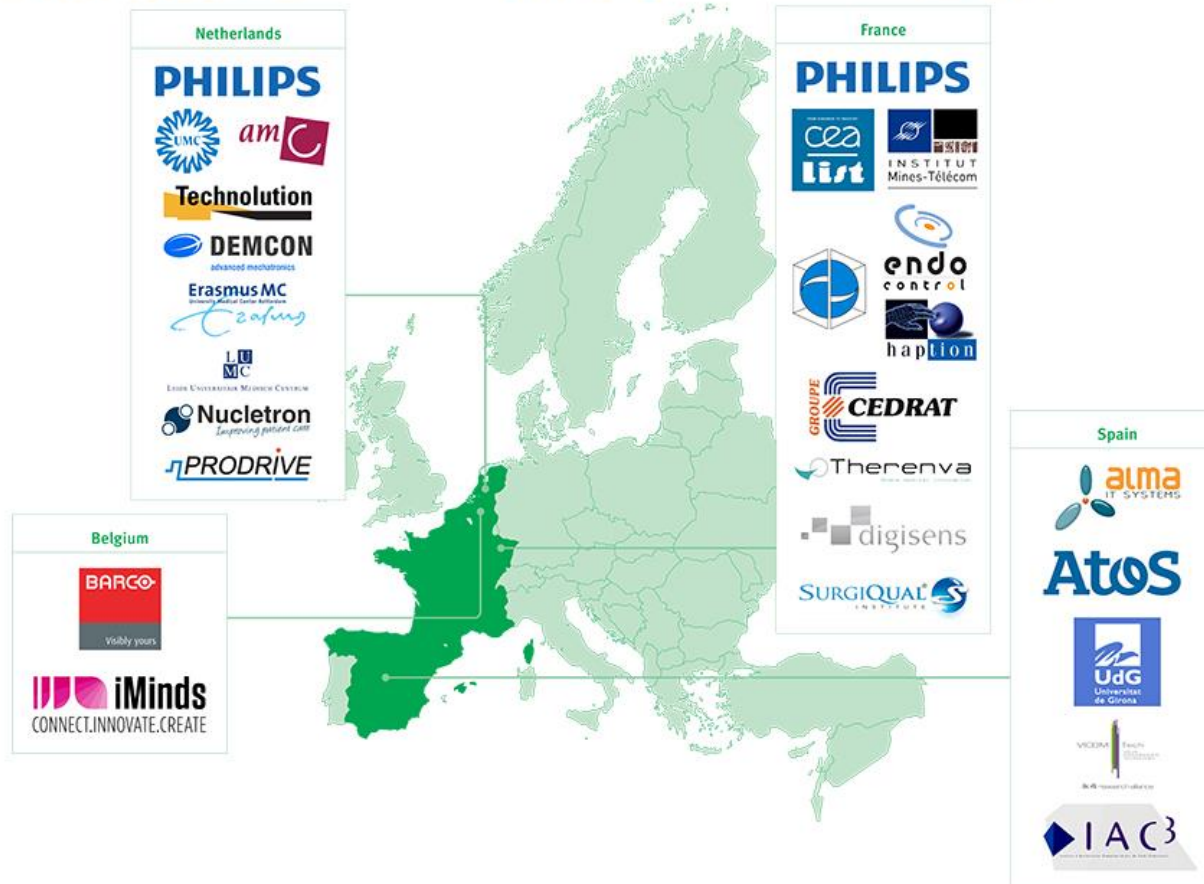
# MEDIATE

## Role of MEDIATE

PROJECT CONSORTIUM

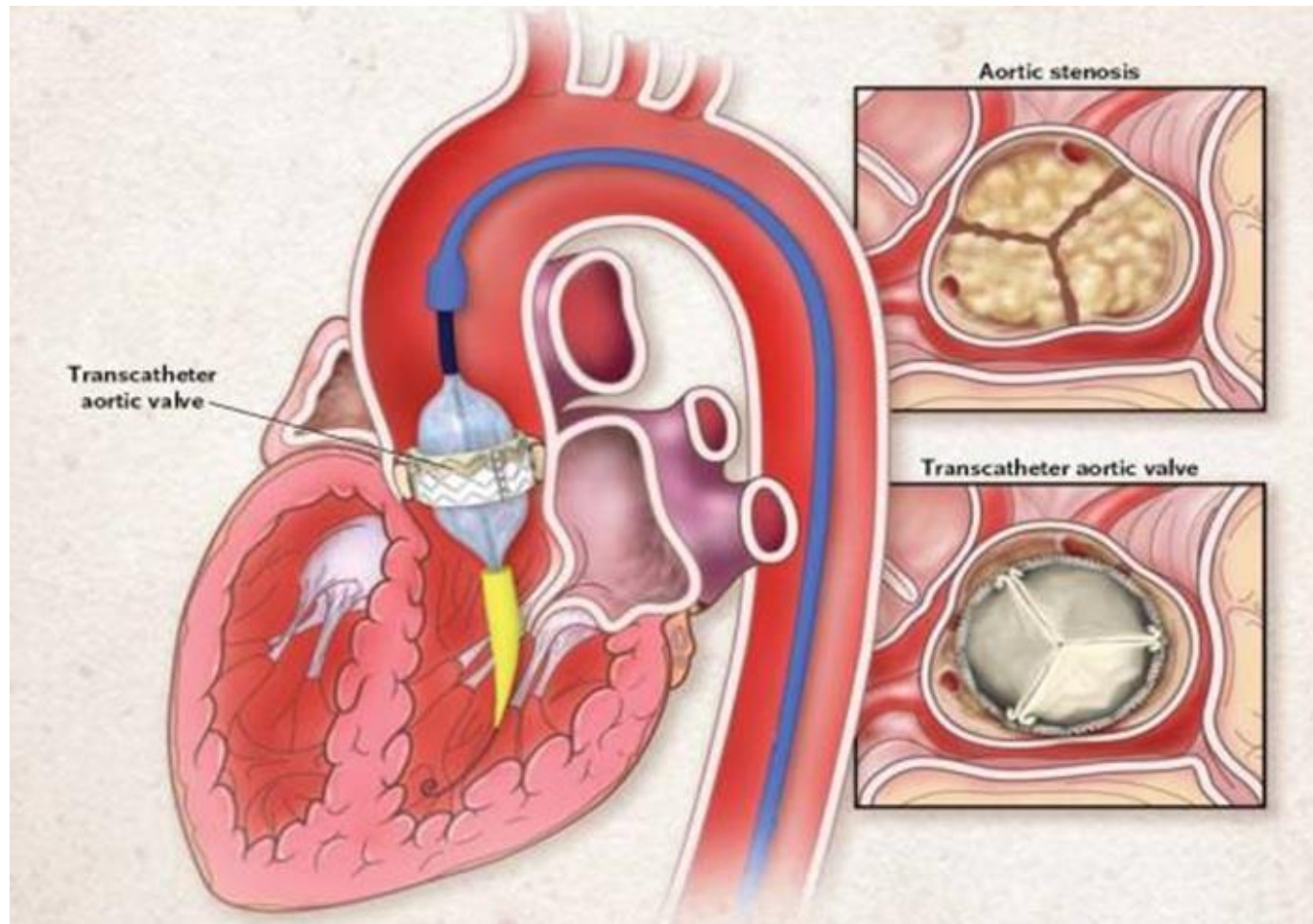
START DATE SEPTEMBER 2010

END DATE DECEMBER 2013

