



Paper-based vs. digital commissioning: The 7 levers to success

How you can turn **challenges** into **opportunities**
and **strengths**.

Commissioning (FAT/SAT): Why should it be digitized?

Quality requirements getting higher and higher, increasing competitive and cost pressure, and the shortage of skilled workers are challenges that companies from the mechanical and plant engineering sector and manufacturers of large-scale industrial electronics have to face on a daily basis. Therefore, the pressure to optimize all kind of operational processes remains high and the topic of operational excellence continues to be of utmost importance.

Within the operational processes in production, commissioning takes on a special role, which makes it an important pillar of any shopfloor digitization strategy. On the one hand, commissioning employs particularly well-trained and experienced staff. Against the backdrop of a shortage of skilled workers, it is enormously important to free these skilled workers from non-value-added activities in order to increase their productivity and well-being at work.

At the same time, commissioning for the Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) plays a key role with regard to operational excellence. Potential errors from previous processes are detected here and can be corrected before delivery in order not to damage the reputation of quality leadership and quality costs are kept in check. Digitization solutions can help to better identify these errors and correct them more quickly.

Commissioning thus has an immediate customer-impacting influence and at the same time represents a significant lever for increasing productivity and quality. Moreover, since commissioning involves compact teams, this area is ideal for lighthouse projects that can subsequently be rolled out further along the value chain.

This ePaper highlights the opportunities of digitized commissioning and shows concrete solutions for implementation.



Digital commissioning : The 7 key levers

1. Efficient creation and organization of commissioning documentation
2. Streamlining the commissioning process through elimination of non-value-adding activities
3. Ensuring error detection from previous processes
4. Simplification of verification and provision of evidence to the customer
5. Systematic defect management and reduction of response times
6. Increase transparency on order status and its progress for better project coordination
7. Easy information traceability with low effort

Appealing Return-on-Invest

280,000 € saved yearly in commissioning and related processes.

Source: Operations1 customer study for a company with 1000 employees.

Contribution to Future-Readiness

through systematic data collection, sustainable assurance of process knowledge and contribution to quality leadership.

Lever 1: Efficient creation and organization of commissioning documentation

Challenge: The creation and maintenance of commissioning checklists and test protocols involves a great deal of manual effort. Particularly when documents are to be made available in multiple languages and standardized across plants, and must be updated and versioned in the event of changes, the handling effort involved should not be underestimated.

MS Office-based documents are usually printed out and made available to the employee in paper form. Often, the documents required for the customer order are made available to the commissioning employees in entire order folders.

Solution: The Connected Worker Platform from Operations1 comprehensively simplifies document management.

Through the use of multilingual documents, modules, and a modular system of interactive elements, digital checklists and work instructions can be created quickly and easily in Operations1 and made available centrally in different languages, e.g. for several plants. In addition, complex information can be inserted through media such as images and videos for intuitive activity description and better comprehensibility. Another aspect is the planning of commissioning activities: this can be done directly in Operations1 or by connecting an ERP system, for example.

The screenshot shows a mobile application interface for 'Commissioning at the Customer'. It features a 'Start test run' section with a '1 Start' step and a video thumbnail. Below this is a 'Choose mode' section with three radio buttons: 'test run calibration', 'trial run', and 'production'. The next section, '2 Please document the following points', includes two checked items: 'smooth running' and 'Automatic start/stop system works'. There is also a 'output per minute' field with a value of '60' and a 'Number' input field. At the bottom, there are 'BACK' and 'NEXT' navigation buttons, and a progress indicator showing '4 / 5'.

Advantages:

- Typically 40-60% effort reduction in work preparation and quality assurance in the area of document management
- ✓ Cross-plant quality standards for commissioning
- ✓ Elimination of subsequent efforts for scanning and archiving documents
- ✓ Paper cost savings

Lever 2: Streamlining the commissioning process through elimination of non-value-adding activities

Challenge: Paper-based, text-heavy documents require a great deal of editing and interpretation. Often, the employee's wealth of knowledge and experience is essential for compliant editing. Individual control points must be manually adjusted to determine whether they are necessary for the respective machine model or variant. These are non-value-adding activities and delay the commissioning process. Furthermore, due to paper-based documents all performed activities, test values and findings have to be logged manually. All these factors reduce the productivity of the commissioning staff.

Solution: By providing order-specific, intuitive checklists, employees can concentrate fully on the tasks to be performed. Complex technical information can be communicated in a comprehensible way via images and videos – further supporting information can be added via PDF files, among other options. Control values can be logged directly in the software and findings and problems can be documented with images and comments.

Once an order has been completed, Operations1 automatically generates a digital report that can be returned to the ERP system if required.

Advantages:

- ✓ Reduction of documentation processing time per machine up to 67%
- ✓ Automatic logging of control steps and more transparency
- ✓ Reduction of non-value-adding activities and increase in productivity
- ✓ Reduction of commissioning time

Lever 3: Ensuring error detection from previous processes

Challenge: Order-unspecific documents or template machinery inspection lists as well as paper-based documents in general increase the risk of imprecise control processes. Checkpoints can be overlooked or misinterpreted if individual control points have to be processed manually and possibly even on the basis of mental knowledge. Carelessness in the documentation of test values and a lack of downstream control mechanisms can later result in significant complaint costs and a loss of image with the customer.

