PHILIPS

Enable enhanced productivity by orchestrating radiologist workflow

Campus Bio-Medico University Hospital, Rome, Lazio, Italy

Who
Prof. Dr. Carlo Cosimo Quattrocchi, Head of Diagnostic Imaging and Interventional Radiology and Marco Venditti, Head of IT Operations

Where
Department of Diagnostic Imaging and Interventional Radiology
• +350 beds
• 60 Operative Units
• Registry of 600,000 patients
• SLA time constraints for reporting time, depending on clinical emergency urgency and hospitalized patients

Challenge
• Consolidate multiple workflows in a single workspace covering 7/7 days
• Facilitate stronger collaboration between clinicians integrated reporting
• Manage more than 20 different information systems
• Balancing radiologist workload to ensure high standard of care in line with SLA agreements

Solution
A single orchestrated workflow with enterprise cloud disaster recovery backup

Leading healthcare organization, Campus Bio-Medico University Hospital wanted to manage the prioritization and delegation of cases to the right radiologist at the right time and in the right order. A unified radiology workspace with enterprise disaster recovery back up was implemented to relieve the time pressure on radiologists of having to decide which case to read next.

Having all relevant patient information and studies in one view at the right radiologist fingertips can ensure a streamlined experience as well as improved patient outcomes.

Philips: A proven partner
Campus Bio-Medico University Hospital has utilized Philips's radiology solutions for many years. In Philips, the institution has found a collaborative, and trusted partner that is attentive to its users, and offered the ability to have a single workspace to index multiple archives stored on disparate servers. This workspace could make it possible to automatically deliver the most urgent studies to the most qualified radiologists, expediting reading and reporting for continuity of care and a better workflow.

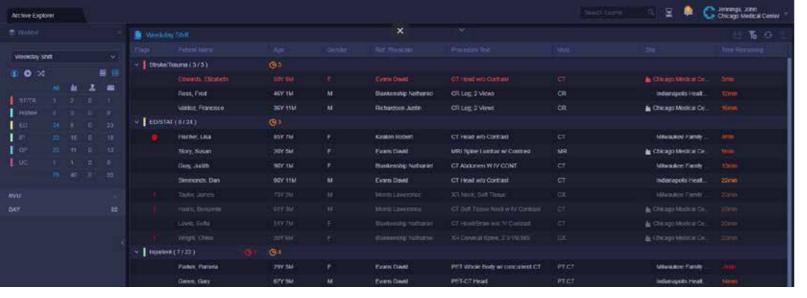## Key results* achieved:

+ 50%
of productivity improved

Due to the allocation of the exam to the right professional. Considering that Campus Bio-Medico had already a digital workflow, this represents an exceptional result.

- 92%
in customer complaints

Campus Bio-Medico identified a significant reduction from 37% to 3% of customer complaints on receiving the reporting in time.

- 40%
of average reporting time

A significant improvement with a net reduction of the reporting times.

Philips Radiology Workflow Orchestrator automatically deliver the most urgent studies to the most qualified radiologists to expedite reading**

Four pillars of collaborative solutions-based success

The comprehensive solution co-created with Philips together with the hospital offers significant benefits that improve the IT and radiology effectiveness, satisfaction as well as creating a truly patient-centric experience.

"The workflow orchestrator allocates the exam to a specific person with the best profile, credentials, and specific skills to manage that exam… **This alone already speeds up the workflow by 50%.**"

Dr. Carlo Cosimo Quattrocchi

1. Enhance productivity and efficiency for optimized workflows

In complex radiology facilities, where there is an ongoing stream of imaging cases – some urgent, some less urgent, and some highly specialized – it can be a challenge to manage the prioritization and delegation of cases to the radiologist best-suited to read a particular exam, whether because of expertise or prior history.

The workflow of the Campus Bio-Medico needed to provide 7/7 days coverage, while ensuring that the specialist skills would always be available. Streamlining workflow is imperative not only, then, to deliver a high level of patient care, but also to address the very real challenge of radiologist burnout. Dr. Carlo Cosimo Quattrocchi explains: "All skills must always be covered. It is not enough to manage the radiological work in terms of time and competence. Therefore, a tool was needed that could direct **examinations to radiologists who had the closest skills to give the best answers to the question - in terms of time and competence.**"

A key part of the collaborative solution installed at Campus Bio-Medico is the smart workflow-management system called Philips Radiology Workflow Orchestrator, that is designed to automatically determine the best match to help deliver the right case to the right radiologist, based on their area of expertise, availability and current workload. As Dr. Carlo Cosimo Dr Quattrocchi confirms: "The workflow orchestrator allocates the exam to a specific person with the best profile, credentials, and specific skills to manage that exam…This alone already speeds up the workflow by 50%."

The optimized allocation of radiologist time and skills is not only enhancing productivity, it also increases radiologist satisfaction; a vital benefit at a time of worldwide radiologist shortages.

