

Siemens Healthcare GmbH

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Notes and forward-looking statements

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Due to rounding, numbers presented throughout this and other documents may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures.

New management of Siemens Healthcare effective from May 1, 2015

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Bernhard Montag Thomas Rathmann Michael Reitermann Chairman of Member of Member of the Executive the Executive the Executive Management Management Management and CEO and CFO

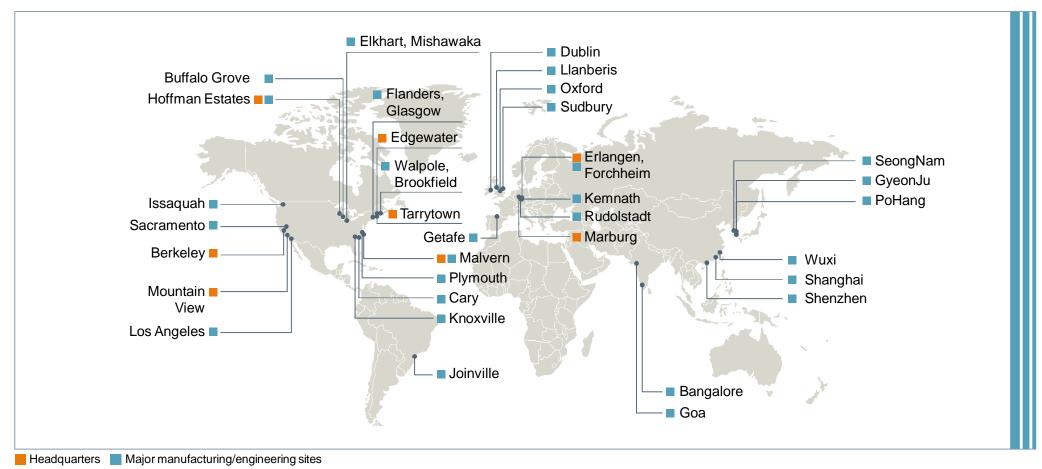
Separation of Siemens Healthcare's business activities in Germany May 1st into a legal entity under the Siemens umbrella

