Elekta R&D Update

22 January 2015, Utrecht

ELEKTA

Elekta R&D Update - 22 January 2015, Utrecht

11.00	R&D Update	Niklas Savander *President and CEO*
11.15	Atlantic Positioning	Dee Mathieson, *SVP Oncology Business Line Management*
11.30	Atlantic Update	Kevin Brown *Head of Scientific and Medical Affairs*
11.40	Q&A	All speakers
12.00	Informal Q&A	Professor Marco van Vulpen *Head of Radiation Oncology* Professor Jan Lagendijk *Head of Radiation Oncology Physics* Professor Bas Raaymakers *Experimental Clinical Physics*
12.50	Atlantic tour	-

ELEKTA

Elekta R&D update

Niklas Savander

President & CEO

Utrecht, 22 January 2015

ELEKTA

Strategic choices

- Emerging markets
- Product innovation
- Software

ELEKTA

Strategic agenda for growth

Grow the Pie

Innovation Leadership

Lifecycle Management

Commercial Transformation

ELEKTA

Innovation is in our DNA

1949
Stereotaxy
Leksell Stereotactic frame

1968
Radiosurgery
Leksell Gamma Knife®

1985
First digital controlled linac

2003
Image Guided Radiation Therapy
Elekta Synergy®

2006
Integrated oncology software solutions

2008
VMAT
Volumetric Modulated Arc Therapy

2013
Electronic brachytherapy for skin cancer
Esteya®

The Future in Radiation Therapy
Elekta Atlantic

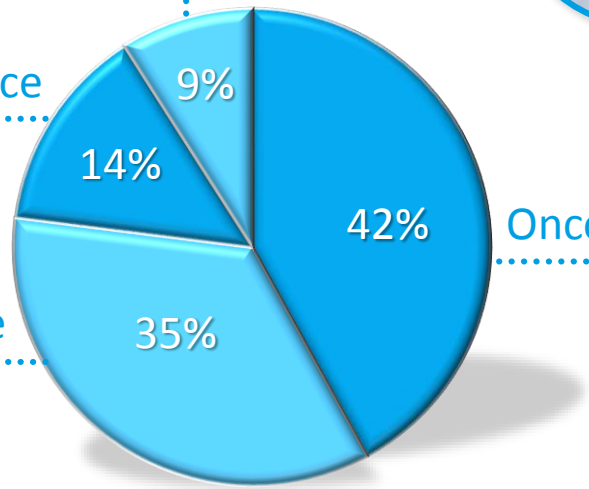
ELEKTA

R&D key programs and spend

Fiscal year 2014/15

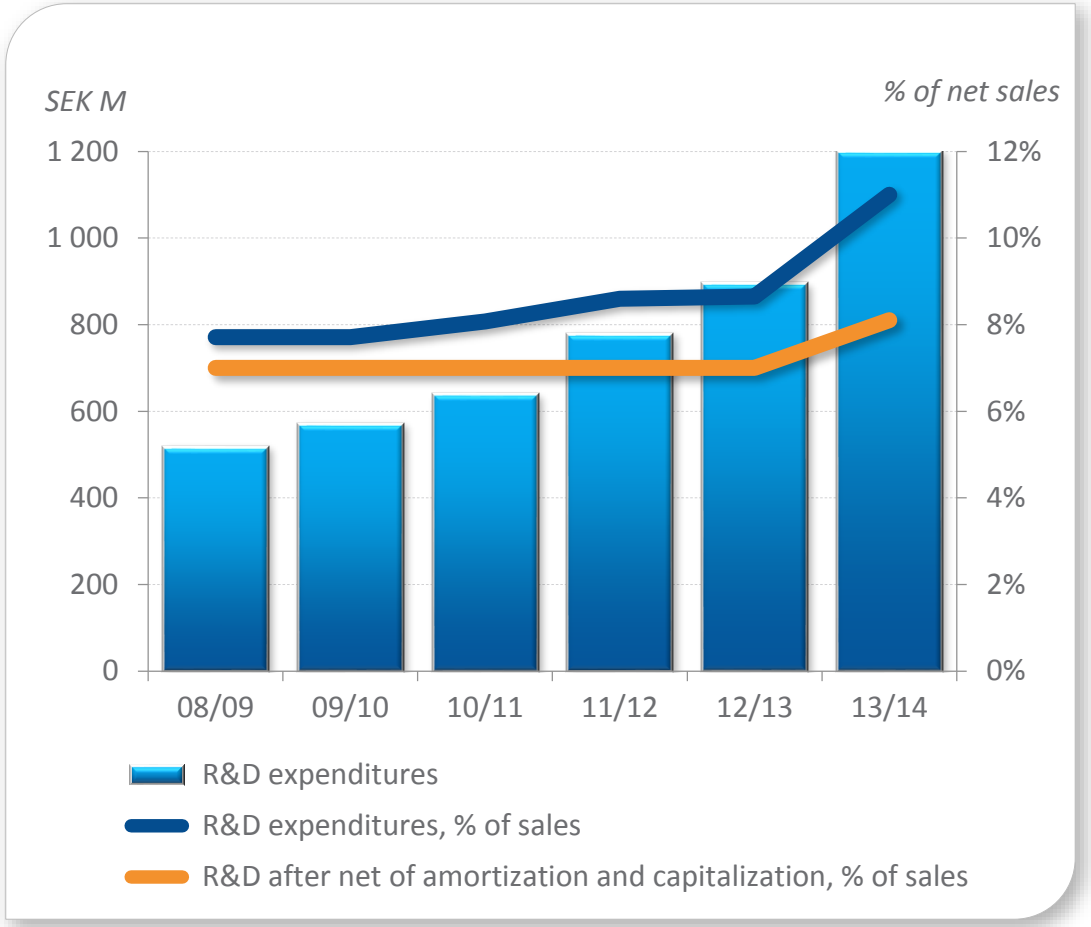
Main Elekta R&D programs:

- Atlantic
- Information Guided Cancer Care
- Next generation Gamma Knife
- Vision 2020 for Brachytherapy



ELEKTA

R&D investments for future growth



- 2013/14: step change in R&D investments
  - MRI-guided radiation therapy system
- Expected to grow more in line with sales going forward
- Return to R&D level of around 8% from 2018

ELEKTA

Atlantic launch and price

Planning	*Ambition*
Consortium orders – research systems	8
Regulatory approvals - CE Mark, 510(k)	During 2017
Launch and taking commercial orders	2017
First deliveries of commercial orders	2018
Total orders and deliveries during ramp up phase *(until 2019)*	75
Average price	± 4 times Versa HD

Market expectations

- Most top RT centers in the world are interested
- Over 100 hospitals have asked for bunker specifications
- Atlantic to be expected standard of care within 10 years
- High potential to Grow the Pie

