



**PHILIPS**

MR 7700

MR systems

Unmatched performance  
and precision

# Our vision

For more than 130 years, we have been creating meaningful innovations to improve people's lives and make the world more sustainable.

We are inspired to continually advance the state of precision diagnosis with customer- and patient-centric solutions that deliver clear care pathways and predictable outcomes.

In MR, our mission is to achieve a fast, fully automated, and personalized exam for every patient, while acting responsibly towards our planet and society.

With AI\*-driven smart connected imaging, optimized workflows, and integrated clinical solutions, we improve your MR department's productivity, enhance patient and staff experience, and deliver high quality diagnostic imaging.

Welcome MR 7700, our breakthrough innovation in 3.0T imaging with unmatched performance and precision



# Unmatched performance and precision

Experience breakthrough innovation in 3.0T imaging with the unique design of the Philips MR 7700 imaging system, enhanced with XP gradients and artificial intelligence (AI)\*. The system is built to address a pressing need to deliver on the clinical expectations of today, and to facilitate the most demanding research programs.

The MR 7700 XP gradients provide high accuracy, power, and endurance to support confident diagnosis for every patient. It is the system of choice for highest quality diffusion imaging and advanced neuroscience.

Extend your scanning capabilities with a fully integrated multi-nuclei imaging and spectroscopy solution to explore new clinical pathways without sacrificing clinical imaging workflow or wide-bore patient comfort.

## What's more?

The MR 7700 promises a great experience for both users and patients through the ease-of-use features of a well-designed clinical 3.0T scanner together with a no compromise workflow. Now scientists and clinicians alike can schedule without conflict.

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## Higher diffusion IQ, for all anatomies

- ▶ Up to 35% higher SNR<sup>1</sup>
- ▶ Up to 35% shorter scan time<sup>2</sup>
- ▶ Limits distortions, even in large FOV

## Excel in neuroscience

- ▶ 20% more fMRI volumes<sup>2</sup>
- ▶ 50% more DTI directions<sup>8</sup>
- ▶ Easy data transfer

**XP gradients**  
for accuracy, power,  
and endurance



## Innovative imaging solutions and workflow

- ▶ Reach new levels of precision
- ▶ Up to 3 times faster MRI exams<sup>10</sup>
- ▶ Patient-centered productivity

## Seamless integration of Multi Nuclei

- ▶ Six different nuclei\*
- ▶ Across all anatomies
- ▶ Acquisition of proton and other nuclei,  
without switching coils

\*Caution: Investigational device for imaging with fluorine (19F). Limited by federal (or United States) law to investigational use. Clinical imaging with this nucleus requires usage of a cleared drug. No FDA-cleared drugs are currently available for this nucleus.



Up to **35% higher signal** for your diffusion imaging, in similar scan time<sup>1</sup>

Up to **35% faster** diffusion imaging, using the same spatial resolution<sup>2</sup>

## Higher diffusion IQ, for all anatomies

When it comes to state-of-the-art diffusion imaging, the MR 7700 XP gradients deliver the highest level of clinical performance. Excellent signal-to-noise ratio (SNR) and motion detection technology support outstanding imaging results. And the system's high homogeneity and linearity bring precision to both anatomical and functional imaging.

Achieve up to **35% higher SNR** in your echo-planar (EPI) diffusion imaging, in similar scan time<sup>1</sup>, thanks to the added power of the XP gradients, which reduces time-to-echo (TE) values. These improvements in SNR in turn can help to provide a richer set of tracts in diffusion tensor imaging (DTI). Taking it further, the MR 7700 provides superb diffusion imaging at very high b-values, improving scans that typically suffer from lack of SNR. Additional SNR in your diffusion imaging also opens the possibility to scan with **increased spatial resolution**, enhancing your clinical confidence.

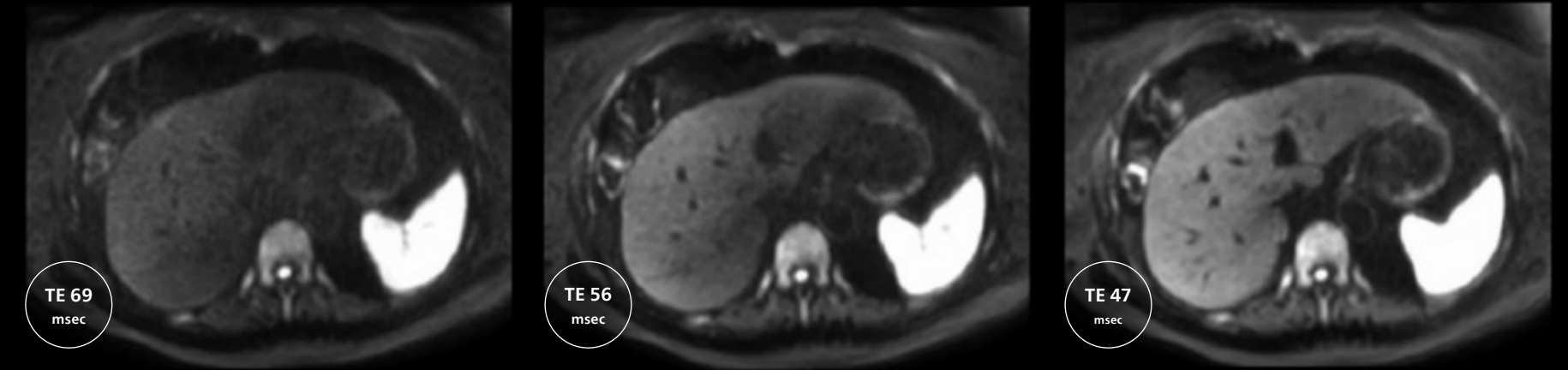
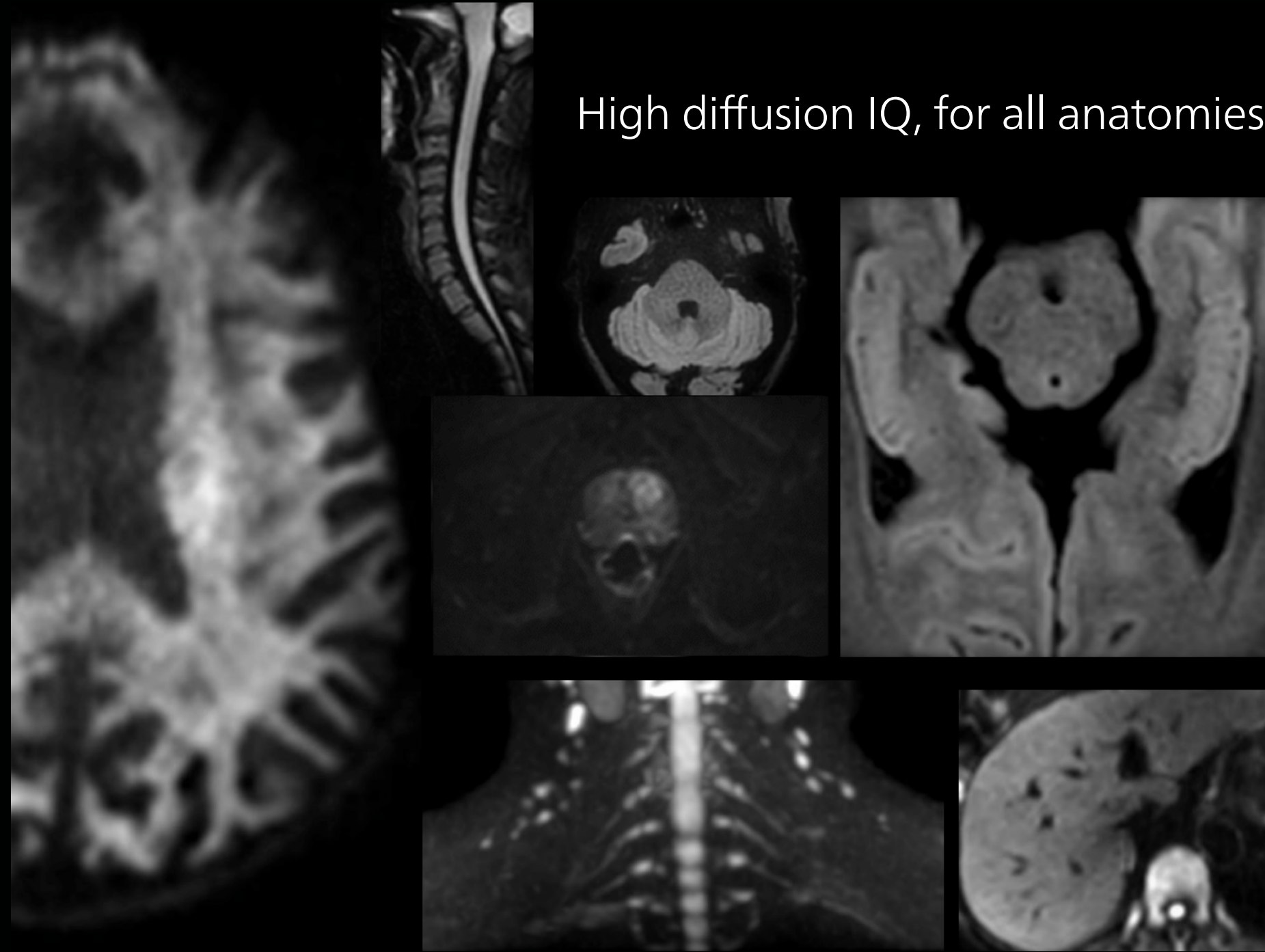
The high level of performance provided by the MR 7700 gradients also enable **up to 35% faster EPI diffusion imaging<sup>2</sup>** with the same spatial resolution.

Using turbo spin echo (TSE) diffusion instead of conventional EPI diffusion, by nature, reduces sensitivity to susceptibility differences and reduces distortions in diffusion imaging. Diffusion TSE's compatibility with the Philips MultiVane XD robust motion-free imaging application contributes to **robust suppression of motion artifacts**, further enhancing diffusion image quality. Scan times can be reduced up to 15%, using the same spatial resolution<sup>2</sup>, thanks to the shorter repetition times (TR's) delivered by the high power of the MR 7700.

To prevent image blurring, distortions or ghosting, the MR 7700 is designed and manufactured to deliver precise gradient waveforms across the whole performance range of the gradient system. This high accuracy is enabled by the unmatched gradient fidelity of (at least) 99.97% for  $t > 0.5\text{ms}^3$ . This exceptional gradient linearity **limits distortion, even in large fields-of-view (FOV)**, and supports small lesions to become visible, specifically at the edges of the FOV. It especially benefits applications like total body diffusion.

Finally, the system allows remarkable freedom in patient positioning. There is no need to place your patient into an uncomfortable 'superman' position. Thanks to the MR 7700's high linearity, you can keep the wrists to the side of their body.

# High diffusion IQ, for all anatomies



TE 69 msec

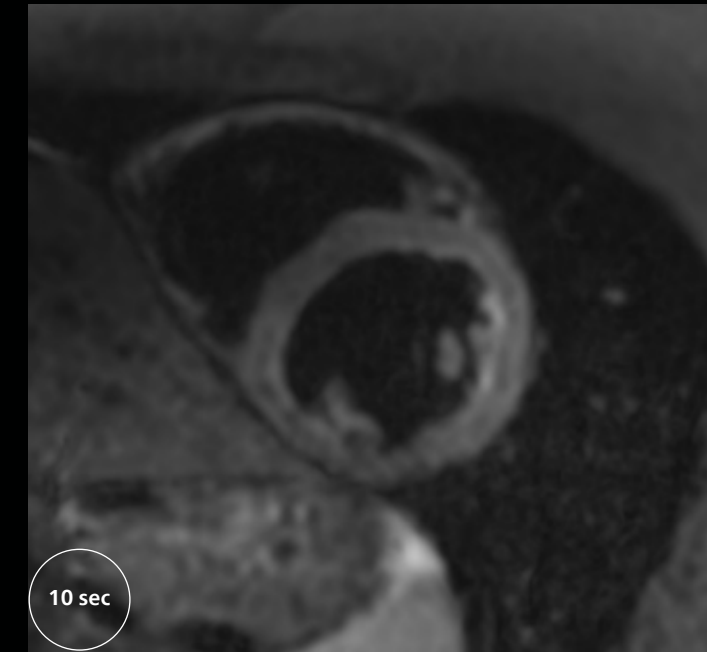
36 mT/m, 160 T/m/s  
DWI EPI, b1000, 2:42 min

TE 56 msec

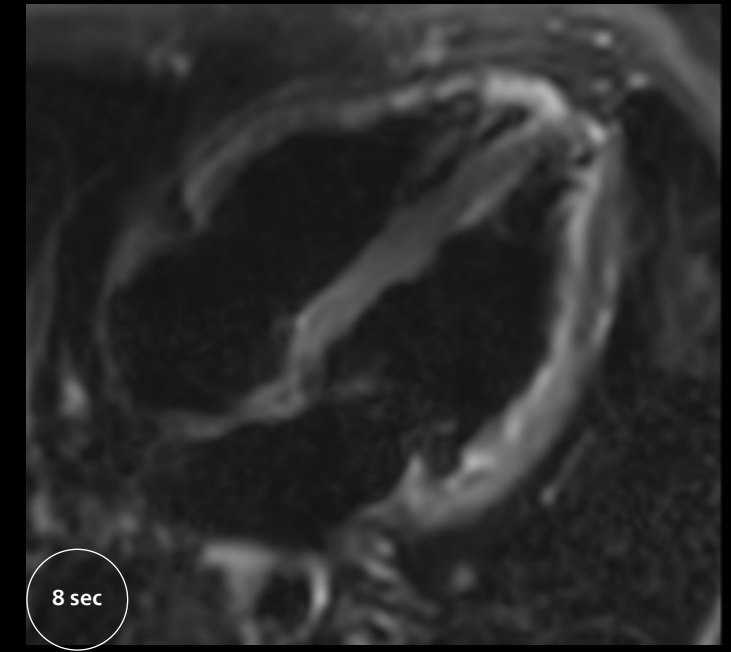
45 mT/m, 220 T/m/s  
DWI EPI, b1000, 2:42 min

