

## DR X-ray detector upgrade set

- To upgrade existing **stationary** X-ray systems
- To upgrade existing **mobile** X-ray systems







Medici DR Systems

1.

## Upgrade existing **stationary** X-ray systems

### Included in delivery:

X-ray detector  
(fixed installation or mobile)

Acquisition software  
**dicomPACS® DX-R**

Operating console  
with touchscreen





## 2.

### Upgrade existing **mobile** X-ray systems

#### Included in delivery:

Wireless X-ray detector in cassette format

Acquisition software **dicomPACS®DX-R**

Toughpad or Tablet-PC





# Upgrading to digital made easy

You know the problem: Your stationary or mobile X-ray system is not even that old and works perfectly. Yet as a progressive doctor you would now like to create your X-ray images digitally and benefit from all the advantages of this technology.

CR systems are not an option for you since digitalisation with a flat panel (DR system) offers many additional advantages, mainly better image quality and hardly any servicing costs. Therefore you would like to extend your existing X-ray system by a flat panel system and are looking for a complete upgrade kit that is easy to install, easy to operate and provides X-ray images in a professional and reproducible quality. **Welcome to our Medici DR system!**

**Medici** DR systems can be supplied for almost any X-ray system:

1. **To upgrade existing stationary X-ray systems**
2. **To upgrade existing mobile X-ray systems**

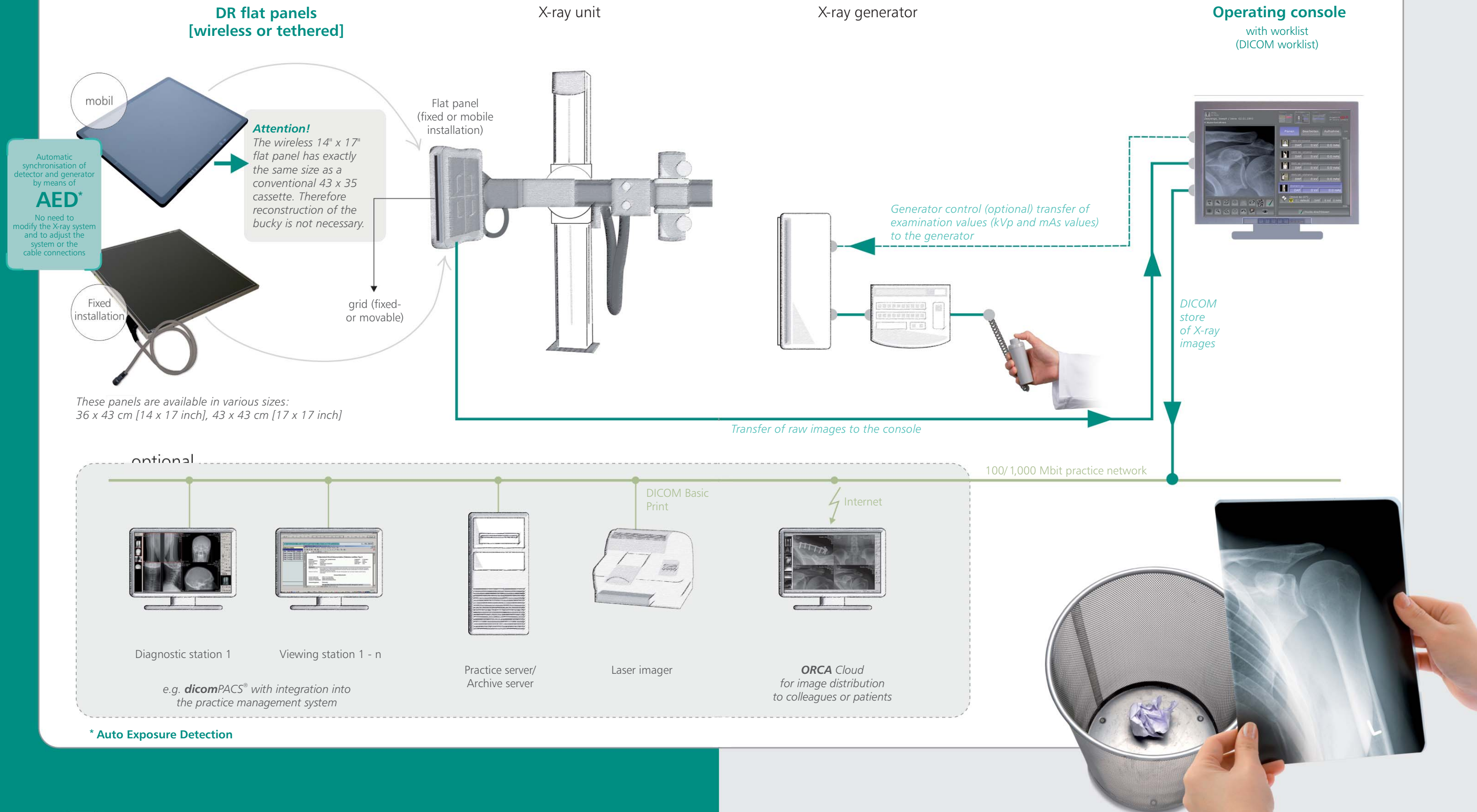
Various makes and sizes of flat panels allow your system to be configured according to your needs. The **dicomPACS®DX-R** acquisition software can be operated intuitively via a touchscreen, adjusts to your work routine and provides X-ray images in a reproducible, extremely high quality.

Of course, all **Medici** DR systems can be integrated into your practice management software and transfer the X-ray images to an image management system (PACS). If you have not yet installed such an image management system but still require the images to be distributed within your practice or hospital, or to colleagues or patients via the internet - no problem: Our **dicomPACS®** image processing system will do just that.

# 1.

## Upgrade existing stationary X-ray systems

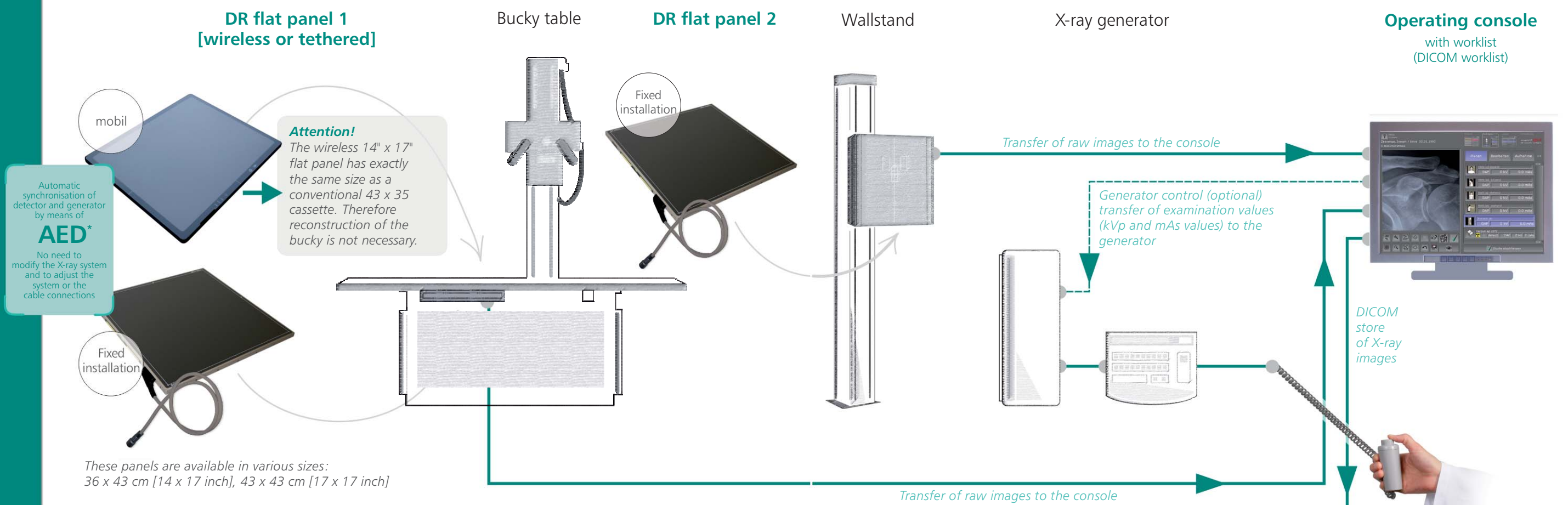
# Mode of operation using U-arm X-ray system



