Xcelera solutions for the cath lab

Philips Xcelera – one solution to manage cardiovascular care
Xcelera is a robust multimodality cardiology image management, analysis and reporting solution that provides patient-centric access to cardiology data and examinations. The system is highly configurable, scalable and customizable with the potential, via optionally available plug-ins, to support cardiovascular X-ray, ultrasound, nuclear medicine, computed tomography, magnetic resonance, and electrophysiology examination types. Furthermore, optional software is available for Xcelera to retrieve electrocardiograms from certain ECG management systems. Xcelera performs the necessary functions for exam storage and review. Xcelera additionally offers various analysis and quantification packages, clinical reporting and archiving features as optional functionality.

Xcelera is designed to streamline workflow and enhance productivity. It provides the tools your cath lab needs to enhance patient diagnosis and make your day more productive, all from a single workspace.

A truly integrated solution that provides:
• One patient-centric entry point to all relevant images and reports
• One intuitive Philips user interface that was developed to help speed tasks while reducing training requirements, which could contribute towards lower operational costs
• One experienced partner committed to cardiology innovation, ensuring a scalable, future-safe investment

Instant access to quality images
From procedure to review to archive, you can rely on Xcelera’s excellent image quality and optimum performance. Built for speed, the system works at your pace, providing access to all images at acquisition speed, up to 60 frames per second. Philips integrates your complete cath lab department, with Xcelera interfacing to all Philips cath labs as well as non-Philips manufactured cath lab systems.

Optimized viewing environment
Xcelera supports all your viewing needs and all information is available at your fingertips in an intuitive way.

In addition to detailed patient and study information, the application also displays viewing parameters, such as review speed in relation to acquired frame speed as well as rotation and angulation data.

Support for bi-plane X-Ray angiography
The Xcelera cath viewer software supports bi-plane acquired cardiovascular X-ray studies. The bi-plane studies can be reviewed in either synchronized bi-plane or de-coupled monoplane mode according user-preferred settings.

Export of single and multi-frames
Xcelera supports export of single frames (Bitmap and JPEG) as well as multi-frames (AVI).

The review application allows for annotating the still frame with text captions or point of reference indicators before exporting.

The export of multi-frames can be customized according to frame selection and selection of compression level.

Single- and dual-display configurations
Xcelera offers several optional viewing environments for cath procedures. Both single-display and dual-display configurations are available. Dual display set-ups allow you to compare cath images with images coming from a wide range of other modality types, such as cardiovascular ultrasound.
Reviewing in the cath lab

Because you need to review real-time and historic images immediately, often during a procedure, Philips provides the Xper tableside module, which places control of the system in the hands of the clinical staff at the patient’s side. The module facilitates Xcelera image display and review on the cath lab’s suspension monitors, which provides the display and review of relevant cardiovascular information, including ECG reports, ultrasound, CT, MR, nuclear cardiology, and electrophysiology data.

Intuitive user interface

Xcelera’s graphical user interface is very intuitive and easy to adopt. All clinical applications are a direct copy of the applications that are used in the modality space and are therefore easy to use with a minimal amount of training.
Cath Lab Quantification
Clinical applications available on Xcelera include the Left Ventricular Analysis (LVA), Quantitative Coronary Analysis (QCA), and QVA (Quantitative Vascular Analysis) packages - each powered by CAAS 2000. These are similar to the advanced quantification and analysis packages used on the Philips Allura Xper FD X-ray systems, which ensures that your measurement results are identical on both Philips systems, at any location where you choose to perform your analysis. The use of these clinical applications results in greater ease of use and aids in diagnostic confidence.

In addition, all quantification steps are straightforward and easier to use than ever before. The quantification packages support both flat detectors as well as image intensifier acquired studies (512x512 and 1024x1024) and supports the 1024x1024 images produced by flat detector X-ray systems.

Left Ventricular Analysis
The Left Ventricular Analysis (LVA) package allows objective and reproducible assessment of the Left Ventricular Ejection Fraction and Volumes and the Left Ventricular Wall Movements, using sophisticated computerized measurement of digital images.