TE 47 msec

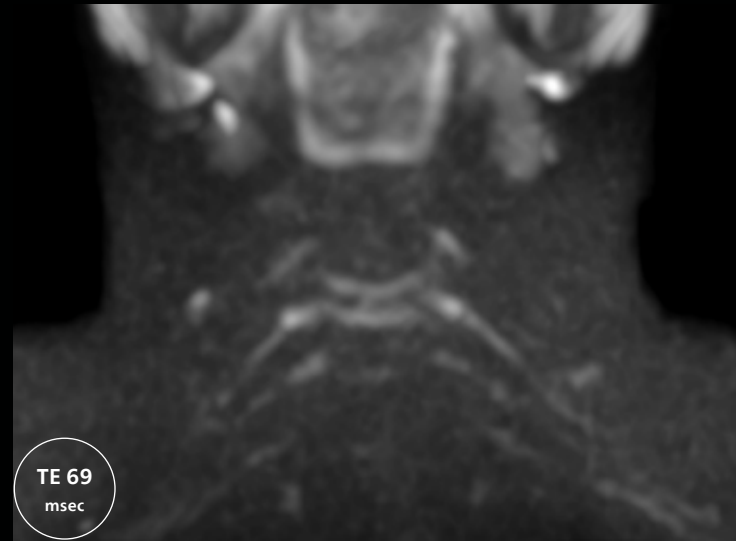
65 mT/m, 220 T/m/s  
DWI EPI, b1000, 2:42 min



Short axis DWI TSE b200 SmartSpeed

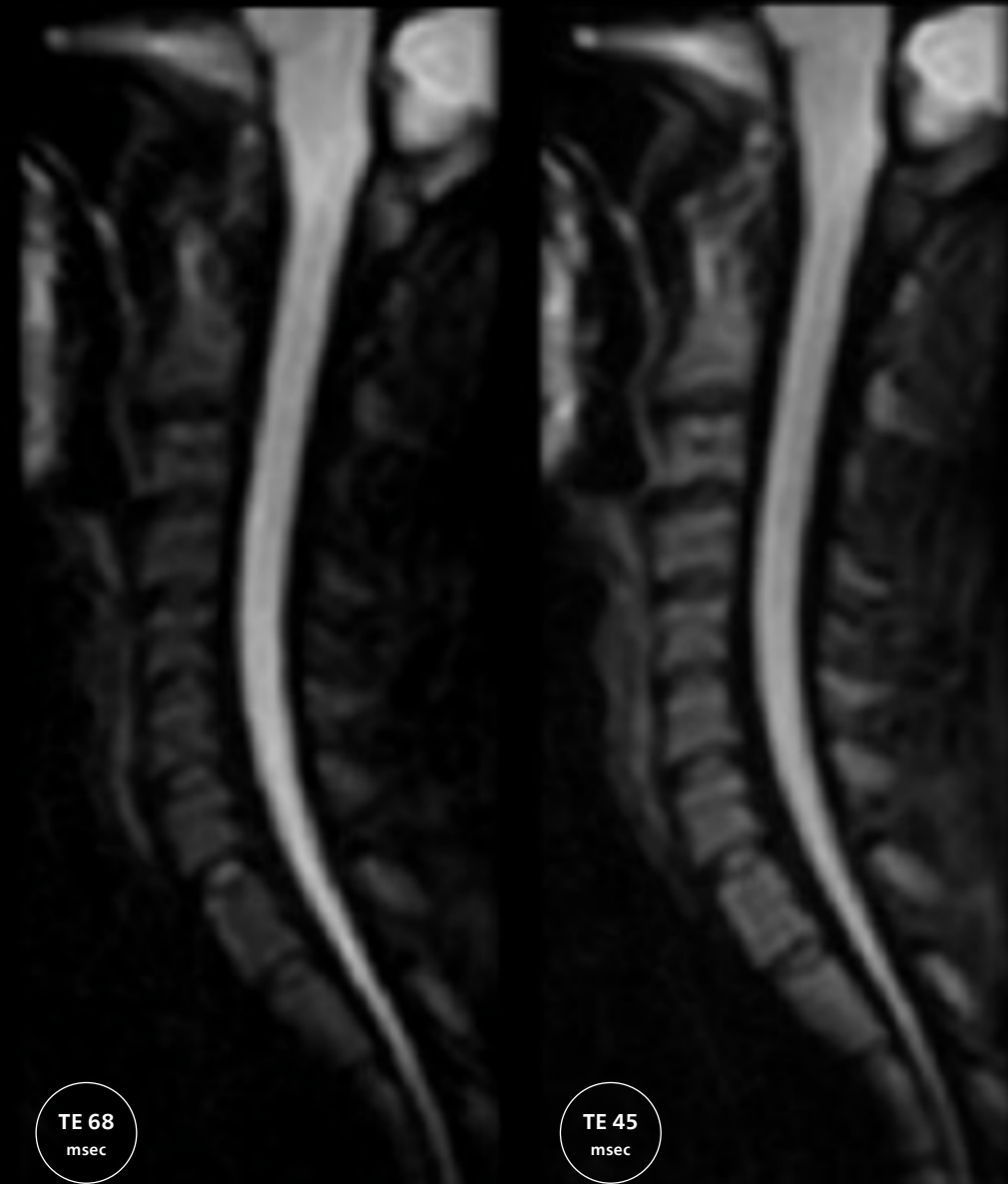


4 chamber DWI TSE b200 SmartSpeed



TE 69 msec

45 mT/m, 220 T/m/s  
DWI EPI, b800, 5:15 min

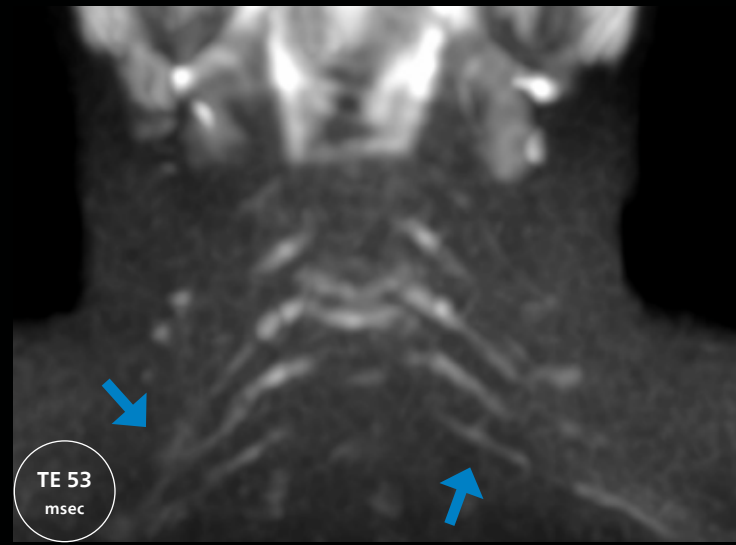


TE 68 msec

36 mT/m, 160 T/m/s  
IRIS Zoom, b800, 5:22 min

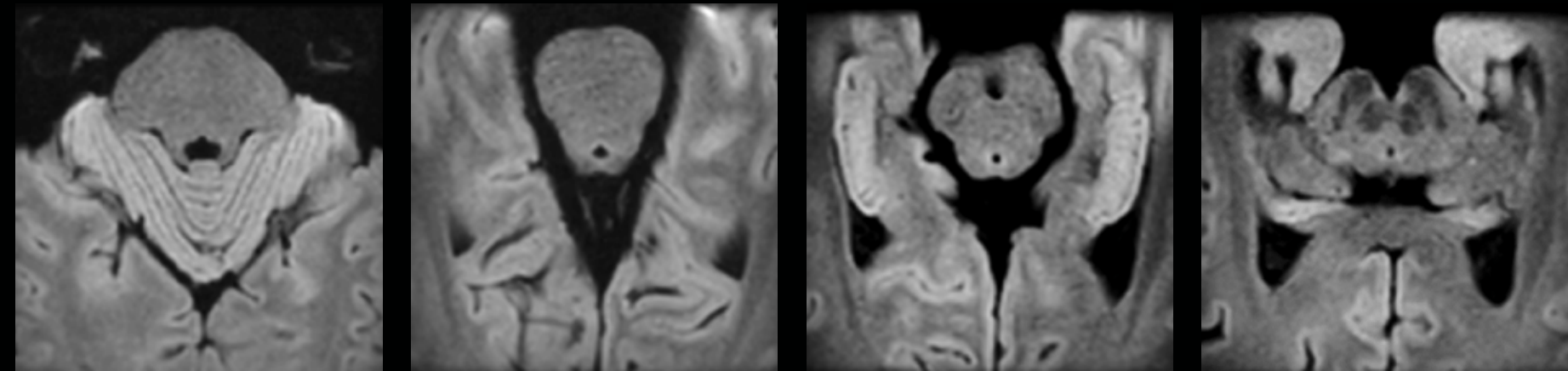
TE 45 msec

36 mT/m, 160 T/m/s  
IRIS Zoom, b800, 5:22 min



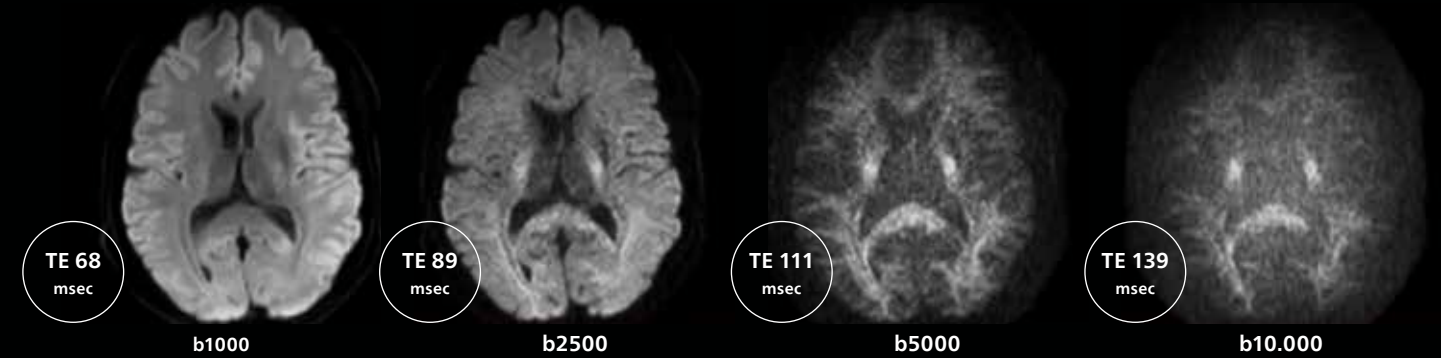
TE 53 msec

65 mT/m, 220 T/m/s  
DWI EPI, b800, 5:15 min



Diffusion IRIS Zoom, 0.9 x 0.9 x 2.5 mm, b1000 6:35 min

45 mT/m  
220 T/m/s



TE 68 msec

b1000

TE 89 msec

b2500

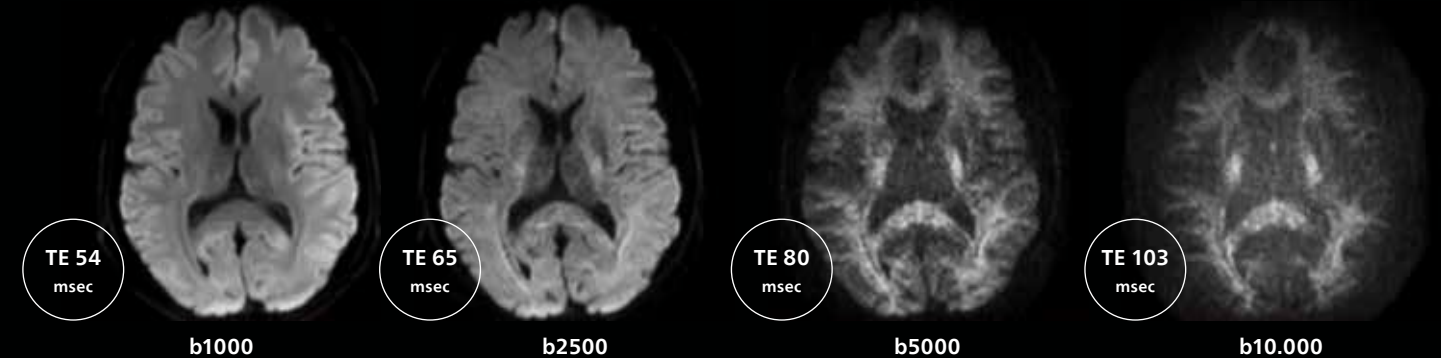
TE 111 msec

b5000

TE 139 msec

b10.000

65 mT/m  
220 T/m/s



TE 54 msec

b1000

TE 65 msec

b2500

TE 80 msec

b5000

TE 103 msec

b10.000



## Excel in neuroscience

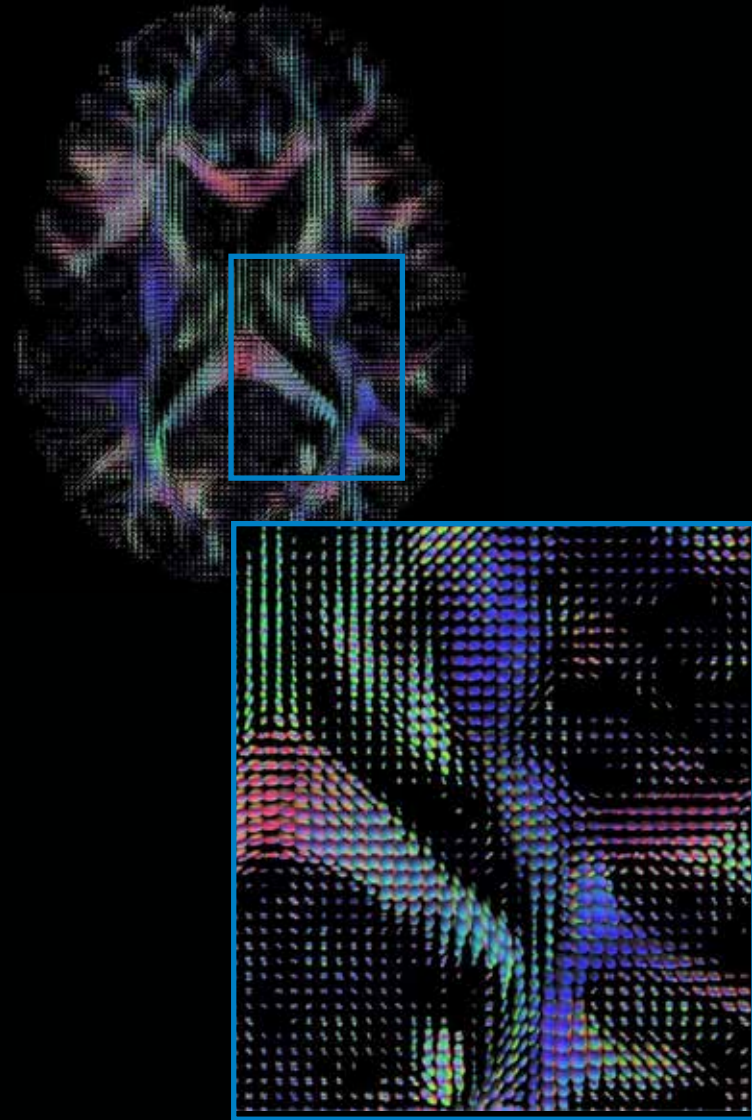
MR's ability to shed light on both neuro-anatomy and neuro-function has led to its use in many neuroscience studies. By offering a new level of power, based on a 2.4 MW amplifier, the MR 7700 enables high gradient amplitudes of 65 mT/m and high slew rates of 220 T/m/s simultaneously, on each cartesian axis. This meets the need of your most demanding imaging sequences by continuously delivering at peak performance to empower the search for new clinical pathways and provide a key advantage to neuroscientists – exceptional image quality and speed for diffusion and fMRI imaging.