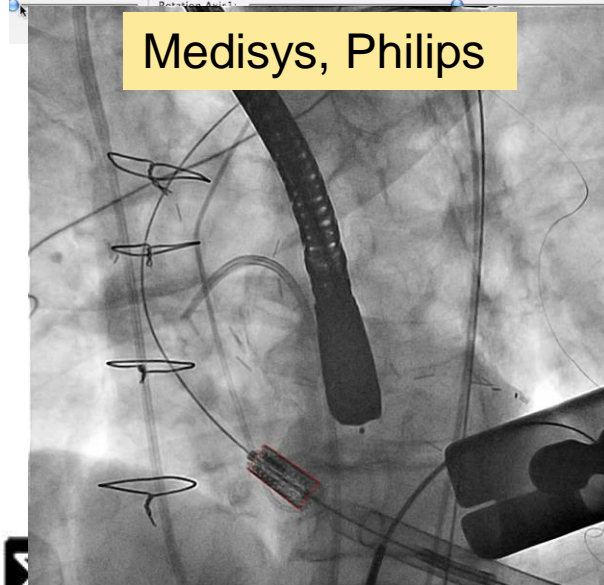
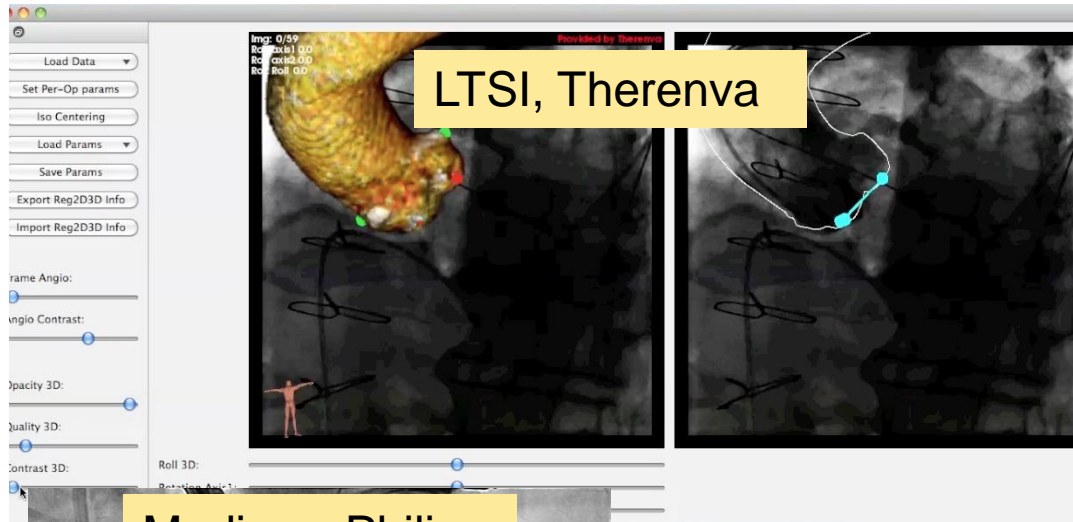


- 5 industries
- 12 SMEs
- 10 universities/ research institutes, linked to 6 hospitals