Collaboration enables Elekta innovation success

- Unique 12 year research collaboration with UMCU regarding Atlantic
- Philips as MRI technology partner
- Strong engagement with members of Atlantic consortium

ELEKTA

Atlantic positioning

Dee Mathieson

Senior Vice President, Oncology Business Line Management

Utrecht, 22 January 2015

ELEKTA

The Future of Cancer Care

Today's RT:

IGRT with VMAT is Standard of Care

Atlantic

- Increased Accuracy AND Precision
- Real-Time Adaption (motion, shape, biology)

Tomorrow's RT:

- Better outcomes
- Lower costs
- Potential for new indications

ELEKTA

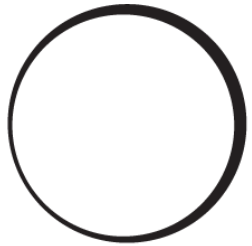
Pioneering

Partnership

International

Visionary

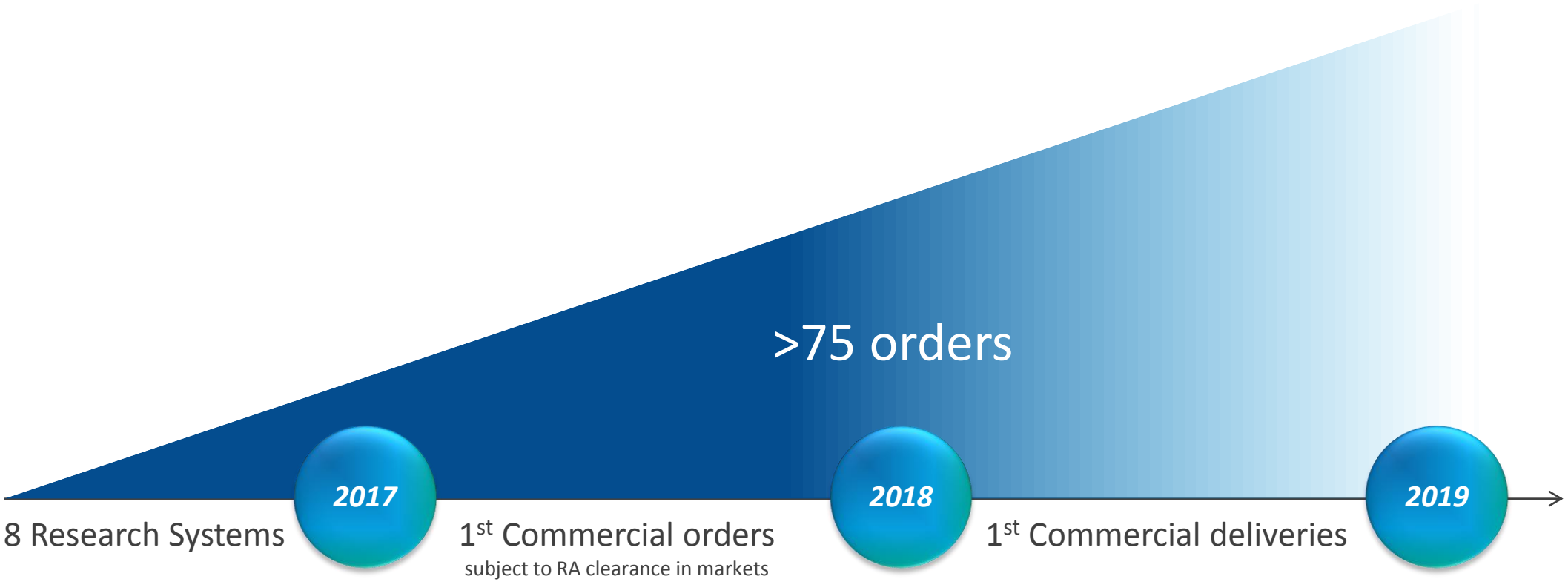
Leading



ATLANTIC.
CONSORTIUM

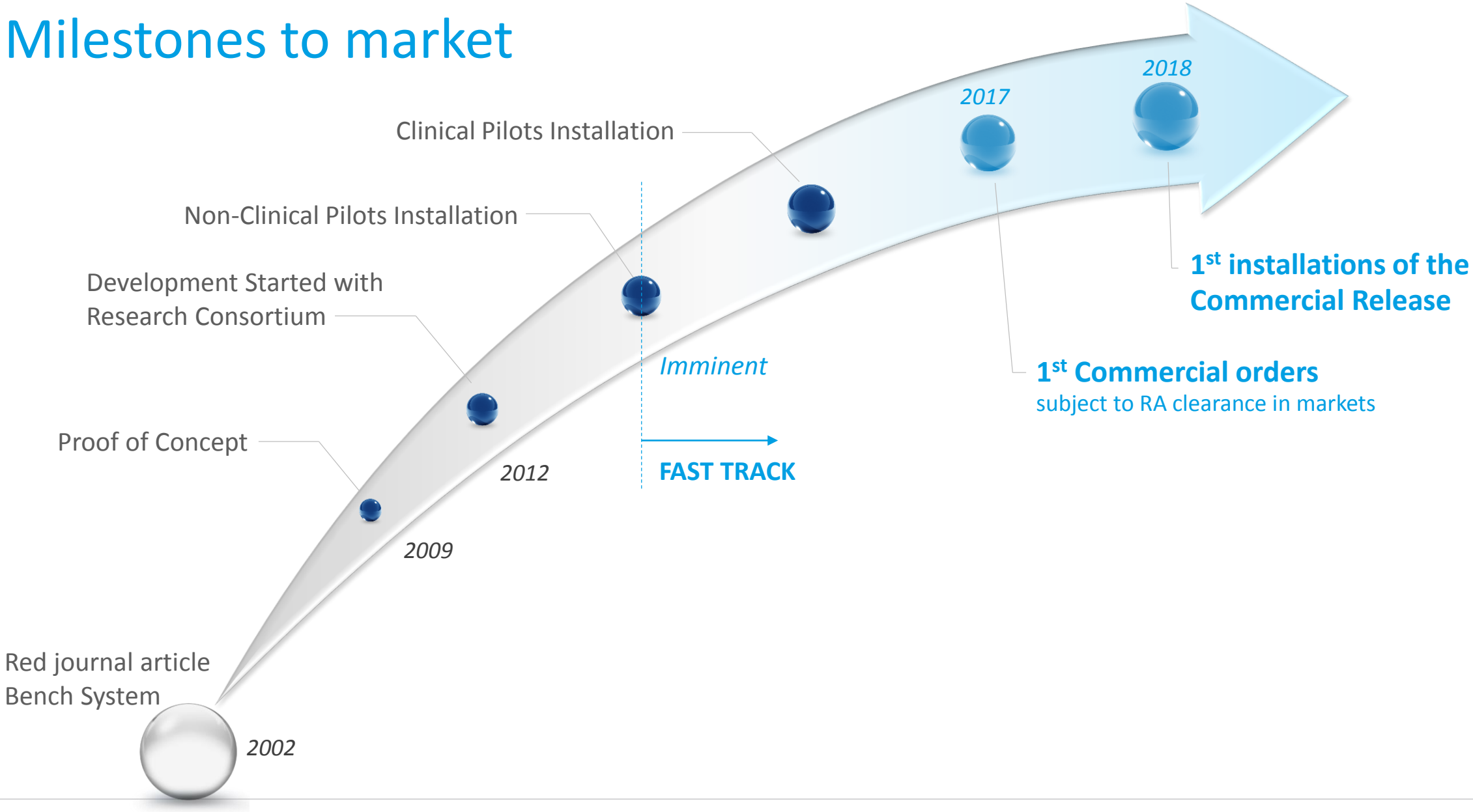
To discover and enhance new technologies that focus on improving and prolonging peoples lives.

