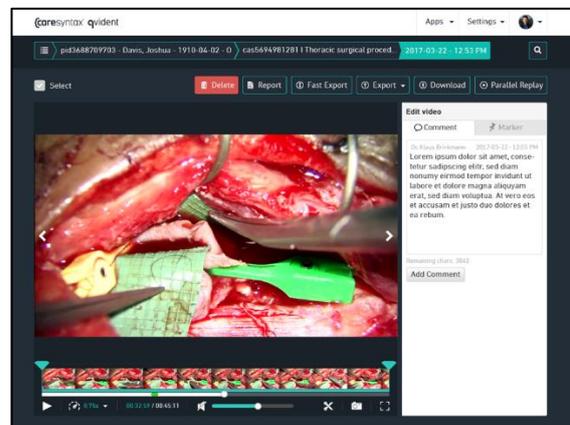
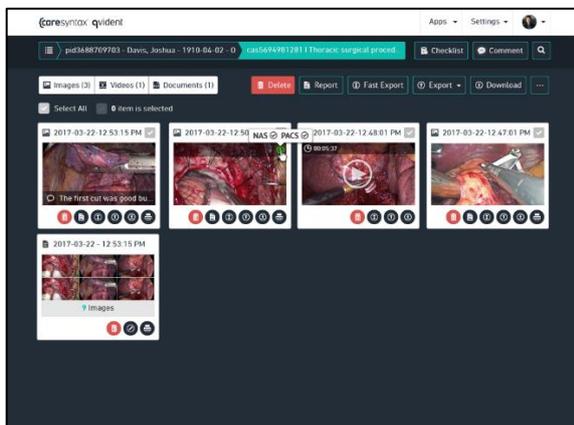




# Archiving, Surgical Content Management, Surgical Reporting, Education/Training

qvident® is a web-based performance management software platform, providing surgical teams with an easy-to-use interface for creating, managing, and sharing surgical content. It is compatible with any OR documentation system from all of the major vendors. Using qvident®, clinical teams can gain greater visibility into each surgical episode, and can identify and understand the root causes of patient outcome variability. With this information, improved training protocols, efficient processes, and ultimately, the standardization of best practices can be achieved.



### Dynamic surgical content management

- Manage all surgical data types, including: checklists, videos, images, audio, vital monitoring data, risk calculators, and patient consent forms



### Clinical documentation and reporting

- Reduce administrative burden by streamlining post-operative report building



### Surgical analytics and root-cause identification

- Reconstruct intraoperative events using continuous, synchronized record of key real-time surgical data to identify root causes that contributed to adverse events or efficiency traps



### Performance analysis and education

- Review recorded procedures involving complex workflows or known critical incidents



### Integrate

- Integrate your OR for use cases ranging from minimally-invasive procedures to open and robotic surgery
- Connect to medical devices, video and audio sources, and vital monitors, built from any manufacturer
- Improve ergonomics with real-time video routing, and enhance collaboration across the clinical team, on-site or remote via videoconferencing



### Centralize and Structure

- Record and structure point-of-care data, including video, audio, images, checklists, and patient vitals
- Centralize documentation, and enable ease-of-access to patient context with full EHR, and PACS connectivity



### Automate

- Automate workflow processes to reduce error and increase team efficiency
- Optimize workflow and surgical quality with a leaner, more intuitive interface

Errors and technical modifications excepted. Pictures similar / exemplary.

\*For the offered configuration and corresponding options please refer to the attached offer document.



## Surgical Content Management Application

With the **qvident**® surgical content management application, surgeons and OR teams can import and export videos, images from surgical documentation systems, collaborate and enrich documentation together with comments and markers.

Features:

1. Connect to any surgical documentation system/ OR integration solution and export selected videos and images (vendor-neutral) to **qvident**®.
2. Access media files right immediately after the procedure through automatic background export from **{caresyntax PRIME365}** O.R. documentation system to **qvident**® (valid only for **{caresyntax}** OR integration system).
3. Review images, playback videos in different speeds (slower or faster), and in full screen.
4. Add comments to studies, images, videos.
5. Edit videos: create video cuts and snapshots out of original surgical videos.
6. Add time-markers to videos: mark the key moments of the procedure according to pre-defined clinical tasks and improvement suggestions on the recorded video. Review the video by clicking on the time markers.
7. Customize time-markers with your own preferred tasks and remarks.
8. Create a report with selected images of the procedures and pre-filled patient and procedure information for export, download and printing in PDF.
9. Export selected videos, images to PACS, HIS or any VNA (DICOM & non-DICOM compatibility)
10. Archive media documents in short, medium or long term.
11. Access quickly the needed case documentation thanks to full-text search within the platform: input any words and then filter the results according to your needs (by patient name or id, case id, study description, comment/marker, etc.).
12. Connect to the solution from any web-enabled device (responsive design from smartphone up to desktop PC).
13. Add and edit user management rights (for admin users) with Active Directory and LDAP Integration.
14. Fill out safety checklists as defined by the WHO or customize ones according to your hospital's needs. Checklists can be exported to HIS as PDF.