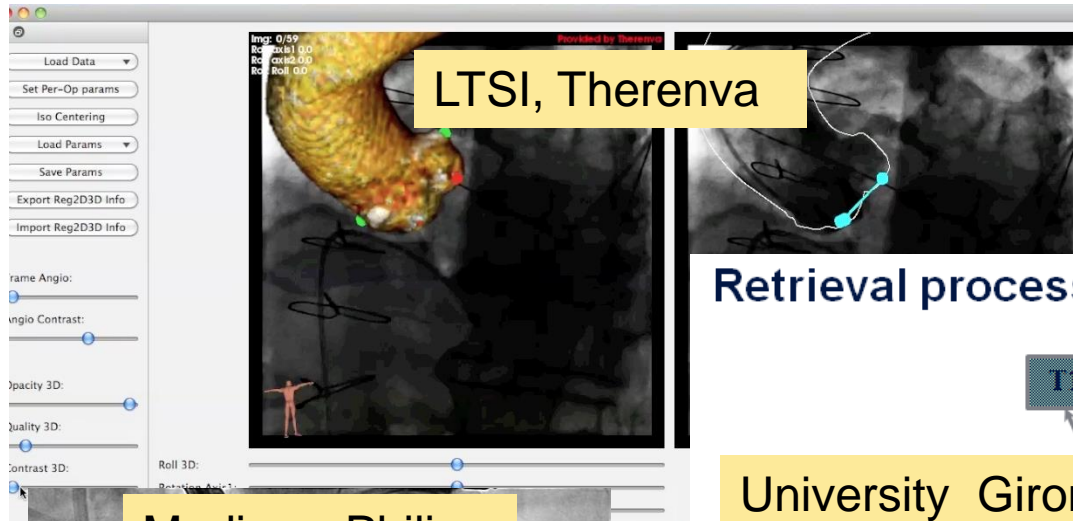
Use cases	Demonstrators		
Cardiac RF ablations	Registration of pre-operative MR data with EP recordings	Real-time MR tracking of morphological structures and devices	Merging pre-operative with inter-operative data and remote visualization
Transcatheter Aortic Valve Implantation (TAVI)	Pre-/intra-interventional registration and overlay of some pre-operative data onto interventional images	Augmented reality interface with simple and clinician oriented decision making aid data	TAVI clinical demonstrator 3D display/ voice control, with DSS
Percutaneous Coronary Interventions	Fusion of pre-operative CTA and intra-operative OCT	Multi-modal Coronary Lesion Evaluation and Qualitative Comparison: X-ray based 2D+time & 3D+time	Multi-modal Coronary Lesion Evaluation and Qualitative Comparison: X-ray based 2D+time & 3D+time and CTA and OCT
Minimally-invasive treatment: needle ablation	Needle planning & needle tracking Real time MR/X-ray imaging of surgical devices	Xper guide based needle placement (without robot) incl remote visualization and representation of 3D data	CT based robotic needle steering & brachytherapy