Introduction & Ramp-up



ELEKTA

Milestones to market

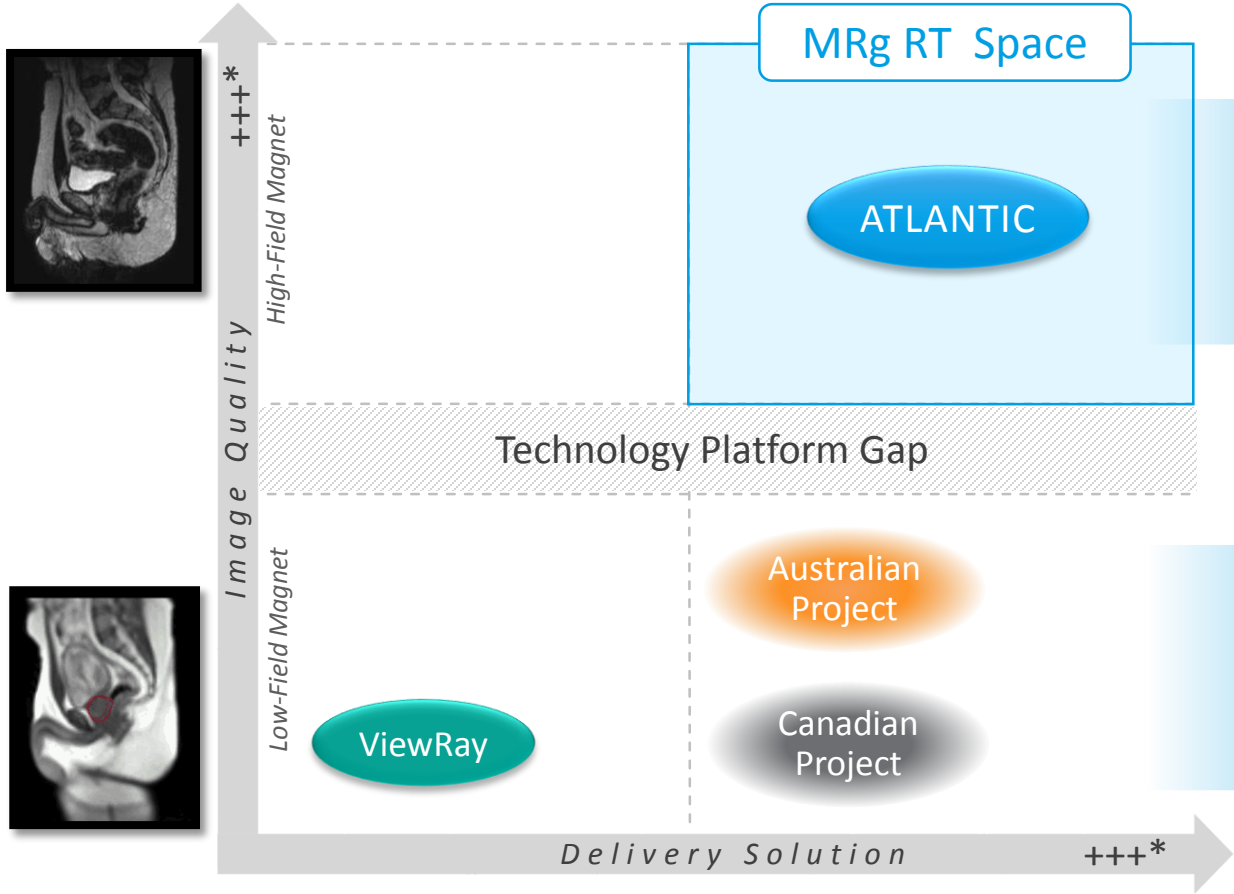


ELEKTA

Strong interest and potential

- Most of the leading RT centres worldwide have expressed interest
- The early adopters are willing to invest up front and partner with us to demonstrate the Clinical & Economic value of Atlantic
- Key opinion leaders share a consensus that Atlantic will deliver superior Clinical Value at lower costs
- Treatment room comparable to linac room

Atlantic sets the bar



Through the Elekta-Philips partnership, Atlantic will deliver the full potential of MRgRT that requires best of both worlds:

- Image quality & performance of high-field MRI
- Beam accuracy of modern delivery technology
- **Real-time** Adaptive S/W solution

- Low Field magnet (e.g. 0.3T) vs. high-field magnet (e.g. 1.5T):
  - Image Quality degraded by a factor **5**
  - Imaging Speed degraded by a factor **25**