Since neuroscience sequences typically require repetitive high gradient amplitudes and short TRs, these sequences in particular benefit from outstanding endurance. With the MR 7700 you can achieve up to **20% more fMRI sequences**, with the same spatial resolution<sup>2</sup>, due to shorter TR's. The high performance gradients, in combination with MultiBand SENSE acceleration technique, allow you to acquire **50% more DTI directions** in the same scan time<sup>4</sup>.

The MR 7700 has a unique – very well thought through – design to deal with power dissipation. First, the gradient system efficiently minimizes heat dissipation within the gradient coil. Secondly, due to the efficient heat management, the system can operate with the high average gradient amplitudes, required for diffusion tensor imaging (DTI) and fMRI imaging, without slowing down or overheating, and resulting in a Grms of 27mT/m.

Review of fMRI with DTI-processing can be performed on the MR 7700. fMRI, including seed-based resting state analysis, can be done in real-time to assess patient response during the acquisition. More extended functionality is achieved with the IntelliSpace Portal (ISP) advanced visualization and analysis software. Because neuroscience studies and multi-center trials often include enhanced analysis outside of the default reviewing stations, Philips enables **easy data transfer**, including other types of data export, such as SPAR/SDAT and XML-REC.

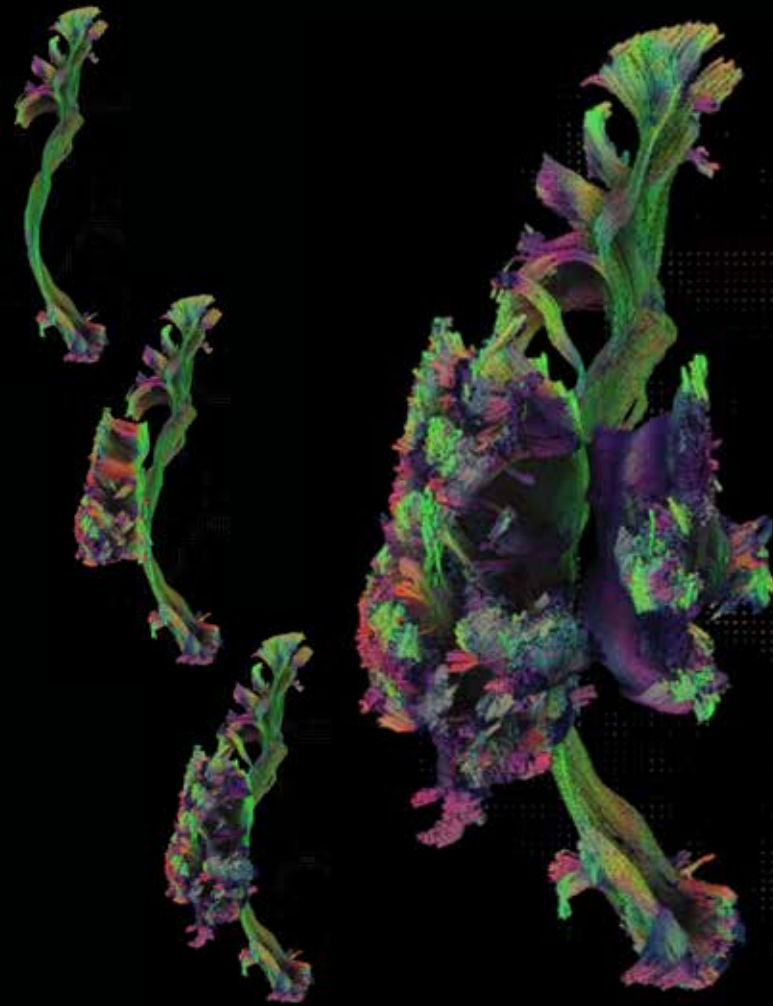




DTI b1000, 64 directions, 2 mm iso, 70 slices,, 4:00 min

## How is the brain wired?

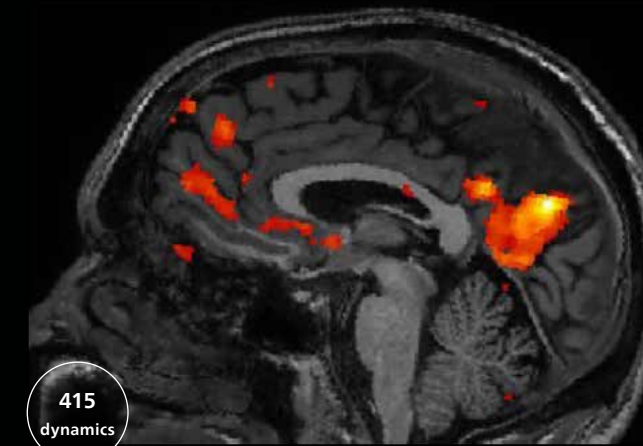
Enhanced visualization of brain nerve tracts



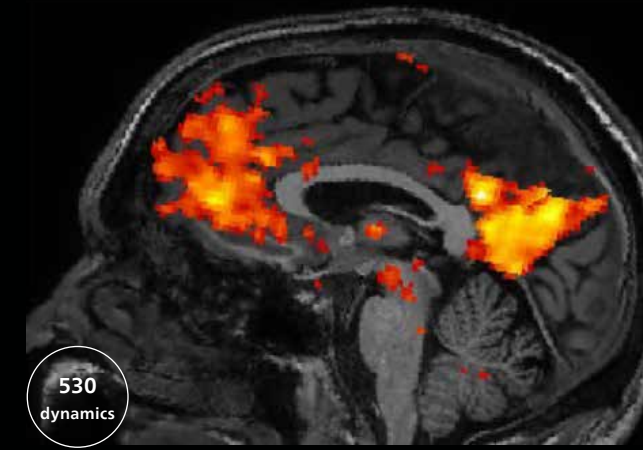
**Atlas-based fibertracking, Inferior-Fronto-Occipital-Fasciculus**  
DTI, 257 directions, 23 b-values, b max = 4000

## How does the brain function?

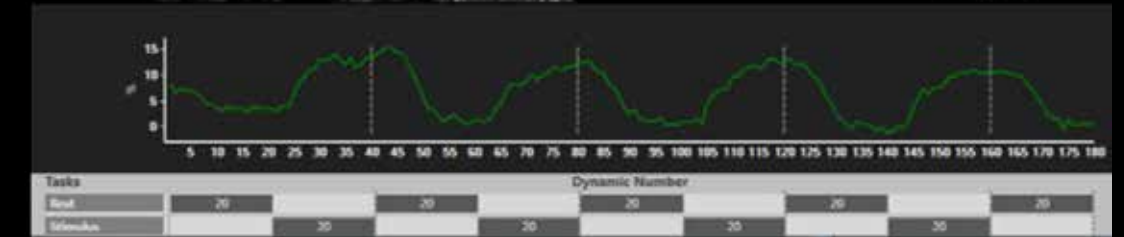
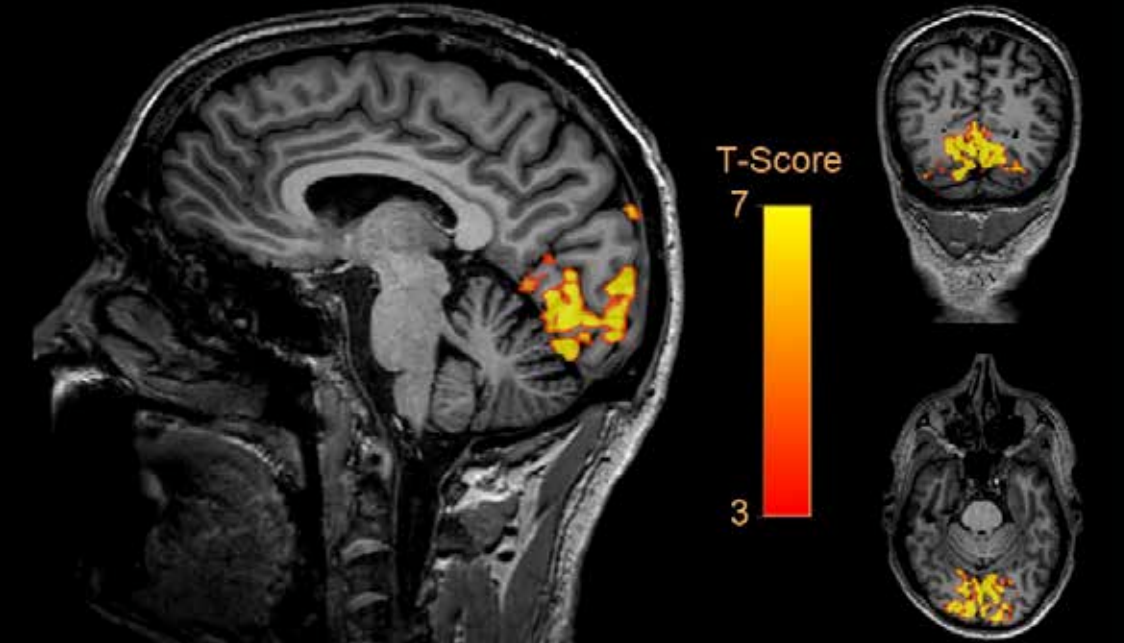
More fMRI volumes in the same scan time, richer data processing input



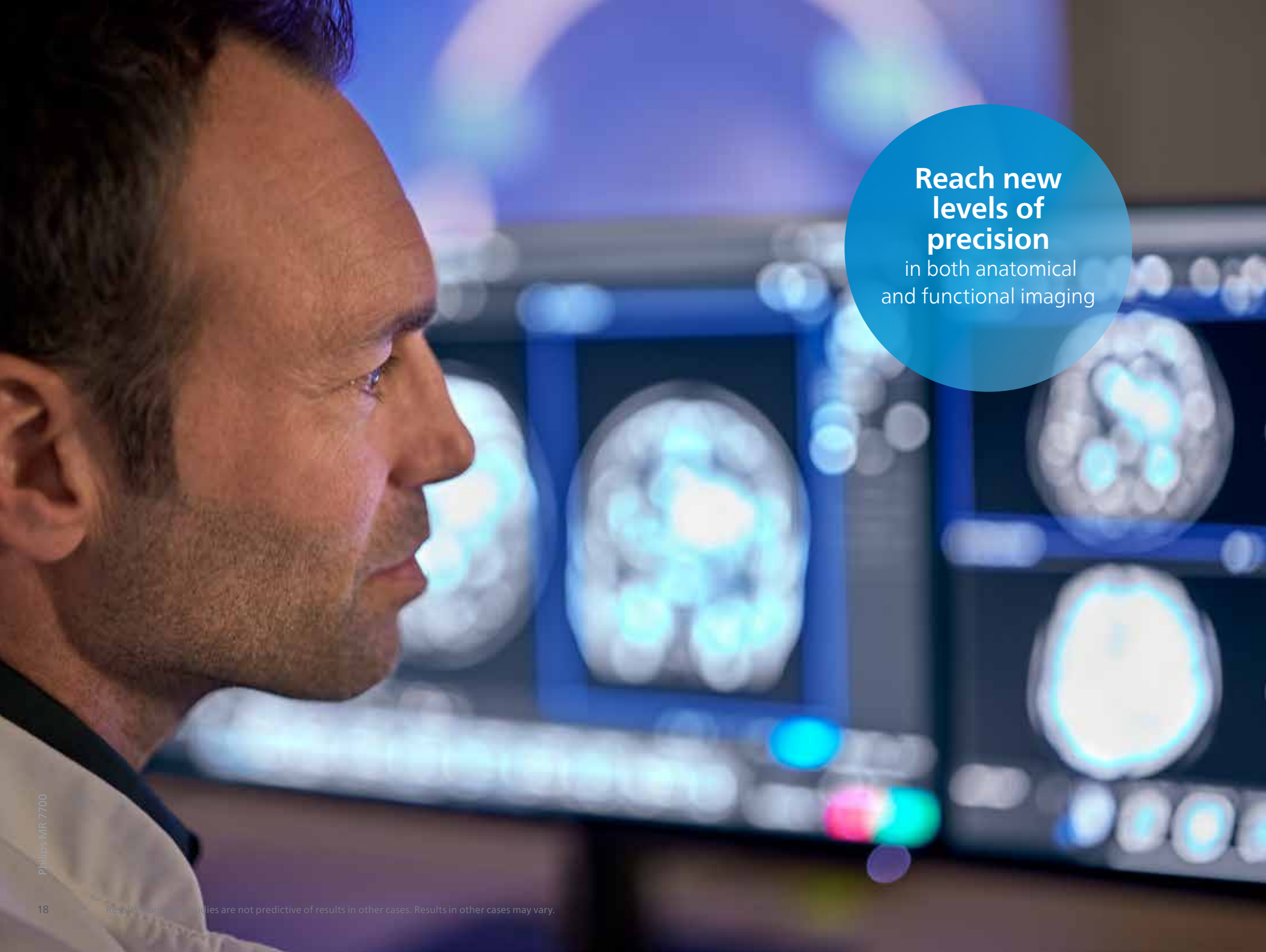
**TR 875 | 45 mT/m, 220 T/m/s**  
fMRI, 2.2 x 2.2 x 2.2 mm, 6:00 min