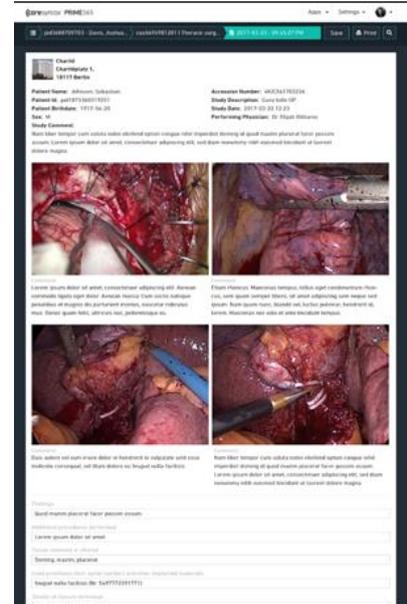
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## Surgical Reporting Application

With the **qvident**® surgical reporting application surgeons and OR teams can create customized reports and use ready-made templates. Streamline the post-operative report building process with automation and digitalization to reduce administrative burden and increase actionability!

1. Create customized clinical report templates by department, or by type of report. Select which parameters you want to enter in your report template among multiple variables, e.g. procedure information, patient information, procedure images, procedure protocol, free text fields, checklists...
2. Create pre-populated reports on – demand (e.g., operative notes) for each case.
3. Reports are available in PDF, Word or Excel formats.
4. Store, download, print and export reports.



## Training, Coaching, Skills Development Application

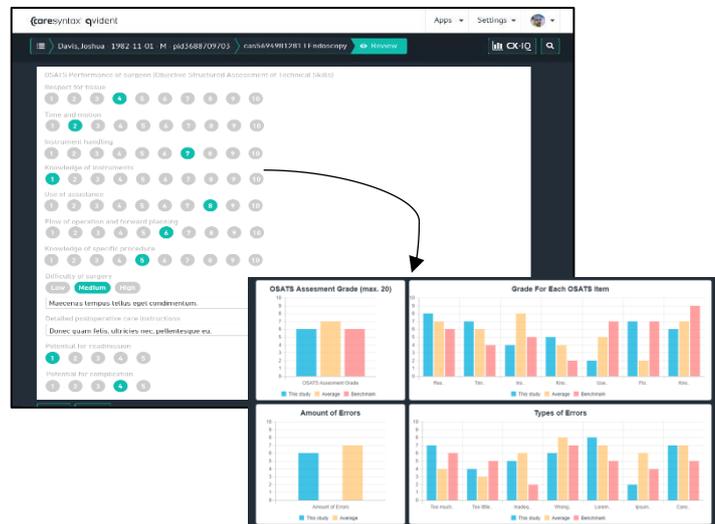
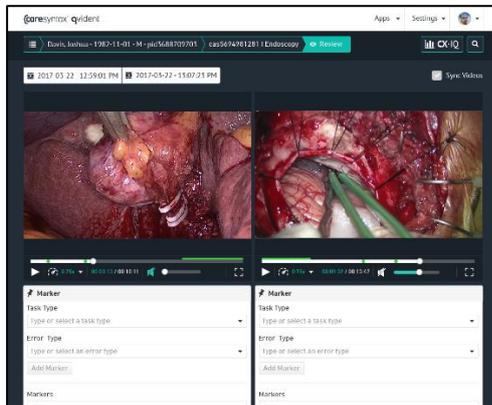
The **qvident**® training application creates transparency on the variability of the quality of surgical performance. Educate surgeons and residents and improve surgical skills with data-driven training and deep, procedural insights. Create Root-Cause Analysis or Training Assessment reports to review and rate selected procedures. Consult with clinicians on- and off-site, and establish best practices within the field. In addition, the **qvident**® training application includes the *Surgical Performance Analytics* dashboard from the **Analytics** product suite.