Dr. Carlo Cosimo Quattrocchi ventures: "A radiologist is not only an 'interpreter' of images but a consultant for clinical activity. The solution increases radiologist satisfaction by allowing them to focus on their strengths."

The radiology workflow orchestrator is categorizing urgent patients in the worklist. This enabled the hospital to deliver an improved response to the COVID-19 pandemic by managing work shifts and workforce resources.

Dr. Carlo Cosimo Quattrocchi confirms: "The workflow orchestrator made it possible for us to use specific skills of all radiologists in the ward, not just the ones on duty. In terms of allocated resource, this allowed us to reduce the impact of the emergency room workflow on our normal workflow."

Dr. Carlo Cosimo Quattrocchi, Head of Diagnostic Imaging and Interventional Radiology**

2. Optimized communication between radiologists

Breaking down silos and enabling informed insight sharing and collaboration was key to Campus Bio-Medico University Hospital's ambition to pioneer new levels in quality care. In addition to streamlining workflows, the unified workspace with orchestrator, viewer and reporting in one application also includes built in quality and communications enablers within a unified workspace.

The online chat function and screen sharing made communication between radiologists much easier while the peer-to-peer review function made it possible to request second opinions and continuously monitor and manage quality.

Collaboration workflows bring together multidisciplinary skills to make better decisions helping the delivery of a high quality of care.

Communication capabilities are enhanced to allow online chat as well as enabling context and screen sharing to drive diagnostic concordance so that a radiologist reading the exam can connect to another specialist using native chat and screen-sharing to discuss the case in a secure digital environment, giving the patient the best chance of timely diagnosis and effective treatment.

Dr. Carlo Cosimo Quattrocchi explains: "Before having the solution, in order to ask for a second opinion, the radiologist used to have to move from one location to another. They'd then have to reach a colleague, interrupting the colleague's work as well as their own. Now all of this can be done via chat. **With chat, we can screen share the images being reported at that precise moment without having to interrupt the reciprocal workflow.** This function makes it possible to consult with a colleague and arrive at an answer even earlier."

Overview of Workflow Orchestrator

Balances caseloads to:
- provide sub-specialized and prioritized worklists, including relationship management
- enhance clinical collaboration via chat, as well as through screen- and context-sharing between radiologists, techs and referring physicians
- improve quality control of readings through peer review

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Dr. Carlo Cosimo Quattrocchi

Dr. Carlo Cosimo Quattrocchi while performing a report using the voice dictation to insert hyperlinks in the Interactive Multimedia Reporting**

"Our philosophy demanded an improvement of processes to improve the quality in the care of our patients. The workflow optimized the reporting time to be more in line with our organizational needs and skills, **moving us from an average of 10 days to an average of 6 days without having to add staff.**"

Marco Venditti

3. Enriched diagnostic tools and interactive reporting to advance the quality of care

Quality and efficiency of reporting was key to Campus Bio-Medico University Hospital. To avoid manual importing of relevant findings and to have a faster turnarounds on exams delivering greater clinical value, the native interactive reporting was introduced in the workspace. The interactive multimedia eliminates the need for a separate reporting solution. It enables the radiologist to automate the insertion of image-related information into the report and in return, the referring physician receives a clearer, tracked, more insightful report with the ability to make simple volumetric comparisons and bookmarking tools that allow for the marking up, retrieval, viewing and follow up over time.

Marco Venditti explains: "By using the workflow orchestrator to report images closest to them, we can also guarantee optimal reporting quality. Calls to Public Relations Office have been drastically reduced and this really does result in a better outcome for the patient."

Campus Bio-Medico University Hospital estimates that, after the implementation of the solution there was reduction in the standard deviation among radiologists from 3,5 days to 2,1 days, reducing the TAT of 40%. In addition, after the implementation Campus Bio-Medico identified **a significant reduction from 37% to 3% of customer complaints** on receiving the reporting in time.

According to Dr. Carlo Cosimo Quattrocchi, **"we have increasingly optimized the management of the workflow by focusing on specific skills.** This is a great improvement, as the quality of the final report is linked to greater patient satisfaction."

Reducing the reporting time, in academic context such as Campus Bio-Medico University Hospital also has the benefit of giving radiologists more time to devote to academic activity and continue their clinical growth. Dr Carlo Cosimo Quattrocchi explains: "Radiologists are empowered to grow but also their professional life is improved."

Marco Venditti, Head of IT Operations **

4. Cloud-based disaster recovery back up

As an entity accredited as Academic Medical Center by the Joint Commission International - an independent international body that certifies adherence to the standards of excellence in the health sector – the facility relies on technological excellence and in strong workflows to continuously optimize quality of care.

In 2014, in order to optimize the radiology workflow, Campus Bio-Medico Hospital decided to replace the RIS and PACS modules previously used in the hospital to deliver a hybrid Cloud solution and disaster recovery backup, comprising all existing and past exams and reports. The solution removed the need for hardware and structure management, as those services would now be managed by Philips, saving time and resources of the IT department.

