



Cover Story

Chained Globalisation

702 **Prof. Johan G. (Hans) Blickman:**
On the Threats to Imaging...Should We
Be Worried?

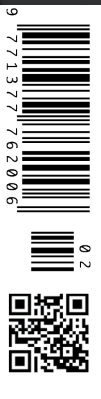
706 **Dr Christina Åkerman:**
Restoring Healthcare to Its Purpose

712 **Prof Henrique MG Martins:**
Digital Health Diplomacy in Chained
Globalised Health Context

716 **Prof. Arch. Simona Agger Ganassi:**
From Globalisation to a Health
Supportive Global Planet

728 **Dr Susan Henshall:**
Elevating Cancer Care to Global Level

746 **Dr Teresa Perillo, Dr Lorenzo
Ugga, Dr Renato Cuocolo:**
Radiomics in the Imaging of Brain
Gliomas: Current Role and Future
Perspectives



Why Workflows are the Core of Radiology

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Radiology departments are facing several challenges – increased volume of examinations, cross-site collaboration, rising costs, and data protection. How can the highest possible efficiency be achieved in this specialty and how can workflow and IT systems be optimised for maximum productivity?



Key Points

- Radiology departments can benefit from cost and time-efficient radiology management.
- The key to increased efficiency lies in the workflow and in IT systems that manage these workflows effectively.
- The goal should always be to digitise and streamline the entire patient workflow from start to finish.
- Radiology IT systems produce a multitude of data. With intelligent software solutions, this data can be processed to valid facts that serve as a basis for day-to-day management decisions.

Radiology typically is the medical specialty with the highest investments. At the same time, it offers the highest potential for optimisation and thus savings. The volume of examinations is rising steadily, new legal requirements (e.g. patient data protection) coming up frequently, and structures are becoming more and more complex. Cross-site work, working from home, teleradiology, closer cooperation with referring physicians and other medical departments are constantly presenting radiology with new challenges.

Therefore, not only the radiology department itself but the entire hospital or entity benefits from a cost and time efficient radiology management. More patients can be examined, diagnoses are available faster, treatments can begin earlier. The result is better healthcare for the patients plus investments pay off more quickly.

But how to achieve the highest possible efficiency? The key to this lies in the workflow and in IT systems that manage these workflows effectively. While radiology processes differ significantly from those in other medical departments, radiology has many processes that always run in the same manner. Solutions specifically designed for radiology that are consistently geared to the workflow offer enormous potential for optimising speed, efficiency, and cost-effectiveness.

Modern IT systems dedicated to workflow management consider and streamline workflow aspects in every process step, trigger mechanisms to start the next process step (e.g. report release or preliminary release or second opinion) and also provide answers for handling workflow interruptions efficiently that occur in daily business.

From Radiology Workflow to Patient Workflow

Workflow optimisation neither starts nor ends in the radiology department. The real workflow starts with a patient and a physician who decides that imaging diagnostics is needed for this patient. The examination might occur in one place, but the reporting might be done somewhere else. The patient workflow does not end when the examination has been carried out and the report is released, but rather when report (and studies if needed) are made available to the referring physician, the patient and other physicians involved in the treatment.

As a result, the goal should always be to digitise and streamline the entire patient workflow from start to finish. Best practices here are integrated, one-stop software solutions: They optimise each workflow step individually but at the same time avoid process interruptions between systems that may lead to delays, dual data storage or missing or false information in the next process step.

End-to-End Digital Workflows

Offering patients and physicians the option of making appointments online noticeably reduces the workload on registration staff - especially if online booking is integrated directly into the appointment calendar of the radiology information system, thus avoiding work and sensitive data storage in parallel systems. Cross-site resource planning and standby lists for inpatients are

additional factors that ensure high modality utilisation without idle times. In the next step, systems that automatically remind patients via e-mail or text message of upcoming appoints further help to reduce the no-show rate significantly.

When the patient arrives at the radiology, waiting and turnaround times should be kept to a minimum. One key factor here is a paperless workflow which at the same time increases quality and thus patient safety. Paper-based work is slow and error-prone, files can get lost or are not available where they are needed.

When it comes to reporting, a deep integration of speech recognition into the reporting workflow – without having to switch back and forth between systems or windows – can boost efficiency to a large extent. Another important factor for increasing speed, comfort and quality is data availability. Radiologists can fully concentrate on their task when, after one single click on the examination to be reported, the corresponding studies show up in the PACS and the correct findings template, patient file, preliminary findings and case information are available on the screen at a glance. In digitised workflow systems, all data recorded at previous workflow steps is filled into the report fully automatically. Text

billing catalogues; automatic checks of billing rules enable a largely automated billing and digital transmission of services and billing data to HIS or other billing systems.

Workflow-Based Business Management

Through its workflows, radiology IT systems produce a multitude of data. With intelligent software solutions, this data can be processed to valid facts that serve as a basis for day-to-day management decisions that the profitability and success of a radiological institution depend upon. Via statistical analysis and real-time dashboards, problems and workflow insufficiencies can be identified, trends can be recognised, and management measures can be derived in a timely manner. Cross-site room utilisation, resources and reporting worklists can be directly influenced and managed whenever needed to achieve the best results.

Stability, Interoperability and Security

Like in all IT infrastructures, workflow management systems can only play to their strengths if they come along with high stability, reliability, and system availability. Standardised interfaces to PACS, HIS and further systems guarantee speed and interoperability even in complex landscapes.

Solutions specifically designed for radiology that are consistently geared to the workflow offer enormous potential for optimising speed, efficiency, and cost-effectiveness

modules can be easily inserted with speech commands, lab or dose values are automatically retrieved from connected systems and inserted into the report.

A short space of time from examination to reporting is important but, coming back to the idea of a fully digital patient workflow, needs to be followed by a speedy transmission of findings without media breaks. Only then is the data immediately available for further treatment – whether in the connected HIS or a web portal with notifications and access for physicians and patients alike. To ensure a smooth process, automated workflows must exist for different scenarios, which the radiologist can start at the push of a button, such as: How can second opinions on the findings be obtained? When and to whom are preliminary findings transmitted? How to ensure that critical findings reach the referring physician as soon as possible and can easily be recognised as such?

Finally, a highly automated billing process can help to minimise billing losses. Effective approaches include pre-defined workflows for all types of insurance models; examination-specific query assistants registering materials used early on during the examination; automatic import of material and

In addition, healthcare IT Systems require the highest standards of data security and privacy. This is especially important since more and more web applications have become a substantial part of healthcare workflows. One of the central tools are the security guidelines of the Open Web Application Security Project (OWASP), which assess the most common threats and provide effective measures for protection against these threats. Additional security is provided by solutions with certified third-party penetration tests and ISO 27001 information security management certification. ■