

Whitepaper

# How to Turn S/4HANA Challenges into Structural Improvements

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As an SAP R/3 ECC customer, you might have noticed that SAP has launched its new HANA database platform<sup>1</sup>. And that SAP has built its new ERP package S/4HANA on that platform. You may have also heard that SAP will stop supporting its ECC package at the end of 2027 (or end of 2030 if you decide to pay for it).<sup>2</sup>

In that light, several ECC customers have already switched to using S/4HANA or have decided to do so. Yet quite some customers are wondering whether and when they will make the transition to S/4HANA.

A simple Google search shows positive comments. The database is faster, a number of tables have been combined into a lesser number of tables and the possibility to create new Fiori apps keeping the software core clean is often mentioned. You can go for a 'technical transition' yielding 'a faster database'. Yet you can also go for a full swing structural improvement. Structural improvement starts with the foundation – ERP this means Master Data Management. It is more work, but the value will be much higher. This whitepaper can take to get these structural improvements.

## Get Rid of Old Data with No Future Use

Cleaning your data should be a no-brainer. Everybody knows that an information system that has been used for a long time contains loads of old data with no further use whatsoever. As there is no need to port that to a new system, the first step for the IT people is to figure out in cooperation with the business users what that old data is. Freeing up the data storage room and reducing the need for data transfer is an improvement. That is the easy part.

## Correct Still-Needed-Yet-Polluted Operational Data

Then it gets a little tougher. The second step is to identify needed, though incorrect operational data, what we call polluted data. One of the main sources of erroneous data is open orders that should have been closed a long time ago, like sales orders, delivery orders, production orders, and purchase orders. And I can assure you, you will find loads of that if you look for it. Where is the improvement, one may ask? It is not going to free up disk space, is it? Well, the improvement can be financially significant when you are using SAP's automated planning mechanisms such as MRP or APO.

### Examples of Data Pollution and its Effects

- ✓ Consider an old open purchase order for a raw material X. If the planning algorithm calculates a requirement for X, then it will subtract the open order quantity from it to calculate the new requirement. After all, since it doesn't know better, the planning system assumes that the open purchase order will be delivered 'tomorrow'. The proper amount will not be ordered, leading in the days to come to a shortage, for which manual correction actions will be needed. Such a shortage may jeopardize your due-date reliability if it is not noticed on time. Closing old purchase orders cancels these effects.
- ✓ Consider an old open delivery order for product Y, for which the product has physically been delivered, but without being administratively closed in the ERP system. One thing is for sure, your inventory administration will 'assume' those products are still on stock, which may (should) eventually be corrected at the next inventory count. The worst thing is that the system will reserve stock in the system to deliver the number of products in this old open delivery order, as long as this order stays open. And that influences your capital employed, what the accountants usually do not like.
- ✓ Delivery orders are not the only orders generating the stock reservation problem. It also applies to sales orders, assembly orders, production orders, and maintenance orders. All orders that generate a requirement and that are feeding a dependent demand can be prone to this trap.

Figuring out which old open orders are deteriorating the performance or are jeopardizing the due-date reliability of the depending orders requires quite a lot of knowledge of how SAP handles these dependencies and will require too much capacity if one tries to do it manually.

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The total amount of orders to check will also increase complexity. Proper analysis tools (self-made programs or standard packages) that have this knowledge about dependencies incorporated are needed to do the job.

### **Improve the Quality of the Operational Master Data and Control Master Data**

There is a certitude in Operations: “If your data is rubbish, then your performance will be rubbish too”. Improving data quality, although it might not be ‘the most shining job’ is always useful, even if you do not want to upgrade to a newer version of the software. There is a distinction between Operational Master Data and Control Master Data.

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Operational master data is data one needs to get the job done, like a Bill-Of-Material (BOM), a routing, a Maintenance BOM, addresses of customers and suppliers, and so on. If that information is missing or if it is erroneous then mistakes will happen, and these mistakes will have to be corrected with the associated costs. You will find the improvement of cleaning up operational master data in the reduction of correction costs.

The second more promising one is Control Master Data, data that controls and influences the behavior of the system and the users. Take parameters to determine discounts and payment terms for billing in Sales and invoicing in Purchasing for example. If these are set wrong, that can lead you to receive less money, receiving it later than you would, paying more money than necessary or paying it too soon. Not to forget that you probably will have to do some serious telephoning when you charge too much to your customer or when you try to collect the money too quickly. The effect of improving this type of data is not only cost reduction. It can also bring an increase in income.