**TR 676 | 65 mT/m, 220 T/m/s**  
fMRI, 2.2 x 2.2 x 2.2 mm, 6:00 mi



**MR 7700 | Visual brain activation task**  
fMRI ABCD protocol, TR 800, 180 dynamics, 2.4 x 2.4 x 2.4 mm, 2:24 min



**Reach new levels of precision**  
in both anatomical and functional imaging

## Innovative imaging solutions and workflow

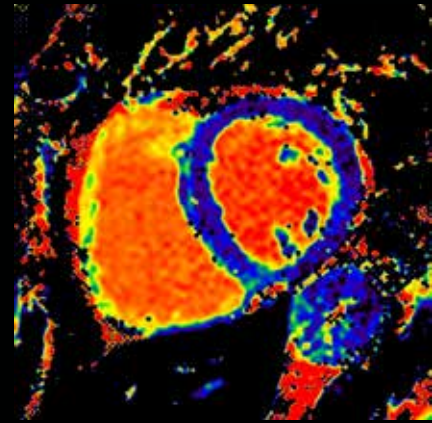
The MR 7700's gradient and radiofrequency design, combined with a wealth of unique features such as 3D APT (Amide Proton Transfer), black blood imaging, and susceptibility weighted imaging (SWI), help you reach new levels of precision in anatomical and functional clinical imaging. With innovations on all fronts, the system supports confident decision-making and improved diagnostic imaging, even for the most complex cases. You can tackle existing, new, and future clinical demands while addressing the current upswing in patient volume experienced by many radiology departments.

3D APT is a unique, contrast-free, brain MR imaging method that focuses on the need for **more confident diagnoses in neuro oncology**. 3D APT uses the presence of endogenous cellular proteins to produce an MR signal that directly correlates with cell proliferation, a marker of tumoral activity. 3D APT can support trained medical professionals in differentiating low grade from high grade gliomas and in differentiating tumor progression from treatment effect<sup>5</sup>.

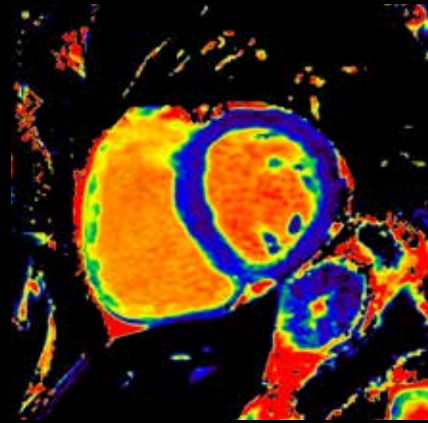
**Black Blood imaging** helps you better differentiate the vessel lumen from the intra lumen blood signal to enhance diagnostic confidence. You can perform your 3D brain imaging with higher and isotropic imaging resolution<sup>6</sup> with a reduction of the intra-lumen brain blood signal<sup>7</sup> over the complete imaging volume.

SWI has a high sensitivity to enhance contrast for deoxygenated (venous) blood or calcium deposits. It may help when used in combination with other clinical information in the diagnosis of various neurological pathologies. SWI offers high resolution **3D susceptibility weighted brain imaging** allowing you to easily integrate it into your mainstream practice.

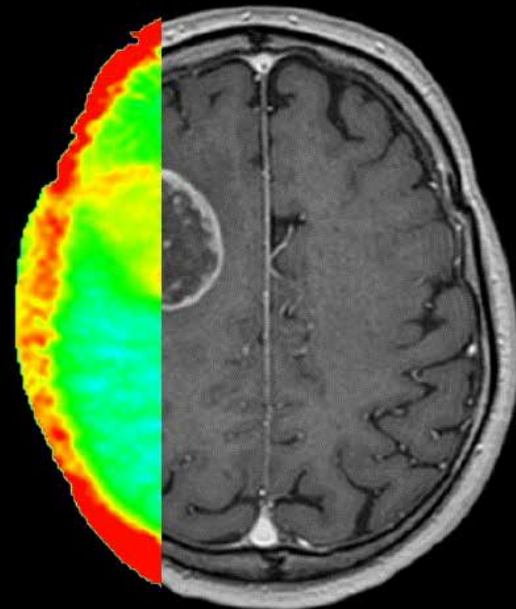
4D-TRANCE is a time-resolved technique for **non-contrast angiography**, promoting patient comfort and enabling you to evaluate the patency of the vascular anatomy in the brain using endogenous contrast. 4D-TRANCE provides high temporal resolution, down to 160 msec, and MIP visualization of multiple phases.



**Short axis T1 mapping SENSE**  
1.5 x 1.5 x 10.0 mm, 13 sec



**Short axis T1 mapping SmartSpeed**  
1.5 x 1.5 x 10.0 mm, 13 sec



**Diagnostic confidence in Neuro Oncology**  
3D APT, 1.8 x 1.8 x 6.0 mm, 3:45 min  
3D T1w TFE with gado, 1.0 x 1.0 x 1.0 mm, 3:20 min

Arterial phase



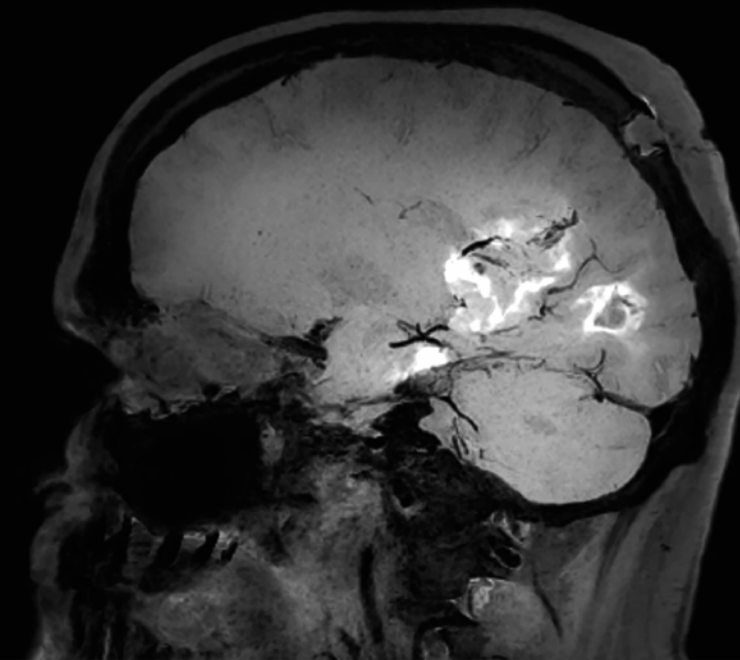
Venous phase



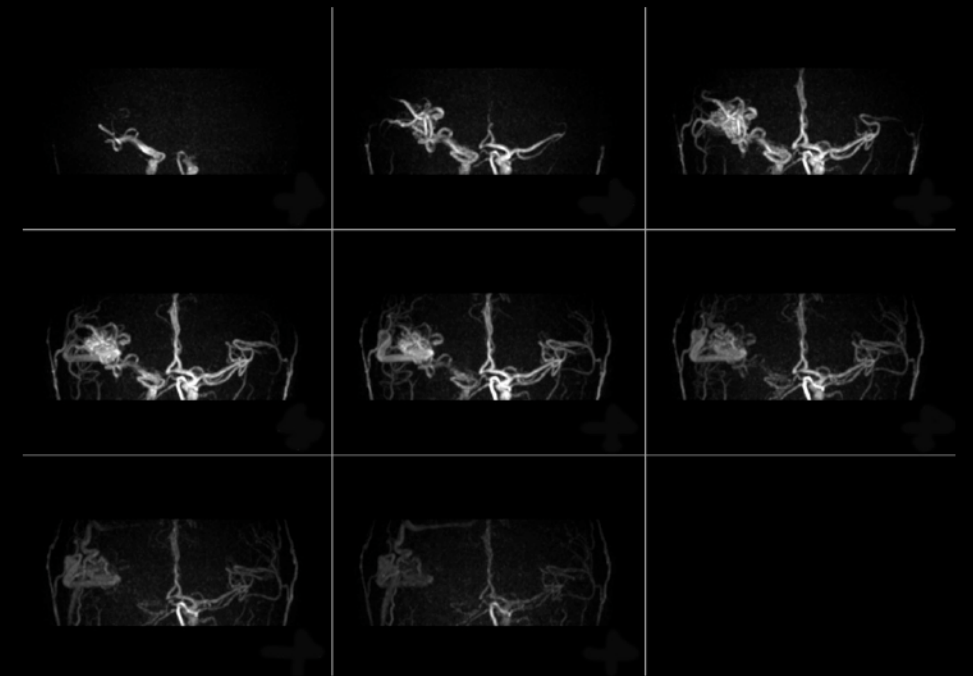
**4D FreeBreathing**  
3 seconds per phase  
1.7 x 1.7 x 3.0 mm, 2:13 min



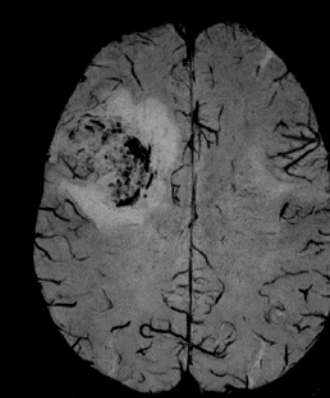
**CE mDIXON XD MRA**  
3 stations mDIXON  
1.0 x 1.0 x 1.0 mm  
15.9 sec (pelvis)  
16.7 sec (upper legs)  
21.9 sec (lower legs)



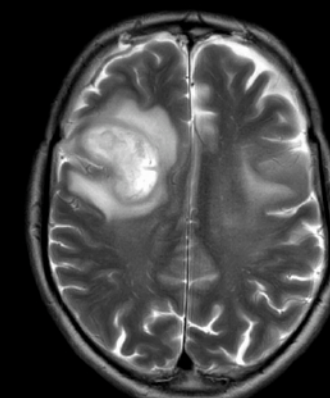
**Differentiate vessel lumen from intra lumen blood signal**  
3D BrainVIEW Black Blood, 0.8 x 0.8 x 0.8 mm, 5:20 min



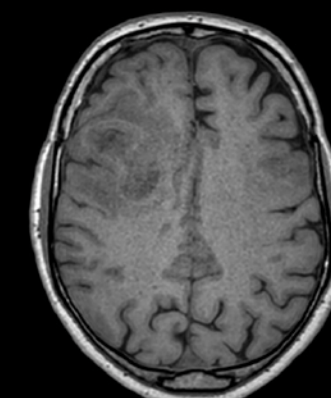
**Non-contrast angiography**  
4D-TRANCE, 1.2 x 1.2 x 1.3 mm, 4:23 min



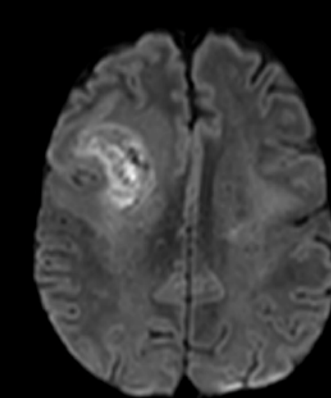
**SWI**  
0.6 x 0.7 x 5.0 mm, 3:55 min



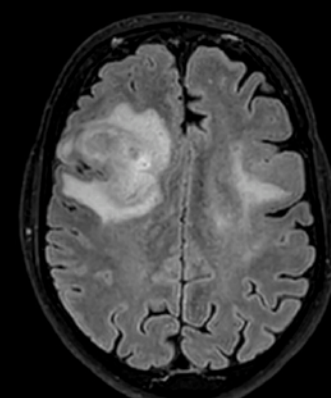
**T2w MultiVane XD**  
0.6 x 0.6 x 5.5 mm, 1:28 min



**3D T1w TFE**  
1.0 x 1.0 x 1.0 mm, 3:20 min



**DWI b1000**  
1.5 x 1.9 x 2.7 mm, 1:20 min



**3D BrainVIEW FLAIR**  
1.1 x 1.1 x 1.2 mm, 5:41 min



**Guidance  
and insights**  
at the front of the  
magnet facade  
boosts efficiency

The MR 7700 offers workflow efficiencies that keep exams on schedule and creates a positive staff experience. The system supports throughput for your research studies without disrupting your day-to-day clinical schedule.

Using technology to guide and coach where required, and automate when possible, the MR 7700 achieves excellent **patient-centered productivity**. Reducing and simplifying the number of steps necessary in an MR exam, boosts efficiency through reduced variability and supports a better experience for both your patients and your staff.

**Guidance and insight** are offered through two interactive VitalScreens at the front of the magnet facade. The displays provide information on exam duration, coil type, patient positioning, physiology signal captors (VCG and respiratory), contrast use, and breath holds.

Once the patient is positioned on the table, only the push of a button is required to position the patient in the center of the bore. Manual use of a laser light visor for iso-center positioning has become obsolete, thanks to automated detection of landmarks, placing the region of interest directly in the iso-center of the magnet.