Solution: This error-proneness is counteracted by predefined, mandatory work steps as well as internal control methodologies displaying the automatic threshold value.

Step-by-step control checklists and mandatory interactions allow inaccuracies in the control process to be detected earlier or, in the best case, avoided entirely.

Advantages:

- ✓ More safety and comfort for your employees
- ✓ Strengthening your reputation as a quality leader by reducing undetected defects
- ✓ Reduction of complaint costs
- ✓ Higher process reliability
- ✓ Reduction of logistics costs for possible return transports after faulty FAT approval

The screenshot shows a mobile application interface for a 'Final inspection' process. At the top, there's a header with a close button, a title '12861 Commissioning at the Customer', and a dropdown arrow. Below the header, the main title 'Final inspection' is displayed. The interface is divided into two main sections: '1 Measurement first part' and '2 Release commissioning'. In the '1 Measurement first part' section, there are two measurement fields: 'length' and 'width'. Each field has a 'Nominal value' (330 for length, 240 for width), a text input field with a value (335 for length, 244 for width), and a unit 'mm'. Below each input field, there are 'Upper limit' and 'Lower limit' indicators. For length, the upper limit is 335 and the lower limit is 325. For width, the upper limit is 245 and the lower limit is 235. In the '2 Release commissioning' section, there is a 'Mandatory' label and two buttons: 'OK' and 'NOK'. At the bottom of the screen, there is a navigation bar with a 'BACK' button (labeled 'Start test run'), a progress indicator '5 / 5', and a 'FINALIZE' button.

Lever 4: Simplification of verification and provision of evidence to the customer

Challenge: Commissioning staff often not only have to record findings manually, but also document them via photos. These images are often still taken with a digital camera and photo files are subsequently transferred digitally by hand to a network folder and archived.

Findings recorded on paper documents also often have to be transferred manually to Excel spreadsheets or ERP systems for later evaluation.

Solution: Digital checklists provide commissioning staff with the ability to log measured values or text-based comments directly in the software. Likewise, staff can record and document findings directly in Operations1 through the integrated photo and video functionality.

This digital findings information and media can be subsequently researched or analyzed in more detail using automatically generated reports in order to identify optimization measures in upstream processes such as assembly or commissioning. Alternatively, this data can be transferred to external systems such as analytics tools, ERP systems, etc.

Advantages:

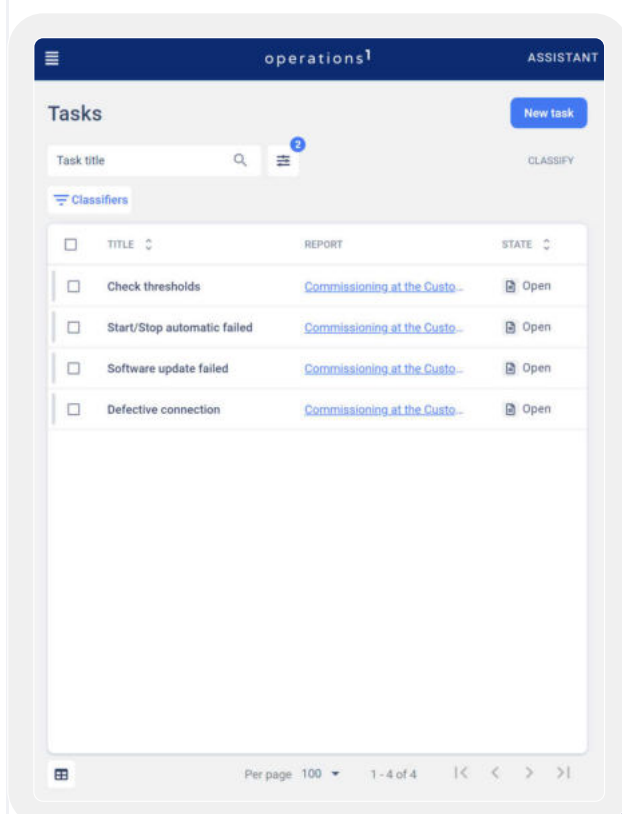
- ✓ Central and complete documentation of findings
- ✓ Simplified analysis based on transparent reporting
- ✓ Initiation of improvement measures in previous processes

Lever 5: Systematic defect management and reduction of response times

Challenge: If a commissioning employee identifies errors or defects that require immediate consultation with a supervisor or colleague as well as a quick solution, they often have to leave their workplace or the machine or plant or resort to other systems such as telephone/smartphone, paper or similar. This leads to unnecessary walking times, long response times and operational costs.

Solution: If the documented findings require a quick solution, employees can use task management to create tasks directly and assign them to their supervisors or colleagues. Through the live chat function employees can communicate with each other in real-time and, in the best case, resolve the issues with little delay.