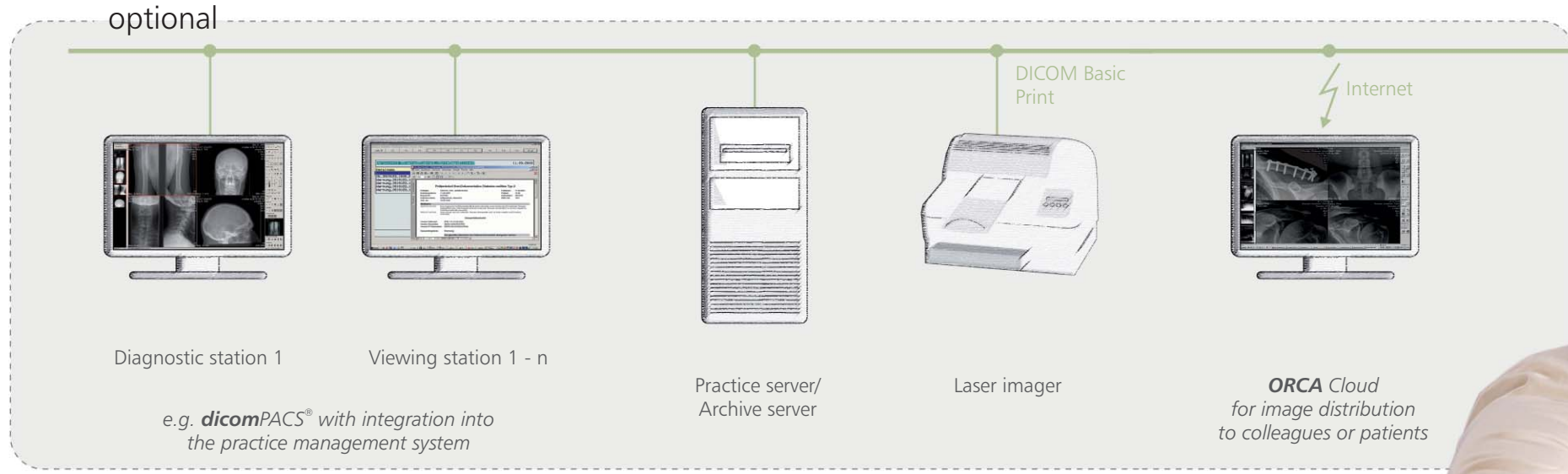
# 1.

## Upgrade existing stationary X-ray systems

# Mode of operation using bucky table and wall stand



These panels are available in various sizes:  
36 x 43 cm [14 x 17 inch], 43 x 43 cm [17 x 17 inch]



\* Auto Exposure Detection

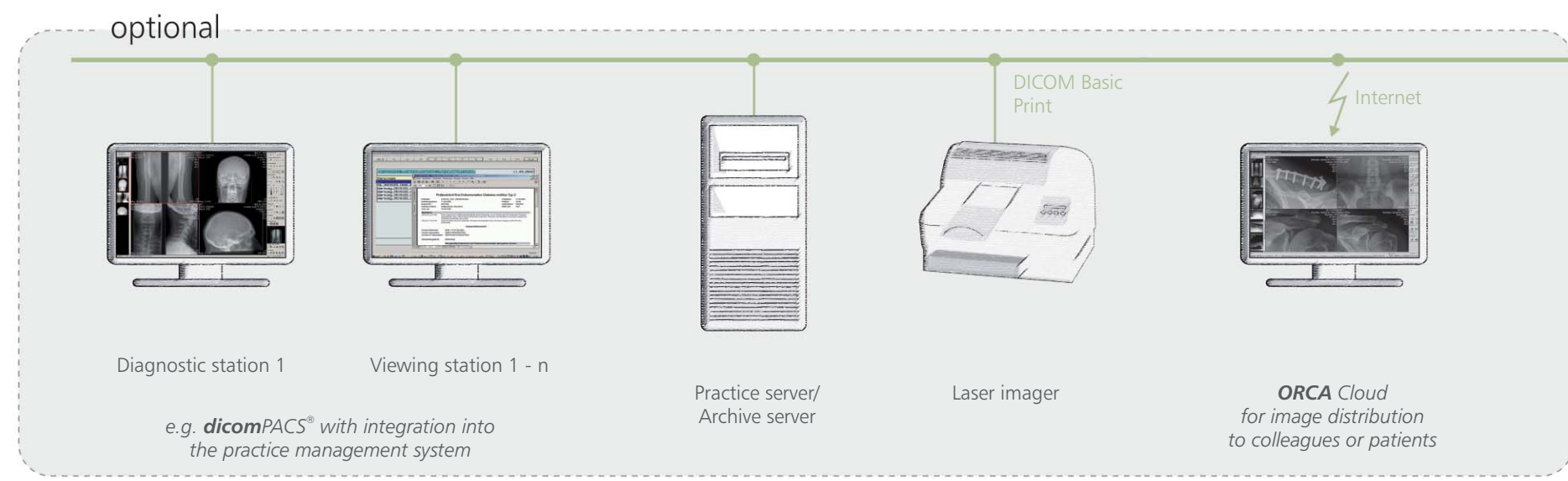
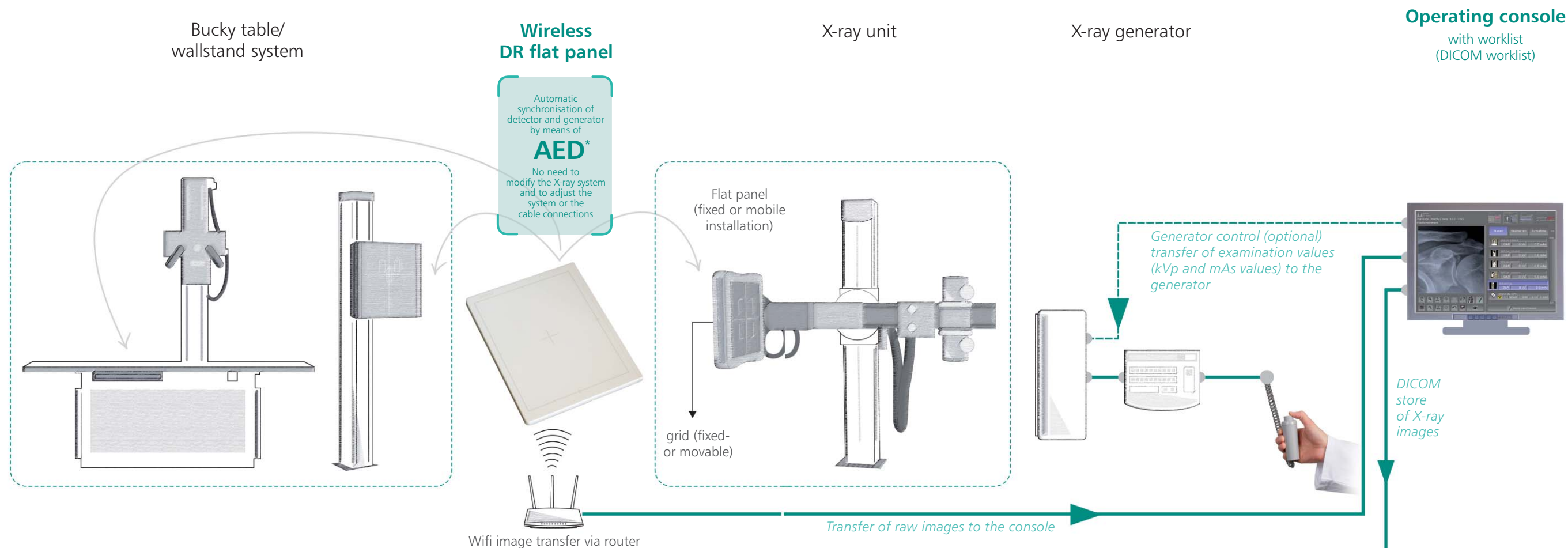




1.

Upgrade existing **stationary** X-ray systems

# Mode of operation: **one** wireless X-ray detector for all systems



 **Medici DR Systems**

\* Auto Exposure Detection

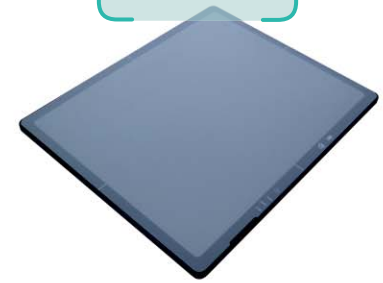
# 2.

## Upgrade existing **mobile** X-ray systems

# Mode of operation using Toughpad/Tablet-PCs

### Wireless DR flat panel

Automatic synchronisation of detector and generator by means of **AED\***  
 No need to modify the X-ray system and to adjust the system or the cable connections



### Mobile X-ray unit with **operating console**



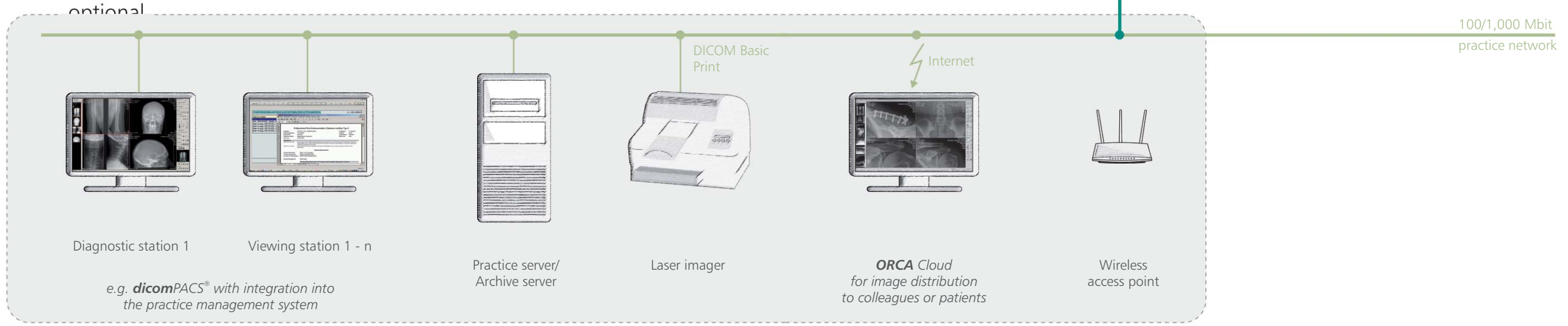
Transfer of raw images to Toughpad or Tablet-PC – no additional access point required

