SOMATOM go.Sim

Simulation reinvented

siemens-healthineers.com/somatom-go-sim
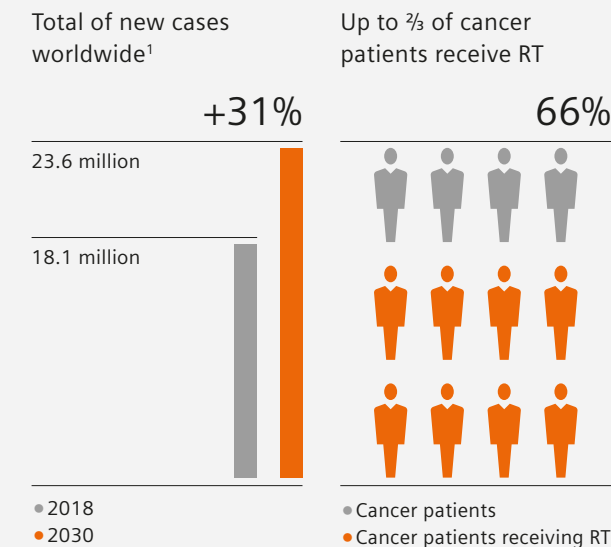
SIEMENS
Healthineers

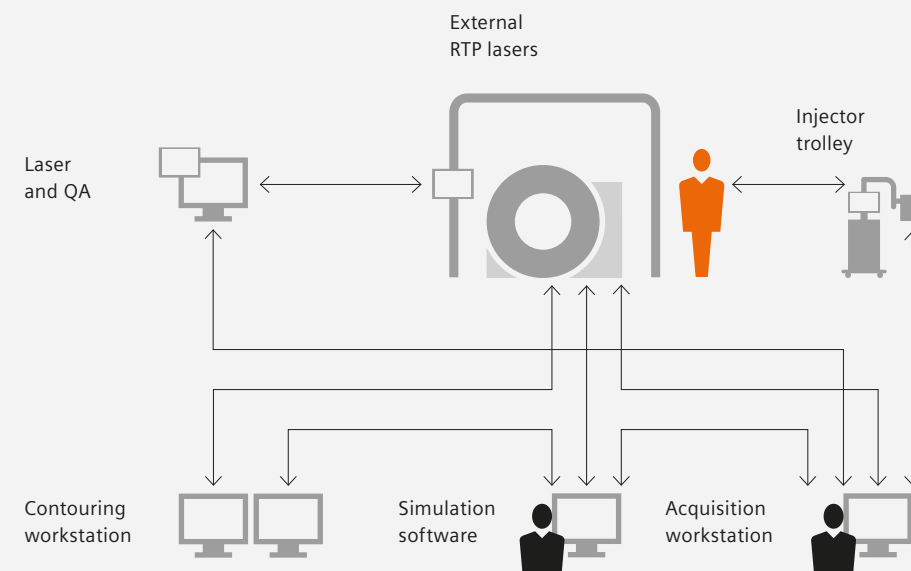# Staying competitive in a growing market

Today's healthcare providers are under increasing pressure to deliver radiotherapy to more patients than ever before. This demands innovative solutions that will allow you to work more efficiently and lay the foundations for the best possible treatments and optimal patient outcomes.

A growing problem

Total of new cases worldwide[1]

+31%

23.6 million

18.1 million

- 2018
- 2030

Up to ⅔ of cancer patients receive RT

66%

- Cancer patients
- Cancer patients receiving RT

With cancer cases expected to surge by 31% between 2018 and 2030,[1] RT departments will see a huge rise in the number of patients requiring their support.

An imperfect workflow

External RTP lasers

Injector trolley

Laser and QA

Contouring workstation

Simulation software

Acquisition workstation

The rise in RT patient numbers will add further pressure to the already complex and challenging RT workflow. Patients go through a multi-step process that involves multiple data exchanges. At Siemens Healthineers, treatment preparation is our area of expertise. That's why we want to optimize this part of the process by addressing the lack of integration in existing systems.