Single Incision Laparoscopic surgery (SILS)	SILS, guided by robotics with state of the art devices	SILS, guided by robotics with new robotic devices	
Bone tumor navigation	Ultrasound /MRI for navigation purposes: tracker calibration, US/MRI segmentation, tracking, registration	Simulation/planning of RF ablation (IT) and web visualization (pre-operative simulation and post-operative control, SQI)	Navigate bone tumor RF ablation; fusion of multimodal data and 3D visualization (augmented reality)
Corrective osteotomy	Optimal virtual planning of a corrective distal radius osteotomy, based on the relation with the contralateral radius and ulnae.	Metal Artifact Reduction in 3DRX images	Integrated corrective osteotomy procedure, with planning based on a statistical reference-bone model
Innovative user interfaces in minimally invasive treatment	Remote visualization of procedural data & interoperability: Peer to peer streaming of medical video data	Integrated solution for the visualization of medical image, video and data sources combined with workflow solution	Integrated solution for the visualization of medical image, video and data sources with full integration of the medical applications





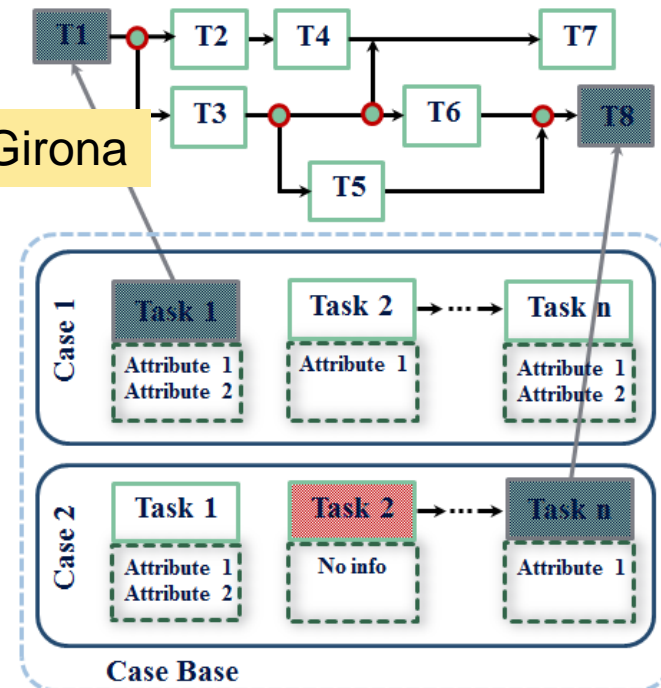
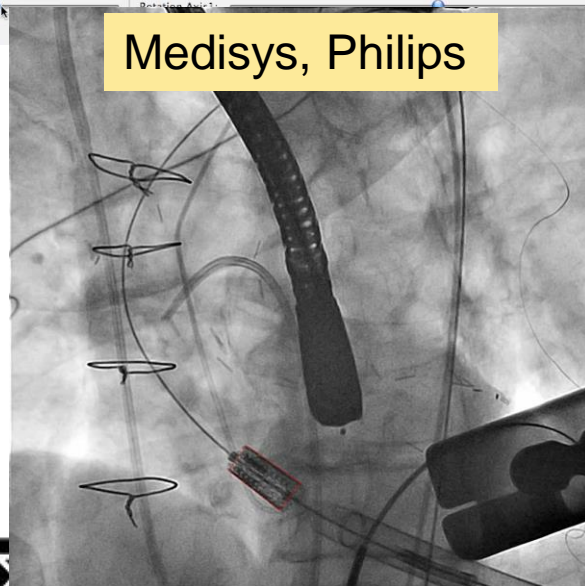