- Australian and Canadian systems are built to be novel research platforms

*+++ State-of-the-Art & Mainstream Technology

ELEKTA

Radiation Therapy Landscape

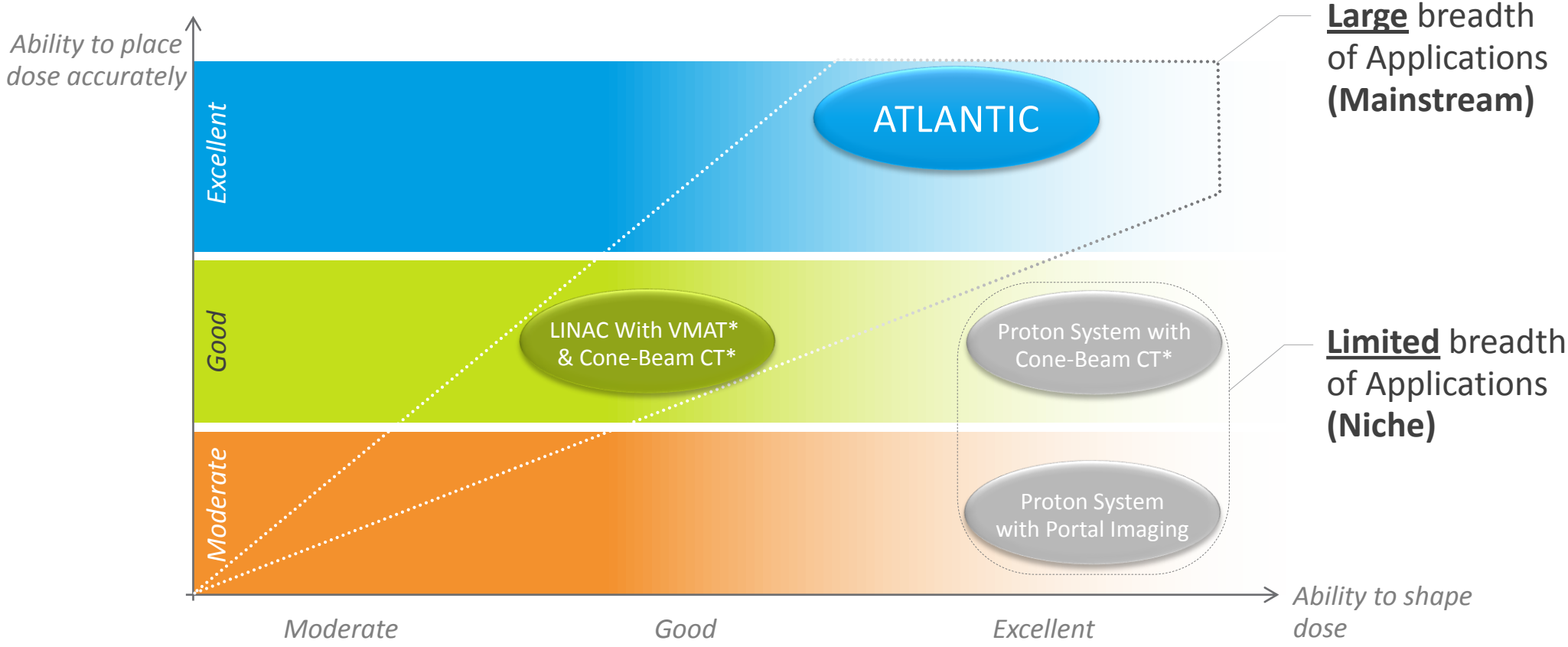


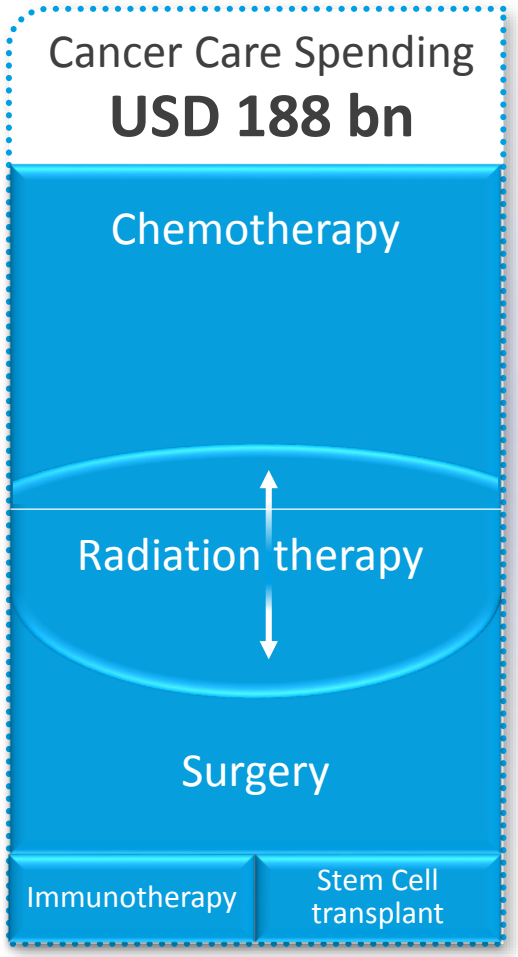
Image guidance is critical for accurate treatment