The challenges in CT Simulation

60% of RT incidents are caused by manual operation and data exchange[2]

1 Contouring is a major source of variability in RT planning[3]

49% of patients feel distressed and anxious[4]

Precise CT simulation requires fail-safe, reproducible, and streamlined workflows. SOMATOM go.Sim is a single, integrated software and hardware solution that covers the entire CT simulation process. By simplifying your tasks and reducing the likelihood of errors, it allows you to focus on what matters most: your patients.

As well as incorporating the patient marking process, our understanding of integration extends to every aspect of CT simulation. SOMATOM go.Sim delivers image optimization for target delineation, target margins, and even autocontouring – and by integrating the power of AI, this CT simulator reduces the sources of variability in your starting point for treatment planning.

SOMATOM go.Sim creates a calming environment for patients, and its simple operating concept allows staff to spend more time at their side. One user interface and a flexible training plan shorten the operator learning curve, while a single vendor service contract relieves the burden on administrators.

SOMATOM go.Sim is a dedicated CT simulator that can increase workforce productivity and optimize clinical operations. It helps you get the full picture faster so that you can spend less time managing CT simulation and more time focusing on patients.

Welcome to a new world of CT simulation.

SOMATOM go.Sim | Simulation reinvented

Take integration further. Go Direct. | SOMATOM go.Sim

SOMATOM go.Sim
Simulation reinvented

Be certain in simulation

Integrated components are the key to error-free CT simulation. SOMATOM go.Sim gives you certainty with a streamlined workflow that is exceptionally smooth, extremely fast, and able to deliver reproducible and user-independent results.

Drive precision for contouring

To be confident that you are working from a consistent starting point, you need reliable information about tumors and surrounding tissue for every patient. SOMATOM go.Sim provides precise contouring and generates the patient modeling data you need.

Care for patients and users

Reducing pressure on operators gives you time to focus on patients and high-quality results. Making patients feel at ease leads to more successful CT simulation. SOMATOM go.Sim is built on a concept that cares for the needs of both patients and users.
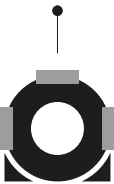
85 cm
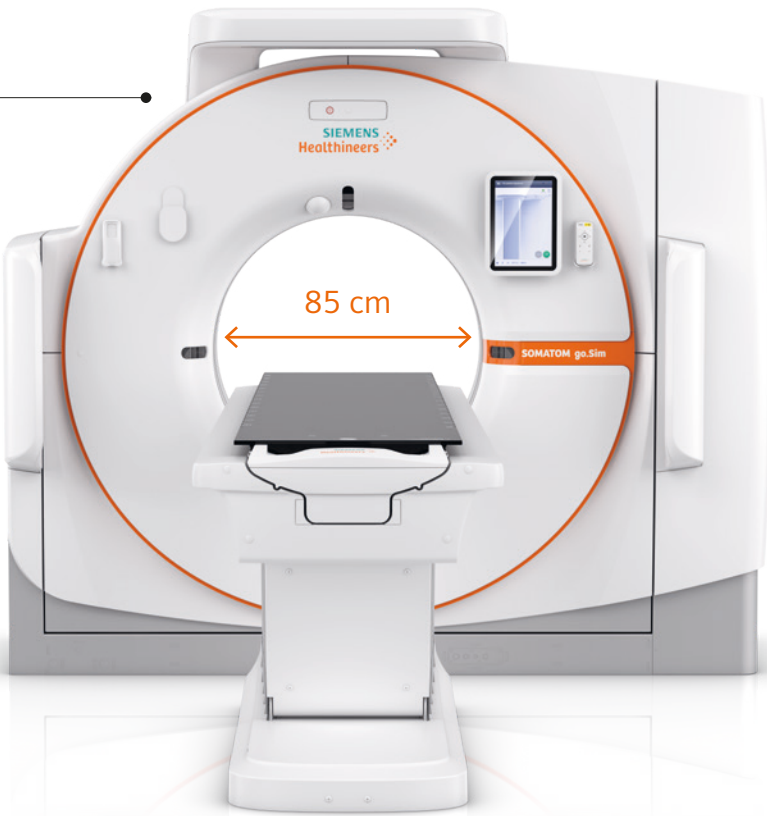
Key technical data