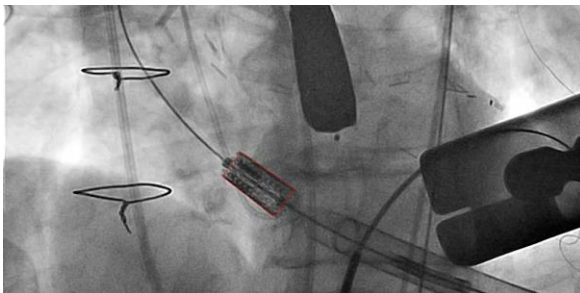
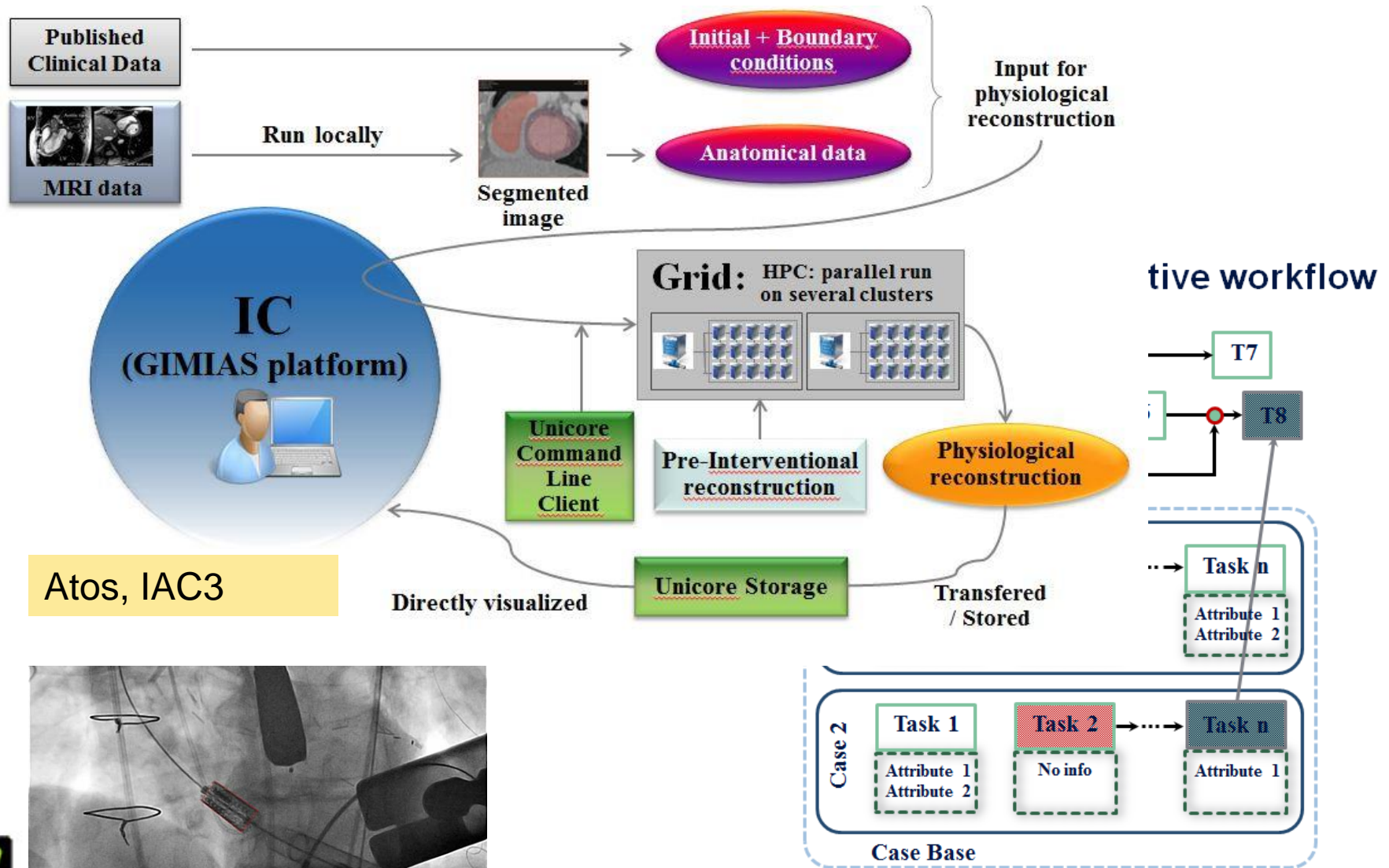


