



New Product Innovation Leadership  
*Philips Healthcare*

F R O S T  S U L L I V A N

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A Frost & Sullivan Position Paper

Nadim Michel Daher

## TABLE OF CONTENTS

SIGNIFICANCE OF THE NEW PRODUCT INNOVATION LEADERSHIP AWARD.....	3
KEY INDUSTRY CHALLENGES ADDRESSED BY PHILIPS HEALTHCARE .....	3
SPECIFIC INDUSTRY CHALLENGES PERTAINING TO COMPUTED TOMOGRAPHY IMAGING.....	3
Visionary Innovation .....	4
Product Excellence .....	4
KEY PERFORMANCE DRIVERS FOR PHILIPS HEALTHCARE’S COMPUTED TOMOGRAPHY IMAGING INNOVATION.....	5
UNMET NEEDS.....	5
PIONEERING BEST PRACTICES.....	5
ASPIRATIONAL IDEALS .....	6
RELIABILITY AND QUALITY .....	6
PRODUCT / SERVICE VALUE .....	7
POSITIONING.....	8
CONCLUSION .....	8
About Philips Healthcare .....	9
About Frost & Sullivan .....	9

## SIGNIFICANCE OF THE NEW PRODUCT INNOVATION LEADERSHIP AWARD

### **KEY INDUSTRY CHALLENGES ADDRESSED BY PHILIPS HEALTHCARE**

Raising the quality and the outcomes of patient care while improving its cost efficiency, are two intertwined objectives of the current strategy for reforming the U.S. healthcare system. Unfortunately, often times these two objectives act conflictingly, since raising the quality of care can easily incur higher costs for the system. These often opposing forces pose a major challenge to industry innovators, who are tasked with innovating advanced technology to improve clinical outcomes, while simultaneously weighing downward on the long-term cost structure of care.

Despite many recent systemic cost-cutting measures, many of which are believed to hamper large-scale research and development investments, U.S. legislators remain dedicated to maintaining the country as the global leader with regard to the widespread use and access to world-class technology in healthcare. Similarly, even under tight economic conditions, U.S. healthcare providers have continued to demonstrate a certain appetite for novel and disruptive technologies, even for some of the more expensive ones.

However, with healthcare reform now well underway, market dynamics and adoption patterns for high-end technology, such as premium imaging systems, are now different from what they were five years ago. Today, the market is only embracing those technologies that can deliver effectively and simultaneously on both of the overarching objectives for healthcare – higher quality and reduced overall costs.

### SPECIFIC INDUSTRY CHALLENGES PERTAINING TO COMPUTED TOMOGRAPHY IMAGING

In the case of premium computed tomography (CT) imaging, these challenges with industry innovation and market adoption imply that vendors must be able to develop new, cutting-edge imaging capabilities and clinical applications to achieve higher quality and depth of CT images. In addition, they must offer an efficient workflow model for providers, such that the new technology can be leveraged fully, easily and without compromise. These attributes of novel CT technology can lead to more informed image interpretations and to higher confidence in diagnoses. As such, they hold the promise of enabling imaging providers to achieve similar or higher patient outcomes as before albeit through fewer, better targeted imaging procedures – with the added benefit of driving cost savings for the system over the long run.

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***BEST PRACTICE AWARD ANALYSIS FOR PHILIPS HEALTHCARE***

***For the New Product Innovation Leadership Award, we evaluated the total client experience and strategy implementation excellence according to the criteria detailed below.***

***Visionary Innovation***

***Criterion 1: Unmet Needs***

***Criterion 2: Use of Mega Trends***

***Criterion 3: Pioneering Best Practices***

***Criterion 4: Blue Ocean Strategy***

***Criterion 5: Aspirational Ideals***

***Product Excellence***

***Criterion 1: Match to Needs***

***Criterion 2: Reliability and Quality***

***Criterion 3: Product/Service Value***

***Criterion 4: Positioning***

***Criterion 5: Design***

**KEY PERFORMANCE DRIVERS FOR PHILIPS HEALTHCARE’s computed tomography imaging innovation**

**UNMET NEEDS**

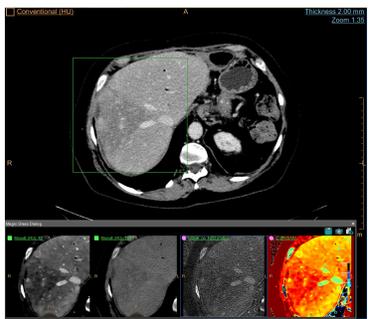
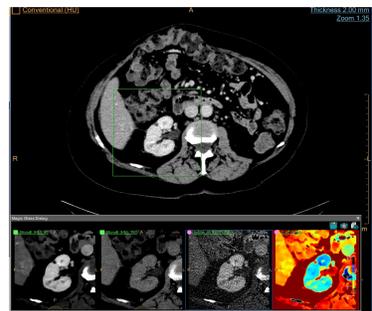
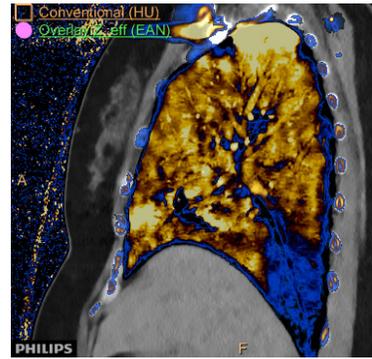
The previous generation of premium computed tomography (CT) imaging systems was marked by the vendors’ quest for wider coverage of the anatomy per rotation of the tube-detector pair. This industry-wide innovation effort that lasted from 2008 through 2013, often referred to in the industry jargon as ‘the slice wars’, has served to enhance CT’s capabilities in whole-organ imaging including the heart, to speed up whole-body CT imaging, and to improve CT’s radiation and contrast dose efficiency.