*CT: Computed Tomography
*VMAT: Volumetric Modulated Arc Therapy

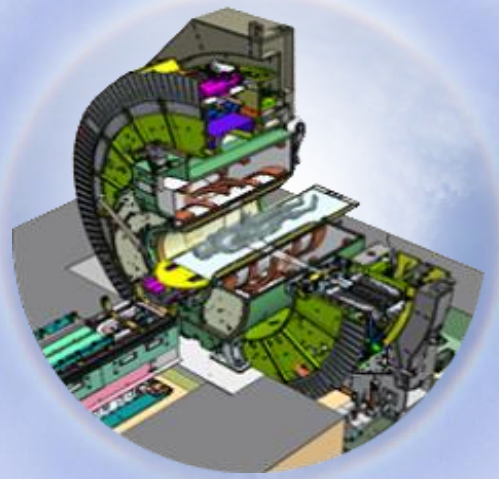
ELEKTA

Alignment with Strategic Agenda

Grow the Pie



Halo Effect



Innovation leadership

ELEKTA

ELEKTA

Atlantic Update

Kevin Brown

Head of Scientific and Medical Affairs

Utrecht, 22 January 2015

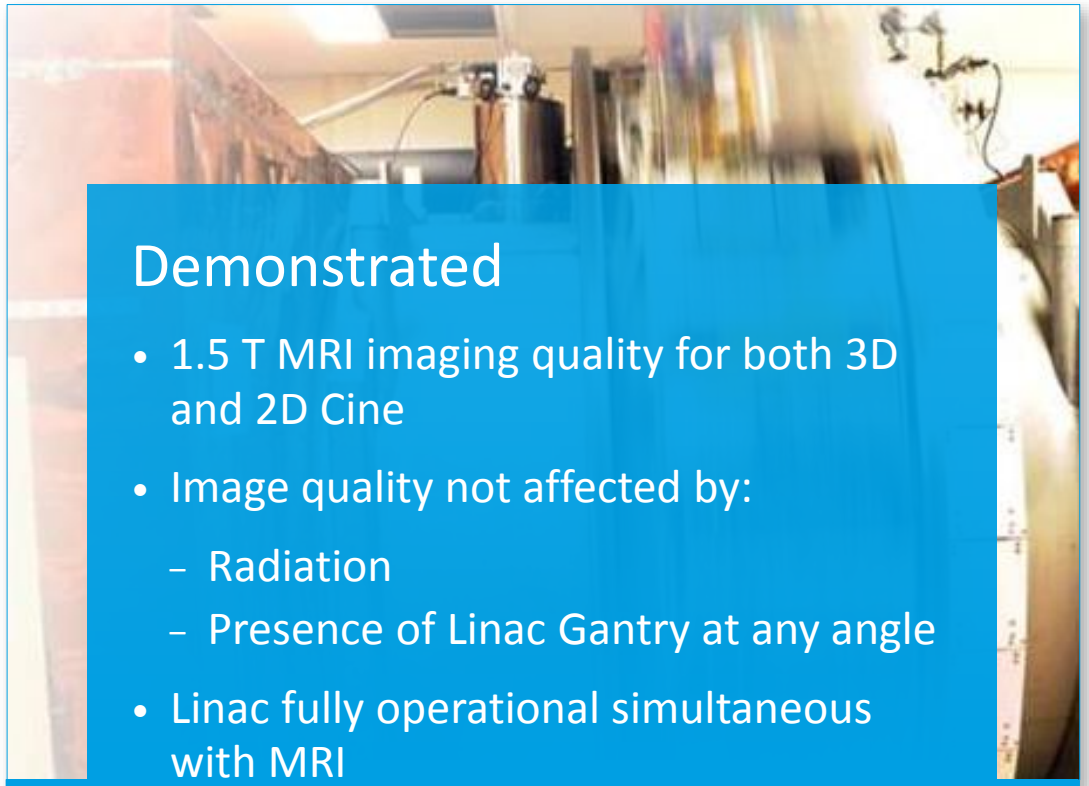
ELEKTA

Progress in MRI-guided radiation therapy

Previously we have shown the experimental system at Utrecht, the Netherlands

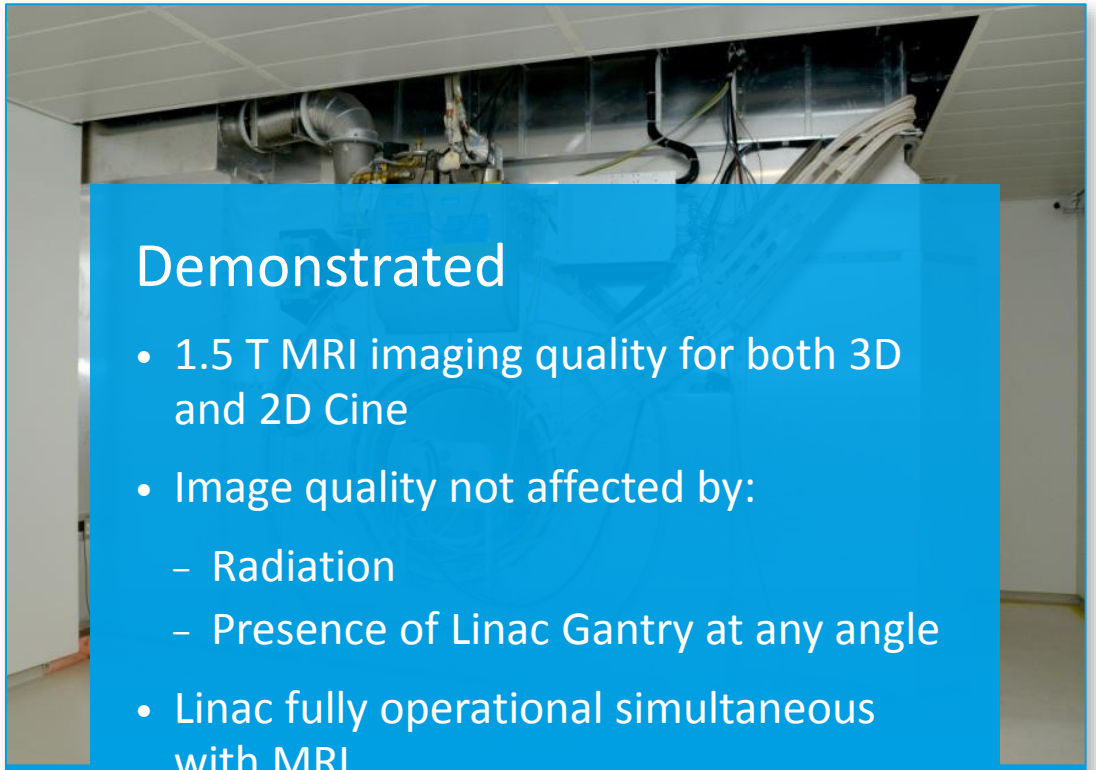
First generation high field MRI-guided radiation therapy system is now under test

Progress in MRI-guided radiation therapy



Demonstrated

- 1.5 T MRI imaging quality for both 3D and 2D Cine
- Image quality not affected by:
  - Radiation
  - Presence of Linac Gantry at any angle
- Linac fully operational simultaneous with MRI
- Small effect of Gantry speed on image quality observed

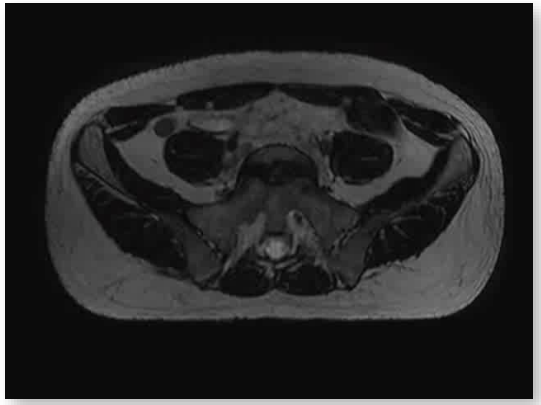


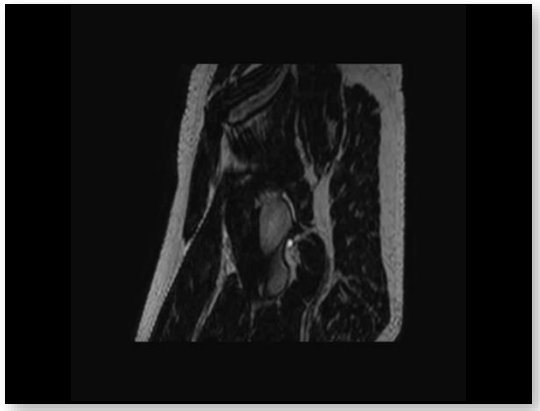
Demonstrated

- 1.5 T MRI imaging quality for both 3D and 2D Cine
- Image quality not affected by:
  - Radiation
  - Presence of Linac Gantry at any angle
- Linac fully operational simultaneous with MRI
- Image quality within specification at all of Gantry speeds

