

The Siemens logo is displayed in a white box at the top left of the page. The background of the entire page is a photograph of the Ernst von Bergmann Klinikum building, which has a distinctive orange-tiled facade and several windows.A white sign for the Ernst von Bergmann Klinikum is mounted on the building. The sign features the text "ERNST VON BERGMANN KLINIKUM" in a bold, sans-serif font, with a small blue square logo to the right of the word "VON".

[siemens.com/syngo](http://siemens.com/syngo)

# Reduce costs by using *syngo.via* WebViewer “on call”

White Paper: A study from the Klinikum Ernst von Bergmann, Potsdam, Germany

One of the latest trends in healthcare is the use of mobile medical apps on smartphones and tablets. It is changing the way physicians work and collaborate. The flexibility and mobility offered by our mobile solution *syngo.via* WebViewer<sup>1</sup> is important in a hospital setting where physicians require access to radiology images 24/7.

Fast access to this information is of utmost importance and in certain scenarios e.g. stroke can be life critical. Information exchange amongst radiologists and clinicians needs to be time- and cost-efficient.

<sup>1</sup> The application *syngo.via* WebViewer is not for diagnostic viewing/reading on mobile devices in the US. Please refer to your sales representative whether the product is available for your country. Diagnostic reading of images with a web browser requires a medical grade monitor. For iPhone and iPad country specific laws may apply. Please refer to these laws before using for diagnostic reading / viewing. For Japan: Applications on iPhone / iPad / iPod are not a medical device in Japan. Use at your own risk. They are not intended to be used for diagnosis.



**Prof. Dr. med. Johannes Hierholzer**

is the Head of Diagnostic and Interventional Radiology at the Klinikum Ernst von Bergmann in Potsdam, Germany. The Klinikum Ernst von Bergmann is a future-oriented hospital which focuses on core-area services. The clinic houses more than 1,000 beds and it is recognized as the biggest and best equipped hospital in West-Brandenburg, Germany. In 2013, 56,000 outpatients were treated in the ER and more than 39,000 in-patients were treated through innovative, state-of-the-art medical care. Specialists from 29 clinics and departments offer services in diagnostics, therapy and after-care all in one central location. They emphasize interdisciplinary collaboration among their experts in certified centers which include the breast center, gastroenterology center, the tumor center Potsdam and the special "Stroke Unit".





## The challenges of information exchange “on call”

In the context of daily patient care it is becoming increasingly important to include input from experienced colleagues from various clinical fields in the decision process. Obtaining this input becomes more of a challenge when physicians are on call and working outside normal clinic hours.

Until now this information exchange involved regular commuting to and from the hospital and within internal clinics by the physicians on call to ensure they had access to all clinical relevant information. As a result the decision making process was slowed down and resulted in additional costs for the employer. Often for the patient time is critical, such as in stroke diagnosis and treatment when fast access to information is vital.

In addition to this challenge, the routine transfer of image data (in particular CT and MR) as well as the exchange of clinical information via phone poses organisational, technical, logistical and last but not least data-protection related obstacles and barriers and therefore requires very careful planning.

The goal of the project was to establish a feasible alternative.



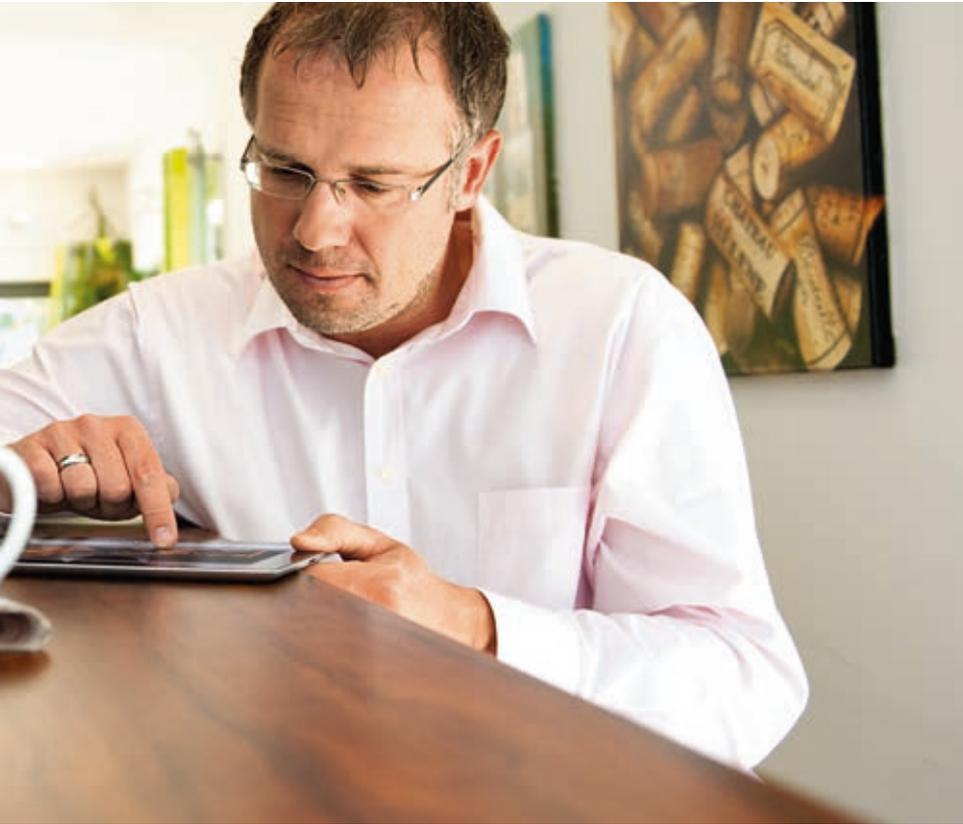
## Project requirements and participants

An integral part of the concept was the accessibility and availability of the clinical image information from Radiology which meant allowing 24/7 remote-access to our syngo.via server.

