



# EFNMS Newsletter #12

## (June 2020)

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## Activities

### EFNMS celebrates 50th anniversary with photo contest

This year, EFNMS, the European Federation of National Maintenance Societies, celebrates its 50th anniversary. For this joyous occasion, EFNMS publishes a photobook with 24 inspiring pictures on maintenance & asset management. This book perfectly illustrates the impact, added value and importance of maintenance. The pictures featured in the photo book are selected during the EFNMS maintenance photo contest.

BEMAS is the driving force behind this initiative and finds it very important to support it and to put maintenance in the spotlight, especially now that the corona crisis has shown its impact on society.

Because of the crisis, many companies have to take cost-cutting measures. Maintenance services are very sensitive to this. At the same time, many technical services have to work harder to guarantee the availability of technical parts, because the business activity is essential to continue to provide society with services for the health and well-being of everyone.

With this photo contest EFNMS and BEMAS want to emphasize and clarify the value of maintenance.

### **Maintenance Photo Contest open to everyone**

Pictures can be sent in before July 10th and should relate to one of the various themes in maintenance of physical assets (industrial plants, machines & equipment, building & facilities, infrastructure & grids, transportation, ...). The contest is open to everyone. Pictures can be sent in by industry professionals, maintenance workers, photographers, ...

The winning pictures are selected by the jury of EFNMS and by the audience. The jury gives 70 % of the points, the audience gives another 30 %. Audience voting is open from 1st July until 15th August.

The 24 pictures with the highest score are featured in the EFNMS photobook. The picture with the most votes receives € 800, the second best € 400 and third place receives € 200. The winners are announced on September 1st 2020. You can check the detailed contest rules [here](#).

[Read more >>](#)

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## **Learn to measure and improve your maintenance performance!**

### **KPI's Survey – EFNMS**

The European Maintenance Federation (EFNMS) considers its work to help companies in terms of maintenance to be key. One of the aspects that we want to make available to companies is a comparative vision of the indicators used in maintenance. For this reason, we carry out a survey, for the third time, at the European level that serves this purpose.

For this work, we have reviewed the results of the previous survey on KPI's in Europe (presented at Euromaintenance 2018), which collected data from many companies, both production and services, and which resulted in very few answers in each of the asked KPI's as well as a large difference (standard deviations of up to 98 %) according to the sector of the companies.

For this new survey we have chosen to select five sectors (Chemical, Energy Production, Oil & Gas, Pharmaceutical and Pulp & Paper) that have been the ones that have sent us the most responses (except Services), with standard

deviations of less than 30 %, and will allow us to obtain more accurate comparative analysis. We have ignored the Services sector because, although it was the one that gave the most responses, the vast majority of KPIs did not cover it or put values that were not at all representative. Perhaps the KPI's Survey are more geared towards production companies.

For this Survey, we have chosen two groups of KPIs within standard 15341: Those that are more general and that are more watched by the "Plant manager" and a second group of indicators more checked by the maintenance area itself.

We have put in the survey itself the definition of the KPIs of the 15341 norm and its equivalent in the 2019 revision of that same norm, hoping it will help the responses of each KPI to be homogeneous.

In summary the main purposes of EFNMS KPI's 2020 are:

- Identifying the most common used indicators, according to Maintenance functions, in the defined sector
- Providing useful information about the range of values of the indicators according to the sector

Results of the Survey will be presented in EMAC Workshop at the EuroMaintenance Rotterdam 2021 and will be sent to each participant in the Survey

EFNMS would appreciate your participation in this KPI's Survey!

[Link to the survey >>](#)

Thank you for your collaboration!  
*Gerardo Álvarez Cuervo*

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## Academic Thesis Awards

In the previous newsletter I informed you in more general terms about the EFNMS/Salvetti Foundation awards. In this second EFNMS-letter I would like to share with you more information related to the academic thesis awards.