Foundation of Siemens Healthcare GmbH in Germany

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2015

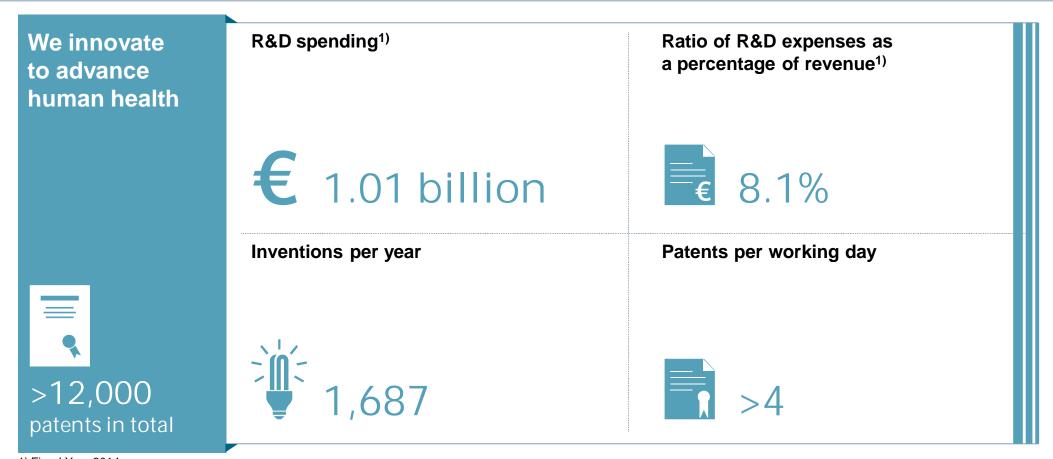
Globally balanced footprint



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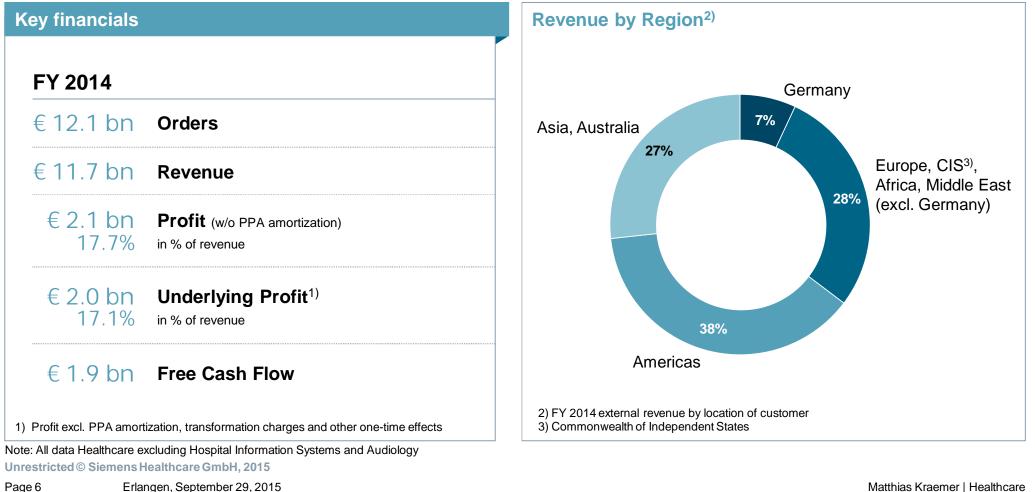
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Innovation is our strength



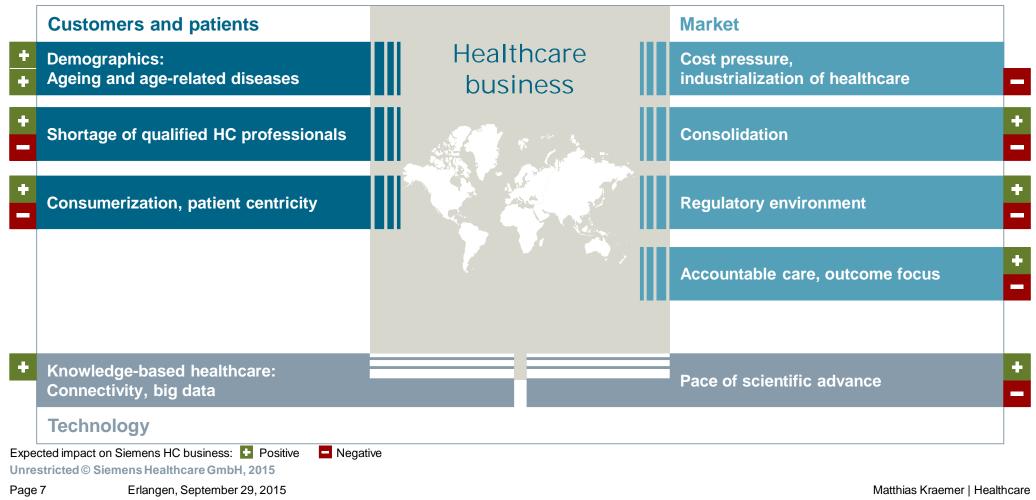
1) Fiscal Year 2014 Unrestricted © Siemens Healthcare GmbH, 2015 Page 5 Erlangen, September 29, 2015

Facts and figures – Fiscal Year 2014

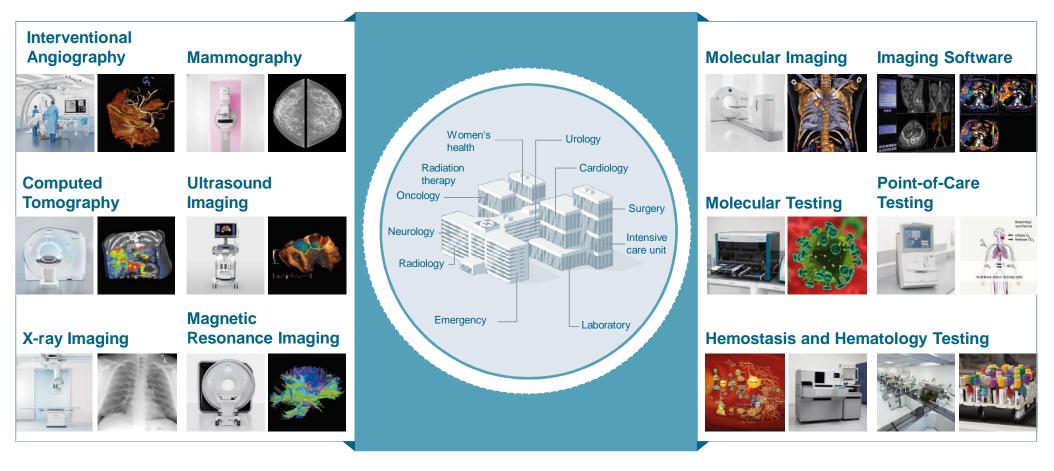


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Market dynamics – Healthcare systems in transition



