

The maintenance journey at Carlsberg

From the 1990s until the present

By Allan Pedersen, Head of Maintenance, Carlsberg Denmark

In the 1990s, we at the Carlsberg Denmark maintenance team found ourselves behind the times. We had a large team working around the clock – 24 hours, 7 days a week – but much of the work we were doing was not necessary.

Our maintenance routines were based on years of routines that had built up based on habit or old technologies. We did preemptive maintenance based on regular schedules, without much consideration of whether the new equipment we were using needed this maintenance.

If the plan said it was time to change a part, we did so, without analyzing whether or not the part could have continued running as it was. We risked creating problems where none existed.

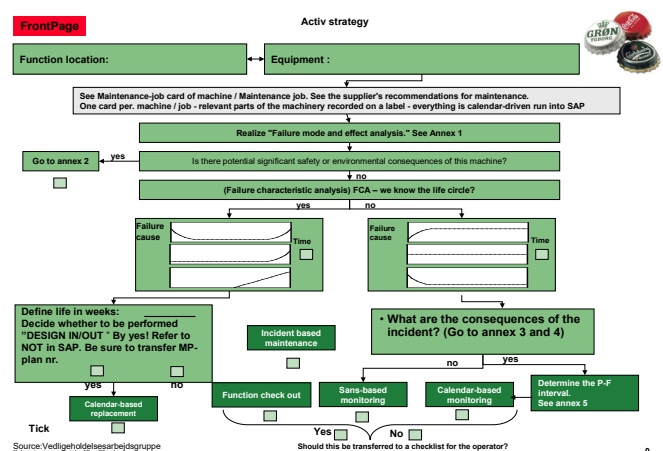
Our maintenance strategy had simply not matured with the times.

In 2000, we began to get serious about our maintenance strategy. We began to categorize our maintenance activities and ask ourselves which were really necessary.

Soon the 7000 activities that had been required under the old schedules had dropped to 3000, as we eliminated activities that did not generate value.

We also began using the expertise of our staff in a less structured, more organic way. Instead of spending their time following schedules, we asked the men and women who knew our machinery so well to make daily rounds and use their good sense and intuition to point out where something might be wrong.

This “sense-based maintenance” eventually became the majority of our maintenance effort, with schedule-based and breakdown maintenance making up smaller percentages. Our maintenance costs were reduced by 35% without any visible change to overall equipment effectiveness (OEE) at our plants.



Training operators to do maintenance

But our maintenance costs were still too high, and this was partly because we had too many full-time employees.

Around 2005, we started to train our operators to maintain the machines they worked with all day. While mechanical specialists would continue to plan and supervise all maintenance, our operators would actually carry out the maintenance tasks.

There was some employee resistance to this idea. While the maintenance specialists had technical backgrounds, most operators at this time had only on-the-job training. A large percentage were women. The operators weren't sure they would have enough time to perform the new maintenance tasks, and the maintenance specialists weren't convinced that these untrained hands could properly take care of our machinery. And clearly, the maintenance specialists were afraid their jobs would be eliminated.

This has indeed happened, mostly through attrition. And while our team is now the right size and operators now perform a large percentage of maintenance, it has been a bumpy journey.

Looking back, I would have liked to have done a better job explaining to the maintenance specialists what their role would be going forward. This would have encouraged them to be more willing to hand over knowledge to the operators, whom they initially saw as unskilled and unready to take on such an important role.

I also wish we had given the operators more instructions in how to take on their new tasks, and simply done more to help them develop a maintenance *mindset*, to help them understand that maintaining equipment was part of the production work they already excelled at.

Changing a mindset is a difficult thing, and it is impossible to know in advance which individual employee – young or old, male or female – will be able to do so. Now, when we hire operators, we look for people with at least some technical education, and we are also sending our current operators to continuing education courses in technical subjects.

LEAN introduced

In 2008, we began to introduce LEAN processes to our maintenance work. LEAN, unlike some previous business philosophies we had tried, had the full backing of our top management.

LEAN was necessary to speed up the production of Carlsberg products, but it had the positive side effect of helping our technical specialists and production workers co-operate better. It helped break down the “silo thinking” we’d been suffering from, where each department tended to think about its own needs and KPIs instead of the overall needs of our company and customers.

Today we have a lot of dotted lines between departments. Technicians are involved in production, and production workers help set up the lines in co-operation with technical operators. We all have the same KPIs now, which means that we in maintenance also have a stake in production losses.

New role for maintenance specialists

We have also gradually developed a new role for our technical maintenance specialists. While they have always been good craftsmen – and now a slimmed-down team of maintenance specialists with the craft skills to cover an even wider range of machines – we are giving them much more responsibility and much more decision-making power.

Fifty years ago, a maintenance specialist was mostly a pair of hands called in whenever something broke down. Over time, the educational requirements for specialists have increased, and specialists have learned to take costs, quality, and environmental concerns into consideration.