Moving to cloud based services represented a future focused solution to Campus Bio-Medico challenges, propelling the institution to a next level.

Marco Venditti, Head of IT Operations reflects: "The key factor that made us choose Philips was because this project was mainly cloud-based. The model the team presented was very mature and the business model was based on pay per use. The resilience of the solution's hybrid approach with the Cloud Connect in house and the Cloud outside is very satisfying."

He continues: **"As Head of Operations, having a cloud solution reduced my team headaches dramatically."**

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Results:

"The solution installed at Campus Bio-Medico brings innovations into our daily operations."

Marco Venditti

"The implemented solution makes it possible for clinicians to focus on their images, rather than managing the worklist. The level of satisfaction is very high. Radiologists often wonder how they did that before the implementation of workflow orchestrator."

Dr. Carlo Cosimo Quattrocchi

Creating an integrated, diagnostic, collaborative workspace benefits all stakeholders

Radiologist:

"Thanks to the adoption of Workflow orchestrator, examinations are redirected to radiologists who have the closest skills to give the best answers to the question - in terms of time and competence."

Dr. Carlo Cosimo Quattrocchi

Radiologists are now able **to access an all-in-one**, fully integrated with enterprise imaging platform and embedded in the diagnostic viewer, with simple,efficient access to all the tools radiologists need.

Referring physicians:

"Chat and screen sharing let us share images at that precise moment without having to interrupt the reciprocal workflow. This function makes it possible to consult with a colleague and arrive at an answer even earlier."

Dr. Carlo Cosimo Quattrocchi

The Philips solution improves **the clarity and quality of radiology reports while shortening the time it takes to read them.** Hyperlinks provide one-click access to bookmarked findings, as well as to prior studies, tables and graphs. Integrated collaboration makes it easy to message the radiologists to answer any questions - again, with a single click.
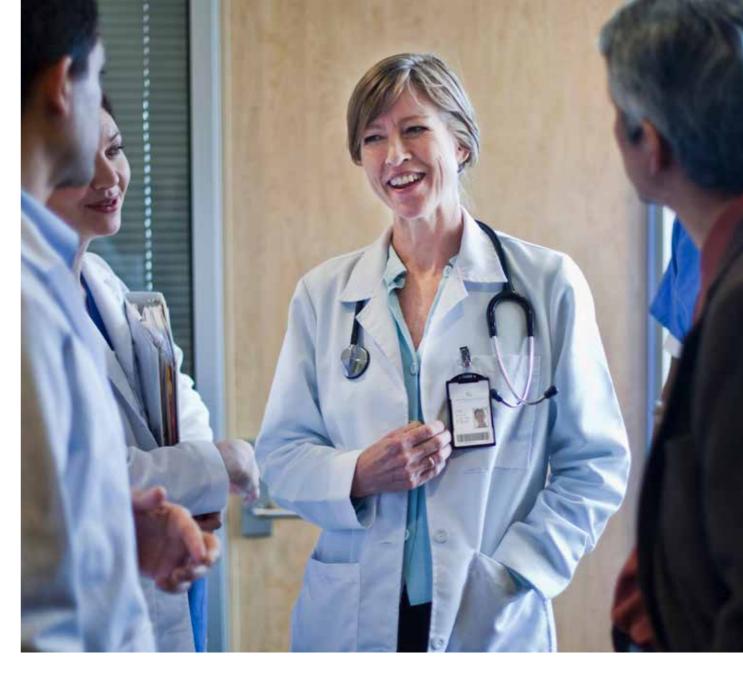
IT staff:

"As Head of Operations, having a cloud solution reduced my teams' headaches dramatically."

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The IT department can better serve the needs of radiologists and clinicians by delivering connected, secure, meaningful technologies by integrating clinical and radiology data, including historical data, into a single workspace. **The burden of managing multiple, disconnected solutions is relieved** through the provision of a single, flexible service agreement 24/7 support.

The Philips Informatics portfolio vision

Through an integrated portfolio of healthcare informatics solutions, Philips works to simplify physician collaboration across the community of caregivers, healthcare institutions and networks, recognizing that all are tasked with ensuring quality of care while optimizing operational efficiency. Our vision is to fully integrate diagnostics, generating and combining clinical data across radiology, pathology, genomics and longitudinal data. With the insights enabled by a single patient view, clinicians will be able to confidently perform first-time-right diagnosis and deliver more personalized treatment.

Beyond imaging and beyond the enterprise, our vision is to simplify delivery of the highest standards of care. We are building a centralized information hub and collaboration suite that spans radiology, cardiology, pathology, oncology and operational informatics to enable cross-department and cross-hospital collaboration through sharing of meaningful insights. Philips wants to help doctors achieve a more precise diagnosis, and help healthcare organizations achieve a lower total cost of ownership.

"...such a reality needs to have cutting-edge technologies but also to be equipped with effective clinical, operational and administrative processes, always oriented towards continuous improvement."

Marco Venditti

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How to reach us
Please visit;
www.philips.com/radiologyinformatics