Benefits of open architecture in intelligent Radiation Therapy (iRT)

Introduction

In many radiation oncology departments today, the path from diagnosis to treatment feels more like an obstacle course than a care pathway. Patient registration begins with stacks of paperwork. CT simulations capture crucial tumor images, but transferring them into the treatment planning system can take up to 17 mouse clicks—a tedious, error-prone process that slows everything down. Clinicians then juggle multiple vendor-specific platforms—PACS, EMRs, TPS, QA systems—repeating data entry across each one just to keep the patient journey moving.

A multidisciplinary team must coordinate across this fragmented digital landscape, relying on email threads, phone calls, and manual workarounds to finalize treatment plans. Each misstep or delay in communication adds hours, sometimes days, to a timeline that is already too long. According to a study published in the National Library of Medicine, the average time from patient intake to first dose delivery can take weeks—a long period of time where the cancer goes untreated.[4]

Intelligent RT™ (iRT) changes this

Built as a fully interoperable, open-architecture platform, iRT brings together every stakeholder—oncologists, radiologists, medical physicists, and dosimetrists—into a single, unified workflow. It integrates with all major systems—OIS, PACS, EMR, TPS, QA—allowing real-time data sharing without redundant clicks, repeated logins, or compatibility headaches. Manual tasks like simulation prescription prep are automated. Collaboration tools like Workflow Manager support real-time, multidisciplinary decision-making.

The results are dramatic. Radiation oncologists rated the use of the iRT sim order form as 51% less time-consuming than their existing paper-based workflow for preparing simulation prescriptions. Radiation oncologists rated the possibility of making human errors in preparing treatment planning prescriptions 42% less likely with the iRT plan intent form compared to their existing paper-based workflow.[1] Overall treatment initiation times have dropped from 30.3 days to just 8.7 days across all satellite sites.[2] With full staff utilization of iRT at a medium-sized hospital in India that relies heavily on a paper-based workflow, the solution is set to digitize or automate 73% of manual tasks in the existing head and neck radiation therapy workflow. This enables teams to track patient progress in real time and act quickly when it matters most.[3]

Instead of wrestling with disconnected systems, clinicians can now focus on what truly matters: delivering timely, personalized care with speed, precision, and confidence. IRT enables oncologists with three benefits that include:

1. **Eliminating fragmentation**

   Radiation oncology departments often rely on a patchwork of disconnected software—each performing a critical task, but none communicating with the others. This siloed setup forces clinicians to log into multiple systems, re-enter datamanually, and verify accuracy at every step. It's inefficient, and it increases the likelihood of delays and errors.

   iRT breaks down these silos. It integrates over ten core systems—including OIS, TPS, EMR, QA, and PACS—into a single interoperable interface. Through vendor-neutral architecture and standardized APIs, iRT eliminates data duplication and creates a seamless data flow across all stages of treatment. This unified approach removes the complexity of working with disparate platforms, saving time and reducing cognitive load for clinicians.

   Departments gain the ability to build a cohesive, AI-powered ecosystem* that works as one, helping to improve consistency and reducing cognitive burden across teams.

2. **Streamlining workflows**

   Radiation therapy is full of manual, repetitive steps—from preparing simulation prescriptions to verifying treatment plans. Each of these actions, though small on its own, adds up to hours of administrative overhead and lost clinical time.

   Specialized tools such as Workflow Managers and Course Directive help manage complex workflows with fewer steps and better handoffs. Course Directive consolidates intake and planning directives, aligning all teams from the start of care. With iRT, time-consuming tasks are simplified, and clinicians can focus more on patient care than administrative processes.

3. **Centralizing data access**

   In traditional environments, critical patient data is fragmented across different systems. Clinicians spend time searching, cross-checking, and updating information—sometimes without knowing whether it's current or complete. This not only creates inefficiencies but also increases the risk of human error.

iRT replaces this friction with a single, centralized interface. All relevant data is quickly accessible, immediately reviewed by the care team, and consistently aligned across departments. Workflow Manager enables structured real-time collaboration between oncologists, physicists and dosimetrists. Centralized data access also means that care teams spend less time managing systems—and more time delivering treatment.

iRT in practice

The University of Debrecen in Hungary is one of Central Europe's leading academic medical centers, treating over 2,500 new radiation oncology patients each year and managing more than 200 patient appointments daily. The hospital operates four linear accelerators and offers a full spectrum of therapies, including advanced stereotactic radiation treatment. Like many institutions, it faced challenges managing multiple disconnected systems for imaging, planning, and quality assurance—each requiring separate logins, manual data entry, and repeated verification across departments.

After deploying iRT, the department streamlined its entire care continuum. Disparate systems are unified, manual steps have been dramatically reduced, and multidisciplinary teams can now collaborate in real time through a single interface.

"Before iRT, we were dealing with fragmented software and delays at every stage—registration, imaging, planning, QA. Every department had its own tools, and we spent too much time syncing systems instead of focusing on patients. Now, our entire workflow is connected. We've gone from inefficiencies and bottlenecks to a streamlined, real-time process that gets patients to treatment faster and safer," says Dr. Arpad Kovacs, Head of Radiation Oncology, University of Debrecen.

The future is open

Radiation therapy should not be delayed by disconnected systems, duplicate data entry, or communication breakdowns. Intelligent Radiation Therapy (iRT) brings together people, platforms, and processes into one streamlined environment—eliminating waste, accelerating care, and improving outcomes.

Start transforming your workflows today. iRT is ready to help your team move faster, work smarter, and deliver precision care—right from day one. Please contact GE HealthCare to find out how we can collaborate to put your Day 1 into action.

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* the AI Powered parts are third party company add ons and not available in all regions

[1] Based on measurements of individual radiation oncologists' experiences at two medical centers in Europe and India after completion of radiation therapy workflow tasks in a clinical setting. The study was facilitated by a third-party consulting agency and sponsored by GE HealthCare. These results are based on a small sample size and other user experiences may vary based on workflows and other factors.

[2] These data are based on analysis of over 11,000 treatment plans at a large academic hospital, following the implementation of a workflow efficiency solution. iRT was developed using a solution from a large academic hospital as a foundation, with extended connectivity and interoperability capabilities. Any results achieved using iRT may vary based on differences in workflows, patient populations, or other factors.

[3] Based on a study of the radiation therapy workflow for head and neck cancer at a medical center in India. Head and neck cancer is the most common cancer treated at the facility. The study was facilitated by a third-party consulting agency and sponsored by GE HealthCare. The results are not prescriptive and could vary depending on an institution's workflows, patient populations, or other factors.

[4] Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC6396925/

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