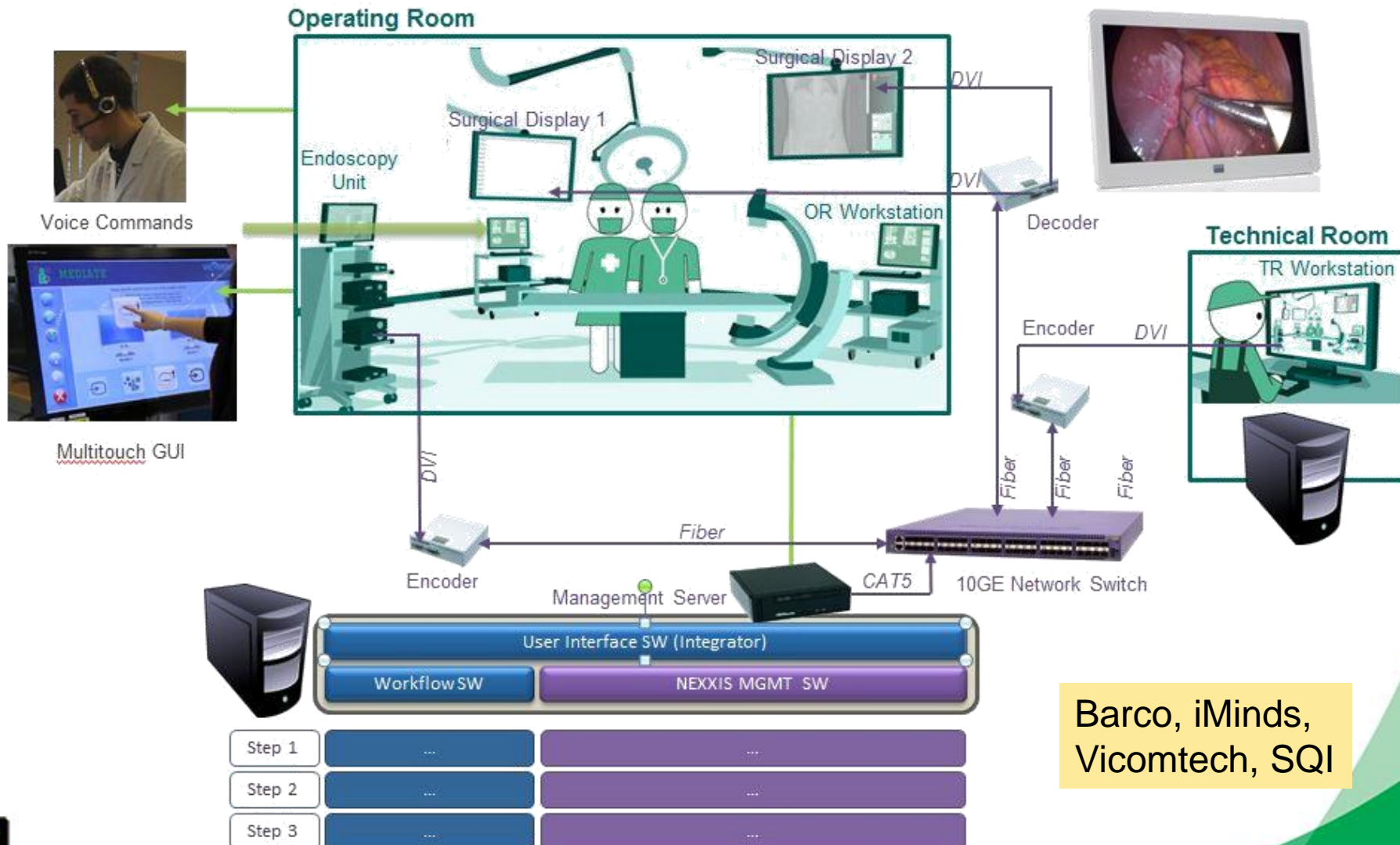


Retrieval process along the operative workflow

University Girona







Barco, iMinds,  
Vicomtech, SQI

- More than 80 presentations and scientific papers
- 10 patents filed, at least 10 more in preparation
- Quantified system improvements by technical innovations
- Contributions to international standardization committees
- Participation in new projects
  - Project FLUOROMIS on endoscopy in France in 2013
  - ITEA project BENEFIT in Q4 2014
- Fast exploitation results and exploitation perspectives for all commercial partners

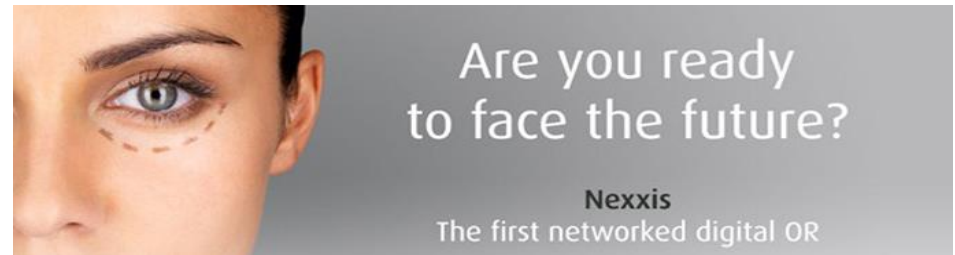


- Web based tool for collaborative treatment planning integrated into a
  - clinical application for a World TOP 10 company in orthopedics
  - workflow management software for radiotherapy
- Localization technology delivered to another World TOP 10 company in orthopedics
- Presentation in running ITEA project MEDUSA



# MEDIATE

## Results



**Karl Storz endoscopy GmbH**, number 1 in OR integration in Europe and number 2 on a worldwide scale, has released their new OR1 Fusion with Nexxis as their visualization backbone.



Kortrijk, November 18 2013,  
**Merivaara** has selected Barco's Nexxis to form a critical part of its highly acclaimed OpenOR™ digital integrated operating room (OR) solution.



Kortrijk, November 21 2013, In today's increasingly complex operating rooms, Buzz™ - Digital O.R. by Brainlab together with Nexxis, an IP-centric solution for image and audio management by Barco, will provide seamless integration with improved workflow efficiency for better patient care.



