Using new technologies to assure operational excellence

Helping Philips Lighting enter the Industry 4.0 era

PwC Operations Services

The challenge

With the ambition of becoming the sole conventional lighting manufacturing plant network in the world, Philips Lighting, the global market leader in the development and production of lighting solutions, knew it had its challenge cut out. Its operations in Turnhout, in the high-wage country of Belgium, need to work as efficiently as possible to help the company enter the Industry 4.0 evolution and realise its aim. The concept of Lean manufacturing has already been implemented at Philips Lighting and employees are accustomed to looking for and introducing new ways to eliminate waste and improve processes. The old PDA (personal digital assistant) being used to monitor and carry out preventative maintenance tasks on up to 200 machines in the Turnhout facility was not just slow and unwieldy, but tasks were hard to manage. It also couldn't be easily adapted to include new items – or delete obsolete ones –, could only record current measurements, which then had to be downloaded for reporting at a later stage, and offered no historical data. It simply wasn't up to the job.

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Introducing new ideas

To remedy the situation, Philips Lighting planned to upgrade the software to a version that offered greater possibilities. That was until PwC introduced the idea of wearables and the vast opportunities they could afford within the specific business context of Philips Lighting's operations in the Turnhout plant – field maintenance of equipment in different locations, very far apart – and given the constraints of very limited resources.

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The solution

With in-depth knowledge of not just a production facility, but Philips Lighting's precise operations and ways of working, PwC was able to identify the solution to a problem that wasn't fully visible to the client. The use of wearables had, as yet, not been imagined by Philips Lighting.

## Co-creation results in an ideal solution

Together with software developer Proceedix, PwC proposed a solution in the form of a smartphone and tablet featuring an app that allows Philips Lighting's utility operators to carry out required preventative maintenance tasks. Rather than simply proposing a generic, off-the-shelf system, the three parties sat together to discuss what the app needed to be able to do to meet Philips Lighting's particular needs, co-creating the result.

Offering the hardware and app for the client to try out meant Philips Lighting had no investment to make upfront, which made for a very persuasive argument to test the solution and start using it – as did the immediate availability of a prototype.

Easy to use and quick to react

The initial app represented a minimum viable product that the four operators responsible for maintaining machinery could trial. Based on their experience, they suggested adaptations and additions to enhance the app for their use, creating a cycle of continuous improvement. The app enables operators to manage daily and weekly tasks easily and simply for all machine processes, including distribution of gases, production of compressed air, vacuum machines, cooling systems, air and water purification. All procedures and checklists are comprised in the app. It's extremely easy to use and is quick to react. It also offers immediate access to all statistics regarding the machine in question.

Users can be sure that they're monitoring the correct machine thanks to the clever use of a QR code on the machine that's scanned on arrival to open information related to that machine. If measurements differ substantially from previous reports, changes are clearly visible and can be reported in real time. The need for later administration has been eliminated. Photographs of malfunctions or other issues can be taken on the spot, using the tablet or smartphone, to be attached to a subsequent report. The solution is easy to carry and much more ergonomic than the PDA previously in use.
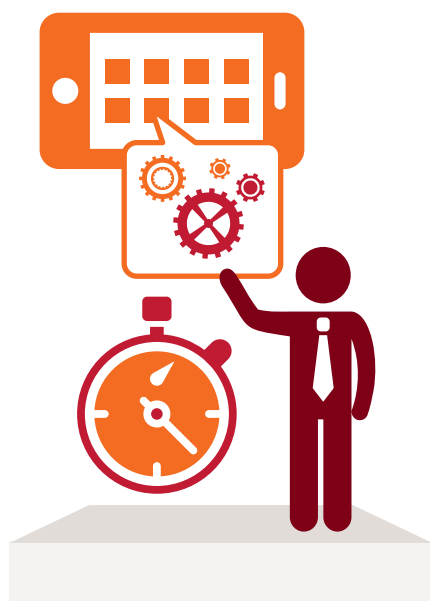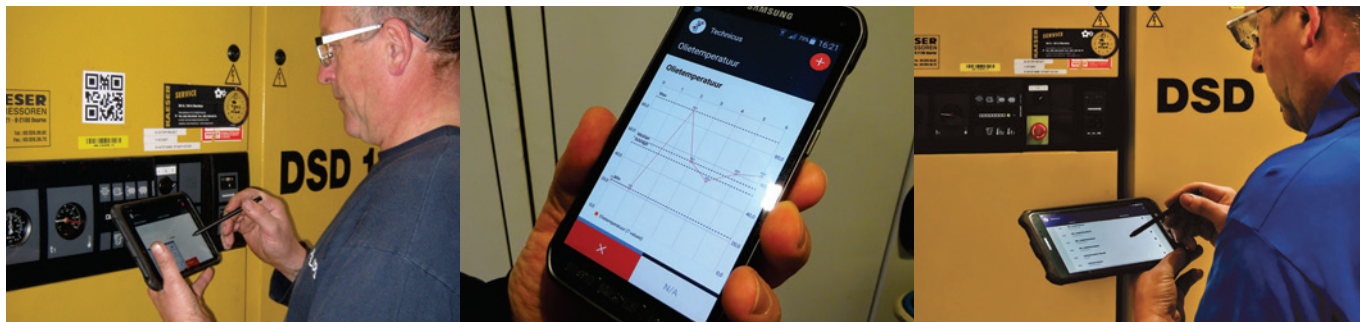
An accessible system assures smooth implementation

