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'Autonomous Plant'
Innovation Table,
WCM Zuid

To whom it may concern.

World Class Maintenance, the network for 'Smart Maintenance' in the Netherlands, states that PDM, as a constructive partner, has contributed to the WCM objectives by chairing the Innovation Table regarding the 'Autonomous Plant'. PDM has also supported the organization of the June 27, 2019 Summer Conference of WCM Zuid. These activities were initiated by WCM and implemented by WCM Zuid, the regional branch of WCM for the Dutch Province of Limburg.

During several Innovation Table meetings, four asset owners (notably EKK Eagle Simrax, OCI Nitrogen, Sappi, and Sibelco), moderated by the chairman, shared valuable insights in the potential of the Autonomous Plant. These findings have been elaborated in a whitepaper which will be made available upon request to asset owners and relevant SMEs in Limburg (see the attachment for a résumé of the findings, which is an excerpt from the program booklet for the Summer Conference). PDM has stated its willingness to provide an appropriate follow-up to the 'Autonomous Plant' theme within the context of WCM.

WCM is grateful to PDM, represented by Commercial Director Walter Mesterom, for the support.

Yours sincerely,

Henk Akkermans
Director

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ATTACHMENT

'Autonomous Plant' Innovation Table

Everything becomes autonomous, the self-driving car alone is proof of that. But B2B markets are now also moving fast towards that direction. No wonder, because you have to get started with 'autonomous' to attract young people to come and work for you. Electric, digital, connected and augmented – these are the keys that open the doors of the Autonomous Plant, the unmanned plant.

Electric, digital, connected, and augmented

In the Autonomous Plant the exchange of data (such as measurement data) takes place without human intervention and this data is translated into easily understandable graphical representations. And on that basis, decisions are made or at least prepared. Operators no longer always have to walk through the factory, so there are fewer risks. And the training of operators is shortened by providing it in digital formats. The use of data is promoted by developments in the fields of sensing and vision technology, making available increasingly sensitive sensors and cameras. Due to the increased computing capacity, existing and new technologies are increasingly being applied.

More applications become possible and it is becoming cheaper and cheaper. In short, your imagination is the only limit.

'Autonomous Plant' Innovation Table

The realization of a complete Autonomous Plant proceeds step by step. You start with a simple project with a limited scope, instead of waiting for the latest technology. Apply existing, developed technology. Get started with people who believe in digitization and really want to cooperate, and ensure that management supports the activities. And if it succeeds, share your successes so you can take the next steps.

The Innovation table has elaborated a few steps on the way to the Autonomous Plant:

1. Unlock available 'smart' devices
2. Add sensors
3. Apply augmented Reality
4. Apply Virtual Reality.

1. Unlock available 'smart' devices

Many devices that were installed in factories are already 'smart'. In other words: they have already a built-in computer, or at least a chip. Smart devices can be unlocked by connecting these to existing (4G or TCP / IP) or new (G5) networks. The future is with 'smart' devices.



2. Sensors

By installing sensors in motors, pumps, and such components, and subsequently connecting these to networks, a new flow of data is released. By processing that data in a smart way, it is possible to increase the reliability of installations and reduce operational costs.

3. Augmented Reality (AR)

Augmented Reality can be applied for the training and instruction of maintenance staff. Work instructions can be converted into an AR instruction, which assists operators in carrying out complex tasks and assuring quality. With AR a malfunction in a factory can be traced and repaired faster.

4. Virtual Reality (VR)

Virtual Reality is the application of VR gaming technology for the industry. VR technology is used for safety training. Here you move through a VR room, in which a malfunction occurs lifelike.

Continue with the Autonomous Plant?

The Autonomous Plant is a concept that includes many technical and organizational solutions, many more than could be elaborated by the Innovation Table. That makes it a challenge to determine which solution adds value to your factory.

If you want to reap the benefits of the Autonomous Plant – obviously, starting with the low-hanging fruit, feel free to contact chairman Walter Mesterom at walter.mesterom@pdm-group.com or +31 6 53471805.

Expected results

Companies that succeed in achieving greater cooperation in the value chain will succeed in delivering more added value to their customers. This contributes to 'Smart Maintenance'.