### Operating console Toughpad or Tablet-PC with and without keyboard with worklist (DICOM worklist)



A variety of mounting systems are available for the operating console

Transfer of images to the practice network via wireless LAN



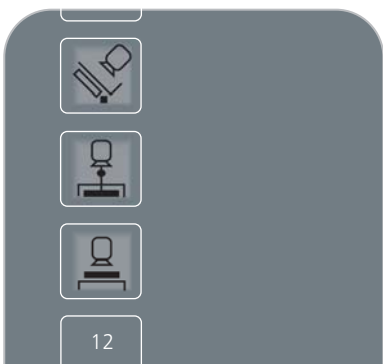
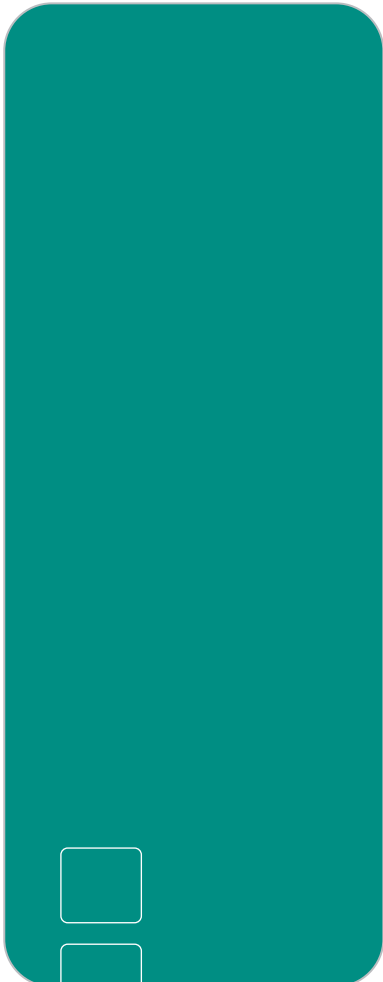
\* Auto Exposure Detection



# Software

## Benefits of the professional *dicomPACS®DX-R* X-ray acquisition software

- Modern graphical user interface (GUI) adaptable to almost **any language**
- **Touchscreen** operation - to ensure quick and efficient work and a smooth workflow
- Capture of patient data via **DICOM Worklist, BDT/GDT, HL7** or other protocols - data may also be captured manually
- Use of **DICOM Procedure Codes** for the transfer of all relevant examination data directly from the connected patient management system (HIS/RIS)
- **Freely configurable** body parts with more than **200 projections** and numerous possible adjustments in already included
- Safe and fast **registration of emergency patients**
- Allows the user to **switch between examinations** of a patient, for instance to avoid having to re-position the patient frequently
- Allows the user to **subsequently add images** to an examination, even after that examination has already been completed
- Integrated measurement, special image filter and various other tools for measurement and image optimisation
- Registration of recurrent examination procedures as macro, e.g. thorax screenings or BG-examinations
- **Fully integrated radiographic positioning guide** for each examination incl. comprehensive notes, videos, photos and correct X-ray images
- The digital X-ray system can be controlled via **wireless remote control** including display of the work list, image preview and much more





## Benefits of flexible image acquisition

- The **configurable generator interface** enables the user to control X-ray generators or X-ray systems by different manufacturers, delivering the generator settings directly from the software
- Option for the **parallel operation of a flat panel and a CR system** included in the standard package. The user has the choice to take the next image with either the flat panel or the integrated CR system. This flexibility also provides an **excellent emergency concept** in case of a defect flat panel.
- Integration of **dose area product meters (DAP)** - the readings are saved directly to the relevant image
- **AEC** (Automatic Exposure Control) and **ARP** (Anatomical Programmed Radiography) allow the user to **automatically adjust all X-ray options** for each projection with an option to subsequently edit the image manually
- Electronic X-ray log



# Operation

of the acquisition software

*The correct settings for adults and children at a mouse click*

*Chart for the planning of an individual X-ray job*

*Switch to the planning of X-ray jobs for children*

operator: Marion  
 patient: Lee, Joseph Nov 29, 1978  
 Schädel, Nasenbein

plan edit exposure 0/4

Skull PA	default	DAP	73 kV	125.0 ...
Skull LAT	default	DAP	73 kV	80.0 mAs
Nasal bones	default	DAP	46 kV	3.2 mAs
Skull AP axial Towne	default	DAP	73 kV	125.0 ...

finish study

## Radiographic positioning guide

*Video with sound for the step by step positioning of the patient*

*Shows an example of a correct X-ray image*

**Os pisiforme**

Positioning and centering

**Material:** 18/24, 5200, (5400), appropriate side marker, lead apron, two wedged positioning aids (15°, 45°), weights.

**Bucky:** cassette/detector

**Exp. EU:** 45-55 kV

**Exp. CH:** 42-46 kV

**Speed class:** 5200

**Format:** 18/24

**TFD (-FFD, -SID) EU:** 105 cm

**TFD (-FFD, -SID) CH:** 120 cm

**Grid:** no

**Filters:** no

**Measuring chamber:**

**Focus:** small

**Patient position:** The patient is seated laterally, arm and hand in a straight line. Semi-supinated position of the hand 60° to the film. Some dorsiflexion of the wrist may be used. Support the hand with a positioning aid. Make sure the lead apron covers the legs.

**Alternative:** Some dorsiflexion of the wrist may be used. Both hands next to each other, scoop position, for a comparative view.

**Cervical ray:** Perpendicular to the Pisiform and the center of the film.

**Comments/Notes:** A comparative view of the other side may be indicated, remove jewellery.

**Hints:** Comparative view: Both arms on the bucky, both hands semi-supinated 60° to the film. Slight dorsiflexion at the wrist: so called "scoop position".

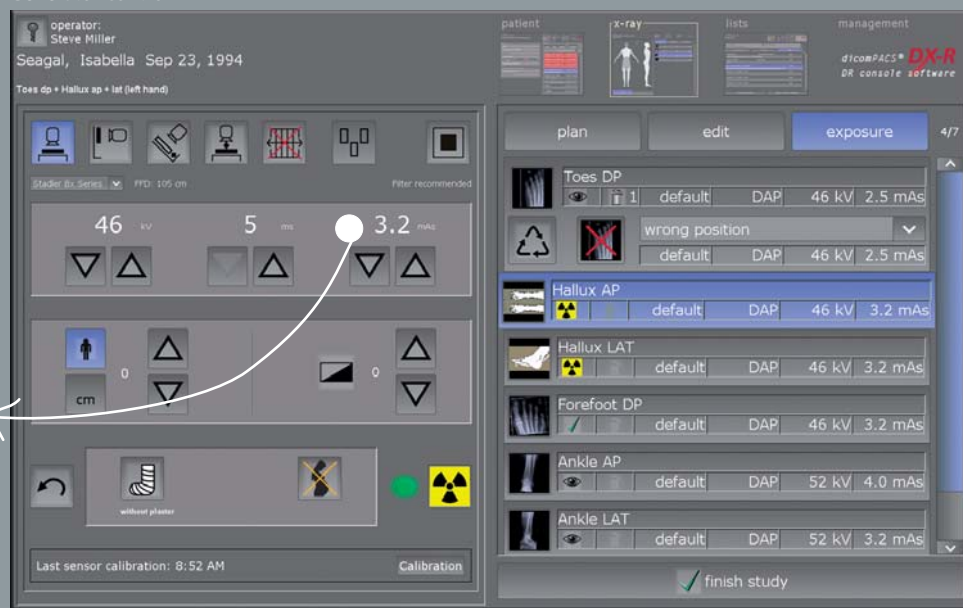
*Presentation of helpful hints for the positioning of the patient, central beam, tips and tricks, frequent errors etc.*

Preview of the X-ray image and worklist



Preview of the current X-ray image

Generator control



The generator panel displays all values and settings (kVp, mAs, focus etc.) recommended for a specific examination



# Image processing

Automatic image processing for optimal quality

- Perfect images at all times - generally **no adjustment** required
- Integrated software for **automatic image optimisation**
- Professional, **adaptable image processing** for each individual examination to obtain best possible image settings for the needs of each customer
- Due to specially developed processes, the image processing allows the user to **vary the X-ray settings on a large scale** while the image quality remains virtually the same (**possibility of reducing the dosage**)
- **Bones and soft tissue** in one image - this enables the user to significantly improve his diagnosis
- **Details of bones and microstructures are very easy to recognise**
- Noise suppression
- **Black mask** (automatic shutters)
- Automatic **removal of grid lines** when using fixed grids



