

Image guided therapy

Azurion Hybrid OR

Driving surgical excellence

Driving surgical excellence in the Azurion Hybrid OR

When starting a Hybrid OR project, you have an opportunity to create a cutting-edge multipurpose facility and improve surgical performance at every level. But how do you translate the needs of all stakeholders into a center of excellence for advanced surgical procedures? By teaming up with the right partner.

Your new hybrid operating theater starts with Philips cutting-edge Azurion image-guided therapy system – the ceiling-mounted solution designed for multi-purpose use. It supports the preferred way of working of your multidisciplinary teams, now and in the future. As new innovations become available, you can be confident that your Philips Hybrid OR will evolve with you.

Together we can realize a Hybrid OR that is uniquely effective in meeting your clinical, operational and financial goals.

Table of contents

Driving surgical excellence in the Azurion Hybrid OR	2
Azurion Hybrid OR - An integrated environment to enhance your advanced surgical workflows	4
Enhance the staff experience with exceptional flexibility and ease of use	6
Multi-purpose design - Advances care and increases utilization by various disciplines	8
Instantly switch to the advanced suite of your choice	11
Keeping patient and staff safety at the forefront	12
Create the Hybrid OR of your choice	14
A lifetime of benefits	17



The number of structural heart disease, peripheral vascular and aortic repair procedures will grow from 2.4 million in 2017 to

3.8 million procedures in 2025.¹

1,000+ Philips Hybrid OR installations worldwide

New clinical specialties entering the Hybrid OR such as: spine, neuro, lung, ortho, trauma, oncology

5 crucial technologies for future surgery in the Hybrid OR: augmented reality and mixed reality, robotics, artificial intelligence² PHILIPS

Azurion Hybrid OR

An integrated environment to enhance your advanced surgical workflows

Our Azurion Hybrid OR is a fully integrated ecosystem that gives medical teams from different disciplines access to a breadth of capabilities to support excellent open surgical and minimally invasive care in cardiac, vascular, neuro, spine, lung, ortho, trauma and oncology procedures.



3 OR table integration

Interoperability with your partner of choice is key for your Hybrid OR. The Philips Azurion image-guided therapy systems work seamlessly with the Getinge Maquet Magnus OR table and the Hillrom TS7500 OR System Table to support a wide variety of procedures.

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4 Flexible control

View and run all your Philips and third-party applications and systems from different Azurion workspots (FlexVision Pro, FlexSpot and touch screen modules) to free up space at the table and floor.

1 Ceiling-mounted options

The unique ceiling-mounted FlexArm and FlexMove gantry options are available for the Azurion Hybrid OR solution. They provide flexible positioning and patient access to perform an array of minimally invasive, open and hybrid procedures.

2 Touch screen module

With our enhanced touch screen module, you will experience simpler, smoother procedures, based on familiar tablet interactions at tableside. Like easily marking relevant details on 2D images on the touch screen with your fingertip.

5 FlexVision

Easily control Philips' advanced imaging, physiology, IVUS and other specialty tools at table side and display on the FlexVision. Patient information is shared across modalities.

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6 ProcedureCards

One touch sets up the imaging system with relevant parameters for each case. Hospital checklists and protocols can be displayed, allowing different specialties to work efficiently and consistently in the hybrid setting.

7 ClarityIQ

Obtain excellent visibility at ultra-low X-ray dose levels for a comprehensive range of clinical procedures with ClarityIQ technology.

4

8 Zero Dose Positioning

6

Helps you manage dose by positioning the system or table on Last Image Hold so you can prepare your next run without using fluoroscopy.

6

Enhance the staff experience with exceptional flexibility and ease of use

With staffing shortages and increasing competition between healthcare facilities, improving your staff experience and simplifying adoption of new technology can help keep your staff proficient and satisfied. Philips Azurion Hybrid OR with FlexArm offers a unique user experience, proven to improve workflow efficiency, training and staff ergonomics during procedures.

30% reduction in table repositioning with Philips FlexArm

Philips conducted an independently verified study in 2017/2018 at Miami Cardiac & Vascular Institute (MCVI), USA, involving 200 interventional cardiology, interventional radiology and vascular surgery procedures. The goal was to evaluate the value of the FlexArm geometry during complex procedures, including upper extremity vessel access. Does it reduce table repositioning, and improve workflows and staff ergonomics?