The logistics control parameters also need proper attention. Let's have a look at control parameters for materials that affect the level of inventory in a company for example:

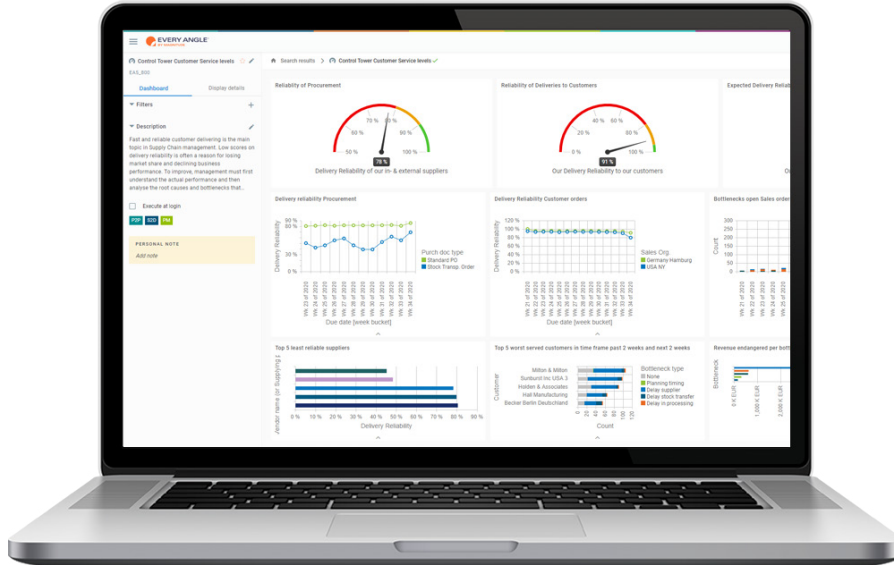
- Standard lead-times
- Standard batch sizes
- Logistical control mechanism (no control, inventory controlled, or requirement controlled)
- Replenishment stock levels
- Safety stock levels

Standard lead-times longer than necessary on the Sales side might hurt your competitive edge if the competitor can deliver faster, and too-high standard batch sizes may limit the company in promising smaller quantities when the customer asks for it. Too-long standard lead-times on the Purchase side make that you will be ordering sooner than necessary and as a result holding more inventory than you need. High standard batch-sizes may also generate stock obsolescence. These standard lead-times should be checked with the realized (=measured) lead-times of sales, production, and purchase orders. No need to explain that too high replenishment stock levels and too high safety stock levels negatively affect your working capital.

I know companies with a dedicated staff controlling the Master Data, both Operational Master Data as Control Master Data. But I have also seen several businesses where this is not the case. These are typical environments where the control parameters are filled in when the material is created in Master Data, and where that data is barely adjusted later. A true breeding ground for inefficiency and ineffectiveness.

Safety stock level is a classroom example of such a control parameter. The safety stock protects companies from unexpected stock shortages, caused by uncertainty, generated by fluctuations in the supply or the demand. Think about nature catastrophes like floods or earthquakes that suddenly block a supplier from delivering goods. After the initial coping with the shortage (e.g. by flying in more expensive goods from another supplier) the reaction is often to increase the safety stock for these materials. The weird thing is that these "just-in-case stocks" are seldom lowered, even when it turns out that the problem no longer exists.

The question 'why do we have this level of safety stock?' should be asked more often. It pays off to compare the safety stock levels with the actual demand behavior of the customers and the suppliers. The improvement brought by this effort reflects in the reduction of capital employed for the too-high safety stock levels, and improvement of due-date reliability for the too low safety stock levels. This analysis also calls for the proper analysis tools, as it implies serious data crunching.



## Why Not Improve the Processes

Yet another more radical step is improving the processes by simplifying or redesigning the processes. The less complex the process, the easier to control. A way to start simplifying is to ask yourself the question "What would happen in the rest of the chain of activities if we would not carry out this activity?" Be critical and don't take anything for granted while doing this type of analysis.

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Just as with a temporarily needed safety stock one may have introduced procedures or processes to solve or mitigate a problem, while the problem itself does not exist anymore. So, start checking. If a specific step yields no tangible result, then eliminate the step. If the revenues of the execution of the step are lower than the effort needed to do it, then ask yourself again whether it is needed (like for example an extra quality control step needed for a part produced by a machine with occasional quality problems). If not, then it is probably useful to eliminate the activity. Eliminating non-useful activities is a great way to reduce complexity.

However not all companies have a clear overview of their process flows. These processes may well be described in voluminous ISO quality handbooks, but that does not guarantee that what is written down matches the way of working 'on the floor'. Process mining is a

performance tool to derive the actual process flows from abundant ERP transaction data. When properly executed process mining reduces the need for lengthy and repetitive interviews with the process experts and it gives the process analysts the means to check the validity of the process experts' opinions.

## A Heavy Lift from IT

Getting a new system 'in the air' requires time and effort from the IT department. Installation of new hardware, installation of new software, getting acquainted with the maintenance of the new system, getting acquainted with the functionality of the new system and getting able to support the users, and so on. Yet before all that can be brought to a good end, IT must investigate what company-specific built software components in the ECC system will have to be ported to the new system, not a sinecure indeed as one may find many of these components.