Exposure with  
**standard** image processing



Exposure with  
**dicomPACS® DX-R** image processing

# Image diagnostic

at the highest stage

- Completely integrated **dicomPACS® Viewer for image diagnosis**, further processing and storage of images in an SQL database incl. image manipulations, export options, layout adjustments, freely configurable user interface and much more
- Stepless **zoom, PAN, magnifyer, ROI, crop, rotate, mirror** etc.
- Insertion of **image annotations**, e.g. free texts, arrows, ellipses etc.
- **Measuring** of distances, angles, areas and density

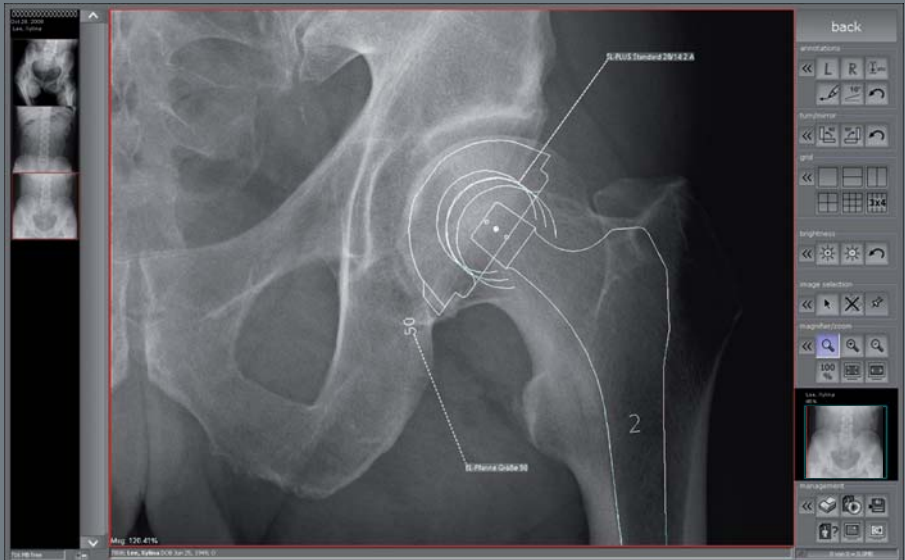


- Adjustment of window/level options and **gamma correction**, sharpening filters, noise suppression
- Many additional functions such as **Chiro Tools**, calculation of **Cobb's angle**, **pelvic obliquity measurements**, **integrated capturing of diagnostic reports** etc.
- Creation of **DICOM patient CDs** with free **WEB viewer**
- **Export of images** to JPEG, TIFF, BMP and DICOM format
- Image transmission via integrated **e-mail function** – no external e-mail program required
- Easily upgradable to the professional, **integrated image management system** (PACS)

# Integrated viewer



Completely integrated **dicomPACS®** viewer for image diagnosis



An integrated prosthesis documentation module provides preoperative planning (optional).



The system enables fast and easy customisation of the operating interface for individual customer preferences.



Useful tools such as the configurable measuring magnifier make diagnosis much easier.



The stitching module merges a number of separate digital X-ray images into a single image.



Comprehensive search tools enable the comparison of X-ray examinations of one or more patients.



# Cloud-based

Cloud-based telecommunication solution and data archiving for images, documents and diagnostic evaluations for stationary and mobile applications

Even for state-of-the-art practices and hospitals, the rapidly rising data flood of digital images, diagnostic reports and other documents is becoming increasingly challenging. Current legislation demands safe and long-term storage of patient data which generally requires investing in expensive hardware infrastructure as well as maintenance and corresponding staff costs.

To this end, we developed the **ORCA** Cloud archiving solution, thus paving the way for cost-effective and safe Cloud-based data archiving in practices and clinics. **ORCA** offers two application options:

- Safe, long-term archiving of patient data with intelligent usage of internal databases
- Communication platform (exchange of images and diagnostic reports) with colleagues and specialists or as an easy way to forward image data to patients (an alternative to creating patient CDs)

Data is **exclusively** archived on European servers with the relevant safety certificates.

## Benefits of Cloud archiving through **ORCA**



**Minimal expenditure:** **ORCA** does not require investing in expensive infrastructure such as server and data cables.

**Scalability:** The amount of memory required when using **ORCA** is determined by the demand.

**Long-term security:** **ORCA** archives data on many individual European servers in professional and air-conditioned data centres. Server technology is continuously updated.

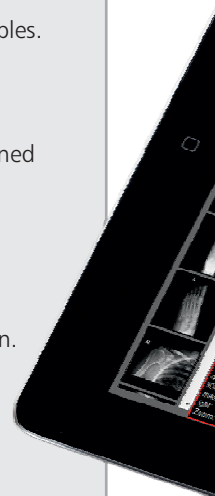
**Accessibility:** **ORCA** stands out by being highly accessible. Since data is saved with multiple redundancy, **ORCA** guarantees more continuity than a mere server solution.

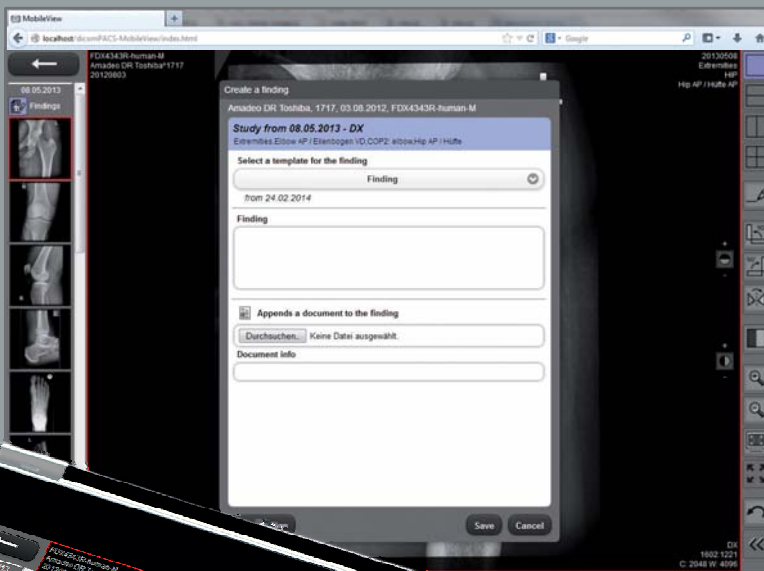
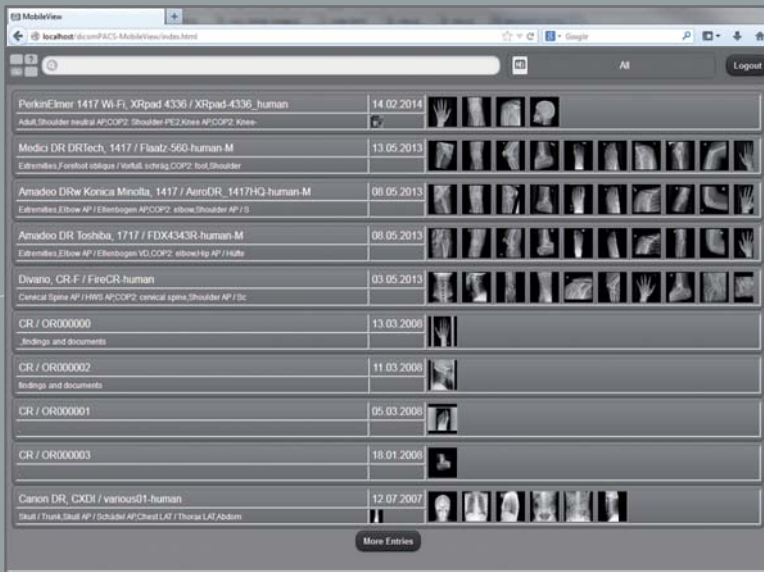
**Environmentally friendly:** **ORCA** is sustainable – through the optimised use of resources and their distribution.

**Location-independent:** **ORCA** guarantees access to archived patient data - worldwide.

**Simplicity:** **ORCA** allows easy access to data from any computer – from your place of work, from the comfort of your home or from any other computer or tablet PC.

**Stress-free:** **ORCA** deals with everything – no need to struggle with loose network cables, removed hard drives or software problems.





### Features of ORCA online viewer:

The web-based viewer offers an important range of functions of a professional PACS viewer:

- Draw annotations
- Measurements
- Registration of diagnostic findings
- Attach documents
- Draw lines and arrows (multi-coloured)
- Compare images in different grids
- Adjust brightness/ contrast
- Flip and rotate images
- Adjust brightness / contrast
- Invert, zoom in / out
- Full screen, fit image
- PAN
- Scroll through image series
- Cine loop for multi frame series and CT/ MRI
- Export images and documents
- Print images and documents



# Special Chiro Tools

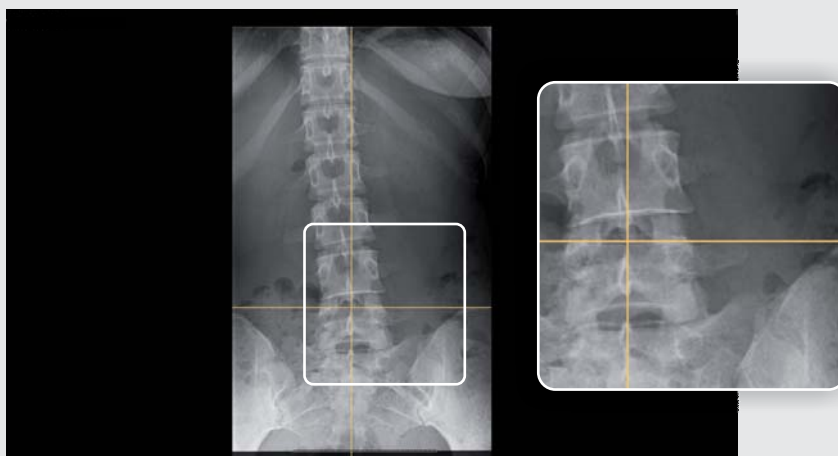
## Diagnostic tools for optimal diagnosis

The Chiro Tools have been developed in cooperation with experts from the USA and Canada and offer great possibilities for diagnosing accurately as well as for planning further treatment. According to the tool used, automated center lines and points, defined curves, angle measurements etc., are generated after the manual selection of the points of interest.