Clinical fields and solutions offered by Healthcare



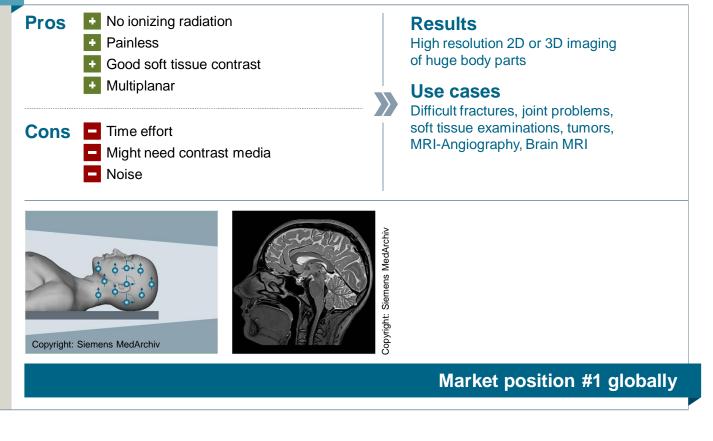
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Magnetic Resonance Imaging (MRI) – Characteristics

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Technology

- MRI relies on the principle that the hydrogen atoms in the human body possess magnetic properties: Exposed to the magnet in the MRI system, the nuclei of these atoms align with the magnetic field, like the needle of a compass with the earth's magnetic field
- The MRI system generates a second electromagnetic field by transmitting high-frequency radio waves. These waves meet the nuclei of the atoms and set them in motion
- If the waves are turned off, the atoms return to their initial position within the magnetic field.
 As they do so, they release some of the energy that they have absorbed from exposure to the high-frequency waves. This released energy is measured by highly sensitive receiver coils, and suitable techniques can be used to pinpoint its origin
- A computer converts the data and uses them to generate tomograms, or slice images



Computed Tomography (CT) – **Characteristics**

Technology

 CT measures the attenuation of X-rays within the tissue, visualizing the inside of the body as tomograms - slice images - on a screen

Pros

+

- A measurement system consisting of the X-ray • tube and the opposite detector is located inside the gantry, which is circling the patient. During this process, the tube transmits a fan-shaped X-ray beam, which is weakened less by soft tissue than by firmer tissue (bones) as it passes through the body
- When they reach the detector, the X-rays • hit a "scintillator" - Siemens uses a highly specialized ceramic mixture - that converts the detected X-rays into light. Photodiodes then convert the light into electricity, and a converter produces digital data from the analog signals and transmits them to the computer for analysis
- The computer translates the measurements into individual section images or even a threedimensional model of the entire body, all without a noticeable delay

to classical X-ray examinations High-contrast 3D pictures of the tissue Fast examinations compared to MR – thorax scan in less than one second Use cases Heart scan in one heart beat, painless Stroke (Neurology), head or spine injuries, internal injuries, diseases of Cons lonizing radiation examinations (Oncology), heart Might afford injection examinations (Angiography) of contrast medium Direction of continuous patient transport Path of the rotating gantry (tube and detector) Copyright: Siemens MedArchiv St. Louis Children's Hospital Barnes-Jewish Hospital, United Sta

Free of superimpositions compared

Results

WWW Copyright: Siemens MedArchiv

Market position #1 globally

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the respiratory system, tumor follow-up

Imaging Software and IT – Characteristics

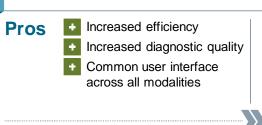
Technology

- syngo makes reading, storing, archiving and sharing clinical images easier and more efficient
- Its innovative technology transforms the power of imaging equipment into tangible clinical benefits
- A common user interface across all modalities streamlines radiologists' work
- Mobile access* capabilities make it possible to view images and findings virtually anywhere and on many devices
- *syngo*.via for 3D and advanced visualization software
- syngo Dynamics as Cardiovascular Imaging and Information System
- syngo Workflow as Radiology Information System (RIS)
- syngo.plaza as Picture Archiving and Communication Software (PACS)
- syngo.share* as versatile Vendor Neutral Archive (VNA)
- Sense*
- teamplay as first cloud-based healthcare network
- $\,^*\,some$ of these options are realized by $3^{rd}\,party\,products$

