Never touch a running system – or can you?

Outdated IT infrastructures and software can turn out to be a major security risk for industrial companies. In many cases, simply updating to the latest software version isn't a viable option. COPA-DATA's Italian partner Treesse Progetti demonstrates how you can make a virtue of necessity with its project to modernize a traditional brewery with new software based on the zenon Software Platform.

Breweries are facing a number of different challenges these days – the need to increase flexibility, cut consumption of resources, and enhance efficiency are just a few of them. Among all these challenges, there is one that should definitely not be underestimated: the need to minimize the risk of production downtime due to outdated computer systems and control software.

A LONG SERVICE LIFE MAKES ECONOMIC SENSE

"Never touch a running system" is a motto that everyone is probably familiar with. You can see why it is tempting to live and work by this principle. Once a system has been installed, any teething problems have been resolved and the staff have been trained, everything runs like clockwork. And making any kind of change means extra work and extra risk, as production will generally have to be stopped while the modifications are made. Every minute of downtime costs money. Errors may creep in as a result of the changes, which means the system needs to be tested following the upgrade. And depending on the type of change, employees may need to undergo further training. Given all of these factors, it makes sense to continue using existing systems for as long as possible before updating them.

A long service life is definitely desirable. But it would be a mistake to stick too doggedly to the "never touch a running system" rule because, as IT systems get older, the risk of system failure increases and it can become difficult to source spare parts. The same goes for software. If, for example, you are using old operating systems that are no longer subject to maintenance, the risk of successful cyber attacks increases.

Many companies are aware of these risks and ensure that hardware and software are replaced in good time to minimize risk. This isn't necessarily just about spending money to maintain the status quo; a "tech refresh" can actually improve existing equipment. For example, using up-to-date software can enable automatic production log creation, thus reducing the workload for employees. Modern user interfaces (HMIs) reduce the risk of incorrect operation, while modern hardware and software enable comprehensive recording and analysis of process data, making it easier to identify and address weak points in processes. When added together, all of these benefits deliver significantly enhanced efficiency, which means that the investment costs are offset in a short space of time.

A TECH REFRESH

The process of replacing control software and IT components is known as a tech refresh. COPA-DATA partner and systems integrator Treesse Progetti, based in Treviso, Italy, is a tech refresh specialist. The company has

recently been working on a project for a traditional Italian brewery, where the zenon software platform and its Batch Control module play a starring role. The existing system for monitoring and controlling pressure tanks, transfers to the bottling lines and cleaning in place (CIP) had become outdated and needed replacing. The brewery's quality requirements of the new solution were clear:

– Maximum reliability
– Simple operation
– Complete process traceability

The brewery's main reason for replacing the existing system was to minimize the risk of production downtime. The top priority, therefore, was to ensure high reliability. The new system must guarantee stable and fault-free operation for years to come.

However, tech refresh projects are not "just" about improving reliability. The also aim to make the new system better than the old one wherever possible. In this case, it included implementing a modern operating concept that is tailored more effectively to users' needs, thus making interaction easier and preventing operating errors.
Complete documentation of all processes – transfers in this case – rounds off the system and provides real added value. For every bottled batch, the system indicates the line the beer was bottled on, which valves it passed through, which tank it was stored in and how long it was stored for.

For Treesse Progetti, zenon is the perfect platform to satisfy these requirements. The company has fitted zenon in breweries before and achieved good results. This time, however, there was an additional requirement. For Mirco Baldisseri, Technical Manager at Treesse Progetti, it quickly became clear that the transfers would have to be controlled in line with the ISA-88 standard to enable transparency, maintainability and straightforward operation.

ISA-88 AND ZENON BATCH CONTROL

ISA-88 is a long-established standard for software solutions in batch-based production. Among other things, it describes a model for process control in which processes are mapped by means of recipes made up of operations and phases. The phases correspond to individual process steps and map the equipment's capabilities – for example, stirring or heating. While these phases are preset by the system, recipes can be freely designed by the user. Phases can be put together in any order (or used in parallel) to map and control the desired process.