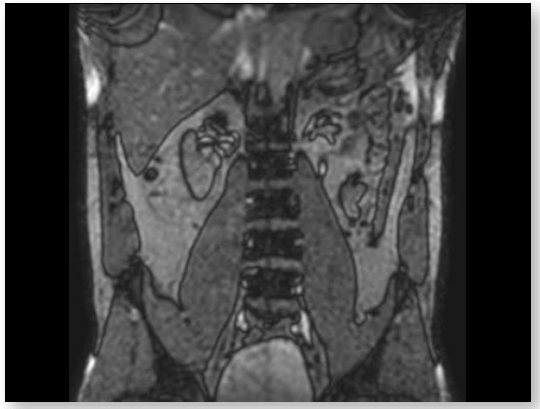
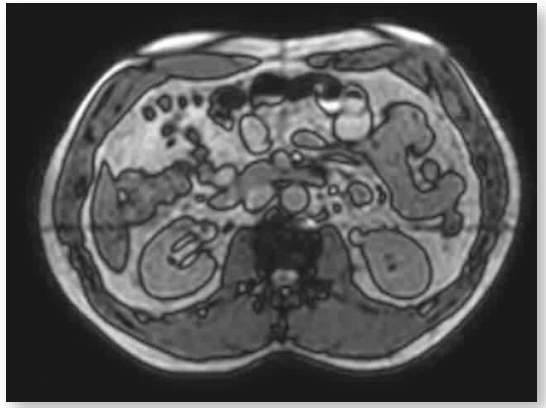
First generation high field MRI-guided radiation therapy system

Example volunteer images





High resolution (0.7mm x 0.7mm x 1mm), 3D acquisition with exquisite image quality in all planes

High frame rate, multi-planar acquisition for motion monitoring

Images courtesy of Philips

Elekta Atlantic consortium established

The consortium aims to:

- Demonstrate improved patient outcomes for existing radiation therapy indications
- Extend radiation therapy with new treatment techniques and be able to treat more indications

Each consortium member will have a MR linac for:

- Identifying clinical benefits and techniques
- Resolving clinical and technical challenges to implement these techniques
- Conducting clinical research to demonstrate the clinical value of the techniques

