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**An iPad in the OR
Exhibit from the German Cancer Research Center on the science exhibition ship “MS
Wissenschaft”**

When performing minimally invasive surgery, clinicians need to know precisely how to insert instruments into a target region without injuring nearby organs. SurgeryPad, an invention from the German Cancer Research Center (DKFZ), may help them do so in the future. Over the next five months, visitors to the science exhibition ship "MS Wissenschaft" will have a chance to try out the new software system for themselves. The floating science fair starts on May 6 in Berlin.

When planning a minimally invasive surgical procedure, physicians gain better spatial orientation into a patient's anatomy using a virtual system. A group of scientists headed by Michael Müller from the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) has developed an application called SurgeryPad that facilitates this without the need for large diagnostic instruments: SurgeryPad runs on a tablet computer.

The method works like this: During surgery, a physician films the surface of a patient's body using the camera integrated into an iPad. SurgeryPad then superimposes these images with a virtual 3D model of the corresponding organs that has been reconstructed using a CT scan made prior to the operation. The system produces a virtual representation of the patient's organ as seen from the exact point of view of the surgeon. This is made possible by colored reference markers attached to the skin of the patient. The SurgeryPad software uses their coordinates to determine the spatial orientation of the tablet computer and constructs a real-time, corresponding view of the inside of the body.

Starting on May 6, interested members of the public from all over Germany will have a chance to try out SurgeryPad for themselves on the exhibition ship "MS Wissenschaft" ("MS Science"). The theme of this year's exhibition inside the big cargo ship is "Digital Society." It presents more than 30 interactive exhibits demonstrating multiple uses of digital technology, with a particular focus on the role that science and research have played in their development. The exhibit will tour German rivers on board the “MS Wissenschaft” for five months.

Michael Müller, who developed SurgeryPad, gave a demonstration of the system to Federal Minister of Education and Research Prof. Johanna Wanka at the exhibition's opening on May 6. "Minimally invasive surgical operations or biopsies are being used ever more widely," says Müller, a specialist in medical informatics. "Systems such as SurgeryPad, which are based on augmented reality, support physicians' spatial imagination and will help them perform these interventions more precisely and more gently in the future."

When and where will the “MS Wissenschaft” land? Click here for the tour plan:
<http://www.ms-wissenschaft.de/tour.html>

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) with its more than 2,500 employees is the largest biomedical research institute in Germany. At DKFZ, more than 1,000 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. The staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. Jointly with Heidelberg University Hospital, DKFZ has

established the National Center for Tumor Diseases (NCT) Heidelberg, where promising approaches from cancer research are translated into the clinic. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, DKFZ maintains translational centers at seven university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg.

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