ERP systems are built to support pre-defined standard processes. And although SAP has defined many handling variants for various types of processes in various types of industries, most customers still need to adjust them or add new processes to them. Bespoke work, known in the SAP ECC system as Z-programs or exit routines. These Z-programs can be either special execution transactions or reporting transactions (for example to feed external data warehouses or to generate specific exception reports). Z-programs are quite common, and I have seen environments with hundreds of Z-programs. The IT department will have to verify whether these programs should be reprogrammed in S/4HANA.

Before you do any software building, the first thing to do is to check why the various programs are in place. What problem did they solve? The next question is whether the problem solved is still a problem (if not, forget about it) and when it still is, then the next question is whether there already exists a solution in the new system (if so, educate people to use the new software). This analysis is needed for the special execution transactions, as these change data in the database.

The situation may be a bit easier on the level of the special reporting transactions. There is a possibility that the new system has new standard reports covering the specific information demand. S/4HANA's analysis and reporting capabilities may also prove useful in making those overviews easier. Or you can use a third-party Business Intelligence package to get the new reporting done. All of this takes time and effort yet cannot be 'forgotten'.

## Facilitating the Transition to S/4HANA

Getting rid of old data, cleaning operational and control data, and simplifying or improving processes and weeding in the jungle of custom programs can be considered "Pre-Go-Live support".

On short notice, when installed on the ECC system, Magnitude Angles for SAP helps to:

- Identify the unneeded old data
- Identify the needed, yet polluted data.

With the embedded SAP control logic knowledge, Angles for SAP assists process analysts to identify erroneous Operational Master Data (such as open old orders) and erroneous Control Master Data. The use of Angles for SAP ensures clean data to be ported to the new system.

Angles for SAP key users can create new queries on the fly. Experiences demonstrates that Magnitude customers have already successfully replaced Z-reporting transactions with queries on the Angles for SAP system. Queries created for the ECC system can run without the need for change on the Angles system connected to an S/4HANA system. This allows you to build and test reports upfront.

## Support Before Go-Live

'Is the new system well used internally?' is one of the major questions for change management during a Go-Live phase. One can define many Go-Live performance indicators, measuring, for example, the number of orders created and executed per day, the number and value of customer billing, and so on. These performance indicators can best be monitored per employee, allowing you to identify possible laggards and helping them to perform better early in the transformation process.

Most of the time, this type of performance measurement is not available in the running ECC system, and the IT department will not have the time to build these performance reports in full HANA installation and implementation modus. That's where the self-service capabilities of Angles for SAP comes in. These queries can be built on the fly, within minutes. And they can also be conveniently combined in a 'Go-Live Control Tower', also within minutes by the same business power users.

Such a Control Tower and its drill-down capabilities allow you to monitor these performance indicators and the drill-down functionality facilitates to zoom in on the details.

## Post Go-Live Support

After doing all that implementation and Go-Live effort, it is good practice to keep the system as clean as possible. To achieve that the Go-Live Control Towers can be replaced with Data Quality Control Towers. It is also good practice to monitor the performance of the newly introduced or simplified processes. This monitoring can be taken care of using Performance Control Towers. There are working examples of these Control Towers.

And why not turning this one-time pre-Go-Live improvement into a continuous improvement way of working, with a structured performance measurement framework and methods to constantly review and optimize processes, such as process mining.

This can be supported with the out-of-the-box standard Angles for SAP templates and control towers. Yet given the fact that these queries and dashboards can be designed and built fast by power users, it is much more useful (and much more fun) to create your own versions of these control mechanisms.

After all, you know much better what is needed than some consulting firm or software supplier doing it for you.

## About Magnitude Angles for SAP

Angles for SAP aims to enrich organizations with actionable insight to understand, control and improve the performance of SAP. The built-in intelligence automatically adapts to each organization's specific configurations and allows business users to fully understand why activities and processes influence the value chain performance.

Angles for SAP contains sophisticated, built-in intelligence and unique, cross-process 'supply and demand matching' capabilities that are not available in any other BI tool, including SAP itself. It works on any SAP system, regardless of the underlying database (including HANA). It automatically understands and adapts to the organisation's specific SAP configuration, allowing for a plug-and-play implementation that requires little IT effort to install and maintain. Angles for SAP hides the complexity of SAP's data structures, empowering business users with self-service 'actionable insight' analytical capability that allows them to identify and resolve key business issues before the customer even notices.

Sources:

1. <https://www.sap.com/netherlands/products/database-data-management/hana-database-management-system.html>
2. <https://news.sap.com/2020/02/sap-s4hana-maintenance-2040-clarity-choice-sap-business-suite-7>