Of course all the standard tools (like distance measurement, angle and Cobb angle, mark spots etc.) are also included.

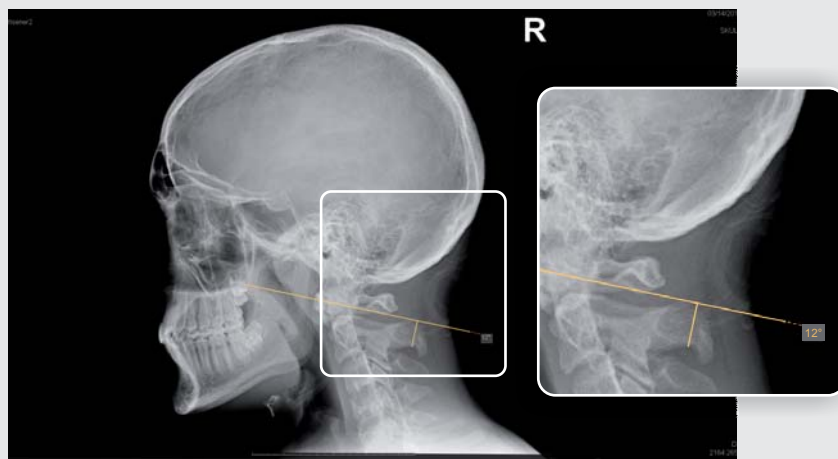
### Axis line

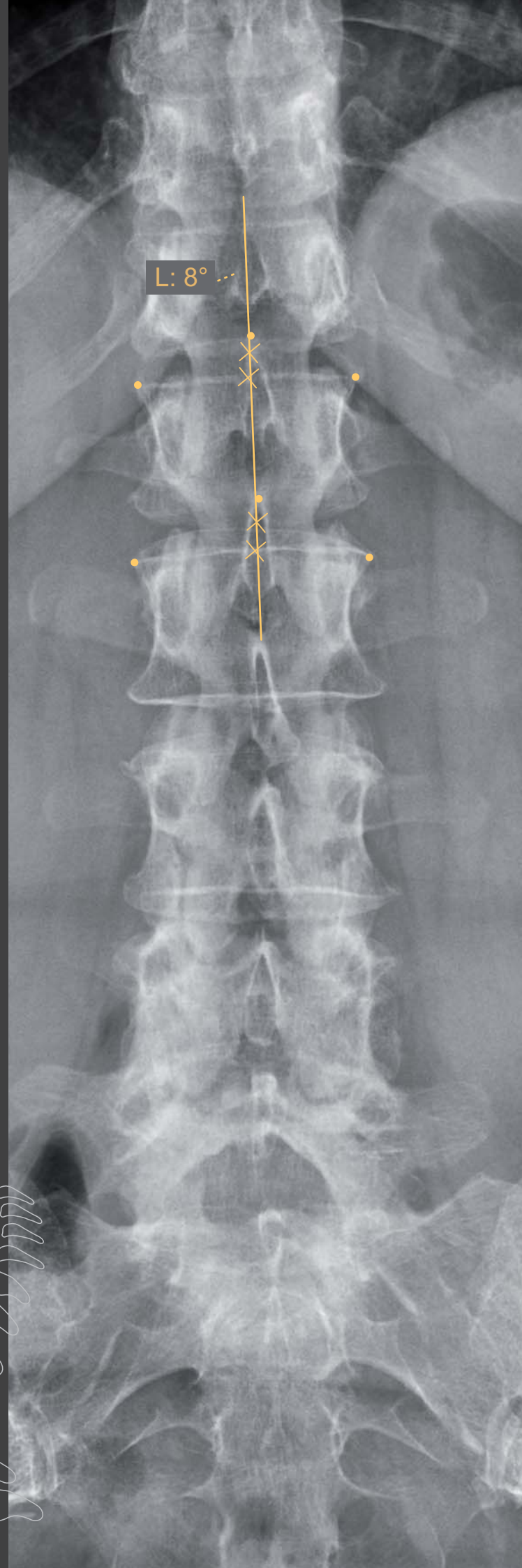
The tool creates a vertical or horizontal axis, depending on the direction, in which the mouse pointer is moved.



### Orthogonal line

This tool is used to mark perpendicular lines on existing or yet to be drawn baselines. The divergence from the x/y-axis (nearer axis) is displayed by default.





# Chiro tools

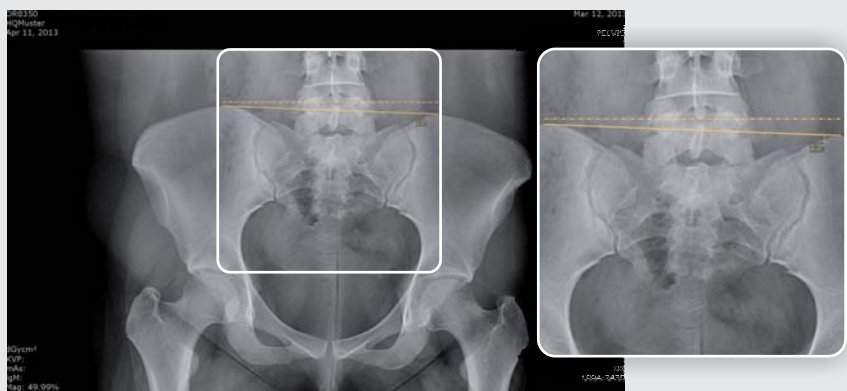
## George's line

This tool is used to draw vertical lines on each vertebra along the spine in a lateral view and to calculate their distances (in mm or inch).



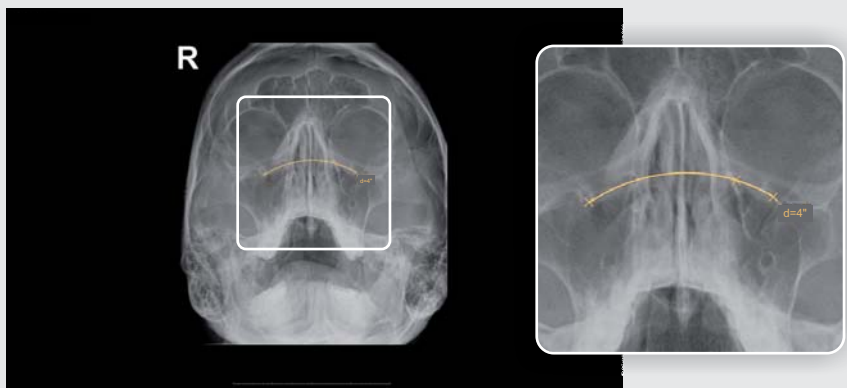
## Horizontal or vertical level

This tool calculates the horizontal or vertical level. By default the nearer axis is used for calculation.



## Circumscale

An arc is drawn through three defining points and the diameter of the corresponding circle is displayed by default.



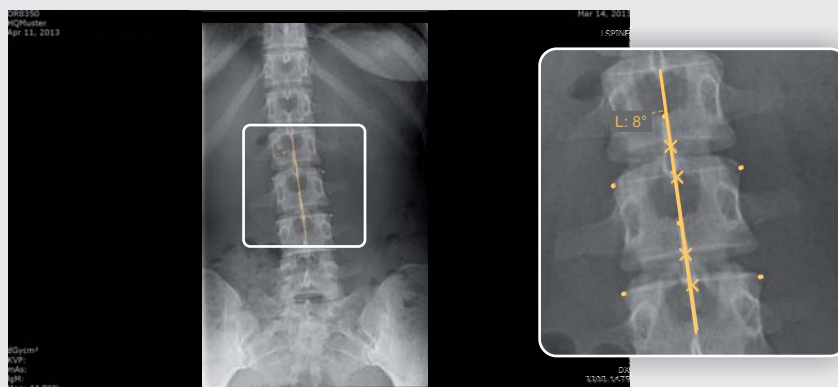
## Spinal curve

This tool is used to draw an arc in the lateral view of the spine. The annotation uses a fixed radius set by default to 220 mm. Radius or degree can be adjusted manually.