Key results³

The new FlexArm geometry enabled the medical team to:

- Reduce table repositioning by 30%
- Reduce risk of losing needle access, catheter- or wire location and risk of pulling wires/tubes/lines connected to the patient
- Work in an ergonomically optimal position for most of the time for 96% o the procedures
- Experience less pain and/or fatigue for all body areas
- Achieve 97.8% satisfaction with ease of imaging off-center anatomy while performing upper extremity access procedures (i.e. via the radial, brachial or ulnar artery)

FlexArm geometry allowed physicians to work in an ergonomically optimal procedure more often during the full procedure.

Working in an ergonomically optimal position



FlexArm room Standard room



Ergonomic workflow – The anesthesiologist and other team members can work in the most ergonomic positions for open and minimally invasive cases.



Optimal use of space – both the FlexArm and FlexMove ceiling-mounted gantries have a compact design, developed to maximize OR space.



Easy full body patient coverage – team members can work at both sides of the table and access the patient at any location from head to toe to support diverse specialties.



Positioning flexibility and clean floor – imaging and surgery equipment can be easily positioned for different teams without touching the floor or compromising projection freedom.

Multi-purpose design Advances care and increases utilization by various disciplines

Philips Azurion Hybrid OR embodies value-based healthcare that aims to achieve the quadruple aim of better outcomes, lower costs and a better patient and staff experience. Its multi-purpose design provides a care environment specifically made to support the needs of different clinical disciplines. This allows facilities to achieve high utilization and solid financial performance.



During spine procedures, the C-arm of the system can be positioned at all sides to enable an optimal workflow.



During TAVI procedures, the C-arm is positioned at the head end, freeing up space to improve access to the patient and ensure an efficient clinical workflow.



For vascular surgery procedures, entire body imaging from two sides of the table is key to achieving the best clinical insights and optimal workflow.

An analysis of the multi-purpose Hybrid OR at the University Hospital of Kiel, Germany

An extensive data study and interviews with OR Manager Joß Giese and his clinical stakeholders show a successful implementation of multi-purpose use in the Hybrid ORs in UKSH Kiel. The Hybrid OR facilities at UKSH Kiel enable advanced minimally invasive procedures for a wide range of clinical specialties, with clear benefits for patients. Physicians from multiple clinical disciplines were closely involved in the room design process.



UKSH multi-purpose Hybrid OR case mix

Room utilization

The Philips HTS study shwed that the multipurpose Hybrid ORs were utilized very effectively, with a recorded idle time of only 13%



"If I want to perform a range of very different procedures in a multi-purpose Hybrid OR, a ceiling-mounted system is the gold standard for me, because of the high flexibility it provides."

Jos Giese, OR Manager, UKSH, Kiel, Germany

Key results from the study⁴



Results from case studies are not predictive for results in other cases. Results in other cases may vary.

Unique technologies that support confidence



All-in-one live imaging and navigation solution (ClarifEye augmented reality surgical navigation)



Live fluoroscopy with live ultrasound (EchoNavigator)



Live conebeam CT overlay on fluoroscopy for needle path planning (XperGuide)



Live 3D image overlay that can be segmented to emphasize the targeted vessel and lesions (SmartCT Roadmap)



3D vascular anatomical information from existing CTA and MRA datasets as a 3D roadmap overlay on a live X-ray image (VesselNavigator)



Dual View allows simultaneous visualization of two conebeam CT datasets (SmartCT SoftTissue)



Functional information about tissue perfusion based on a digital subtraction angiography (SmartPerfusion)



CT planning and live guidance using automatic heart model segmentation of anatomy (HeartNavigator)



Relevant information based on quantification of blood flow changes to assess the impact of embolization devices (AneurysmFlow)

Innovative devices for precise and effective treatment



Treatment guidance for stent sizing and placement. Co-registration of IVUS and iFR with the angiogram (IVUS devices and Intrasight)



Specialty balloons help you treat even the most complex cases. (balloon catheters)



Trackable bone needle for open, minimally invasive, and percutaneous procedures (ClarifEye needle)

Instantly switch to the advanced suite of your choice

As part of your Azurion Hybrid OR, our clinical suites offer a flexible portfolio for vascular, cardiac, spine, neuro, lung, orthopedic and trauma procedures. Dedicated interventional tools and advanced devices support each step of your procedure as you decide, guide, treat, and confirm treatment results.