1. Access all the documentation for each procedure including full video recordings, images & logged events from the procedure at one glance.
2. Watch simultaneously up to 4 videos, recorded from different devices, side by side thanks to the parallel replay feature.
3. Combine videos together with images and audios, recorded during the OR procedure to watch simultaneously.
4. Annotate recorded content to denote key surgical activities or highlight areas of needed improvement with time-markers that can be pre-defined and customized by the user.
5. Evaluate the training performance of the trainee with different performance evaluation frameworks (e.g. OSATS, NOTSS, etc) or customize one according to your hospital's needs.
6. Creation of a detailed protocol based on logged events in the OR, which can be exported or downloaded as a PDF (valid only for **caresyntax** OR integration system).
7. Create Root-Cause Analysis or training assessment reports based on procedural documentation, time-markers, performance assessment tools, and surgical stats.
8. Download or export Root-Cause Analysis or training assessment reports in PDF.
9. Utilize the *Surgical Performance Analytics* Dashboard to visually summarize the key milestones, time markers, and other relevant data points from within the clinical context of the OR.

Errors and technical modifications excepted. Pictures similar / exemplary.

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- Analyze and track surgical performance quickly and easily utilizing industry-standard assessment frameworks and metrics.
- With filters, drill down into department-level, procedure-level, and surgeon-level performance, in regards to individual surgeries and in aggregate view, as well as over time.
- Access standard dashboards and the option to customize your own, in order to measure, analyze, and improve clinical quality and outcomes.



## Analytics

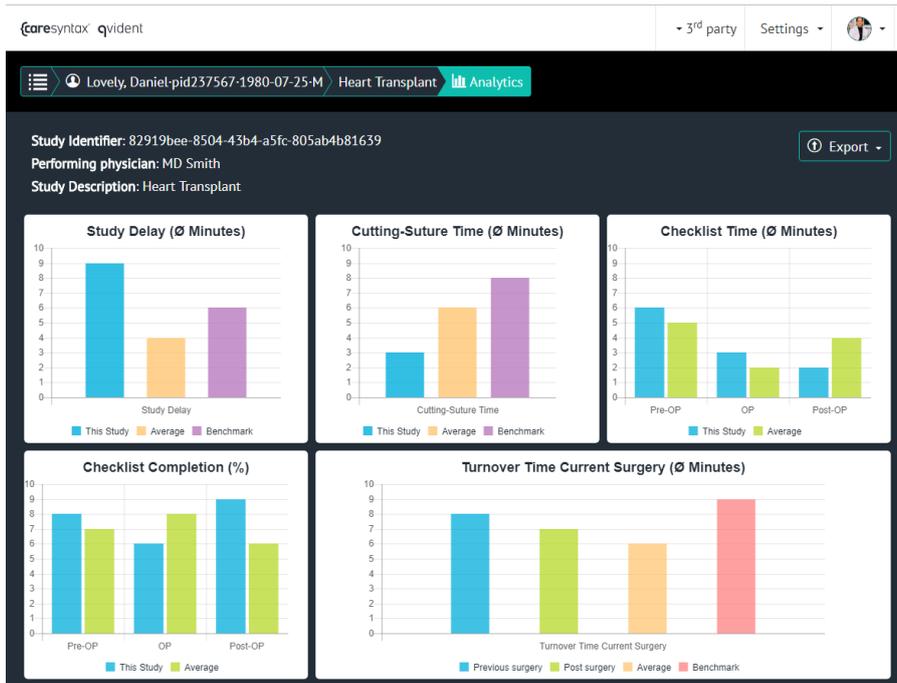
The Analytics applications are powered by an advanced business intelligence tool with filtering and customization functionalities, to aggregate and visualize all types of collected data from the perioperative workflow. Easy-to-use and visually appealing, these are designed to help decision-makers at all levels with data-driven insights.

## Surgical Efficiency Analytics Application

- Visualize and track the efficiency across the entire perioperative workflow with an out-of-the-box metrics dashboard.
- Create customized benchmarks to track and measure against industry-accepted standards of OR-level, department-level, and location-level operating efficiency.
- Combine with procedural outcome data to enrich root-cause analyses and identify trends for optimization and risk mitigation.
- Utilize goals-setting features to improve performance of all staff in conjunction with a data-powered understanding of key drivers within each clinical setting.