Today the demands on our maintenance specialists are even greater. While they continue to polish their craft skills, often at courses provided by our equipment suppliers, they are taking on many of the duties that once belonged to middle management.

Carlsberg maintenance specialists now help plan jobs, develop processes, and allocate resources. They collect extensive data about each breakdown or challenge, data that must always be correct, since it is the cornerstone for efficient planning and optimization.

In addition, today’s specialist must also be a good communicator in both directions, keeping both management and the hands-on operators informed.

And today’s specialist must have a good eye for safety – most importantly the safety of his colleagues on the production floor, but also the security of our building facilities and equipment.

In fact, maintenance specialists now serve as project managers on many jobs.



How it happened

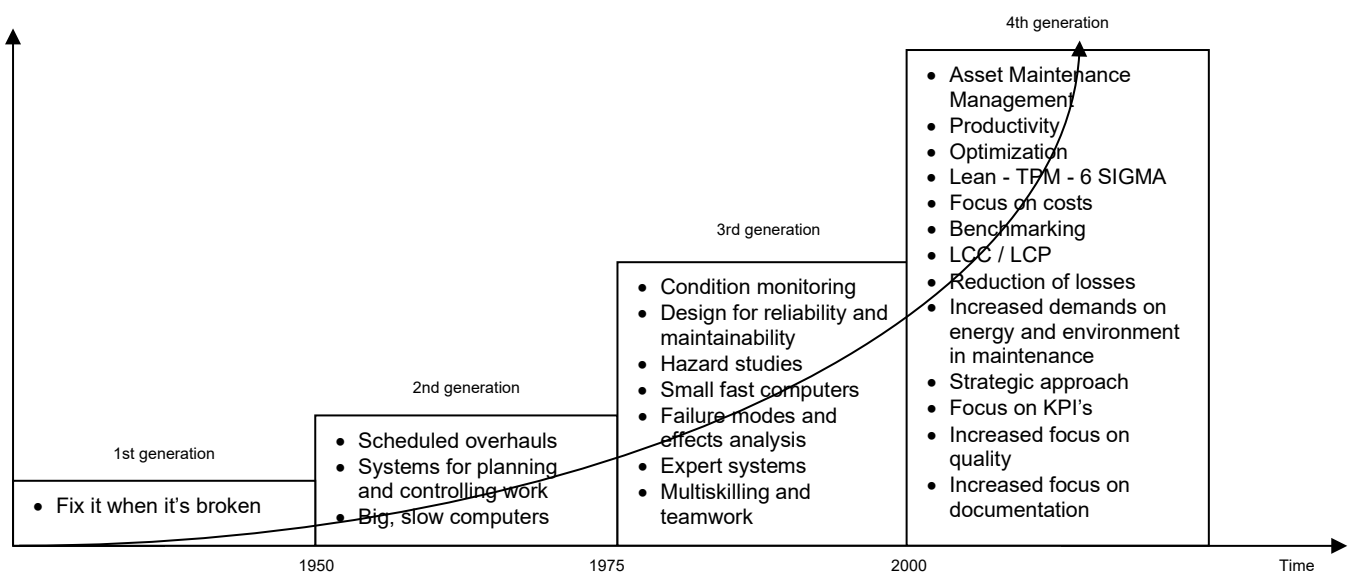
In addition to an investment in our specialists' training and knowledge, these major developments have also required structural changes.

One important difference is that our maintenance specialists are now salaried employees, which has created a different mindset. The specialists are now willing to take ownership of surrounding maintenance and optimization systems, and not just limit themselves to technical solutions.

Meanwhile, the knowledge level of all maintenance specialists has been increased through an extensive training course. Course topics include maintenance theory, optimization, cooperation, finance, project management, quality and energy optimization.

The course is spread over a year and integrated into our maintenance organization through parallel optimization projects run by the maintenance specialists. The course and project supervision are supplied by the consultancy Vesko.

The "pair of hands" from 50 years ago now functions as part of our management team. We hope this will also lead to improved job satisfaction for our maintenance specialists.



The future of Carlsberg maintenance (Asset management on a human platform)

The work of improving maintenance at Carlsberg is never done. Technology helps: our new machinery both "designs in" easier maintenance and "designs out" maintenance so it is not required at all. And our new maintenance schedules make better use of the Potential to Functional Failure (P-F) interval, making sure we check a machine well before the expected time of failure.

But the human element will never be entirely eliminated. Employees who know and understand our machines and our maintenance and optimization systems are the key to peak efficiency and fewer breakdowns. Everyone can be part of creating value for Carlsberg.

Our customers and consumers around the world want to enjoy our excellent beverages. It is our goal to work across designations and departments to maintain and develop equipment producing these beverages - quickly, at the lowest possible cost, and in a safe and environmentally-responsible way.