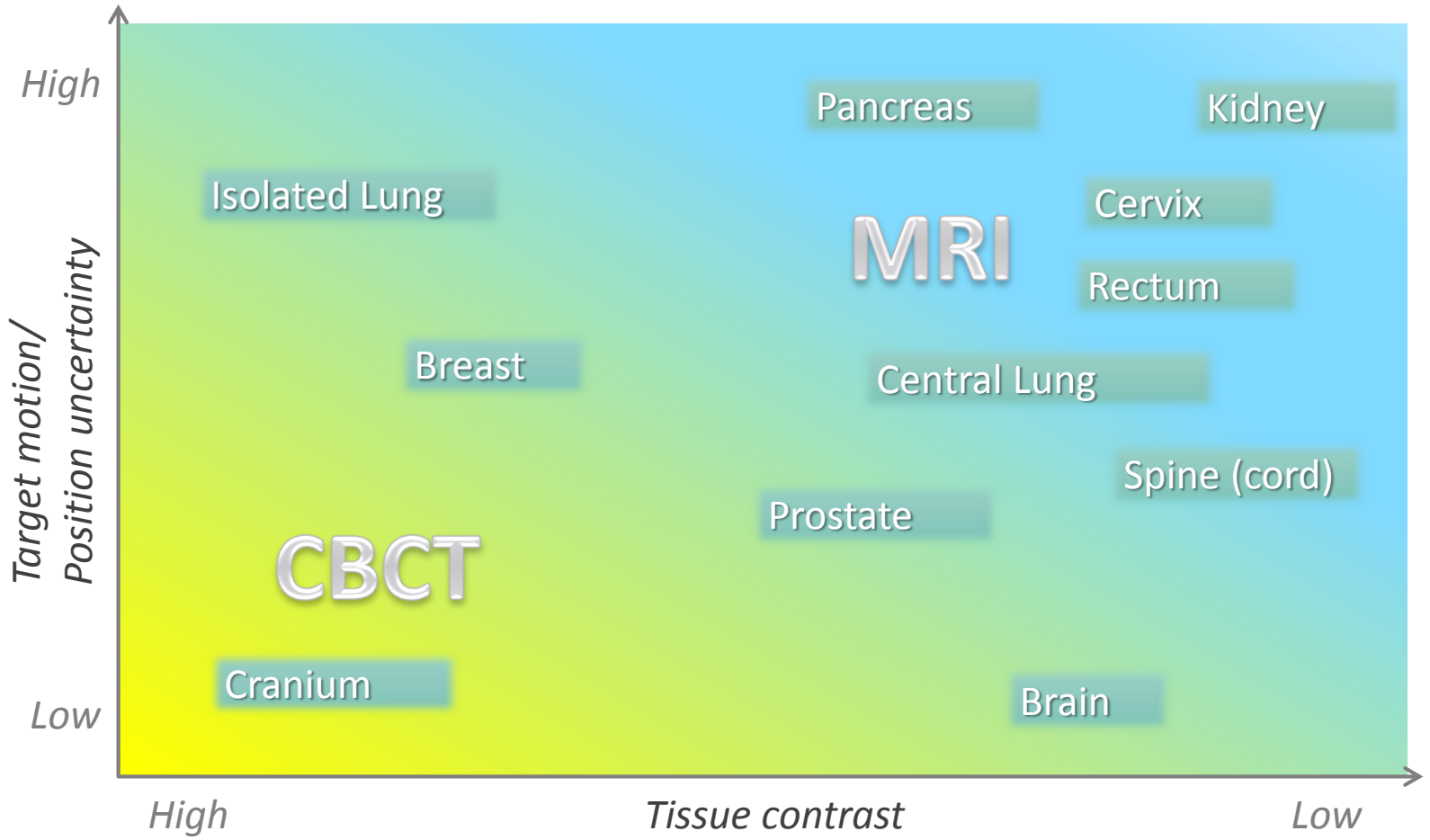
Leading consortium members

About 100 people spread all over the world

Including the Elekta and Philips project teams we reach about 200-300 people

ELEKTA

Relative strengths of MRI and CBCT



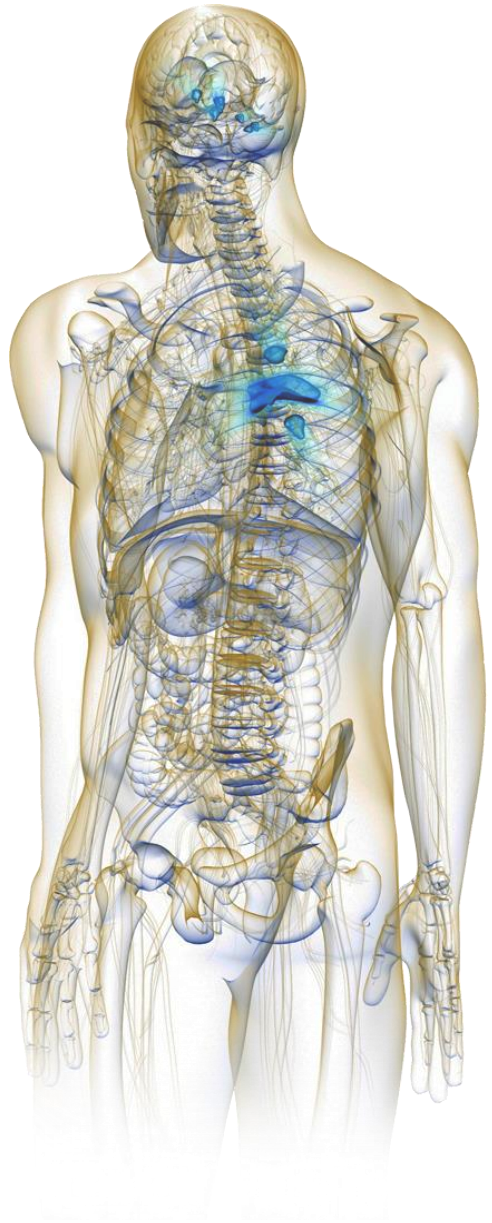
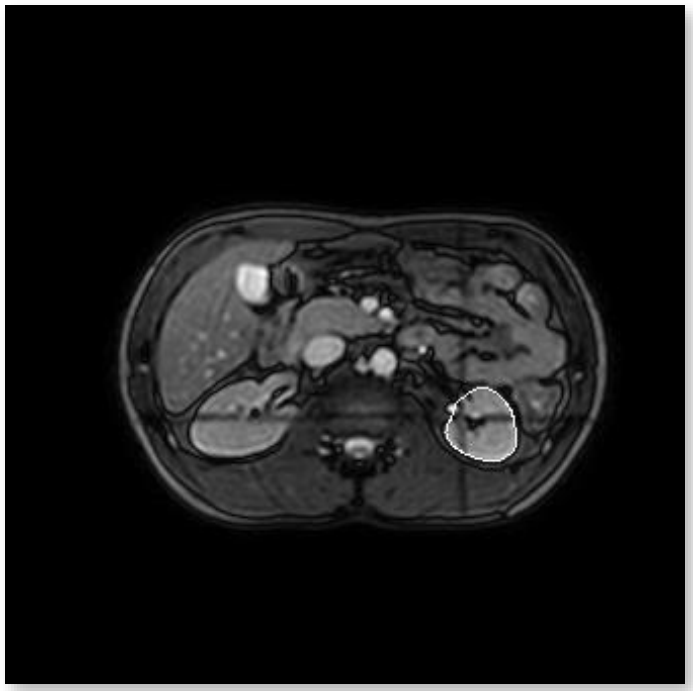
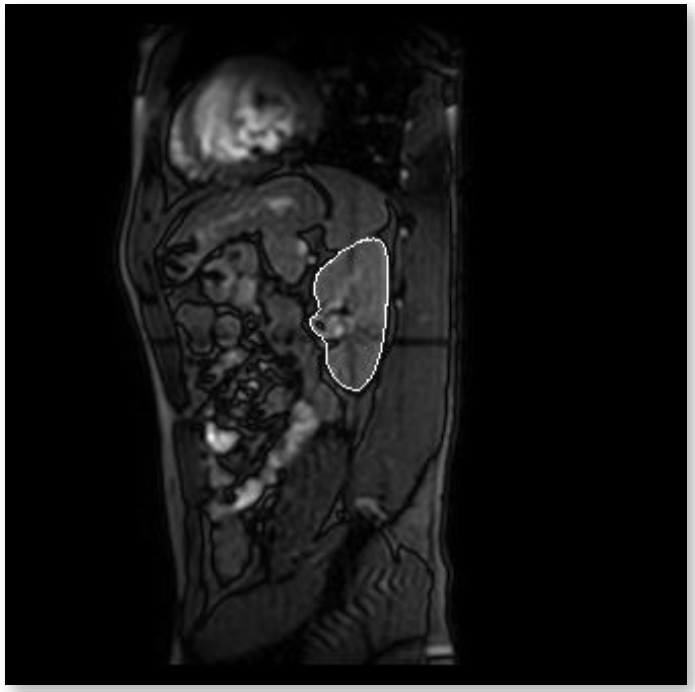


Image and detect the target in real time

- Localization results for Kidney
- Alternating axial, coronal and sagittal slices
- Acquired and processed in 200 ms