RASTATT, GERMANY, Feb 2015 — **Maquet GmbH** today announced a partnership with Barco to incorporate the company's Video over IP technology as a powerful option within the TEGRIS OR integration system.



## PHILIPS

- New features in Philips MR systems:
  - Motion compensation strategies during MR imaging
  - Metal artifact correction and UI for metal implants
  - Larger bore for improved patient access
- Entering the image guided intervention and therapy solutions market based on imaging improvements and integrating architecture

## infraredx®

*March 7, 2013 -- ....integration of Infraredx's true vessel characterization (TVC) imaging system with Philips' Allura Xper systems*

 **VOLCANO**  
PRECISION GUIDED THERAPY

*Dec 17, 2014 -- Major acquisition to boost Philips' Image Guided Therapy business*

- Significant additional annual sales volume due to this strategy and improvements.

- The topic:  
solutions for a large market, a societal need and  
clear technical opportunities



## Key success factors

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- The topic:  
solutions for a large market, a societal need and clear technical opportunities
- The consortium:  
balanced with research institutes, small and large industry and large participation and input from end users (including clinical advisory board)



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- The topic:  
solutions for a large market, a societal need and clear technical opportunities
- The consortium:  
balanced with research institutes, small and large industry and large participation and input from end users (including clinical advisory board)
- The focus:  
concrete clinical use cases and collaboration between many partners







Thank you for your attention