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Cons

None

Results

Access to image data, increased usability

Use cases

- Software for imaging scanners in Angiography, Computed Tomography, Mammography, Magnetic Resonance, Molecular Imaging etc.
- Software to connect to current data, comparing benchmarks, and collaborating with healthcare professionals worldwide
- Software for effective management and sharing of clinical image data, multimedia data, radiological studies and clinical documents
- Software to support integrated, cross-enterprise healthcare networks by providing medical information

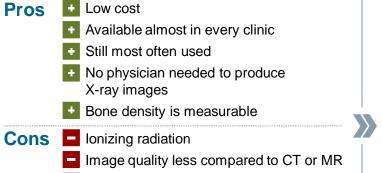


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Conventional X-ray – Characteristics

Technology

- Like light, X-rays are electromagnetic waves
- Radiation is generated in an X-ray tube when electrons from an incandescent wire, the cathode, are beamed at a specific metal part known as the anode
- When the electrons strike the anode, X-ray radiation is generated. As they pass through the body, the rays are absorbed to different degrees
- Bones are so dense that they weaken the rays, leaving a bright, clear image
- Other kinds of tissue allow more of the radiation to pass through
- The X-ray image is either captured on film or an electronic sensor converts it into a digital image
- The short-wavelength rays are invisible to the human eye



- Not suitable for pregnant women
- Soft tissue is not seen with high resolution



Results

2D and even 3D pictures

Use cases

Cardiovascular diseases e.g. heart attack (angiography), fractures (radiography and mobile radiography), ortho, trauma, surgery, CT, mammography (women's health), urology, fluoroscopy

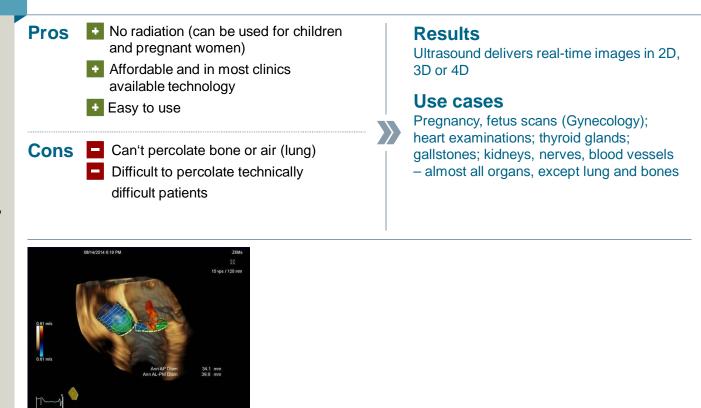
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Ultrasound – Characteristics

Technology

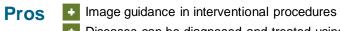
- Ultrasound uses high-frequency sound waves
- The transducer emits waves and receives their echo reflected from the tissue
- This echo is calculated into grey values for real-time images also for moving organs like the heart
- Using Doppler sonography, blood flow velocity may be determined and the flow relationship in vessels displayed. As a result, information can be obtained regarding constrictions, occlusions, and standard variants in vessels and the heart
- Wide-area panoramic displays and threeand four- dimensional images can be generated on the computer in order to better analyze complex anatomical structures



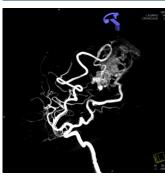
Angiography – Characteristics

Technology

- Performed to view blood vessels after injecting them with a radiopaque dye that outlines them on X-Ray. This helps to detect abnormalities including narrowing (stenosis) or blockages in the blood vessels (occlusions)
- Angiography is used for diagnosis and treatment of arteries, veins, and lymphatic vessels, as well as the heart chambers
- If a vessel is constricted, the contrast agent helps in locating the stenosis and detecting to which percentage the lumen of the vessel is occluded
- When diagnosing tumors, angiography can be used to show the blood supply of the tumor
- The origin of internal bleeding, such as a damaged vessel, can be precisely located
- In interventional angiography imaging tools are used for minimally invasive procedures including angioplasty and embolization