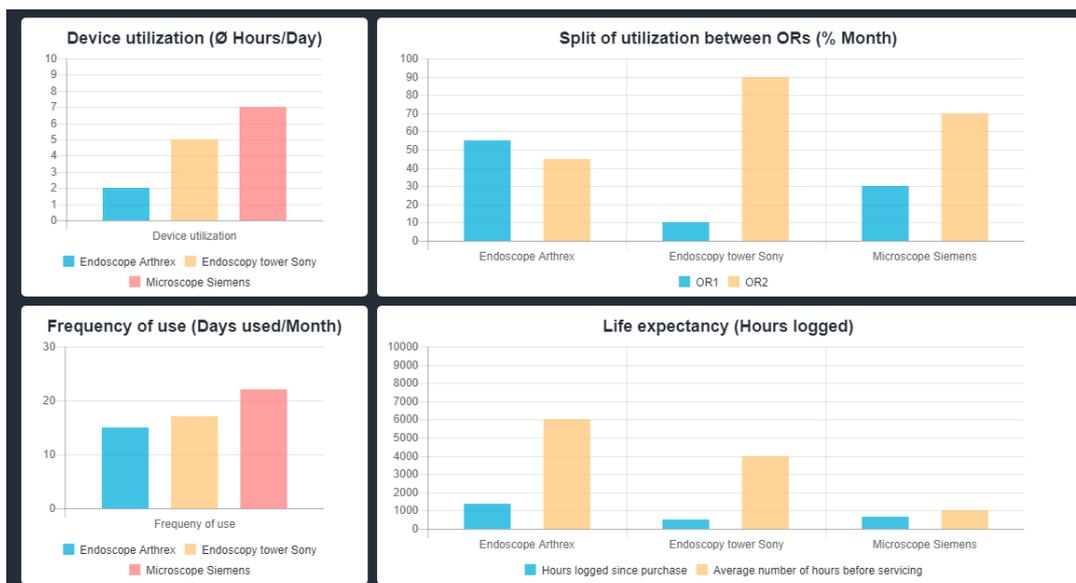
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## Medical Device Analytics Application

1. Measure and evaluate utilization and uptime of all connected devices within the OR setting.
2. Apply industry-standard benchmarks to forecast predictive maintenance of medical devices, and visualize patterns to inform purchasing needs.
3. Improve understanding and impact of medical devices on clinical quality and outcomes, as well as on efficiency gains/losses within the context of OR time.
4. Reduce reliance on external vendors and technicians by creating real-time tracking.



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## Technical considerations

We can deploy and host **qvident**® on a HIPAA-compliant cloud-based platform meaning that your I.T. doesn't have to take care of hosting or maintenance and that **qvident**® will receive automatic software updates without your involvement.

**qvident**® can be applied easily on the existing server structure and does not require additional hardware. The server hardware has to be provided by the customer – if not explicitly offered\*.

If you prefer to deploy **qvident**® on-premise on your own servers, here are the minimal system requirements:

System requirements	
Operating system	Windows 8.1 \10 Windows Server 2012 R2 \2016
Processor	4 CPU cores 2GHz
Memory	16GB RAM
Storage capacity	100GB free hard disk space for application Minimum 200GB for content
Network bandwidth	Minimum 1Gbit per second (Gbit/s)
Database requirements	
Server database	MS SQL 2012 \ 2014 \ 2016
Other requirements	
Supported authentication methods	Internal Active directory \ LDAP

### Data storage calculation

- Video (Full HD):  $1.5\text{GB} * \text{number of hours of video per day} * \text{number of ORs} * \text{number of days for retention}$
- Image (Full HD):  $1.5\text{MB} * \text{number of images per day} * \text{number of ORs} * \text{number of days for retention}$

### Recommended server infrastructure:

- 1 application server
- 1 database server

### Recommended hypervisors for virtual machines:

- Microsoft Hyper V
- VMware vSphere

### Recommended storage technology:

- RAID6

### Recommended backup strategy:

- Differential + full backup of system installation
- Incremental + full backup of data
- Virtual Server Replica

Errors and technical modifications excepted. Pictures similar / exemplary.

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## qvident® client requirements

Web browsers	Chrome Version 64 Internet Explorer Version 11 Firefox Version 57.0
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### Display

qvident® provides a responsive design, supporting resolution of desktops, tablets and mobile devices for user's convenience.

**Regulatory compliance:** qvident® allows you to meet and maintain the need for confidentiality, privacy and security as required by Swiss regulations.

**Physical Security and Network Security:** qvident® is deployable on cloud that can host patient data according to Swiss regulation or on a hospital's server on premise and resides inside hospital for physical security and behind hospital firewall.

**Network Communication Encryption:** All network communications among users and qvident® are encrypted using standard encryption technologies HTTPS and TLS.

**Authentication:** qvident® integrates with user directories for centralized controlled authentication and authorization (LDAP, Active Directory or internal database based on username and password). Users can be grouped and access rights can be assigned on individual or group level. qvident® can authenticate user using hospital LDAP service.

**Auditing Log:** qvident® provides granular configurable logging mechanism for business and technical purposes. Besides that functional interactions (e.g. user log in/ log off, worklist selection, media creation, export, etc.) within the applications generate events including all relevant information regarding user and patient context which are stored and can be used for auditing.

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