With AI\* driven VitalEye touchless patient sensing, the technologist no longer needs to set up an old-fashioned respiratory belt, but instead receives a continuous and robust **respiratory signal without any user interaction**. The quality of the touchless physiology signal detected is better than a belt-based approach<sup>8</sup>, providing superior image quality for a broad range of patient sizes.

# Smart Workflow in the exam room

“The entire workflow is smooth: Patient positioning and setup; launching the scan as soon as we leave the exam room; the intuitive touchscreen on the gantry; Touchless patient sensing... All of these things are much better than on our old system..”

**Laura Barlow, RTMR**  
MRI Technologist  
Supervisor at the University  
of British Columbia



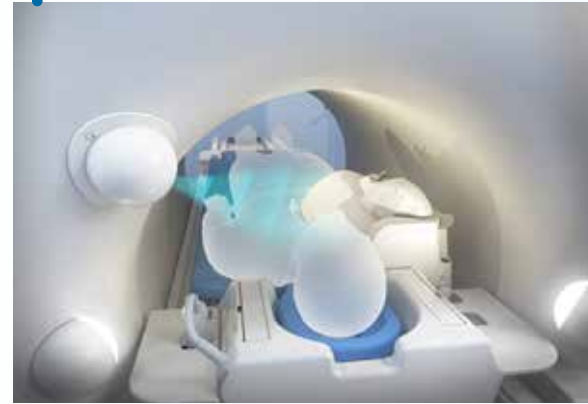
## Guided exam set-up

Coaching and visual guidance are provided at the front of the magnet façade



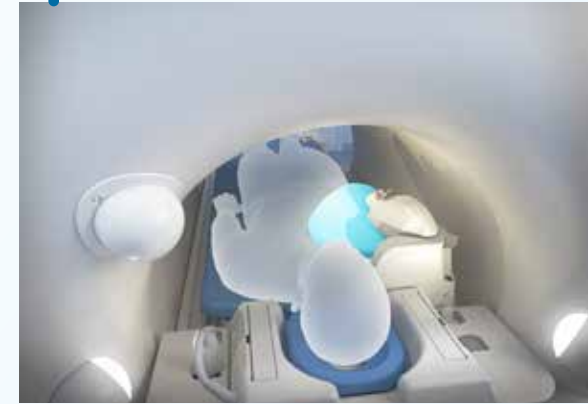
## Auto patient centering

Region of interest is automatically placed in the iso-center of the magnet



## Touchless respiratory-triggering

Patient's breathing is detected without any operator interaction



## Auto coil element selection

Optimal elements are selected automatically based on the anatomy planning



## In-room exam start

Exam start can be initiated with a single touch of at the patient's side

# Smart Workflow in the control room

“We don't have to manually direct the patient to breathing and not breathing. We can go ahead and let the machine do the work of the breathing instructions while we continue our planning of the exam.”

Carlos Avila, RT  
Technologist at Miami  
Cardiac & Vascular Institute



## Confidence for MR Conditional implants

Step-by-step guidance to enter the condition values as specified by the implant manufacturer



## Automated planning, scanning and processing

Fully automated geometry planning, coil element selection and execution of complete MR exams



## Up to 3 times faster imaging<sup>1</sup>

Breakthrough acceleration technique delivering image quality and speed without compromises



## Automated patient coaching

Patients are guided via announcements of scan duration, table movements and breath hold instructions



## Plan your day in advance

Dashboard to plan examinations before patient arrival, allowing you to stay on schedule

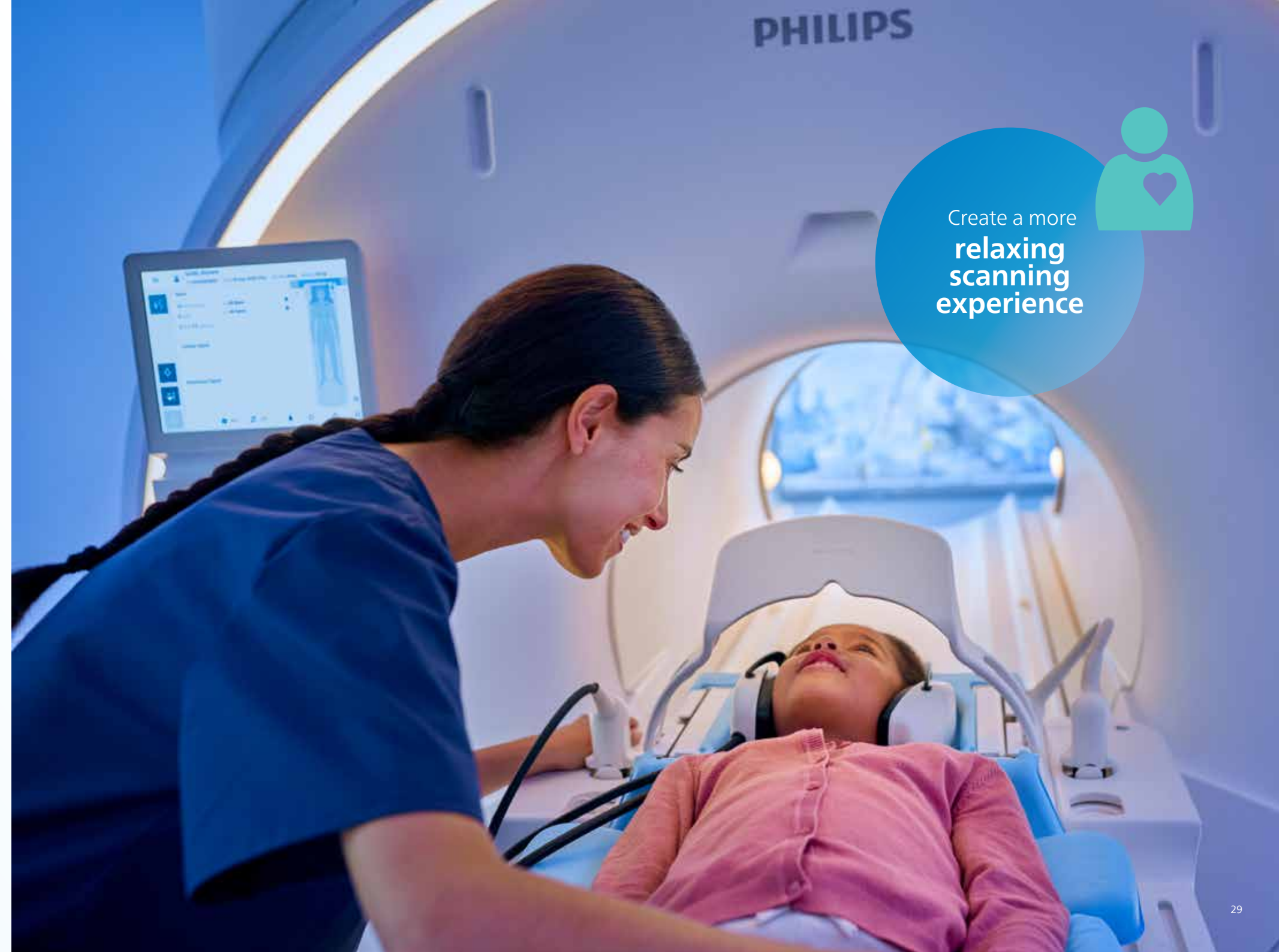
<sup>1</sup> According to the definition of AI from the EU High-Level Expert Group.

You can be confident your patients know exactly what to do and what to expect with the use of **automated, customizable, consistent patient instructions** (in 30 different languages and dialects), including announcement of scan duration and table movements. In addition, you can choose to time breath holds manually, or provide fully automated breath hold instructions with timing synchronized to the patient's respiratory cycle.

Because patient comfort enhances cooperation, which in turn contributes to efficient workflow, the MR 7700 is designed to provide a more **relaxing scanning experience**. The ComfortPlus mattresses make it easier to remain still during demanding research protocols. Patient comfort has been reported to increase after just 10 minutes<sup>9</sup> of use.

Addition of our Ambient Experience solution will enhance your patients' scanning experience via positive distractions by incorporating dynamic lighting, projection, and sound. From the moment a patient is moved into the scanner (the point at which people report the most stress), through to completion of the scan, entertainment is provided.

Create a more  
**relaxing  
scanning  
experience**



# Departmental workflow in the control room

MR Workspace is the key to help alleviate technologists' workload so they can focus beyond just the monitor and on what really matters: the patient. Designed with deep knowledge of day-to-day MR operations, MR Workspace supports efficiency and staff satisfaction in the control room through intelligence, guidance and ease of use. Technologists can prepare exams before patients arrive and aim to achieve consistent quality regardless of experience, by using Protocol Assistant, an AI<sup>1</sup>-driven solution that learns your protocol preferences and suggests the most appropriate ones based on clinical indication.

Advanced visualization includes step-by-step guidance so technologists can perform advanced visualization to obtain more<sup>2</sup> diagnostic information. Thanks to dual screen set-up technologists never lose sight of their current patient, even while parallel tasking. This allows to finish post-processing without toggling between screens and without delaying the next patient.

The intuitive interface, large display of clinical images and essential parameter reveal contribute to outstanding ease-of-use. In addition, MR Workspace helps to keep schedules on track and makes parallel tasking easy so technologists can focus on the current patient.

With MR workspace we aim to support you to:



Increase schedule efficiency



Deliver consistent image quality



Improve staff experience



Reduce training time



Provide faster time to results

<sup>1</sup> According to the definition of AI from the EU High-Level Expert Group.

<sup>2</sup> The addition of step-by-step guidance and automation of routine and complex post-processing applications can now be performed by the technologist on the console, saved via bookmark functionality, and handed off to the radiologist, which reduces time to results.





## Know what is coming your way every day

- ▶ Full visibility and control over daily schedule
- ▶ Examination preparation before patient arrival
- ▶ Alerts on patient conditions and schedule changes



## Count on image quality. Every, single time

- ▶ Guided and automated workflow
- ▶ AI<sup>1</sup> Protocol Assistant suggests the most used protocol
- ▶ Real-time quality control



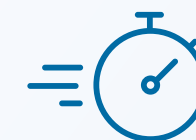
## Give your staff what they need to do the job right

- ▶ 80% of examination planning is fully automated
- ▶ 70% of the display is dedicated to presenting clinical images in crisp detail
- ▶ Harmonized user experience with IntelliSpace Portal Advanced Visualization



## Fast forward from learning to doing

- ▶ Integrated AI<sup>1</sup> assistance, task guidance, and automation
- ▶ Step by step coaching towards AV analysis
- ▶ 50% reduction in on-screen parameters



## Be known for fast results

- ▶ Results sent to PACS in 30% less time<sup>2</sup>
- ▶ Automated AV segmentation, calculation, and map generation
- ▶ Comprehensive set of integrated high-end and routine AV applications

<sup>1</sup> According to the definition of AI from the EU High-Level Expert Group.  
<sup>2</sup> Compared to R5 software.



## Accelerate your exams

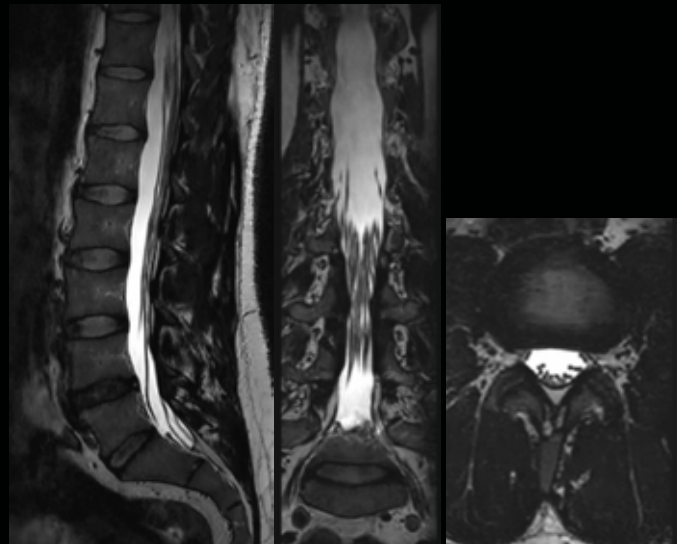
We are building on our proven technology and leveraging artificial intelligence (AI) to take fast MRI technology to the next level. SmartSpeed can be added to speed up scan time **nearly 3 times with no loss in image quality**<sup>10</sup>. This method is suitable for all anatomies and can be used for all anatomical contrasts, in both 2D and 3D scanning. You can also use SmartSpeed to add sequences without expanding the time slot, such as when adding functional sequences to a brain study or adding research sequences to a clinical exam.

Additionally, MultiBand SENSE acceleration can be applied to simultaneously excite multiple slices. This means your multi-direction **DTI imaging can be accelerated by up to 45%**, with virtually equal image quality<sup>4</sup>. The use of MultiBand SENSE with a 32-channel head coil further **reduces scan time in diffusion-weighted protocols by up to 73%**<sup>4</sup>. Or you can choose to maintain similar scan time and acquire twice as many diffusion directions.

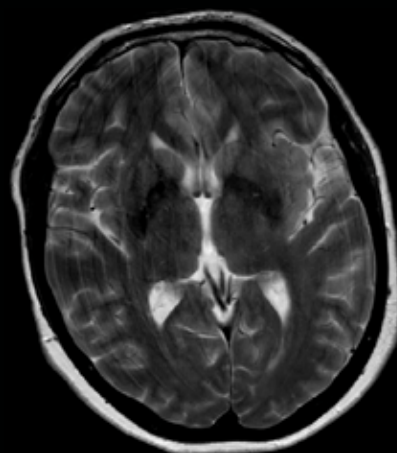
The addition of MultiBand SENSE to your fMRI studies will enable up to 2 times larger anatomical coverage at similar scan times with virtually equal image quality<sup>4</sup> due to short TRs. Or you can accelerate your **fMRI studies with 2 times more volume** per unit time with virtually no compromise in SNR<sup>4</sup>, gathering more rich data input for fMRI analysis.

