EVIDEN

# Why I designed the LabelPrintCockpit

The LabelPrintCockpit promises to simplify label design and printing workflows. In this article, we explore its development from my personal perspective.

## Initial Situation

Before designing the LabelPrintCockpit, I analyzed the company's initial situation. It was operating two separate SAP systems, each covering different geographical regions.

The first system was implemented for Europe and North America. It was a mature system that still works reliably and efficiently today. In addition to the usual ERP modules, it included the EH&S (Environment, Health & Safety) module and an in-house development for product compliance, both of which were used globally. Labels were printed using a non-SAP application from a company named “ebsoft” (www.ebsoft.de/en), which was connected to the SAP system via various interfaces. The mostly automated printing process was highly integrated into the operational processes.

The second system was responsible for the Asia and South America regions. At the time, this was in a dynamic environment with ongoing rollouts and adjustments. After a failed implementation of SAP GLM (Global Label Management), label printing was redirected via the first system to the ebsoft application. This made the printing infrastructure much more complex.

The further increase in complexity due to continued rollouts and, not least, the increased volume of data in connection with the introduction of the GHS legislation (Globally Harmonized System of Classification and Labelling of Chemicals) presented a challenge that this architecture could no longer meet. The ebsoft application server found itself in a critical position as a single point of failure and became a performance bottleneck for the entire company. In this situation, a fundamental overhaul of the label printing infrastructure was urgently required.

## Requirement Framework

The objective was a robust, flexible and future-proof platform that meets changing requirements and improves the efficiency of business processes. As the responsible solution architect, I translated this into the need for the highest possible stability, flexibility and adaptability of label printing.

- Flexibility: Label printing should be seamlessly integrated into various SAP processes. Both automatic and manual label printing should be possible from both SAP systems, as well as from non-SAP systems.
- Configurability: It was crucial that the solution was easily configurable to adapt to different and changing situations. This included the need to centrally maintain layouts, printers and other settings in SAP.
- Data sourcing and processing: The solution needed to be able to source and process data from different SAP and non-SAP systems and combine it on one label, regardless of the data source. Redundant data storage, for example in a separate database system for labeling, was not accepted by the customer for various reasons, so that all data access had to take place in the original data while maintaining acceptable performance. This required a robust architecture and optimal implementation.
- Redundancy and resilience: Given the critical role of label printing for the business processes, it was important to ensure resilience. The solution needed to offer fallback mechanisms to compensate for failures in parts of the infrastructure. Only the availability of the SAP systems themselves could be assumed.
- Maintainability and scalability: The solution needed to be easy to maintain and scale to meet new requirements. This included the ability to make customer-specific adjustments with minimal effort and to continuously optimize the performance of the system.

## Alternatives


When considering alternative solutions, the implementation of SAP GLM was ruled out based on previous experience. The SAP basic technologies available at that time for creating documents and labels, SAP Script and SmartForms, proved to be inadequate for the complex requirements. All non-SAP solutions examined required redundant data storage, which contradicted the framework conditions. Weaknesses in the details of label design and print preparation were found.

The positive experience with the ebsoft application already in use led to the decision to retain the print preparation, rendering and printer connectivity functions of the ebsoft application. All other functions in the overall label printing process were regarded as data-related and therefore belonging to SAP thus to be implemented there. Examples include the print initiation itself, label determination, central layout management, data access and processing. These functions were implemented as SAP extension under the name "LabelPrintCockpit".

## Development

When designing the LabelPrintCockpit, I put great importance to taking into account as many good-to-have requirements as possible, in addition to all must-have requirements. This way, future requirements are also flexibly supported.

1. Must-have functions and requirements: A comprehensive list of must-have functions and requirements was compiled at the start of development. These included the possibility of unlimited expansion for new data fields in the context of GHS and other future standards, as well as seamless integration and data transfer between the SAP systems and the ebsoft application.
2. Meeting the framework conditions: It was of utmost importance to ensure that the LabelPrintCockpit provided flawless functionality without impacting the processes already in place. This included eliminating the single point of failure and bottleneck of the ebsoft application and ensuring smooth integration into the existing SAP infrastructure.
3. Adaptability and expandability: The LabelPrintCockpit was designed to be flexibly adaptable to different customer situations. This included the ability to configure both automatic and manual print functionality as required and to make customer-specific adjustments with minimal effort.
4. Reduction of programming effort through customizing: A central aspect of the development was the reduction of programming effort through extensive customizing options. Instead of implementing every adjustment programmatically, care was taken to ensure that as many functions as possible could be maintained as customizing via a user-friendly interface.
5. Central management of layouts and rules: Another focus was on the central management of layouts and rules for label printing. A repository was set up in SAP, which made it possible to version, release and centrally manage layouts.
6. Monitoring and error analysis: To facilitate support and further development, a comprehensive monitoring and error analysis system was implemented. This made it possible to detect potential problems at an early stage, to identify and rectify errors quickly and to continuously monitor and optimize the performance of the system.

The LabelPrintCockpit's continued development is an iterative process in which feedback from the field is continuously gathered and incorporated into the system. This has resulted in a robust, flexible and future-proof solution that meets the requirements of a wide range of companies.

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