However, the most significant impact of these technology enhancements in clinical practice has been largely confined to research environments, while bringing only incremental benefits to the bulk of everyday CT imaging procedures. In anticipation of the next-generation of CT technology, which was introduced at the Annual Meeting of the Radiological Society of North America (RSNA) in December 2013, the healthcare marketplace has been looking for the CT industry to boost the overall performance and value of CT imaging across a much broader base of clinical application areas and procedures.

**PIONEERING BEST PRACTICES**

Multi-energy CT imaging and the resulting depth and quality gains of CT images have now replaced the width and speed of CT coverage as the main area of customer anticipation for CT innovation. One competitive approach to this technology challenge consists of embedding an additional X-Ray tube-detector pair in the CT gantry to achieve dual-energy scanning capabilities. Another, separate or complementary approach consists of upgrading the single tube and/or the single detector with multi-energy capabilities, allowing the pair to operate at two or more X-ray energy levels.

Regardless of the technological approach, having to decide in advance to switch on-and-off the multi-energy features of the CT system based on each procedure or patient constitutes a major roadblock for the routine and consistent use of its multi-energy imaging capabilities. Philips Healthcare’s new IQon\* Spectral CT system challenges this limitation with a unique breakthrough innovation. Thanks to always-on multi-energy imaging capabilities of its novel detector technology built from the ground up for spectral imaging, the IQon unlocks the potential of multi-energy CT imaging across a much broader base of CT imaging procedures, both basic and advanced.



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## ASPIRATIONAL IDEALS

The next frontier for CT imaging lies in its ability to obtain deeper diagnostic information from images and achieve higher-quality images across the board of CT imaging procedures. These upgraded features must be widely accessible to the various stakeholders in the imaging enterprise beyond select clinical sub-specialties. Further, these advances must be delivered without the penalty of more complex workflows, of more elaborate clinical decisions, or of additional costs.

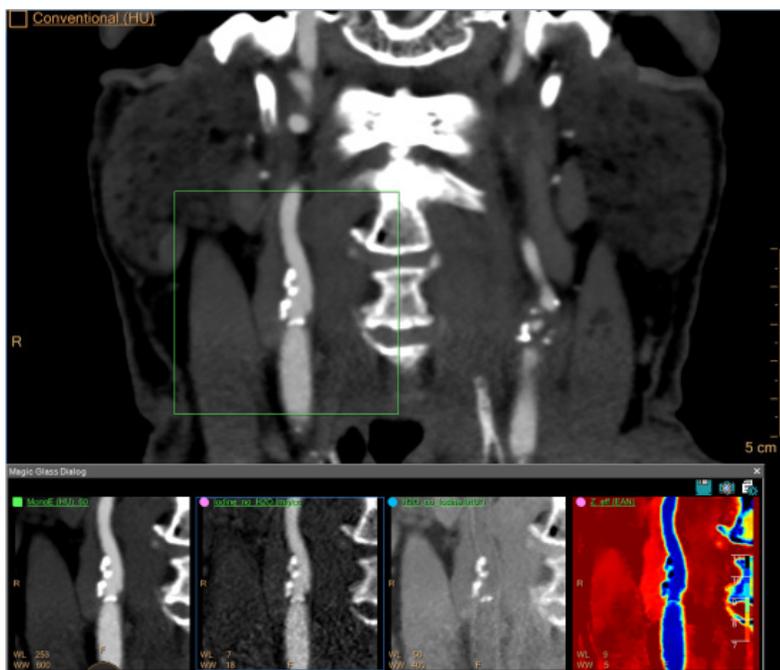
Indeed, the industry's advances toward this next frontier for CT imaging will allow diagnosticians to make the best-informed, most confident interpretations possible without relying on additional imaging procedures. This, in turn, will provide their customers in the enterprise with more ammunition to reach the best clinical and treatment decisions for patients as they move them along the continuum of care. This ability to optimize patient outcomes with fewer, better targeted imaging procedures is a key aspiration for imaging providers as their industry starts to turn the page of the era of volume-based imaging, and enter the era of value-based imaging.