Up to  
**3 times faster**  
MRI exams with  
no loss in image  
quality<sup>10</sup>

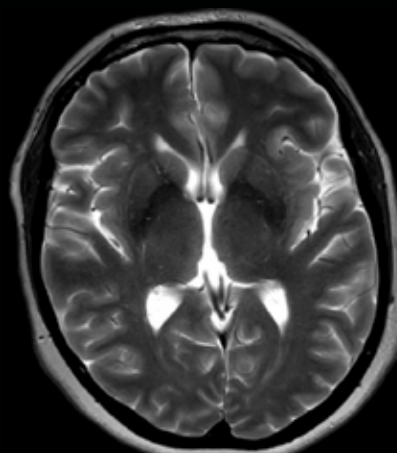
Accelerate your  
diffusion protocols  
**up to 73%**<sup>11</sup>



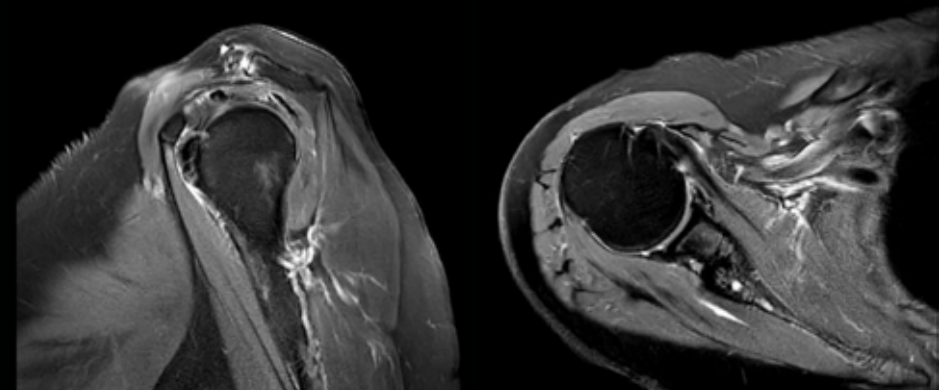
3D T2w TSE, 0.2 x 0.2 x 0.9 mm, 3:19 min



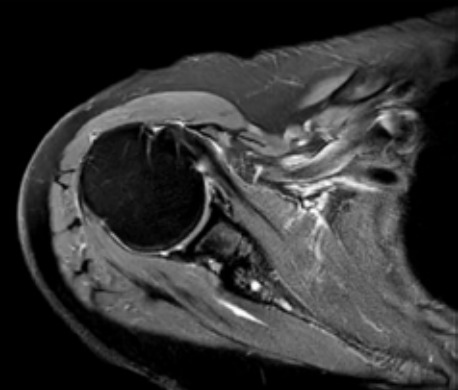
T2w TSE Sense  
0.6 x 0.9 x 4.0 mm, 1:54 min



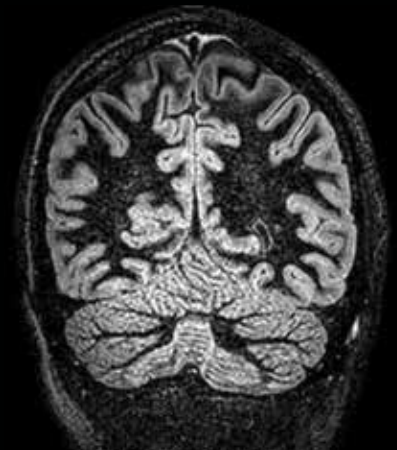
T2w TSE Sense SmartSpeed Motion Free  
0.6 x 0.6 x 4.0 mm, 1:36 min



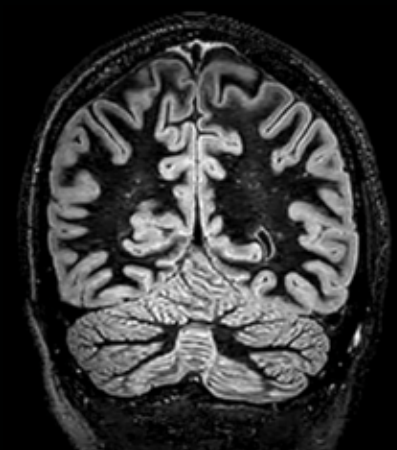
MotionFree T2w FatSat, 2:52 min  
0.64 x 0.64 x 3 mm



T1w TSE, 1:07 min  
0.42 x 0.6 x 3.5 mm

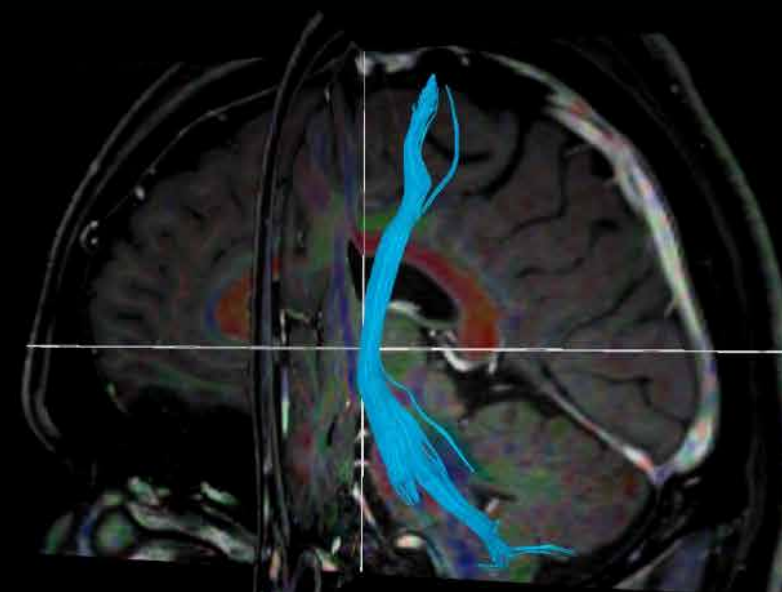


Coro 3D DIR SENSE  
1.2 x 1.2 x 1.3 mm, 6:47 min

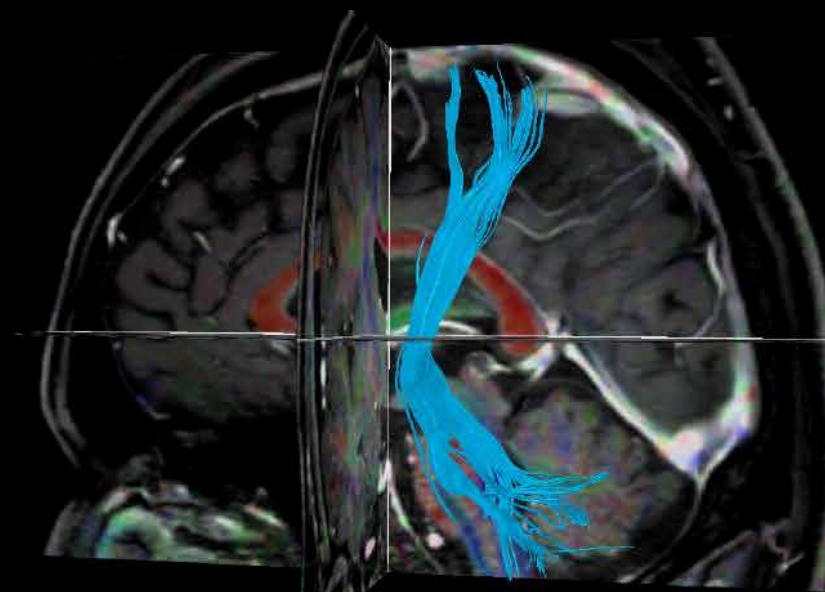


Coro 3D DIR SmartSpeed  
0.9 x 0.8 x 0.8, 6:47 min

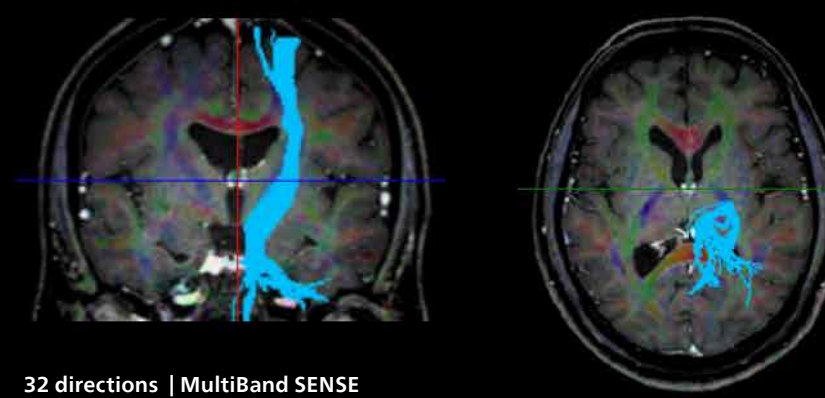
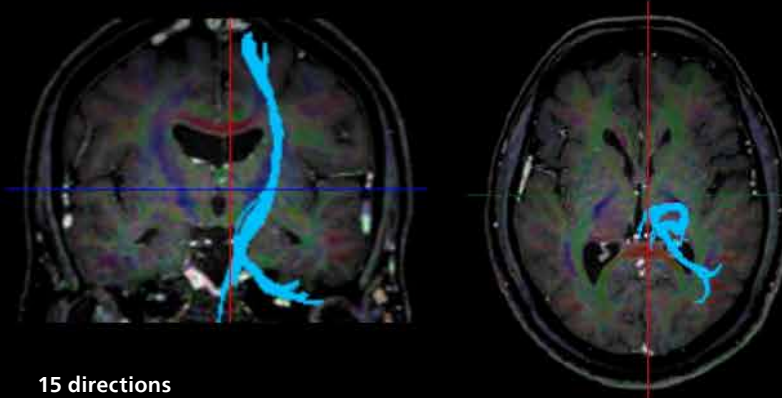
Acquire twice as many diffusion directions,  
in the same scan time<sup>4</sup>



15 directions  
DTI b800, 2.0 x 2.0 x 2.0 mm, 4:13 min



32 directions | MultiBand SENSE  
DTI b800, 2.0 x 2.0 x 2.0 mm, 4:13 min



High image quality, in short scan times



# Seamless integration of Multi Nuclei

Multi-nuclei (MN) imaging and spectroscopy is a key area of leading-edge clinical investigation. However, it typically involves a different software version, cumbersome user interface, and a dedicated coil. And scan times tend to be quite long, which can disrupt day-to-day imaging throughput. To advance clinical insights in this promising area, Philips has made multi-nuclei imaging and spectroscopy become part of your daily clinical workflow. Designed for out-of-the-box implementation, our Multi Nuclei solution delivers the confidence to explore new imaging pathways and the speed to integrate multi-nuclei studies into your day-to-day workflow.

Adding Multi Nuclei to your MR 7700 opens a window of research into other nuclei, in search of metabolic and functional information. It allows you to perform clinical imaging, spectroscopy and research studies of **six different nuclei** (1H, 31P, 13C, 23Na, 19F and 129Xe).

Besides regular proton (1H) imaging, you can:

- Begin to evaluate sodium (23Na) presence throughout the body with sub-millisecond TE acquisition facilitating imaging of short T2-signals
- Measure the dynamics of muscle metabolism using phosphorus (31P) spectroscopy by visualizing the changes in PCr / Pi-ratio over time
- Investigate metabolic processes by using carbon (13C)
- Image fluorine (19F)\* exogenous labeled contrast agents
- Create xenon (129Xe)\* images

Simply put, our Multi Nuclei solution can be used **across all anatomies.**

\*Caution: Investigational device for imaging with fluorine (19F). Limited by federal (or United States) law to investigational use. Clinical imaging with this nucleus requires usage of a cleared drug. No FDA-cleared drugs are currently available for this nucleus.

Seamless integrated workflow, for 6 different nuclei

We've made it easy for your operation, with a **seamless integrated workflow** for multi-nuclei image acquisition, spectroscopy, reconstruction, and viewing. Rather than a complex process, multi-nuclei studies have become a simple protocol that can be "dragged and dropped" into your ExamCard. How much simpler can it be?

The nucleus is just a scan parameter like any other sequence parameter. A single ExamCard can be used to run both proton and non-proton imaging and images can be checked on the console before the patient even leaves the room. Reconstruction and viewing of non-proton images or spectra, as well as the process for sending the data to PACS is fully integrated, so workflow does not differ from proton imaging. Easy export of multi-nuclei data is supported for enhanced DICOM, SPAR/SDAT, and XML-REC.