Task creation also automatically generates a punch list that provides a live overview of open and completed tasks. Problems are thus not only recorded and listed, but also automatically documented transparently and resolved more quickly.



Advantages:

✓ Quick, collaborative problem solving

✓ Efficient communication

Real-time "punch list" of current problems (also known as "open points list")

Lever 6: Increase transparency on order status and its progress for better project coordination

Challenge: Paper-based processes preclude a real-time overview of the ongoing orders. This information is only accessible through direct communication with employees via on-site information exchange, phone calls, etc., and requires the employee to take time off work.

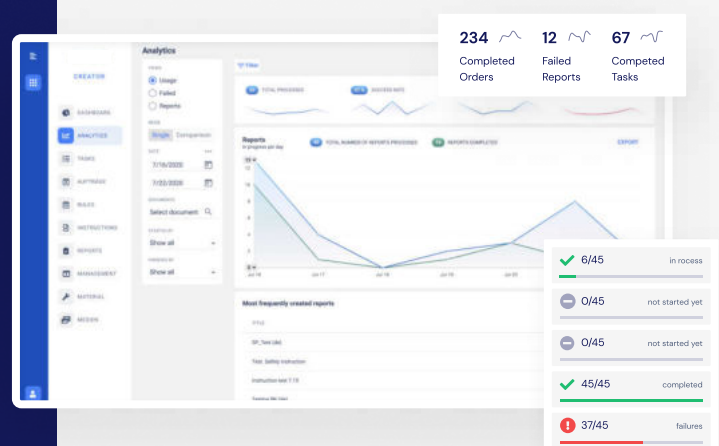
Managers can only obtain a concrete overview of the current order status by manually collecting the information, for example, in order to identify potential delivery delays.

Solution: Based on the digitized commissioning process and real-time process data that employees generate by editing or executing checklists, managers from commissioning, quality assurance and production in general receive a real-time overview of the orders and can view further details in the individual orders and documents.

In addition to the process progress, current problems occurring during commissioning activities can also be viewed in order to counteract further disruptions in the process promptly.

Advantages

- ✓ Higher informative value in case of internal or customer inquiries
- ✓ Simple project coordination between sales, logistics and commissioning
- ✓ Real-time process overview and prompt response in case of problems
- ✓ Avoidance of time delays in the commissioning process



Lever 7: Easy information traceability with low effort

Challenge: If internal (company) or external (customer) inquiries arise, for example in the case of complaints, this results in a high level of manual research effort for digitally archived documents, especially for analogue and archived documents, the classic folder archive.

Increased research effort is usually the logical consequence of a paper-based commissioning process: individual commissioning steps are documented on separate pieces of paper, for example, making it very difficult to track the commissioning process quickly and transparently.

Solution: When a task is completed, Operations1 automatically generates a digital report. This provides you with a complete documentation and display of the individual test steps, the logged measured values and recorded findings as well as punch list tasks. This allows you to transparently track the process and provide detailed information to customers, for example.

The internal search function in Operations1 also makes it easy to find reports.



Advantages:

- ✓ Up to 25% reduction in effort for complaint research
- ✓ Seamless traceability and high informative value
- ✓ Strengthening your positioning in service

Digital commissioning can thus achieve a number of operational and strategic improvements:

- ✓ **Efforts in work preparation and quality assurance** are significantly reduced
- ✓ **High customer confidence** is generated through **seamless documentation and verification**
- ✓ **Employee productivity and satisfaction** are increased through state of the art technology
- ✓ **Communication and problem solving** are simplified and carried out more efficiently
- ✓ **Your reputation as quality leader** can be reinforced in the long term



"With Operations1, we establish living processes, eliminate administrative activities and increase process reliability."

Cyril Maurer
Head of Production & Test Bench

Soudronic

€170k

SAVED YEARLY

100%

TRANSPARENCY OF
OPERATIONAL PROCESSES

Easy start, maximum scalability

The Operations1 digital commissioning checklist software can be deployed within 6–8 weeks. The technical basis and hosting via Microsoft Azure make digital commissioning easy to integrate into your IT system landscape.

Data can be analyzed in Operations1 as well as forwarded from Operations1 to third-party systems.

Due to the modular structure of instructions and the large range of available languages, Operations1 can be scaled limitlessly in your company through a wide range of functionalities in order to map the complexity from locations, departments, machines and much more.

Some of our customers



"Skilled workers in commissioning are a bottleneck. With Operations1, we save 60 minutes per machine and reduce the documentation effort enormously."

Claudio Sutter
Project Engineer, Process Excellence

Krauss Maffei
Pioneering Plastics

-67%

DOCUMENTATION
EFFORT

-84 k€

PROCESSING
COSTS P.A.

Go to our On-Demand-Webinar:
"Digitize End-to-End production
processes"



[Watch Webinar Recording](#)

operations¹

Achieve **operational excellence** in **commissioning through digitization**

Empower your employees, implement excellent processes and strengthen your company for the future.

Do you have any further questions? Contact us!

sales@operations1.com | www.operations1.com