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# Success Story: continuous process management before, during, and after surgeries

The clinic for minimally invasive surgery (MIC) founded in 1997 has since performed 14,500 surgeries and treats members of compulsory as well as of private health insurances. This model clinic has 34 beds and is consequently committed

to modern process optimization. Only high-tech equipment is employed.

The result: the quality is very high and the average stay in the clinic lasts merely 1.8 days!

## Diagnosis related groups (DRG) forces hospitals to audit the efficiency of processes

Since 2004 – regulated by law – the accounting system in health care will be reformed: clinics, hospitals, and nursing homes will no longer get fixed daily rates for patients but performance related fees. The introduction of diagnosis related groups will cause cuts in staff and payment for many clinics. That does not apply to Berlin's special clinic for minimally invasive surgery (MIC).

For five years this private clinic already uses internal DRGs – with complete success: According to a survey made by Mummert Consulting the quality is brilliant, personnel costs declined by 30 percent and the average stay in the clinic lasts merely 1.8 days!

The cause is a rigorous process orientation and employment of high-tech equipment and applications.

So, in co-operation with the leading manufacturer of medical devices, Karl Storz GmbH & Co. KG, the integrated OP-room OR1 was developed. It is entirely designed to the needs of the MIC clinic: all instruments are operated onscreen. Thereby optimized procedures and perfect logistics are the most important aspects.

Particularly in this field an immense potential for economization is located.

Only with the best possible process management through all phases of treatment of inpatients, as before, during, and after surgeries, the full potential can get utilized.

## The solution: continuous process management with the inubit Health Care Solution

According to this cognition, the inubit Health Care Solution on the basis of the inubit BPM-Suite was developed in close collaboration with Karl Storz GmbH & Co. KG.

The inubit Health Care Solution is an industry-specific development of the approved integration and workflow software inubit BPM-Suite – for comprehensive modeling, controlling, monitoring, and optimizing of processes in hospitals.

Thereby the inubit Suite not only acts as fail-safe communication server, ensures a frictionless exchange of data between devices and systems, but also integrates personnel actively and releases them of superfluous routine jobs:

To support MIC's OP-team in their highly efficient work the inubit BPM-Suite ensures the optimal process control before, during and after the operation. This includes all involved IT systems are communicating failure-free, and applies, for example, to medical information systems (MIS), image processing systems (AIDA), image archive systems (PACS) and the electronic medical record.

Beyond the functionality of a classical communication server the inubit BPM-Suite Health Care Solution performs further tasks: an appropriate reference process is decided on before routine operations are conducted. In doing so, not only the involved IT applications and devices but also the tasks of the staff members are taken into consideration and implemented in workflows. The inubit BPM-Suite informs the ward when an operation room is ready for the next patient and guarantees optimal performance of the IT systems involved.

The support of the inubit Health Care Solution continues after the successful surgery by transferring the data, acquired during the surgery, to the electronic medical record. Personnel are anburdened and spare time for other things – in favor of the well being of patients.

The medical director of the clinic for minimally invasive surgery, Prof. Dr. Omid Abri:

*"To guarantee our patients first-class care, we test and control our internal processes every now and then. We only employ state-of-the-art technology. Top quality products like the fully equipped OP-room OR1 of the Karl Storz GmbH or the inubit BPM-Suite enable us to perform surgeries for 14 hours a day on five days a week. This allows us to perform approximately 30-40 percent more operations compared to the average that employs the same resources."*

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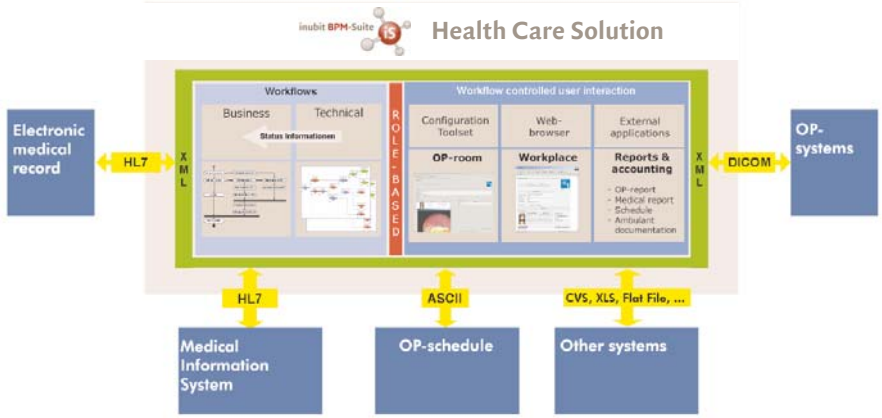
## Technical description of the integration solution

When the project started appropriate reference processes were decided on together with the MIC.

The ideal flow of routine surgery was modeled on an UML basis in the inubit BPM-Suite as so-called business workflows.

Technical workflows were derived from the business workflows to implement the reference processes. These integrate the involved IT systems (MIS, AIDA, PACS, and EMR) and prevent multiple input and change of media.

The inubit BPM-Suite acts as a classical communication server and supports all formats and protocols that are usual in the line of business and are needed for data exchange – for example the EDI standard HL7, DICOM, or DB.




## Active integration of personnel

Personnel is integrated in the flow of activities from the beginning.

Task lists inform about the status of activities in the operation room and about the state of processes. The inubit BPM-Suite supports the entire logistics for patients – from the ward, to the preparation, the operation room, the anesthetic recovery room, and back to the ward.

During the process, data is gathered and process classification numbers are generated that inform, for example, about the operation room setup time or surgery duration. The advantage of this comprehensive process management: the error rate during surgery has decreased; unnecessary idle time is past and routine jobs like multiple input of information are superfluous. Policies and procedures of daily processes are made transparent and can be monitored and optimized systematically.

## Outlook

The project's next steps are already in preparation. The individual parts of processes will no longer be initiated by personnel only, but also by patients, who will use transponder technology. Beyond that further medical systems will be integrated, in particular the anesthetic system.

At present the inubit BPM-Suite is primarily used as "cerebellum" that controls, monitors, and optimizes the processes that belong to the operation room. The planning includes transferring the potential of optimization to further wards and in the long-term to co-operations overlapping the clinical sector. Transferring laboratory data, co-operating with associated doctor's practices, electronic accounting for patients and health insurances are fields that have great potential for economization. The clinic for minimally invasive surgery in Berlin can and will make use of this potential in the near future.

## The project at a glance

### Benefits

- Continuous process management around the operation
- Synchronous data handling between all IT systems
- Higher efficiency (30-40 percent more surgeries)

### Technology

- Integration of MIS, AIDA, PACS and EMR
- Connection to IT systems via HL7, DICOM, and DB
- Integration of personnel via task lists and forms

### Realization

- Realization of the entire process solution within few weeks
- Usage of the inubit BPM-Suite for further tasks possible

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