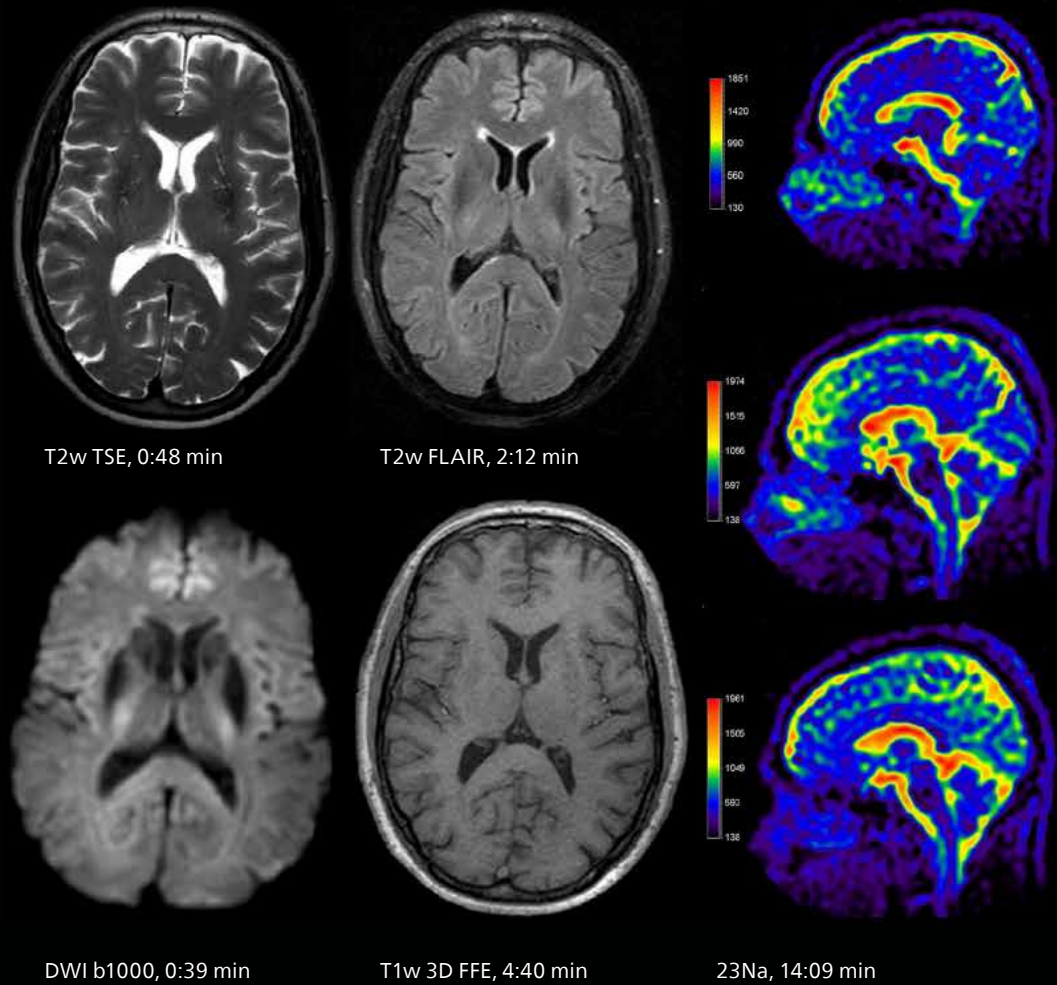
In addition to a seamless user interface, the dual tuned head coil enables brain exams, including **acquisition of proton and other nuclei, without switching coils**. This allows you to schedule your multi-nuclei studies as part of your clinical exam time slots. A **full brain study, including both proton (1H) and sodium (23Na) imaging can be completed in 30 minutes<sup>12</sup>**, all organized in one ExamCard using the same dual tuned head coil. A sodium (23Na) brain exam can be completed in less than 15 minutes<sup>13</sup>.

Transmit-receive flex coils are available for carbon (13C), phosphorus (31P), and sodium (23Na) scans. The ExamCard interface immediately recognizes these multi-nuclei coils. A sodium (23Na) knee exam can be as fast as 15 minutes<sup>14</sup>. Improved SNR and simplified spectra<sup>15</sup> can be achieved for phosphorus (31P) and carbon (13C) spectroscopy by combining body coil decoupling, with the transmit-receive surface coils.

Acquisition of proton and other nuclei, **without switching coils<sup>16</sup>**

Our Multi Nuclei solution can be used **across all anatomies**



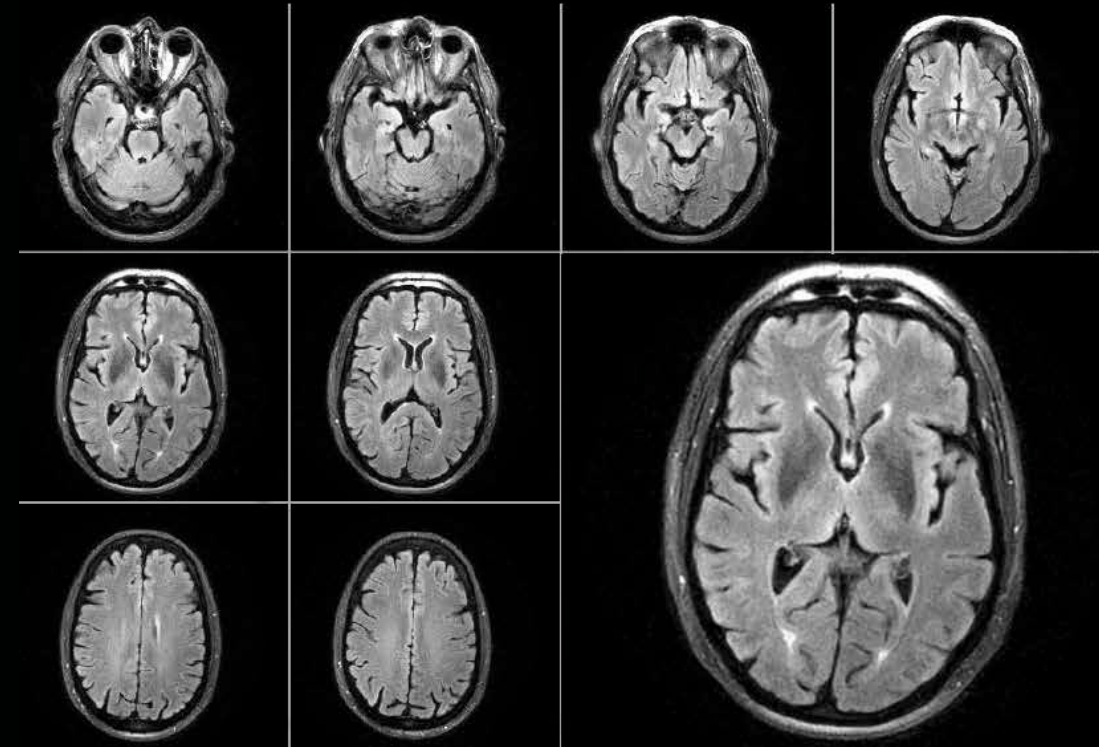


Include  $^{23}\text{Na}$  imaging into your daily clinical protocol

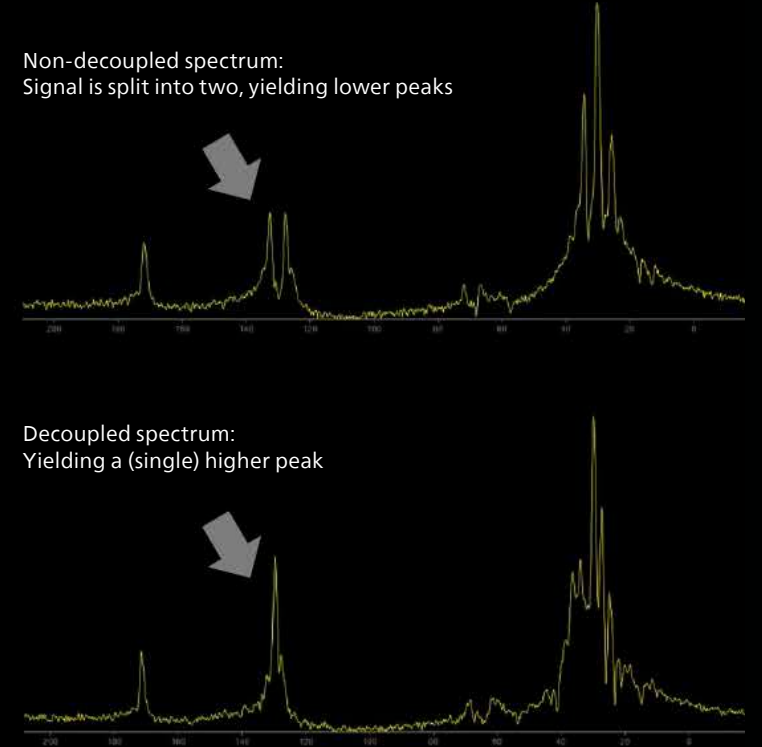
Brain MultiNuclei		00:27:32
<input type="checkbox"/>	T2w TSE	tra
<input type="checkbox"/>	T2w FLAIR	tra
<input type="checkbox"/>	DWI	tra
<input type="checkbox"/>	3D T1w FFE	tra
<input checked="" type="checkbox"/>	$^{23}\text{Na}$	sag

Routine Brain examination including  $^{23}\text{Na}$  imaging as well as pre and post contrast T1w scans in under 30-minutes using a dual-tuned  $^1\text{H}/^{23}\text{Na}$  head coil<sup>14</sup>

## Identifying metabolism with $^{13}\text{C}$ spectroscopy



(Proton) FLAIR imaging using the dual-tuned  $^{13}\text{C}$  head coil

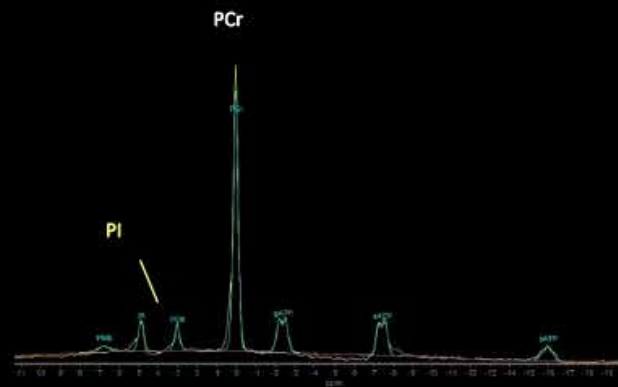


$^{13}\text{C}$  natural abundance spectroscopy of the full brain. Most  $^{13}\text{C}$  signal is coming from the fat. Decoupling was done to enhance the SNR of the peak detection.



## Dynamic muscle metabolism using $^{31}\text{P}$ spectroscopy

Planning of the spectroscopy voxel in the calf-muscle

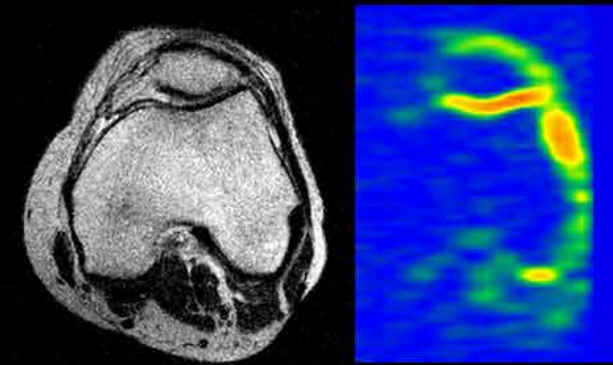


Single  $^{31}\text{P}$  spectrum of the calf-muscle showing the PCr and PI peaks



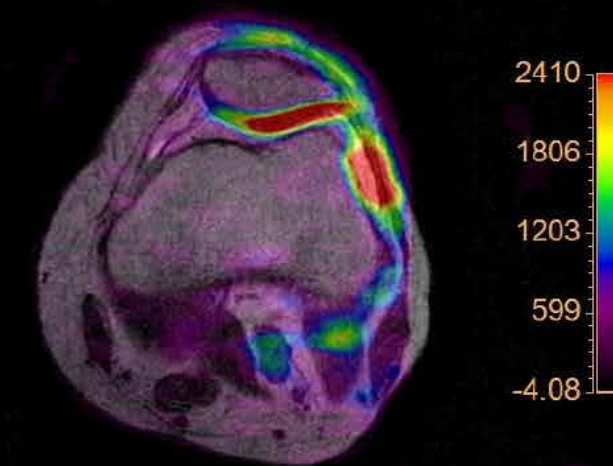
Dynamic  $^{31}\text{P}$  spectroscopy of the calf-muscle (5sec/acq, 50 dynamics) showing how the signals of PCr and PI change during a calf-muscle exercise

## Metabolite imaging, across all anatomies

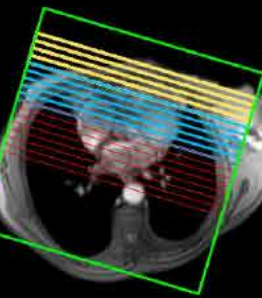
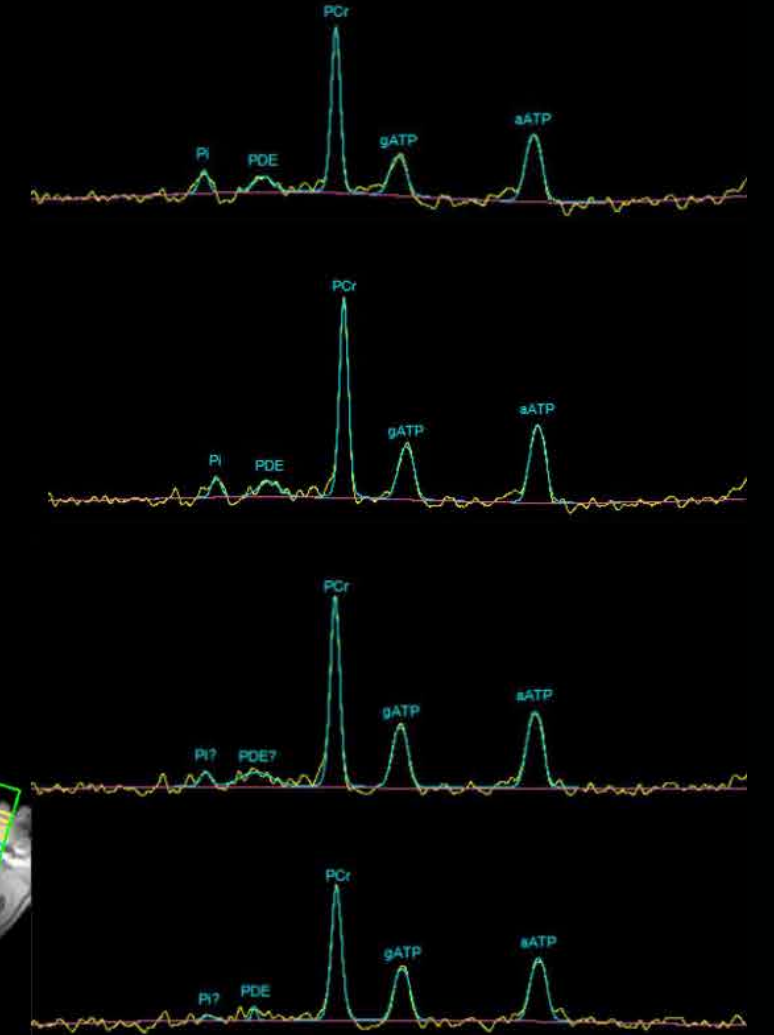