sFoV	Acquired slices/reconstructed slices	Z-axis coverage	Rotation time	Power	Max. table load
60 cm	32/64	1.92 cm	0.35[5], 0.5, 1.0 s	75 kW	227/307[5] kg (TG-66 compliant tables)

Take integration further. Go Direct.

Minimize sources of errors in QA
Direct Laser QA[5] provides an automated laser QA procedure with no need to switch workstations or interfaces with integrated patient-marking lasers.
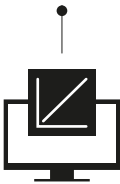
Personalize images for target contouring
DirectDensity[5,6] allows you to tailor kV settings for each patient, and eliminates the need for tube voltage-dependent calibration in the TPS.
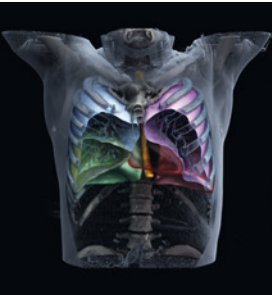
Simplify the current practice for particle therapy
DirectSPR[5,8] solves challenges and makes stopping power images directly available for automatic, calibration-free dose calculation.

+ RTP laser

+ Simulation software

+ Acquisition console

AI

+ Contouring station

Image optimization specifically for consistent OAR contours
DirectORGANS[5] offers the world's first contours generated by a CT simulator using an optimized reconstruction, and deep learning.

Courtesy of Leopoldina Krankenhaus Schweinfurt, Germany[7]

Reduce complexity and errors in laser steering
Direct Laser Steering, combined with the mobile tablet, enables a fast, seamless, and less error-prone workflow for patient marking.

Other features:

- **iMAR**[5] is our proven metal artifact reduction algorithm that gives you confidence in tumor visualization
- **Respiratory Motion Management**[5] with FAST 4D provides automated and reproducible results independent of the operator
- **TwinSpiral Dual Energy**[5] delivers crisp images with the option of even sharper contrast for excellent soft-tissue visualization
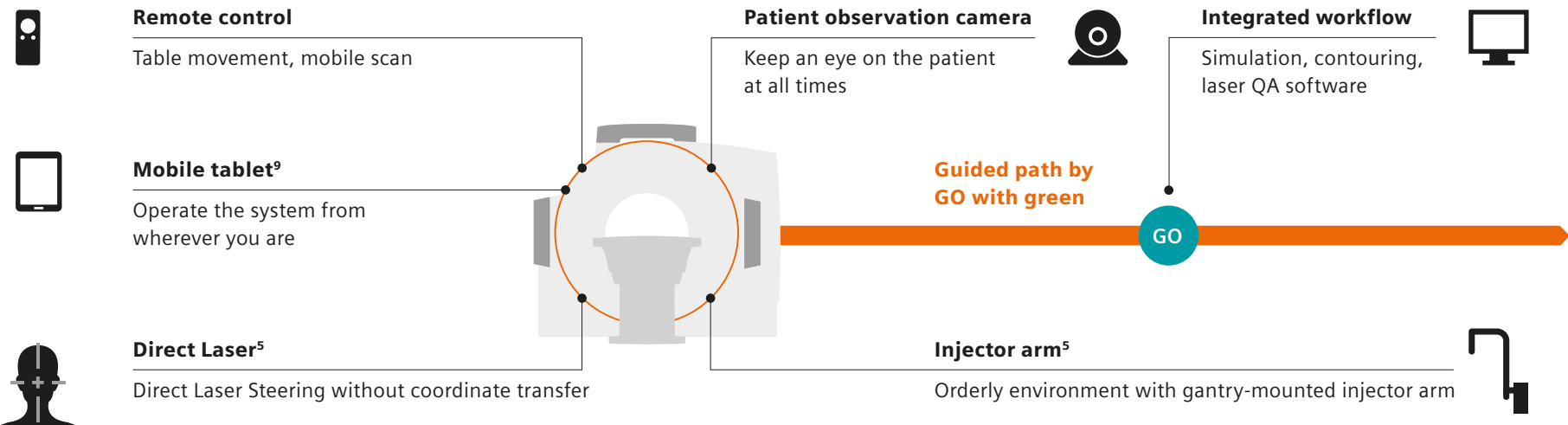
Powered by co-creation