The philosophy of the ISA-88 standard is a perfect match for the zenon philosophy of setting parameters instead of programming. It is therefore no coincidence that the influence of ISA-88 can be seen in zenon. In fact, the Batch Control module is based on this standard. The module boasts a simple user interface and seamless integration with the platform. And, as of version 8.10,

The transfers are controlled with zenon Batch Control. The batch recipe editor provides a user-friendly interface.

a new feature provides even more flexibility. Finished recipes can be assigned to any piece of equipment (see FAQ in IU 34). This is a concept that is seen repeatedly in zenon: an element is configured once and can then be used multiple times. In the case of Batch Control specifically, this means that, in a factory with multiple production lines, only one recipe per product needs to be maintained. The recipe does not stipulate which line is to be used for production, making recipe management much simpler.

THE PROJECT

For Mirco Baldisseri, the need to ensure flexibility and compliance with the standard meant that zenon and Batch Control were the ideal tools for the tech refresh project. "This software solution is compliant with ISA-88, FDA 21 CFR Part 11 and ISA-95. Nothing is left to chance; every action is recorded and presented in a simple and logical manner."

The application involves controlling twelve storage tanks and the transfers from these tanks to the five bottling lines, as well as the CIP equipment. zenon Batch Control is used for all transfers and the status models of the tanks. The use of "abstract recipes" and unit classes ensures

maximum efficiency in this regard. And this efficiency isn't just limited to recipe creation: Treesse Progetti also benefited from the new features when it came to configuring the units. Rather than creating each unit from scratch and adding to them individually as required, the company was able to configure all of the tanks centrally. Every change was then transferred automatically to all 12 tanks – making engineering much easier.

Batch Control is a very important part of the application, but it is not the whole story. The Treesse Progetti developers have succeeded in creating a harmonious overall concept which, as well as fulfilling the functional requirements, also includes an appealing and straightforward user interface. At the heart of this interface is the zenon Worldview, which provides an overview of the equipment in its entirety. From here, the user can zoom in on a particular area of the equipment to see in greater detail. It is also possible to navigate via the hierarchical equipment model. In this case, too, the user can always use the zenon Worldview to get their bearings, so there is no chance of "getting lost".

The key parameters for recipe execution are integrated directly in the tanks' graphical display. This means the

The overview window with Worldview technology ensures that the user can keep track of the equipment at all times.

ABOUT TREESSE PROGETTI

After more than 30 years on the market, Treesse Progetti is one of the leading suppliers in automation engineering in the industrial process field. The company, headquartered in Trevis, Italy, offers customized products and services. Over the years, the company has specialized in the food & beverage industry.

www.treesseprogetti.it

ALEXANDER FRÖHLICH
Food & Beverage Industry Specialist

Alexander Fröhlich has been part of the COPA-DATA team in Salzburg since 2011. Under his supervision as Technical Product Manager, the Batch Control module has undergone multiple stages of development with the aim of meeting customers' needs more effectively. Since 2019, he has been supporting the Industry Management team by focusing on applications in the F&B industry.

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operator can always see straight away whether a recipe is active on a particular tank and which step is currently in progress. If the operator needs more detailed information, they can open the desired recipe with a single click and monitor all of the execution parameters.

The application also includes a reporting solution, which enables all bottled batches to be traced across all equipment parts. The data presented in any given report will always relate to a particular batch recipe.

CONCLUSION

The solution developed by Treesse Progetti has breathed new life into the existing equipment in the brewery. Modern technologies such as zenon Batch Control, based on the ISA-88 standard, bring the overall system in line with a state-of-the-art facility, resulting in greater reliability, user acceptance, traceability and enhanced efficiency. Following the successful implementation of the first project with zenon Batch Control, Mirco Baldisseri has certainly been won over:

"I want to use this solution in all future process equipment projects because I am confident this software will allow me to provide the best results for my customers."

If you would like to find out more about how you can extend 30 with zenon while also improving efficiency, please don't hesitate to get in touch with us.