"We can be treating patients with open surgery and angiographic endovascular procedures all at once, which really provides a great deal of benefit for our patients. They don't have to go to different operating rooms. They can stay in the one stable environment and have all their procedures performed in that one sitting."

Prof. Dr. Ramon Varcoe, Director of Operating Theatres and Director of Vascular Institute, Prince of Wales Hospital, Sydney, Australia

"We wouldn't have been able to develop some of these procedures unless we knew that we had cutting-edge imaging capabilities," explains Greenbaum. "For instance, when we proposed the idea of splitting the anterior leaflet of the mitral valve prior to valve implantation, people thought we were lunatics, that it never could be done, but it can and has been done with the assistance of our Philips Azurion Hybrid OR." Dr. Adam Greenbaum, Co-Director of the Center for Structural Heart Disease, Henry Ford Hospital, Detroit, Michigan, USA

"The use of CBCT in the hybrid OR provides us with a reliable and accurate method for intraoperative localization of small pulmonary nodules. This is the next step in the evolution of thoracic sugery."

Kelvin Lau, MD, Thoracic surgeon, St Bartholomew Hospital London, UK

"Post-operative CT scans to check implant placements are no longer necessary; it is possible to verify whether a procedure has been successful immediately after treatment. As soon as surgery has been performed, we can be 100% sure that implants are in place, thanks to the high quality of the intra-operative cone beam CT image and positioning flexibility of the system."

Prof. Dr. A. Seekamp, MD, Director of the Orthopedic and Emergency Surgery clinic, University Hospital Schleswig-Holstein, Kiel, Germany

Keeping patient and staff safety at the forefront

In the Hybrid OR the typical surgery concerns meet typical radiology concerns. Patient and staff safety is all about infection prevention and protection from harmfull radation.

A sterile treatment area

To contain surgical smoke and support staff in minimizing surgical site infections (SSIs), ventilation systems are commonly used in (hybrid) operating rooms. The Azurion ceiling-mounted systems are engineered to minimize interference with different types of ventilation systems, such as unidirectional flow, temperature-controlled unidirectional flow, and mixed diluting ventilation systems.

The majority of Azurion Hybrid OR systems are installed in rooms that have been certified to meet all local standards for ventilation systems used in operating rooms, including;

- RichtLijn 7 (Dutch norm)
- DIN 1946 Raumklasse 1A
- ISO Class 5 (1446-1)

Since most of these standards only measure the particle content of the air in at rest situations, Philips partnered with TNO, an independent scientific research organization in The Netherlands, to evaluate the level of microorganisms present during actual surgical procedures performed with normal equipment and staff movements. This study⁵ concluded that, in the ceiling-mounted Azurion Hybrid OR, the air quality remains far within the thresholds for microbiological air pollution. Another study⁶ showed that the Azurion reduces staff movement with 29%, which is directly related to a better sterility of the treatment area.

29% reduction in staff movement⁶

Other literature shows that sterility in the treatment area is directly related to the amount of movement between exam and control room. By allowing full tableside control, Azurion's FlexVision Pro and TSM Pro solutions help you effectively address this issue. After installing Azurion in the interventional vascular department of St. Antonius, staff movement between the exam room and control room was reduced by 29%.



Visit: www.philips.com/labperformance in order to view the staff movements in more detail.



Low-dose high-quality imaging

ClarityIQ technology provides high quality imaging for a variety of clinical procedures. It delivers excellent visibility at low X-ray dose levels for patients of all sizes. Multiple clinical studies on more than 15000 patients have been published on ClarityIQ technology to date, revealing one clear trend: significantly lower dose across clinical areas, patients and operators.⁷

The power to manage exposure

With the DoseAware platform staff is made aware of unnecessary scatter radiation. The platform provides realtime feedback to staff and management to quantitatively track, record, analyze and demonstrate the impact of efforts - putting radiation exposure in their control to improve staff safety.



A solid base of comparative studies across different clinical applications, types of patients and operators shows significant reduction in dose with ClarityIQ X-ray dose technology.

Create the Hybrid OR of your choice





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When starting such a complex project, it's reassuring to know you can draw upon Philips 60 years of experience and knowledge from surgical C-arms, image-guided therapy and over 1,000 Hybrid OR installations worldwide. All supported by comprehensive service and support solutions to realize solid clinical, operational and financial benefits – from beginning to end.