Co-creation

To explore what really matters to you, we spoke to over 300 RT specialists: radiation oncologists, medical physicists, dosimetrists, RTTs, and financial decision makers. We learned about your biggest challenges and created a CT simulator to address them.

Mobile workflow

Go for a trendsetting mobile workflow

Remote control
Table movement, mobile scan

Patient observation camera
Keep an eye on the patient at all times

Integrated workflow
Simulation, contouring, laser QA software

Mobile tablet[9]
Operate the system from wherever you are

Guided path by GO with green

GO

Direct Laser[5]
Direct Laser Steering without coordinate transfer

Injector arm[5]
Orderly environment with gantry-mounted injector arm

The new mobile workflow is an integrated solution that makes CT simulation smoother and less error-prone. The system contains everything you need, and you operate it using a single mobile tablet. This highly innovative setup gives you more time with patients, unparalleled flexibility for your simulation tasks, and greater TCO transparency.

In short, the new mobile workflow supports certainty in simulation and cares for patients and users.

Be certain in simulation
• Straightforward patient marking with a single system
• Correct laser positioning with the integrated Direct Laser
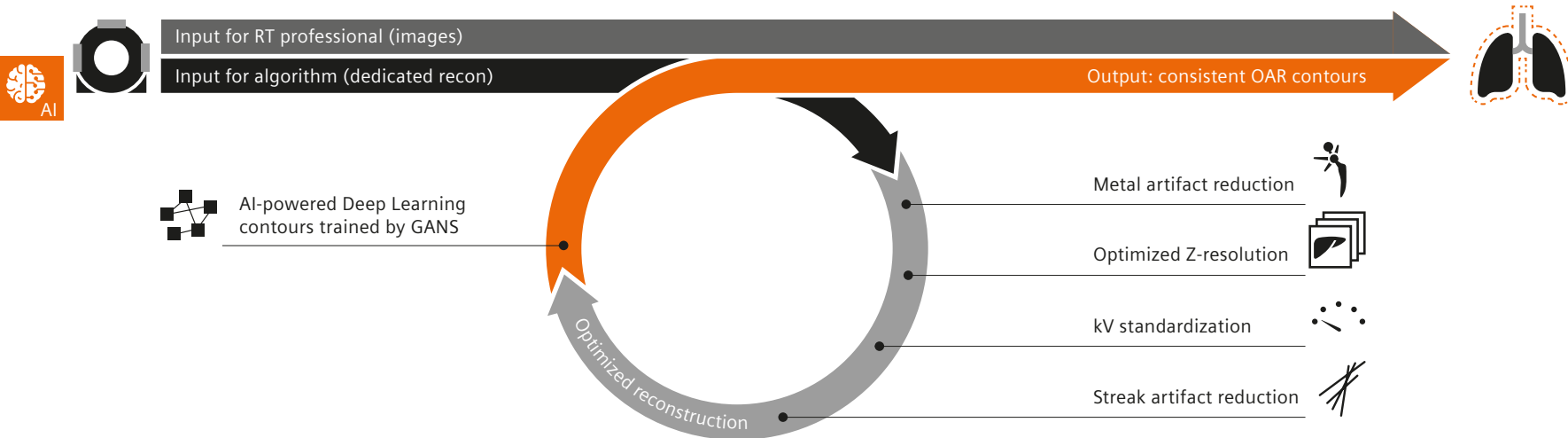• Guidance with the green GO button