The application includes facilities for automated delineation of the outline of the left ventricle using edge detection techniques (single plane, standard RAO projection). Manual delineation by the operator is also possible. Calibration facilities are also included in those cases where absolute volume measurements are required.

Quantitative Coronary Analysis
The Quantitative Coronary Analysis (QCA) package allows objective and reproducible assessment of the severity of coronary narrowing, using sophisticated methods for computerized measurement of digital images, all with a single click. The program aids the physician in making decisions for additional treatment and in determining the best course for post-interventional rehabilitation.

The application features calibration routines, automated arterial contour detection, and computer-defined reference. Results can be displayed based on geometrical and densitometrical analysis, and in graphical or tabular formats. Hemodynamic parameters and Stenotic Flow Reserve can be quantified.
Xcelera in the Electrophysiology lab

You can review EP recording signals and reports from EP-WorkMate® at your office or wherever an Xcelera workspace is located. The EP-WorkMate workstation receives, digitizes and stores intra-cardiac and surface electrocardiograms, along with corresponding ablation, and navigation and imaging data. The same software that is used on the EP-Workmate application can be installed on any Xcelera workspace throughout the healthcare enterprise. Via Xcelera, you can review and analyze the saved EP recording signals and procedure data along with the previously created reports.

Interoperability with Biosense Webster’s Carto XP™

The CartoMerge Image Integration Software Module allows users to combine the Carto XP electrophysiology mapping data with pre-acquired in 3D CT or MR images. This provides images with a much higher spatial resolution leading to better anatomical visualization of the heart. Via DICOM Query/Retrieve, CartoMerge can pull 3D CT or MR datasets from the Xcelera platform. At the end of the procedure the exam results can be stored as DICOM Secondary Capture images in Xcelera, where they can be accessed for review.

Quantitative Vascular Analysis (QVA)

To enable quantification analysis for vascular diagnosis and intervention, Xcelera offers a Quantitative Vascular Analysis package (QVA). For 1024x1024 images, the QVA package provides quantitative analysis of peripheral vessels, including the aorta, iliac, renal, femoral and carotid arteries, with automatic contour detection for vessels up to 50 mm.

The analysis procedure is fast and easy to work with. Results are presented instantly. Automatic obstruction analysis and a user-reference method for obstructions near a bifurcation are available. It also provides sub-segment analysis. The results for this package, as well as the QCA and LVA results, can be saved as DICOM Secondary Capture images and as such be added to the clinical report created using the XperIM report generation tool.

Vascular post-processing

With this option, you can perform X-ray vascular post-processing operations. Functionality includes image subtraction, new mask selection, average mask, pixel shift, and landmarking. Post-processing results can be added to the exam. The software supports single and bi-plane applications.

Integration with hemodynamic monitoring and cath lab workflow software provides a complete cath lab solution

The bi-directional interface between Xcelera and Xper Information Management (XperIM) provides an integrated cath lab solution that empowers users with the ability to combine the hemodynamic monitoring and reporting capabilities of XperIM with the multi-modality image management viewing, analysis and processing capabilities of Xcelera. The interface allows clinicians to launch the Xcelera cath viewer from within the XperIM application to review cine runs pertaining to the case file created on XperIM. The integration allows for selected still-frame images in Xcelera to be copied into clinical reports created using the XperIM report generation tool.

Carto XP in the Cath viewer

Carto XP in the Cath viewer
Remote Workflow
- Benefits the cardiologist on the move and enhances clinical support for satellite clinics.
- Push batches of exams to a remote location prior to review and analysis. Studies sent to a shared drive at a location can be conveniently accessed by other clinicians at that location.
- Pull exams on demand for convenient access, allowing for remote review, quantification and reporting while away from the cardiology department.
- Copy exams to a laptop or external drive and take them with you to review later.