## RELIABILITY AND QUALITY

Throughout the last three years, as expectations started rising in the imaging community for the introduction of next-generation CT systems, Philips Healthcare continued to garner strong customer appraisal for the reliability and quality of its products as well as of its services as a vendor. In the CT market in particular, Philips Healthcare has continued to make forays both in the mid-range and high-end segments of the imaging marketplace.

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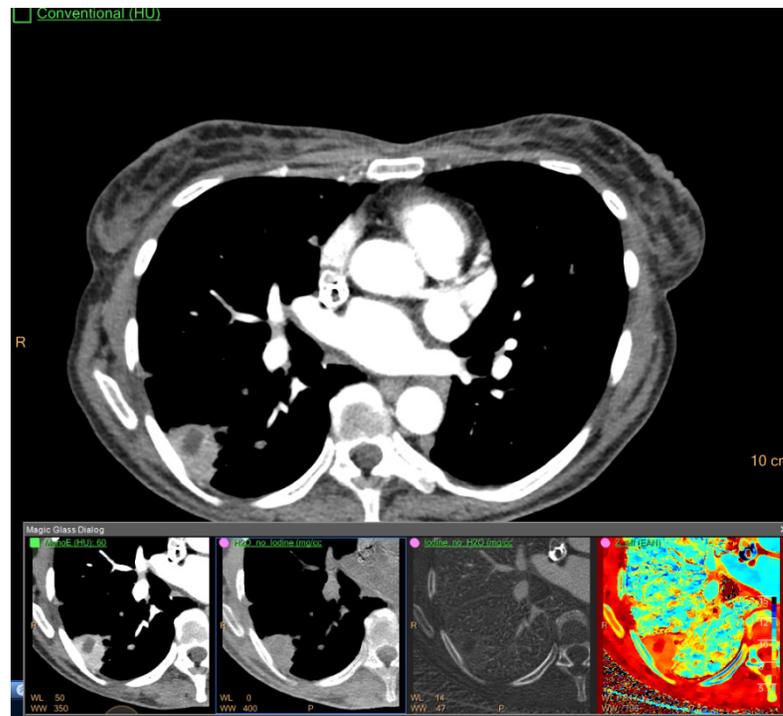


Equipment upgradeability, ease of use, value-add services and low maintenance costs are some of the many attributes that have sponsored Philips Healthcare's ongoing market traction in CT. Now armed with the IQon Spectral CT as its new product offering for the premium segment, Philips Healthcare's solutions portfolio for CT is exceptionally well positioned for continued success in the North American CT marketplace, especially as health systems start to contemplate their next premium CT investment.

### ***PRODUCT / SERVICE VALUE***

The value proposition that the IQon Spectral CT brings to the medical imaging marketplace is truly multi-faceted. Its ability to leverage the broad spectrum of X-ray photon energies contained in X-ray beams means it can view, but also allows the ability to characterize anatomic structures based on the material nature of tissues. This technical prowess yields color images that contain not only the high anatomical resolution of conventional volume CT systems, but also layers the grayscale anatomical image with color-coded characteristic and functional information about tissues. This constitutes a new level of CT imaging which brings with it a myriad of enhancements to the modality's clinical value.

For example, the ability to boost contrast information, combined with its decreased sensitivity to variability in contrast injection delays, has huge clinical potential. Similarly, the intrinsic multi-energy imaging capabilities of the system allow for a reduction of beam-hardening image artifacts compared to images acquired through sequential switching of energy levels.



## **POSITIONING**

Ready-access to spectral CT imaging capabilities would allow clinicians to optimize CT imaging in many other clinical specialties. For example, the clinical areas of oncology and body imaging, the two of which were not major beneficiaries of wide-coverage CT and did not advance much during the last few years, are likely to see major benefits from the routine use of spectral CT imaging going forward.

As such, the broad-based value proposition of Philips Healthcare's new IQon Spectral CT has the potential to re-open innovation paths in a wide range of previously underserved areas of clinical innovation. Perhaps most importantly, it helps achieve this clinical value enhancement without redesigning or encumbering traditional radiology workflows. In fact, the proposed upgraded workflows for existing and new CT clinical applications leverage Philips Healthcare's exemplary approach to IT deployment of advanced visualization

## **CONCLUSION**

Philips Healthcare's design and launch of its new premium CT product, the IQon Spectral CT, marks the beginning of new era for CT imaging. By offering multi-energy capabilities as a standard feature of advanced CT imaging, it empowers imaging providers with a high-value clinical tool to enhance current procedures and workflow while developing new possibilities for the modality. In recognition of the breakthrough innovation it delivers into the marketplace, Frost & Sullivan is proud to present the 2014 New Product Innovation Leadership Award in the Computed Tomography Imaging Industry to Philips Healthcare.

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## **ABOUT ROYAL PHILIPS**

Royal Philips (NYSE: PHG, AEX: PHIA) is a diversified health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting. Headquartered in the Netherlands, Philips posted 2013 sales of EUR 23.3 billion and employs approximately 115,000 employees with sales and services in more than 100 countries. The company is a leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as male shaving and grooming and oral healthcare. News from Philips is located at [www.philips.com/newscenter](http://www.philips.com/newscenter).

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