Care for patients and users
• Better patient experience with a co-created, patient-centric design
• Improved environment for users and greater TCO transparency with an all-in-one solution

DirectORGANS

Go for precision with the world's first contours generated by a CT simulator

Input for RT professional (images)

AI

Input for algorithm (dedicated recon)

Output: consistent OAR contours

AI-powered Deep Learning contours trained by GANS

Metal artifact reduction

Optimized Z-resolution

kV standardization

Streak artifact reduction

Optimized reconstruction

DirectORGANS (Optimized Reconstruction based Generative Adversarial Networks)[5] is a revolutionary, AI-based organs-at-risk (OAR) contouring solution.

It optimizes images designed for the deep-learning algorithm and delivers consistent OAR contours. The result reduces unwarranted variations with high-quality contours that approach the level of consensus-based contours.

Experience the world's first contours generated by a CT simulator using a dedicated reconstruction.

Drive precision for contouring
• OAR contouring directly at the system, no need for manual interaction
• Leverage the power of optimized recon and deep learning to streamline organs-at-risk contouring
• Reduce unwarranted variations with high-quality contours that approach the level of consensus-based contours
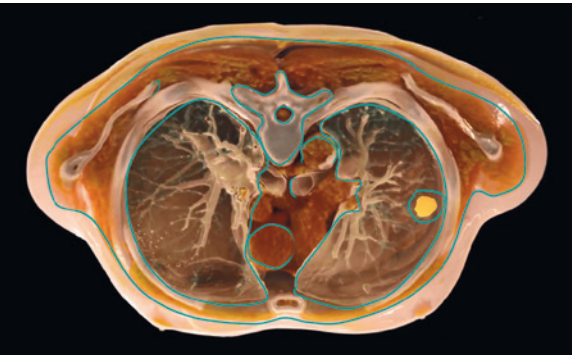
Courtesy of Radiologische Allianz, Hamburg, Germany

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[1] *Union for International Cancer Control (UICCI), https://www.uicc.org; Cancer Research UK, www.cancerresearchuk.org*

[2] *Greenwalt J et al. Reducing errors in radiation therapy through electronic safety checklists. Applied Radiation Oncology. 2014: 5–9*

[3] *Jameson MG et al. A review of methods of analysis in contouring studies for radiation oncology. J Med Imaging Radiation Oncol. 2010; 54(5): 401–10*

[4] *Kelly E et al, Reduced patient anxiety as a result of radiation therapist-led psychosocial support: a systematic review, J Med Radiat Sci Sep; 64(3): 220–231*

[5] *Optional*

[6] *As shown by measurements with a Gammex 467 Tissue Characterization Phantom comparing [T]standard reconstruction and DirectDensity reconstruction. Image value to relative electron/mass density conversion for the standard reconstruction was based on a two-linear-equations approach with individual calibration for each tube voltage. For DirectDensity images, a single tube-voltage-independent linear conversion was used. DirectDensity reconstruction is designed for use in Radiation Therapy Planning (RTP) only. DirectDensity reconstruction is not intended to be used for diagnostic imaging*

[7] *Volume rendered image is for illustration purposes only and not part of DirectORGANS*

[8] *Optional. syngo.via and syngo.via CT Dual Energy DirectSPR is required*

[9] *Up to 3 additional tablets are optional*

Siemens Healthineers Headquarters
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany
Phone: +49 9131 84-0
siemens.com/healthineers