Highly intuitive and easily accessible for all users, no training has been required to use the app and its introduction has been extremely smooth. And it's on hardware that's readily available and already familiar to the operators as they use smartphones in their day-to-day lives.

The pilot of the new solution covered one part of Philips Lighting's Turnhout plant, during which a number of bugs were identified and quickly adapted. The client was impressed with how rapidly the application could be adjusted in accordance with new needs and identified issues, and the suppliers' ability to proactively suggest modifications to improve performance. Over the months that the solution has been in use, it's been through a number of iterations.

The result

Philips Lighting has calculated that it has made a noteworthy six percent saving in total utilities maintenance costs at the facility as a result of the wearables solution.

6% saving
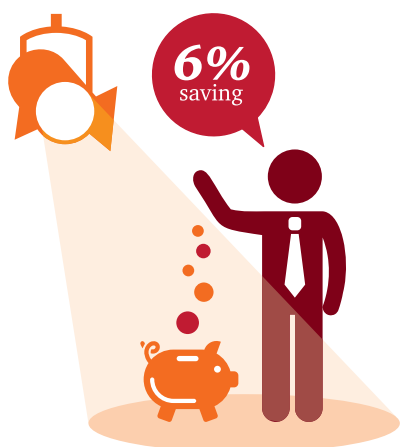
Fully in line with the client's Lean approach and contributing substantially to its efforts to increase quality and performance in its manufacturing operations, the solution improves efficiency and lowers costs in a Lean way. Eliminating the need for reports to be created after machines have been monitored is just one area of waste that has been eradicated. As a result of the new solution, operators estimate that they already save up to an hour a day, time that they can now spend on more value-adding activities.

The next step will be for the app to be extended to include maintenance activities. Step-by-step instructions of tasks to service the equipment will enable operators to carry out some maintenance tasks themselves, allowing Philips Lighting to reduce the maintenance service agreement it has with the supplier of that machine. Strict authorisation protocols will be put in place to make sure that suppliers can only access data regarding their machinery. It may also be used for additional tasks, such as analysing breakdowns and making improvements as well as for areas close to maintenance, such as quality processes and operator procedures. Ultimately, Philips Lighting could enjoy a paperless factory at Turnhout.

Supporting the client's strategy and ambitions

Not only is the PwC solution fully in line with Philips Lighting's strategy, but it's helped the client make great strides toward creating a factory of the future that will play a key role in helping the company hold its position in the highly competitive environment in which it operates.

> *In the few months we've been using the system, we've already made significant time and cost savings. The more we use it and discuss new ideas, the more potential we see to expand its use to other applications. And we feel secure in the knowledge that PwC can help us achieve our ambition of becoming a factory of the future. PwC's knowledge of emerging technologies and how they can be applied to our specific business context, along with the firm's experience introducing these technologies, made it the linchpin that made this entire project a success."*

Jan Melis, Maintenance Manager, Philips Lighting

Let's talk

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