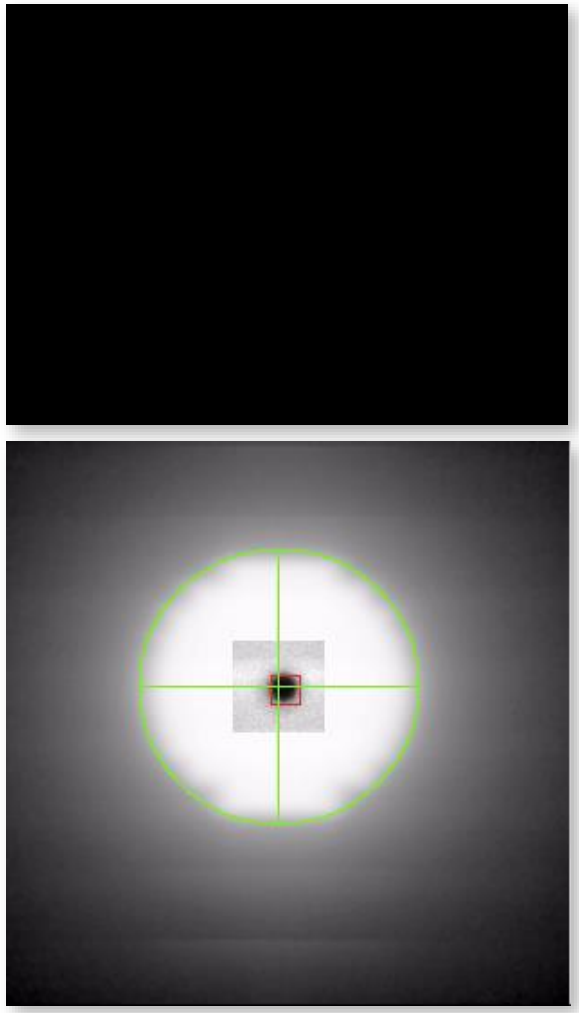




ICR demonstrate feasibility of dynamic target tracking

using Elekta Agility as a test platform

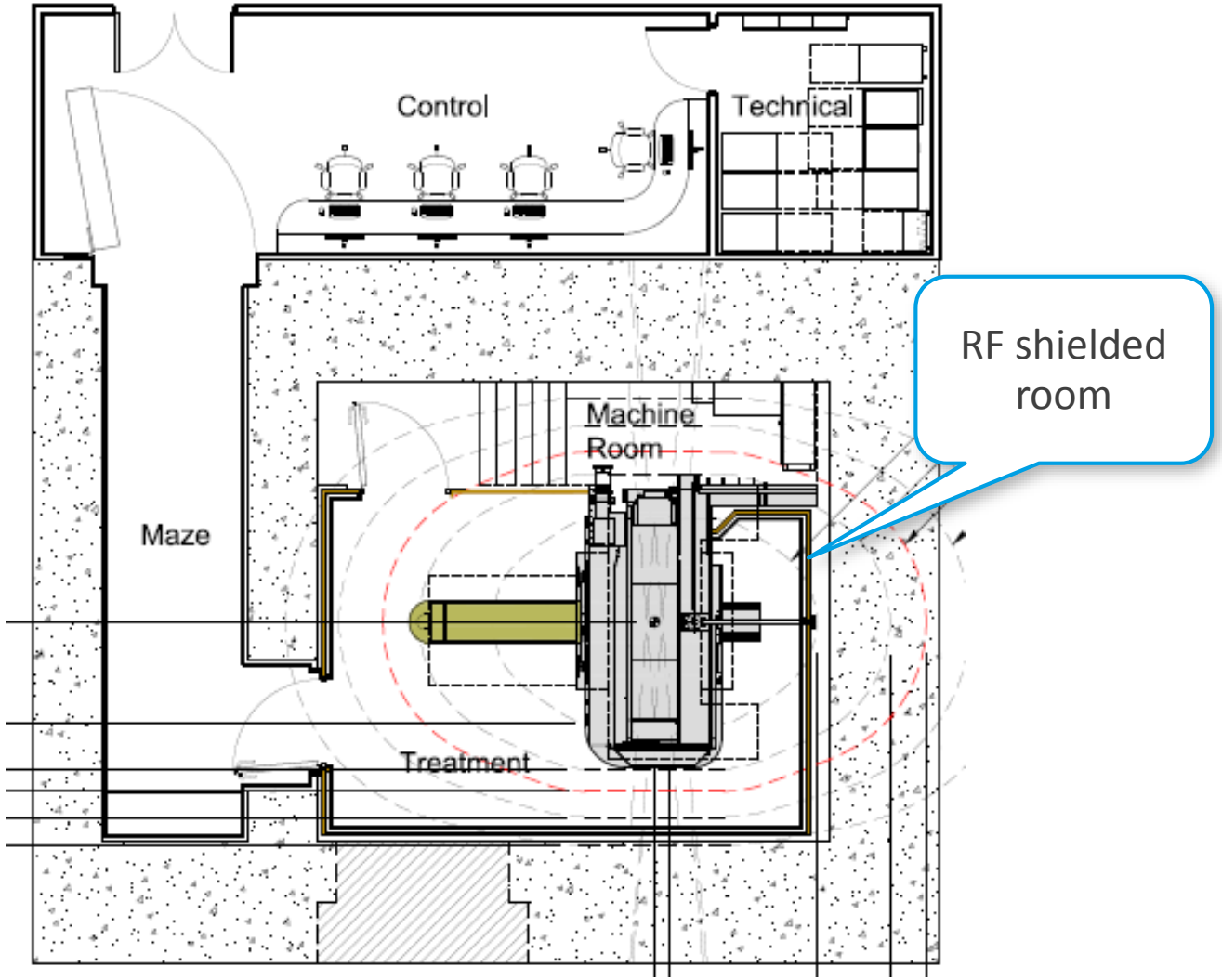
- Fast leaf motion including integrated Dynamic Leaf guides
- Fast dynamic orthogonal jaws
  - Seamlessly manages target motion orthogonal to leaf travel
- Exceptionally Low latency
  - Less than 100 ms
- Excellent dynamic accuracy
  - RMS Error typically 1mm
- Negligible residual dose error*
  - Test of 8 typical clinical motions
  - No detectable error at 2mm/2%
  - Less than 2% of points at 1mm/1%

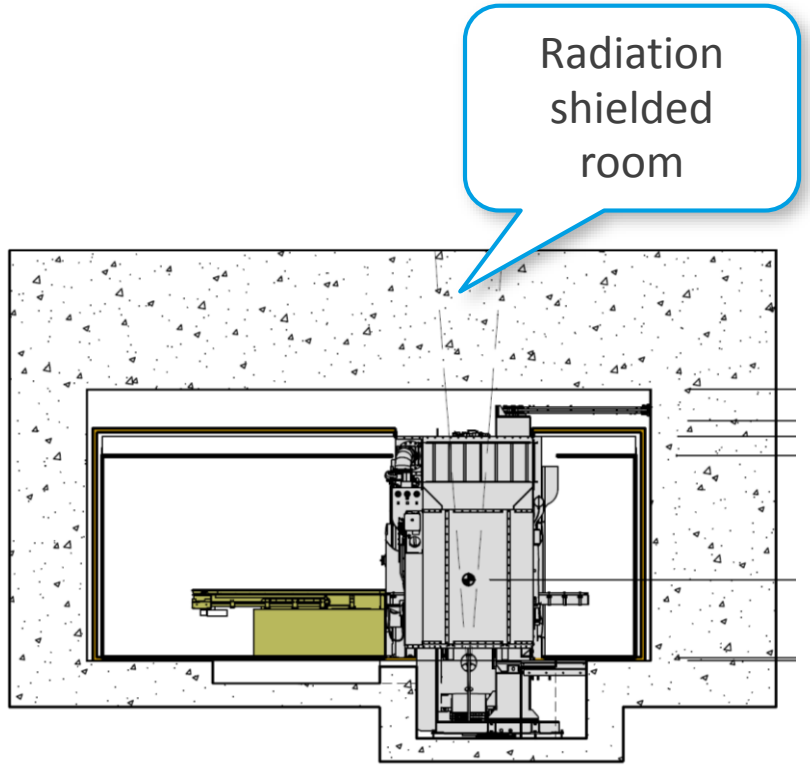


*Fast et al Med Phys 41 (2014), *Keall unpublished*

ELEKTA

Atlantic room is comparable to a Linac room





Recent progress

- Testing at UMCU continues
  - Successfully reproduced all the proof of concept tests on commercial grade system
  - All performance specs have been met or exceeded
- Feasibility of following moving targets with the MLC in real time demonstrated
  - Done without any surrogates and combined with clear images that make correct system operation evident

ELEKTA