- Diseases can be diagnosed and treated using minimally invasive procedures
- + Enables treatment even for very old or sick people
- Less scar tissue
- + Faster healing
- **Cons** Ionizing radiation
 - Contrast media can further damage e.g. the kidney
 - Known allergies to contrast media with some diseases
 - Internal bleedings as complications of puncturing an artery



Copyright: Dr. Azam Ahmed, University of Wisconsin, Madison, USA

Results

 Digital subtraction angiography (DSA) to "subtract" bones and other organs to better see the vessels

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- Image guidance in interventional procedures
- Check for successful treatment

Use cases

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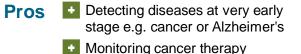
Cardiac catheterization during coronary angiography (e.g. chronical heart disease); aortography (e.g. aortic aneurysms/dissection); cerebral angiography to visualize vessels in the brain (e.g. stroke, aneurysms, thrombectomy); Angiography of the leg and pelvic vessels (e.g. diabetes); Chemoembolization of tumor feeding vessels

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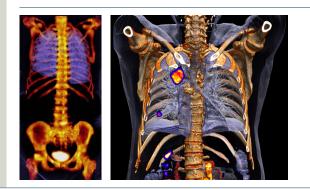
Molecular Imaging – Characteristics

Technology

- Single Photon Emission Computed Tomography (SPECT), Positron Emission Tomography (PET), Magnetic Resonance, Optical Imaging and Ultrasound
- Probes known as imaging biomarkers (i.e., peptides, radiopharmaceuticals, fluorescents) are injected into the body to help display particular targets or pathways
- Through chemical interactions with their surroundings, imaging biomarkers alter the image according to molecular changes that occur within the area of interest
- This level of functional imaging displays, for instance, increased metabolic activity that is typical for malignant tumors like recurrent prostate cancer
- The addition of CT to either PET or SPECT provides the anatomical "map" for pinpointing the exact location of disease in the body, to match their metabolic or functional information



- Cons Without CT or MR no anatomical structure visible
 - Very expensive and limited availability
 - Injection of imaging biomarkers such as radiopharmaceuticals



Results

Molecular imaging procedures are able to image different biological processes of organs at the cellular level and thus can provide earlier and more precise evaluation of disease

Use cases

PET imaging is used for cardiac indications like coronary artery disease and helps detect most types of cancers and how much they have spread in the body. PET also provides diagnostic information on neurological disease. The main indications for SPECT are detection of tumors at a very early stage, sentinel nodes and infections, as well as cardiac and coronary vessel pathologies

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Point-of-Care/Chemistry/Immunoassay, Automation – Characteristics

Point-of-Care (POC)

- (Blood) samples testing is performed close to the patient
- Tests outside the traditional central laboratory and in a very short time
- Pocket ultrasound systems as Point-of-Care system, mostly used in obstetrics
- No need to wait for results from a lab
- Easy to handle and cost efficient
- Improving the workflow in physician's offices

Use cases

Routine physical exam (urine analysis), diabetes management (blood glucose monitoring), emergencies or during an operation (blood gas analysis), gynecology

Chemistry/Immunoassay, Hematology, Hemostasis

- Testing of body liquids such as urine or blood tests as well as the measurement of specific chemicals
- Immunoassays as biochemical tests that measure the presence or concentration of molecules in the blood through the use of an antibody or immunoglobulin
- Early proof of a broad range of diseases without invasive examinations
- Reliable, fast and cost efficient analysis and ongoing observation of the course of diseases

Use cases

Fertility testing, allergy, anemia, cardiac and tumor markers, diabetes management, control of kidney function, urinary tract infections, bone metabolism, inflammations

Automation, Diagnostics IT

- Systems that can do multiple tests at once and then extrapolate the information
- Moving samples to and from multiple analyzers, automatically performing additional tests or cancelling previously ordered tests according to pre-programmed protocols
- Allows caregivers to make faster and more timely treatment decisions for patients
- High initial capital investment, but immediate returns on investment from improved lab efficiency, throughput and capacity

Use cases

All four diagnostic disciplines of chemistry, immunoassay, hematology and hemostasis on a single automated track

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