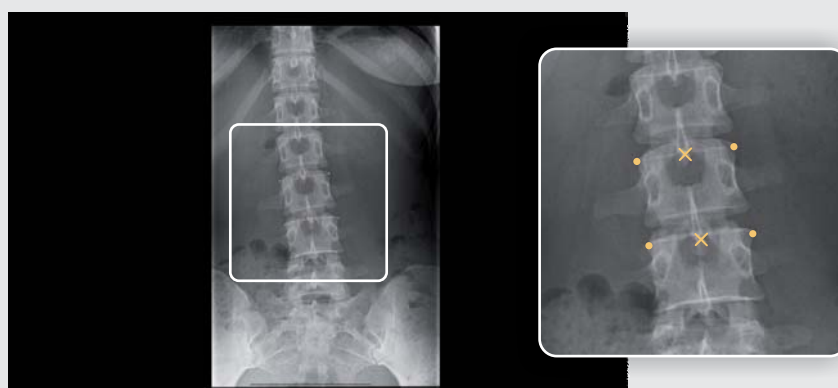
### Vertebrae line

This tool generates a vertical line of six points (2x3) along the spinal canal and displays the lateral divergence and side of laterality in degrees.



### Center point

This tool calculates the center point between two points.



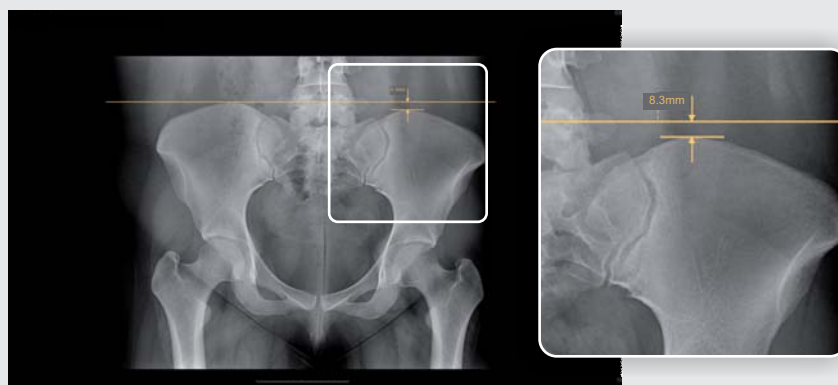
### Distance comparison

This tool compares the distances between three set points (between point 1 and point 2 and between point 2 and point 3) and shows the larger distance.



### Pelvic obliquity

This tool is a measurement that is calculated automatically after two simple clicks which generate two horizontal lines showing the distance between these two parallels.





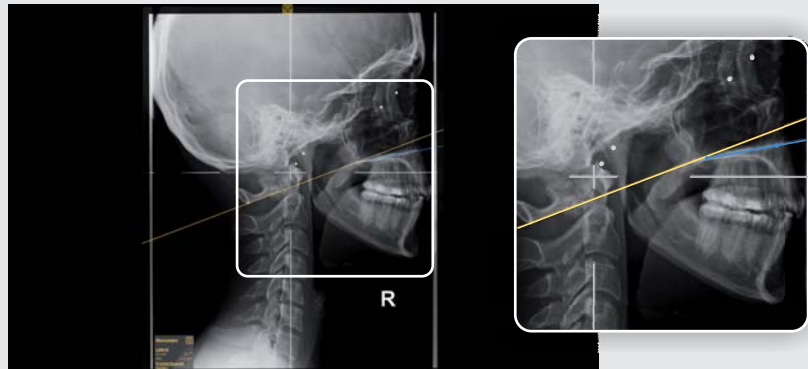
# Special Tools

## **dicomPACS**<sup>®</sup> Diagnostic tools for Upper Cervical Chiropractic

The Upper Cervical Chiropractic tool set has been created in cooperation with leading experts from the US and Canada. It offers a variety of ways to reach a fast and accurate diagnosis. Templates like the Cephalometer, Grid, Circumscale, and Relatoscope enable you to continue working as you are used to.

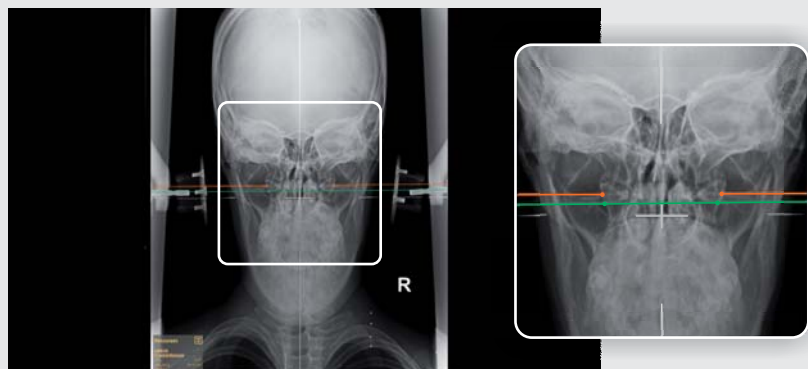
### **S-Line and Hard Palate Line and Raw Data Box**

You simply set two points each on C1 and the hard palate to create the S-Line and the Hard Palate Line. We will show you the horizontal angles. All measured values will be shown in the raw data box. You can also show and hide values manually.



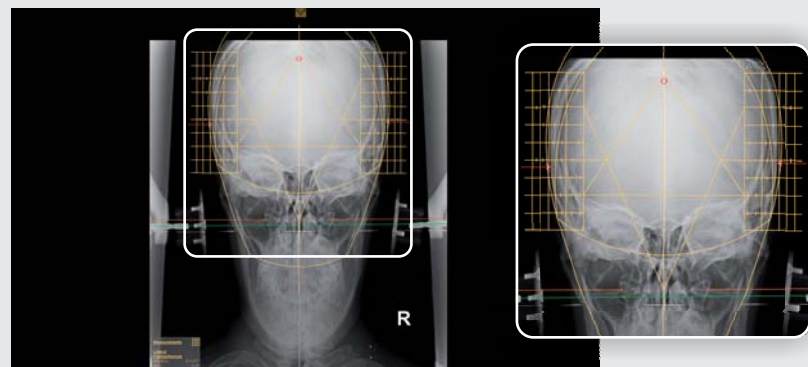
### **Atlas Plane Line and Atlas Check Line**

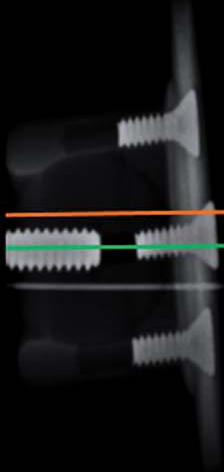
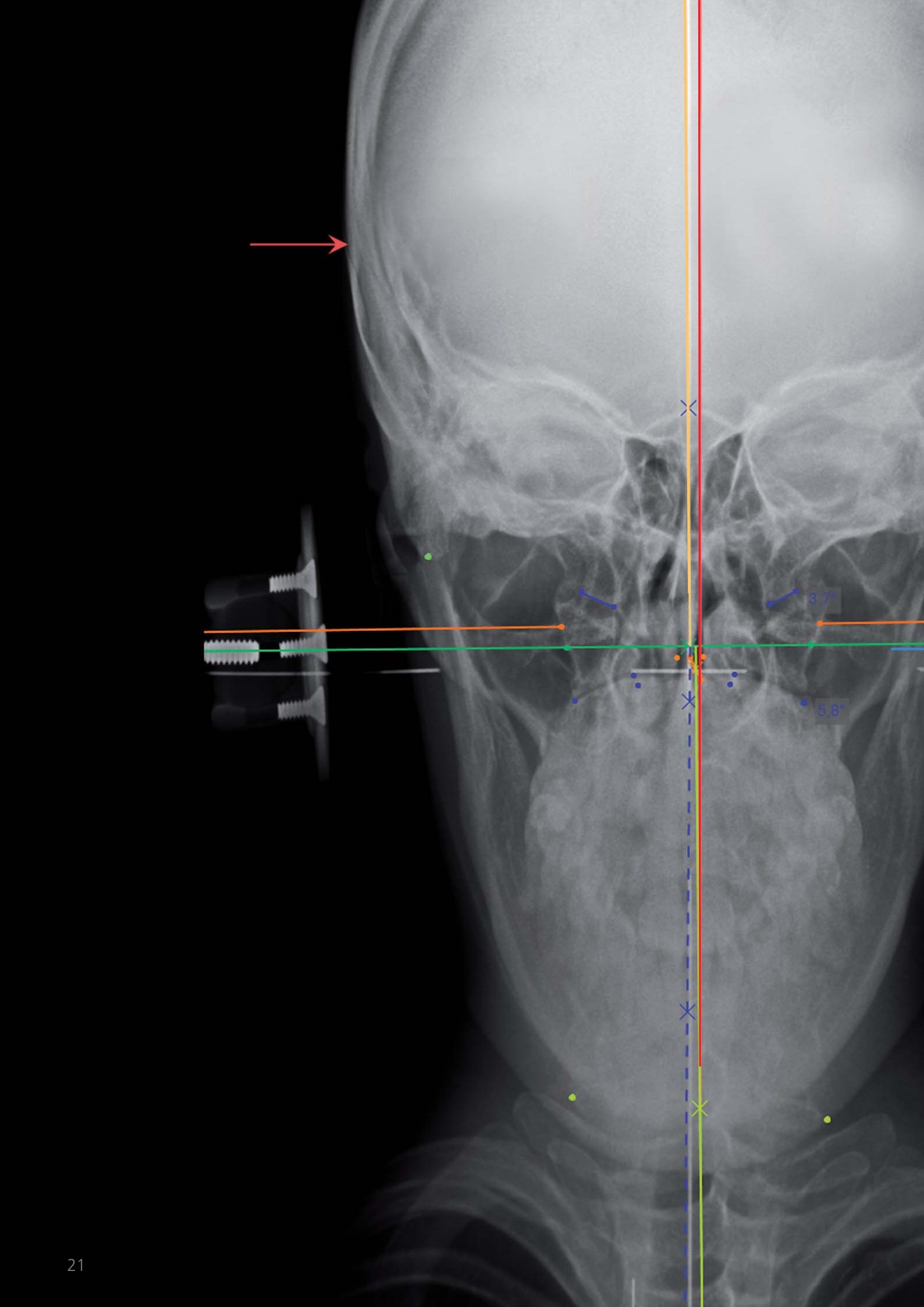
The horizontal angle and the angle between Atlas Plane Line and Atlas Check Line will be shown in the raw data box.