We offer the flexibility to create a custom environment that meets your unique needs and goals. By partnering and working closely with our major OR partners, we can give you a wide range of choices from the latest technological leaders.

Our products are rigorously tested to certify that they work seamlessly with those of our partners. In this way we can ensure that the essential performance of our systems meets high standards for quality and operational reliability. Where possible, we leverage your existing resources and work with your OR partners to help you realize clinical and economical gains.



Get your free copy of "How to build a Hybrid OR"

Exclusive 100+ page book, packed with experience, information and inspiration for your Hybrid OR. Ask your local sales representative to receive a hard or digital copy.

Identify clinical needs and workflow

Translate needs and workflow into the best design

Get a custom fit





Stay clinically and operationally relevant with Technology Maximizer

To keep your Azurion Hybrid OR state-of-the-art with regards to cyber security, clinical, and operational advancements, subscribe to IGT Technology Maximizer - Plus, Pro or Premium offer – for a standard duration of 4 years at point of sale.

Technology Maximizer secures all your eligible Philips imaging equipment with the same technology release level reducing maintenance complexity and simplifying lifecycle management across hospital departments. Maintain peace of mind with imaging equipment that is always up to date, and enhance patient care knowing you will always be first to take advantage of technology innovations.



A lifetime of benefits

As new technologies, technique and opportunities present themselves, you want to be confident that your Hybrid OR gives you a foundation to take advantage of the innovations of tomorrow. With a Philips Hybrid OR, you enjoy a lifetime of benefits starting today and lasting for years to come.

Make sure you can benefit from tomorrow's technology

3D Device Guidance powered by Fiber Optic RealShape (FORS) technology

Our Fiber Optic RealShape (FORS) technology sparks a new era in device guidance. This unique technology enables real-time 3D visualization of the full shape of devices inside the body without the need for fluoroscopy. The technology platform consists of equipment which sends pulses of light through hair-thin optical fibers that run within minimally invasive devices. FORS integrates with our Philips imageguided therapy systems.

Augmented Reality Surgical Navigation

ClarifEye Augmented Reality Surgical Navigation is an industry-first solution integrated on the Azurion platform. It combines imaging and augmented reality (AR) navigation in one system. To support precise planning and effective device guidance for accurate screw placement. It also streamlines surgical workflow compared to conventional surgical navigation systems.



Fibre Optic RealShape (FORS) technology



ClarifEye augmented reality surgical navigation





- 1 Based on Peripheral Vascular, Aortic Repair, Heart Valve and Structural Heart Closure Devices Report from Millenium Resource Group.
- 2 Sources: https://www.brainlab.com/journal/operating-room-trends-three-crucial-technologies-for-the-future-of-surgery/
- https://www.brainlab.com/journal/leveraging-ai-and-digital-technologies-for-healthcare/
- 3 Study conducted in 2017/2018 at Miami Cardiac & Vascular Institute (MCVI), involving a total of 200 interventional cardiology, interventional radiology and vascular surgery procedures. 12NC 452299154611 JAN 2021. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions. Study results were verified by NAMSA, an independent third-party expert on study design and analytics.
- 4 Study conducted by Philips Healthcare Transformation Services (HTS) by analyzing a range of clinical, operational and financial datasets of the Hybrid OR usage in the University Hospital of Kiel (UKSH) for the years 2017, 2018 and 2019. 12NC 452299168091 - MAR 2021. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions.
- 5 Traversari A AL, et al. Effect of using ceiling-mounted systems for imaging in hybrid operating rooms on the level of colony-forming units during surgery. Journal of Hospital Infection (2018), Traversari AAL, van Heumen SPM, Hoksbergen AWJ. Effect of using ceiling-mounted systems for imaging in hybrid operating rooms on the level of colony-forming units during surgery. J Hosp Infect. 2019 Sep;103(1):e61-e67.
 6 Philips Azurion Simulation Study 2016 12NC 452299123041 FEB 2017. Results are specific to the institution where they were obtained and may
- 6 Philips Azurion Simulation Study 2016 12NC 452299123041 FEB 2017. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions. Study results were verified by NAMSA, an independent third-party expert on study design and analytics.
- 7 Access the full list of ClarityIQ references at this website: https://www.philips.co.uk/healthcare/resources/landing/alluraclarity-clinically-proven



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