Remote Access to Results
Xcelera WebForum provides a dedicated application to distribute exam results, including images and finalized clinical reports, across your healthcare enterprise. Whether you need to share information with a referring physician, another cardiologist providing treatment, or just for your own reference, access to images and reports is as close as your Internet connection. Xcelera's remote results access option facilitates the review of reference images and finalized reports from the ICU, the exam room, your office and even your home computer.

Enterprise Integration
Deploying Xcelera as a component of your electronic medical records system or other enterprise application provides patient-centric access to exams for improved workflow and enhances patient care delivery.*

Support for Intra-cardiac Echo (ICE) and Intra-vascular Ultrasound (IVUS)
Xcelera stores ICE and IVUS studies and supports review of these study types using the Xcelera cath viewer software.

Support for EP Cockpit
Philips' EP Cockpit concept integrates the entire electrophysiology lab environment. One of its unique features is EP Snapshot. At a user-specified moment in time, EP Snapshot intuitively captures all relevant EP data on display in either the control area or exam room. These captures are sent as DICOM files to Xcelera and available for review using the Xcelera cath viewer software.

Tele-Cardiology
As we continue to enhance Xcelera, our priority is to continuously improve your clinical workflow. Xcelera tele-cardiology solutions provide various options to support the cardiology enterprise, including full system functionality wherever you are, whenever you want, without compromising image fidelity or quantification applications. Access the full range of Xcelera’s powerful functionality via a secure VPN connection, or in a remote networked location. The ability to ‘push’ or ‘pull’ cardiology exams to multiple locations that you designate gives you greater flexibility on your work routines.

CT data is loaded into EP navigator from Xcelera. The registered detailed 3D cardiac anatomy is overlayed with real time fluoro image.

* network bandwidth speeds need to be taken into consideration
Xcelera – robust, secure and feature-rich platform designed for today and tomorrow

Safeguarding security and performance
Xcelera will support High Availability via a Microsoft© cluster environment to reduce potential system downtime. If one server fails, a secondary fail-over server can perform the functions to maintain operation so the end user can continue to access Xcelera functionality. By maintaining uptime this functionality will provide cost savings.

Clinical roles
Each user only has access to relevant information based upon the roles assigned and can only make edits and additions at the level of permission granted. Activity is recorded in an audit log.

Business tools
In addition to streamlining workflow in the cardiology department, advanced investigation of stored discrete data can be performed on Xcelera’s database views with the use of standard data analysis tools.

Xcelera provides the tools necessary to aid compliance with HIPAA regulations.

Value-added services
Philips can assist you in creating a more efficient clinical workflow by offering an extensive range of services to help you implement, integrate and configure your Xcelera solution.

DICOM interoperability
- Easily access third party DICOM archives, leveraging your existing investment in IT solutions.
- Take advantage of expanded DICOM capabilities, such as DICOM Query/Retrieve, manual DICOM export, DICOM Structured Reporting, and DICOM-based archive connectivity.

- Leverage existing IT solutions and take advantage of expanded DICOM capabilities so that you can easily utilize third-party DICOM compliant systems and archives.

Connectivity throughout the enterprise
Xcelera’s HIS interfaces for ADT/orders and results reporting can potentially reduce errors, save critical time to treatment and lead to faster billing.

Database and operating system
Xcelera utilizes industry-leading supporting technology: Windows 2003 for the server operating system and SQL 2005 for the database application.

Intuitive user interface
Xcelera’s graphical user interface conforms to Philips’ user interface standards, minimizing training and enhancing ease of use.

Future-safe investment
With Xcelera you are investing in a proven platform. In fact, nearly every Philips cardiology informatics product introduced since 1996 has a defined upgrade path to the latest most advanced Xcelera functionality, retaining all historical data, including images, reports, and templates.

Xcelera gives you a platform for further expansion, enabling you to review, quantify, and report on a variety of cardiac modalities at the same workspace. You also have the ability to access ECG reports via optional interfaces to Philips TraceMasterVue and GE MUSE ECG management systems.

For more information, contact your local Philips representative.