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

With cancer cases expected to surge by 50% between 2020 and 2040,1 RT departments will see a huge rise in the number of patients requiring their support.

An imperfect workflow

The rise in RT patient numbers will potentially 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

<table>
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<th>60%</th>
<th>of RT incidents are caused by manual operation and data exchange³</th>
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<tr>
<th>1</th>
<th>Contouring is a major source of variability in RT planning⁴</th>
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<tr>
<th>49%</th>
<th>of patients feel distressed and anxious⁵</th>
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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. It was created for one reason – to reduce errors in a complex workflow to potentially reduce time to treatment. Driven by intelligence and automation, SOMATOM go.Sim simplifies your tasks and reduces the likelihood of errors. It helps you to shorten your workflow and save time so that you can focus on what matters most: your patient.

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 removes the problem 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. A single vendor service contract relieves the burden on administrators.

SOMATOM go.Sim is a dedicated CT simulator that can 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.
Be certain in simulation

Integrated components are the key to error-free CT simulation. SOMATOM go.Sim aims to give you certainty with a streamlined workflow that is smooth, 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. SOMATOM go.Sim is built on a concept that cares for the needs of both patients and users.

Key technical data

<table>
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<tr>
<th>sFoV</th>
<th>Acquired slices/reconstructed slices</th>
<th>Z-axis coverage</th>
<th>Rotation time</th>
<th>Power</th>
<th>Max. table load</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 cm</td>
<td>32 / 64</td>
<td>1.92 cm</td>
<td>0.35, 0.5, 1.0 s</td>
<td>75 kW</td>
<td>227 / 307 kg (TG-66 compliant tables)</td>
</tr>
</tbody>
</table>
Take integration further

Minimize sources of errors in QA
Direct Laser® 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® 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
Dual energy acquisition with DirectSPR® reconstruction makes stopping power images directly available to reduce the systematic errors from HU to stopping power conversion.

Optimize images specifically for consistent OAR contours
DirectORGANS® offers the world’s first contours generated by a CT simulator using an optimized reconstruction, and deep learning.

Other features:

- 4D CT scanning and Respiratory Motion Management® with FAST 4D provides automated and reproducible results independent of the operator.
- iMAR® is our proven metal artifact reduction algorithm that gives you confidence in tumor visualization.
- TwinSpiral Dual Energy® delivers images with the goal of even sharper contrast for excellent soft-tissue visualization.

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**

The new Mobile Workflow is an integrated solution that aims to make 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 cost transparency.

**In short, the new Mobile Workflow supports certainty in simulation and cares for patients and users.**

**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**

- Operate the system from wherever you are

**Direct Laser**

- Patient marking without coordinate transfer

**Injector arm**

- Orderly environment with gantry-mounted injector arm

**Be certain in simulation**

- Straightforward patient marking with a single system
- Correct laser positioning with the integrated Direct Laser
- Intuitive user interface and guidance

**Care for patients and users**

- Focus on patient comfort with a co-created, patient-centric design
- Improved environment for users and greater cost transparency with an all-in-one solution
Go for precision with the world’s first contours generated by a CT simulator

DirectORGANS

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

It leverages optimized reconstruction parameters to deliver standardized input to the deep learning based contouring solution to deliver consistent OAR contours. This process runs in parallel to the reconstruction of the image for target contouring.

Experience the world’s first contours generated directly at the CT simulator.

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

Average rating of contours
- Organ missing
- Contour missing
- Must redo
- Usable after major edits
- Usable after minor edits
- Clinically usable

Average contouring time per patient in min
- Manual contours
- DirectORGANS

90% clinically usable contours

0 min time saving per case
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New cases - International Agency for Research on Cancer, (IARC) World Health Organization

1. Atun R et al. Expanding global access to radiotherapy. The lancet oncology. 2015; 16(10): 1153-1186


5. Optional

6. As shown by measurements with a Gammex 467 Tissue Characterization Phantom comparing 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.

7. 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

8. Optional: syngo.via and syngo.via CT Dual Energy DirectSPR is required.

9. Up to 3 additional tablets are optional

10. Study results from University Hospital Erlangen, Germany. Published in Whitepaper DirectORGANS 2.0, Siemens Healthineers, 2021.