Anatomical imaging (1H body coil)

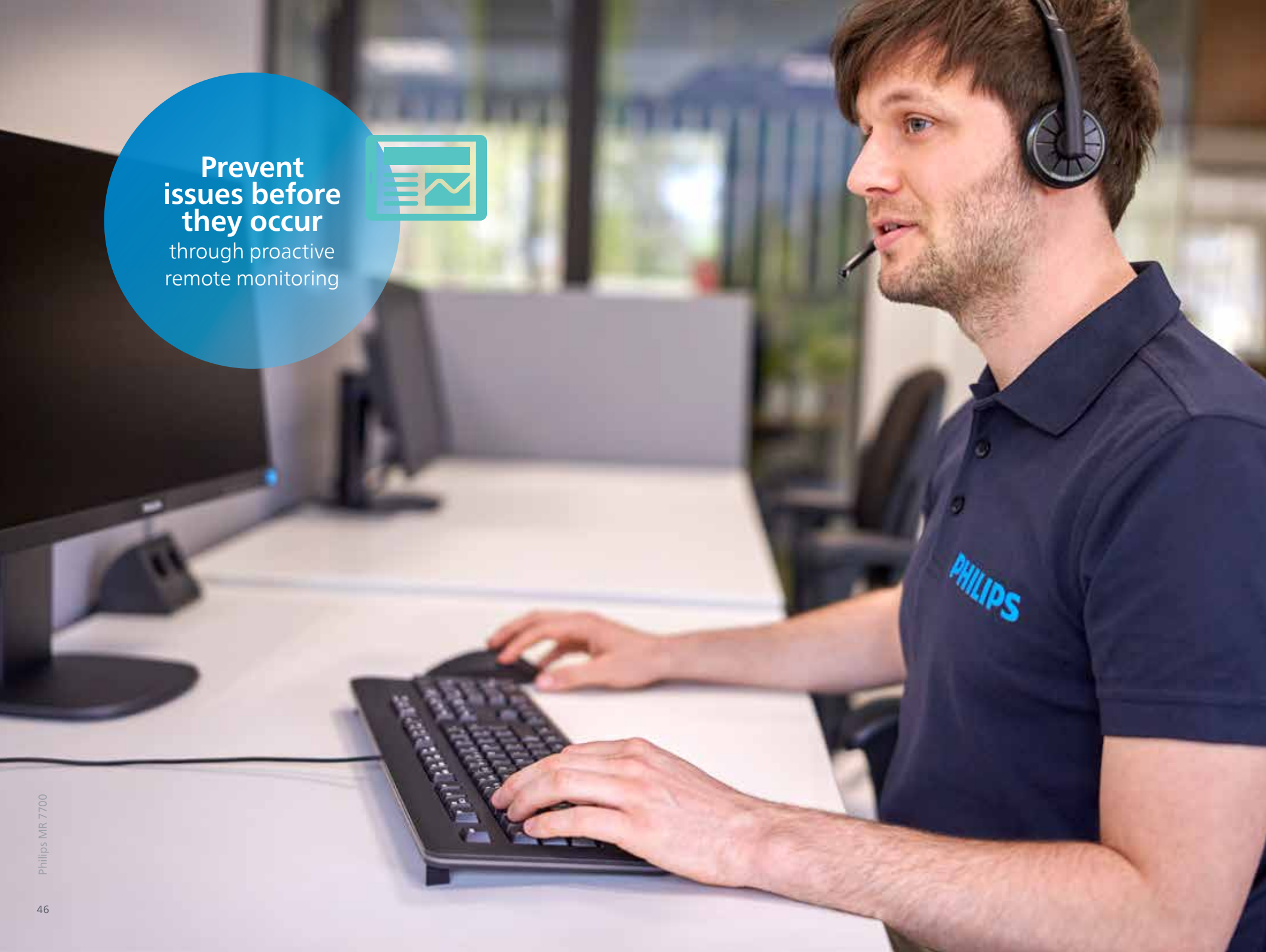
Functional  $^{23}\text{Na}$  imaging of the knee with a laterally placed flex coil Na-140



$^{23}\text{Na}$  imaging, overlaid on 1H anatomical imaging Sodium ( $^{23}\text{Na}$ ) knee exam can be performed as fast as 15 minutes. The sub-millisecond TE acquisition for sodium ( $^{23}\text{Na}$ ) imaging facilitates imaging of short T2-signals.



$^{31}\text{P}$ , cardiac triggered, 1D CSI of the heart Using flex coil P-140 with the patient in prone position



**Prevent issues before they occur**

through proactive remote monitoring



## Protect and enhance your MR investment

The MR 7700 system's combination of neuroscience capabilities, unsurpassed gradients, speed for all applications, streamlined workflow, and patient comfort, make it an essential investment in the future of MR imaging. We offer thoughtful programs to protect your investment and ensure ongoing performance.

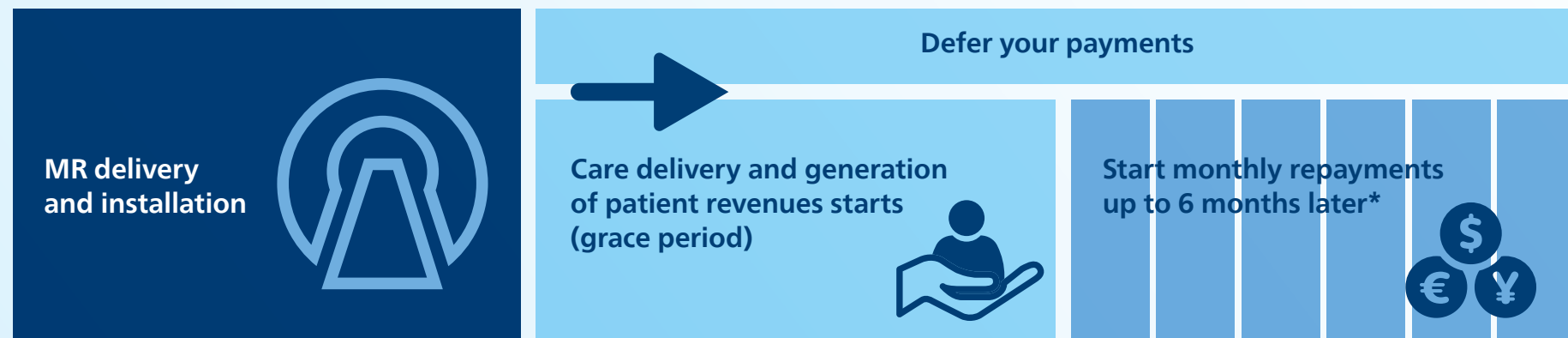
Avoid disruptions in your schedule and delays of patient care through our latest service innovations, including a scanner uptime guarantee. **Prevent issues before they occur** through proactive remote monitoring, remote diagnostics and remote and field service support. With e-Alerts and other remote data, we monitor more than 500 parameters of your MR system from a distance, detecting and resolving issues without impacting your department's operations. In fact, more than 50% of MR service cases are resolved remotely<sup>17</sup>.

Protecting patient health information requires constant vigilance. To **keep health information secure**, we employ best practices in medical device security. Our multi-layered defense barriers include security policies, procedures, access controls, technical measures, training, and risk assessments. Conveniently keep your MR systems up-to-date through access to the latest cybersecurity patches and mandatory safety fixes.



**Simplify lifecycle management** through proactive upgrades, boosting clinical capabilities and performance and ensuring you stay up to date. Receive the latest software and hardware technology releases for a fraction of the cost of purchasing them individually. Technology Maximizer, our structured upgrade program, keeps costs predictable and shifts upgrades to your operating budget, saving you from the hassle of capital expense approval. To manage your financial challenges, you need to know whether your healthcare investments are sustainable – and how to get the most from your equipment.

Customized financing solutions for your MR 7700 help you exchange variability and unpredictability for visibility and certainty. Enjoy **predictable cashflow** by leveraging more diverse funding sources. With Philips Capital **EasyStart Deferral Payment Program<sup>18</sup>**, you can deliver care now, and start your repayments later. This helps you avoid the burden and risk of upfront expenditures and benefit from transparent, predictable cost structures. As a result, you can manage and plan budgets more efficiently and free up capital that would otherwise be tied up in fixed assets.

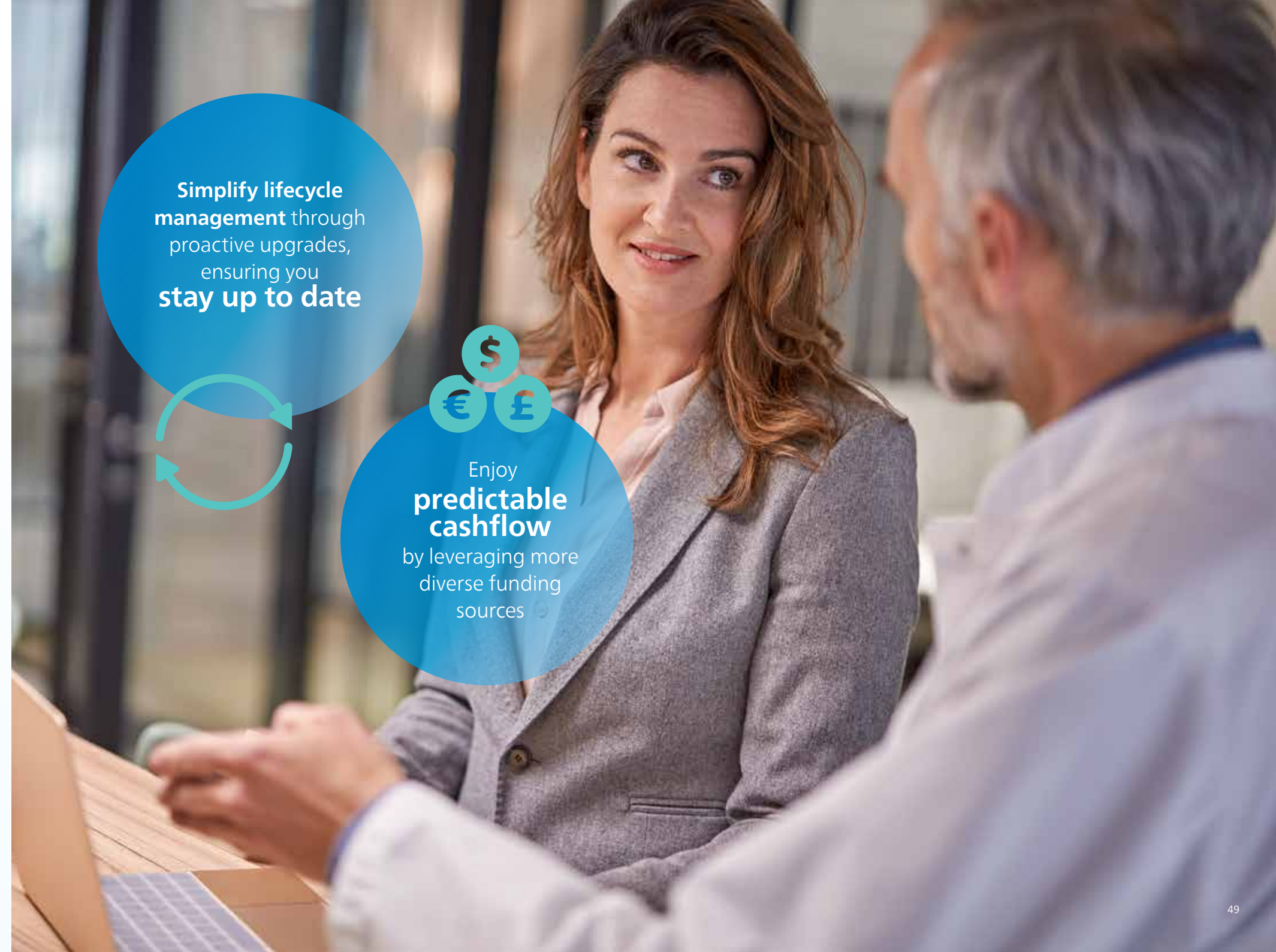


EasyStart Deferral Payment Program<sup>18</sup>: Postpone payments for a pre-agreed period and deliver immediate care to your patients.

**Simplify lifecycle management** through proactive upgrades, ensuring you **stay up to date**



Enjoy **predictable cashflow** by leveraging more diverse funding sources





## Disclaimers

- \* According to the definition of AI from the EU High-Level Expert Group.
- 1 Compared to Ingenia Elition X with Vega HP gradients, measured in brain white matter.
- 2 Compared to Ingenia Elition X with Vega HP gradients.
- 3 Gradient fidelity is defined as the proximity of the actual gradient strength and waveform to the targeted gradient strength and waveform.
- 4 Compared to Philips DTI/fMRI scans without MultiBand SENSE.
- 5 Zhou et al., Nat Med 9, 1085-1090 (2003), Zhou et al., Magn Reson Med 50, 1120-1126 (2003), Jones et al., Magn Reson Med 56, 585-592 (2006).
- 6 Compared to our 2D double inversion methods with same brain coverage and scan time.
- 7 Compared to our 3D T1w scan without MSDE pre-pulse.
- 8 Requires an unobstructed line-of-sight.
- 9 Compared to the Ingenia mattress. Based on in-house testing.
- 10 Compared to Philips SENSE imaging.
- 11 Compared to Philips diffusion protocols without MultiBand SENSE, requires a 32ch head coil.
- 12 Measured from start of first scan to end of last reconstruction. Includes 1H (T2w TSE, T2w FLAIR, SSh DWI, and 3D T1w FFE pre&post) + 23Na (with a voxel size  $\leq$  than 4mm isotropic).
- 13 For 4 mm isotropic voxels.
- 14 For 3 mm isotropic voxels, slice coverage  $>$  95 mm.
- 15 Compared to non-decoupled spectroscopy results.
- 16 For brain exams with a dual tuned head coil.
- 17 Based on global Philips-only data.
- 18 Deferral Payment Program: Moratorium of up to 6 months possible, subject to credit approval on a case-by-case basis; offer valid for a limited time and subject to changes without notice.

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