### **Cephalometer and Central Skull Line**

Use the Cephalometer to draw the Central Skull Line. Laterality and Skull Tippage will be calculated automatically. The Four Elements and Listing Information will be inserted and are completely editable.



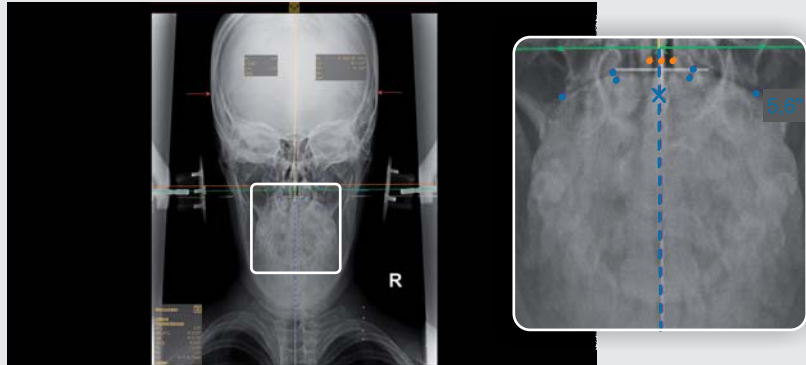


3.7°

5.8°

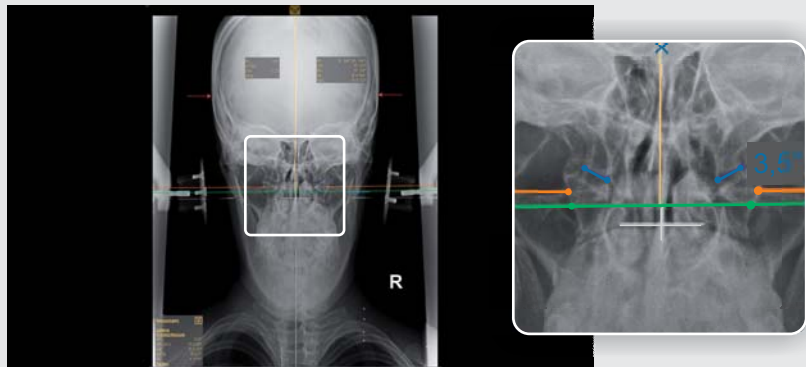
### Axial Circle

The Body Center Line will be set automatically and the Axial Circle will be calculated and shown on the side of laterality. You can set the calculated measurement manually to the value you prefer.



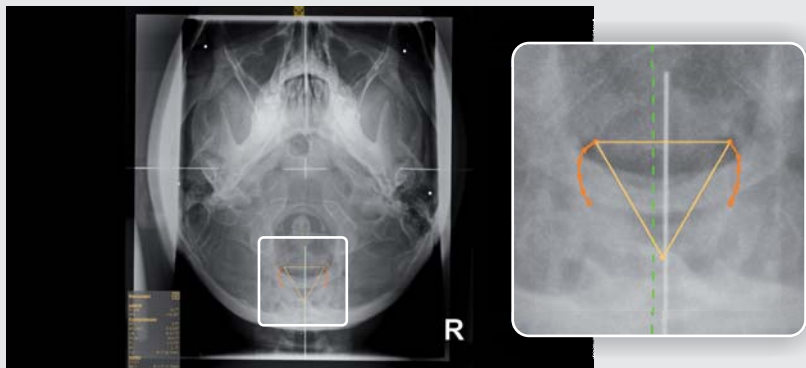
### Condylar Circle

Choose between the three point and four point Condylar Circle. The middle point will be shown. You can set the calculated measurement manually to the value you prefer. The Relatoscope will use the shown value.



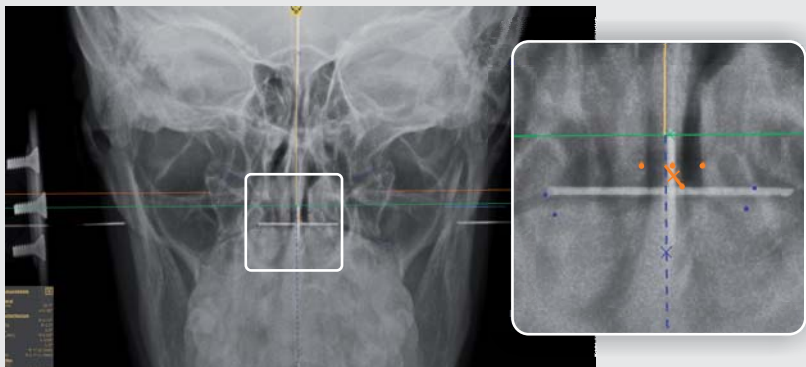
### Odontoid Center and Vertex Square

Mark the lateral aspects of the dens and the Odontoid Center Line will be inserted. After marking the C2 canal, the Vertex Square will be inserted and the Spinous value will be calculated depending on the Condylar Circle.



### Odontoid, Spinous and Relatoscope

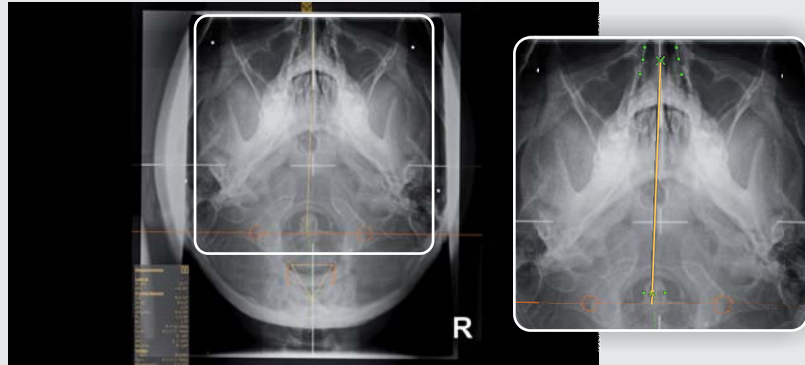
Use the Relatoscope to apply the Spinous value from Vertex to Nasium View. Mark the lateral aspects of the dens and the (corrected) Odontoid will be inserted automatically.





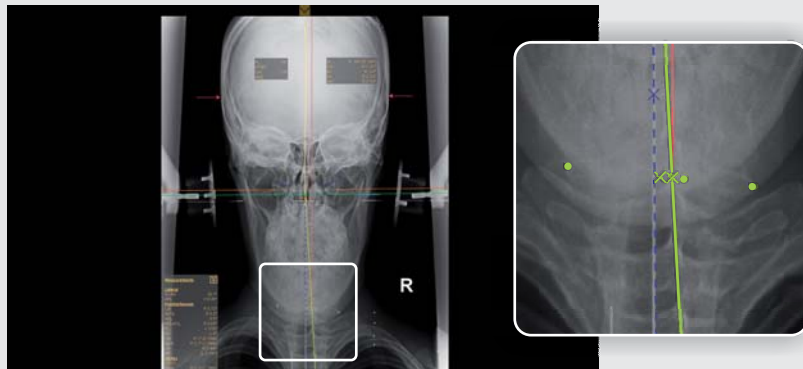
### Vertex Skull Line

After marking the nasal structures, click the Inferior Point button. The point will be set automatically depending on the Listing Information value and the Vertex Skull Line will be inserted. Atlas Rotation will be calculated.



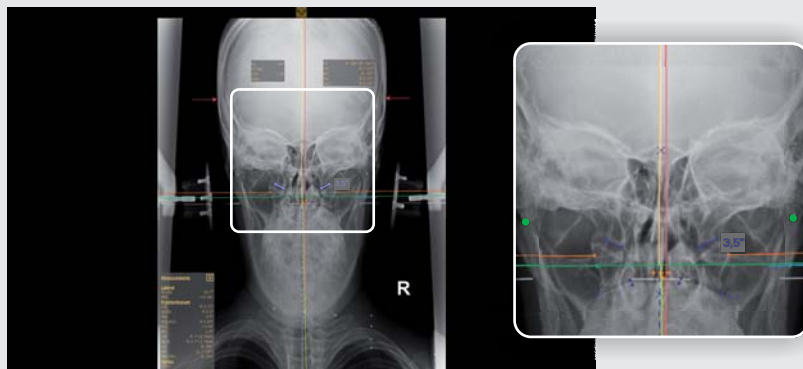
### Lower Angle and Angular Rotation

The Lower Angle and Angular Rotation will be calculated automatically after setting the Inferior Point. You can also set a corrected Inferior Point.