In addition a fast, high-quality and secure data transfer had to be granted. Access needed to be password secured and data-protection required working instructions and approval. Finally, an easy-to-learn and user friendly user interface on a mobile device was essential. The iPad<sup>2</sup> was the requested mobile device.

The clinical participants of the study were the centers for Neurology and Neurosurgery, specifically the physicians fostered on call.

<sup>2</sup> The iPad are registered trademarks of Apple Inc., registered in the U.S. and other countries



## Evaluating *syngo.via* WebViewer within the specialized centres

Between August 2013 and January 2014 the clinicians from the centers for Neurology and Neurosurgery could access the *syngo.via* server and therefore the temporary Radiology image storage system using their mobile devices (iPad 3) outside regular working hours (i.e., 6pm until 7am, also on weekends and public holidays).

The clinicians were asked to perform a systematic evaluation of the technical components as well as to complete a pre-aligned questionnaire on the system's functionality, ease-of-use and the clinical course of the treated patients.

The following parameters were measured:

- System usage (Neurology / Neurosurgery)
- Time required for image access
- Number of visits to the hospital (Neurology / Neurosurgery)
- Usability and performance
- Process costs

## Results

Overall, the results of the study were very positive:

**System usage.** In the six month period 528 logins were registered through remote access.

**Time to access images.** The mean time to successfully launch images was 65 seconds. This time covers launching the application through to first image viewing.

**Visits to the hospital.** All neurological cases could be solved over the phone (with the help of the tele-consultation), so that a commute to the hospital was not necessary for the neurologist on call. In 75 neurosurgical cases the physician on call had to go into the hospital, not because the tele-consultation failed but for surgical intervention.

**Usability and performance.** The acceptance of using the system through mobile devices was exceptionally high. The ease-of-use was rated as 1.5 on average (on a scale with 1 = very good, 6 = not acceptable).

**Process costs.** For the costs analysis, the following assumptions were made:

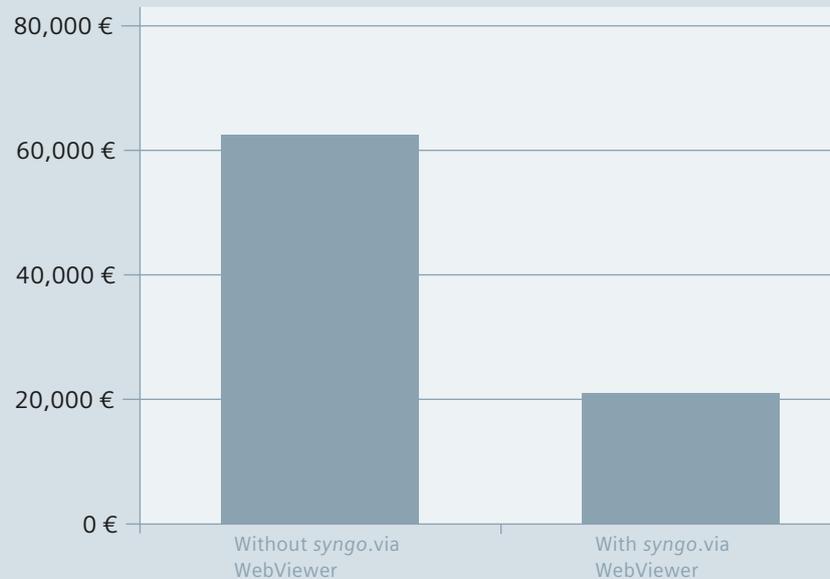
- Estimated compensation per hour "active time on call": €40
- Average total time for a visit to the hospital by the on-call physician: 3 hours

Average cost per visit to the hospital by the on-call physician: €120 (= 3 x €40)

- Average cost for a tele-consultation (i.e. use of *syngo*.via WebViewer in combination with a phone call): €40

Based on these assumptions, potential savings could be calculated: In the six month period, a total of 528 phone contacts with the on-call neurologists or neurosurgeons occurred. If they commuted to the hospital for each of these contacts, it would result in a cost of €63,350 (= 528 x 3hrs x €40,-) in total. In contrast, a full replacement through tele-consultation would incur costs of €21,120 (= 528 x 1hr x €40,-) only.

## Cost incurred for "active time on call" over a 6 month period.



## Conclusion and outlook

At Klinikum Ernst von Bergmann, the possibility for physicians on call to access radiological image data anywhere<sup>3</sup>, anytime through mobile devices lead to a complete process change in the Neurological and Neurosurgical departments' workflow. The reaction times in emergency cases outside of regular working hours decreased due to the possibility of prompt tele-consultation. The amount of time-consuming and for the employer cost-intensive in-hospital consultations by physicians on call could be significantly reduced by using tele-consultation. As a result costs could also be reduced.

System acceptance was exceptionally high due to the user-friendly interface of *syngo.via* WebViewer in combination with the possibility to interactively view images.

To eventually offer an enterprise wide modern means of communication, Klinikum Ernst von Bergmann plans to roll out this pilot project within other clinical departments.

<sup>3</sup> Prerequisites include: Internet connection to clinical network, DICOM compliance, meeting of minimum hardware requirements, and adherence to local data security regulations.

The outcomes achieved by the Siemens customers described here in were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g. hospital size, case mix, level of IT adoption) there can be no guarantee that others will achieve the same results.

**Siemens Healthcare Headquarters**

Siemens Healthcare GmbH  
Henkestraße 127  
91052 Erlangen  
Germany  
Phone: +49 9131 84-0  
[siemens.com/healthcare](http://siemens.com/healthcare)