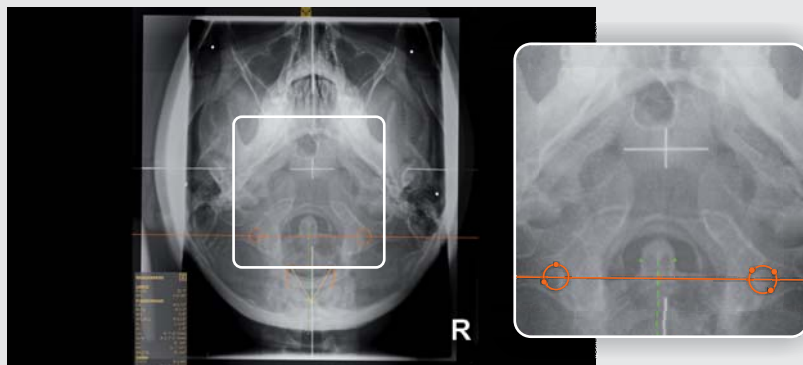
### Intermastoid Line

Mark the inferior tips of the mastoid processes. The measured value, its orthogonal divergence from the Central Skull Line, will also appear in the raw data box.



### Vertex Atlas Line

After marking the transverse foramina of the atlas with three points each, we will draw the Vertex Atlas Line and show the convergence of C1 and C2.





# Options

for upgrading **dicomPACS® DX-R**  
X-ray acquisition software

**dicomPACS® DX-R** may not only be used as a software for the acquisition and processing of X-ray images, but can also be upgraded to a MiniPACS or even to an Enterprise Multi Modality PACS. Several thousand installed image processing systems in almost 70 countries (as of July 2014) are proof of customer satisfaction.

A single workstation system with installed **dicomPACS® DX-R** software can be upgraded with the following options (extract):

## Further optional viewer functions:

- May be installed on **Windows, Apple MAC and Linux** systems
- Generation of full leg/full spine images (**image stitching**)
- Preparation of diagnostic reports with integrated images in MS Word
- Connection of several diagnostic monitors
- Capturing of additional patient and examination data with their freely configurable **statistical analysis**
- Working with **digital prosthesis templates for surgery planning** and documentation - Prosthesis templates can be selected from a set and inserted into the image as annotations
- Additional radiological functions such as Maximum Intensity Projection (**MIP**), Multiplanar Reconstruction (**MPR**) and hanging protocols and mammo tools
- Fast and easy preparation of **surgery reports** with automatically inserted X-ray images and much more...



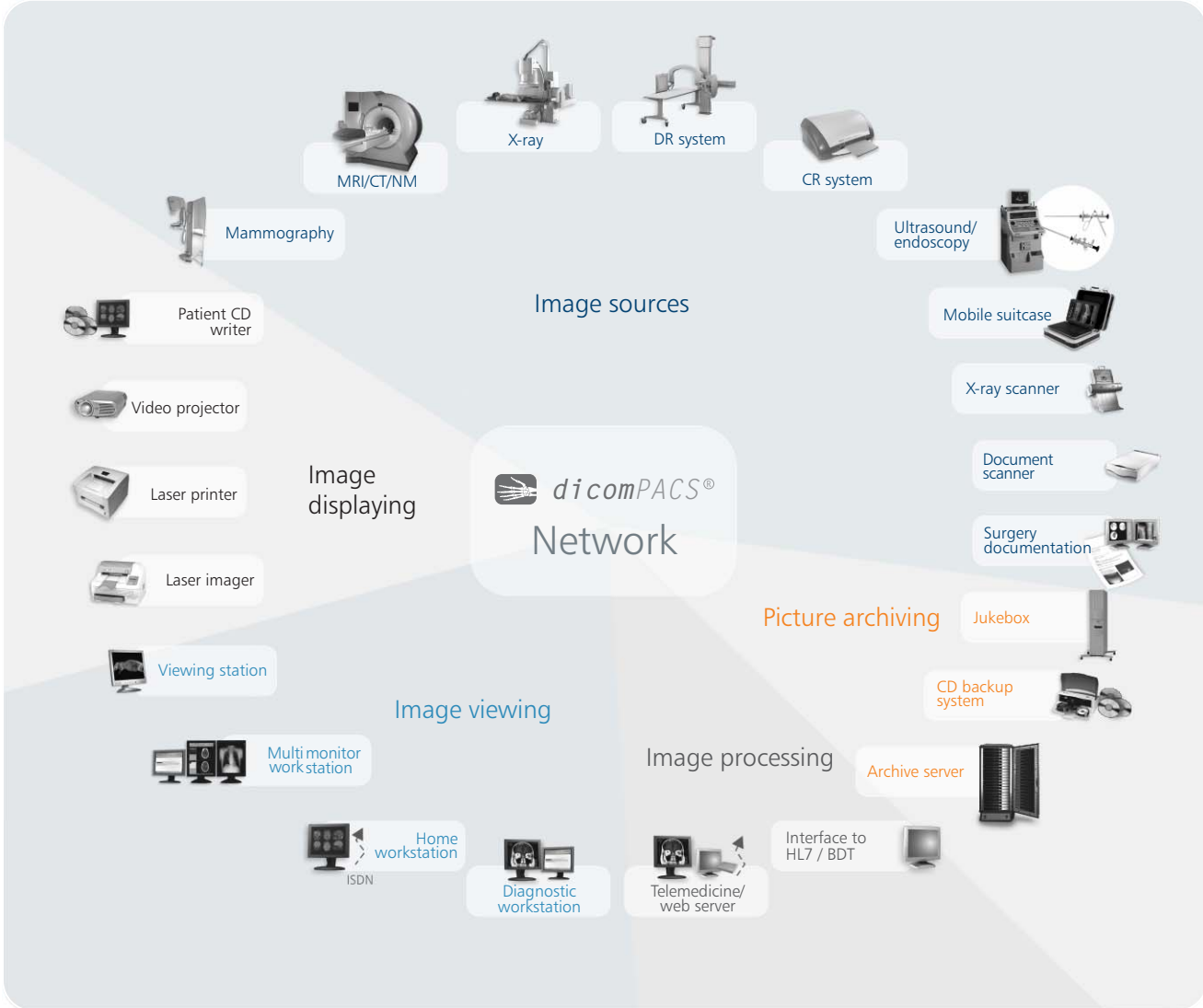




# Options

Upgrade to an integrated multi-modality PACS

- **DICOM reception** from any DICOM sources, e.g. CT, MRI, scintigraphy, ultrasound etc
- **DICOM distribution** with freely configurable rules
- **DICOM DIR import** for archiving patient CDs by other manufacturers
- **DICOM Query/Retrieve** (SCP/ SCU)
- DICOM Auto **Prefetching**
- **DICOM Print Server** to convert DICOM Basic Print into Windows print jobs
- **DICOM Compression** according to freely configurable rules
- DICOM CD/DVD Backup Module, also via robot systems
- Integration of **film and document scanners**
- Digitalisation of standard and non-standard video signals, e.g. **endoscopy, angiography** etc.
- Fully automatic **synchronisation** of two image databases, e.g. laptop and main archive
- **Exchange of images and diagnostic** reports between individual clinics by means of teleradiology
- **MobileView**: distributes images within a hospital and displays the images in a web browser
- **ORCA - Intelligent cloud solution**: enables worldwide image distribution to referring doctors and patients via the internet



# Portfolio

## Overview - products of OR Technology



### Medici DR Systems

**DR retrofits** - digital upgrade set for existing X-ray systems incl. **dicomPACS®DX-R** acquisition software, also available for stationary and mobile X-ray machines



### Leonardo DR Systems

**DR suitcases** - compact suitcase solutions for portable X-ray incl. **dicomPACS®DX-R** acquisition software



### Amadeo X-ray Systems

**Complete digital X-ray systems** (incl. stand, bucky, generator, flat panel incl. **dicomPACS®DX-R** acquisition software etc.) as well as mobile and portable X-ray solutions



### Divario CR Systems

**CR solutions** - CR systems for digital X-ray with cassettes incl. **dicomPACS®DX-R** acquisition software



### X-ray Accessories

**Accessories for X-ray** (e.g. radiation protection walls, gloves etc.)



### dicomPACS®

**Image management (PACS)** - comprises acquisition, processing, diagnosis, transfer and archiving of image material



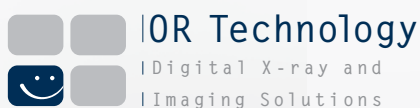
### ORCA

**Cloud-based archive solution** - safe, long-term archiving of patient data with intelligent usage of internal databases, communication platform with colleagues and specialists and transfer of image data to patients



**dicomPACS®DX-R**  
X-ray Acquisition Software

**X-ray acquisition software** [only for OEMs] - acquisition and diagnostic software for X-ray images from flat panels or CR systems



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