Under the flag of EFNMS, and NMS's, many companies are in cooperation with educational organizations active in maintenance innovations. The resulting closer cooperation between centres of expertise, universities and specialised service-providers enhances valorisation of maintenance expertise. Knowledge gained can be applied immediately as analytical skills and creativity will be tested to its limits when we are solving the problems presented in real-life case studies. Resulting in maintenance innovations which are crucial for a sustainable, safe and a prosperous world.

The EFNMS Excellence Master Thesis Award is meant to promote, encourage and motivate the Theoretical and Applied Research and developments in the areas of Maintenance Engineering, Maintenance Management, Information and Communication Technologies, Methods and Systems amongst the students of the European Universities and Research Institutes.

Therefore, the EFNMS board of directors allocated the task of jury member for the EuroMaintenance Thesis jury to Prof **Per Schjolberg** to support a strong EFNMS relationship towards universities. Together with the jury chairman of

the Salvetti Foundation Prof **Marco Macchi** from the Politecnico di Milano they both can be seen as our scientific ambassadors about the exiting world of maintenance.

We, the Salvetti Foundation and EFNMS, are looking forward for the next EuroMaintenance congress in Rotterdam and your organizational support to make this competition to a success. So, please nominate your national PhD and Master thesis champions for these prestigious European scientific awards.



*Hans van Selm*  
General Secretary, Salvetti Foundation

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## Events

### INSTANDHALTUNGSTAGE 2020

#### **Maintenance: Back to the future?!**

1.-3.9.2020 | Messe Salzburg (A)

Time and space seem to be fixed and yet they are not always. Under the motto "Maintenance: Back to the Future?!" the INSTANDHALTUNGSTAGE 2020 will take place for the first time in autumn. Excitingly expanded and updated in terms of content – in proven quality with the familiar view of and for the practice.

Turbulent weeks lie behind us. Challenging times await us. Much of what we are accustomed to has proved untenable within a very short time, new developments and innovative ideas have proven their practical suitability in crisis mode. What is the way forward? Which technologies and procedures are useful in this 'new normality' with COVID-19? How can personnel be used efficiently under tightened conditions? How can short-/medium-term cost savings be achieved? What has proven itself in practice?

We are looking forward to welcome you in Salzburg at the industry meeting point INSTANDHALTUNGSTAGE 2020. With the proven, the unexpected and in any case a lot of ideas and innovations that will bring you forward in maintenance and technology!

Technicians and managers from manufacturing companies, experts from research and qualification as well as service and product providers will meet on site to network and exchange ideas.

[Read more >>](#)

Tip: MFA members receive a 10 % discount on the training fees & on all packages!

**About the INSTANDHALTUNGSTAGE**

Networking, exchange of experience and knowledge are the main focus of the industry meeting point, which is being organised by the maintenance experts from dankl+partner consulting | MCP Deutschland together with Messfeld GmbH. All information can be found at [www.instandhaltungstage.at](http://www.instandhaltungstage.at).

Please contact us at +43 662 85 32 04-0 or [office@mcp-dankl.com](mailto:office@mcp-dankl.com)

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## **Asset Performance 4.0 Conference and exhibition to be hosted virtually**

In the context of the international outbreak and spread of COVID-19, BEMAS is following developments closely, considering the advice and recommendations of the World Health Organisation and local authorities. The main priority of BEMAS is the welfare, health and safety of workers, visitors, speakers and exhibitors.

Taking into account the uncertainties of the risk of further spread of COVID-19 in the coming months and the uncertain situation regarding foreign travel, the board of BEMAS has unanimously decided to let the Asset Performance 4.0 conference and exhibition take place virtually. The event will take place online on **15, 16 and 17 September 2020**.

On the online platform, both the fair and the conference can be attended virtually. Participants can visit the fair, chat or call exhibitors, or participate in round tables. They can also attend the conference presentations and keynotes via webinars.

In addition, all participants will have one year's access to the weekly Asset Performance 4.0 webinars and the virtual mini-conferences of 2021.

From 26 to 28 October 2021, the Asset Performance 4.0 Conference and Fair will take place live at the FMCCA Antwerp.

[Discover the full program >>](#)

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## **Call for papers – Fifth Conference on Maintenance, Condition Monitoring and Diagnostics, MCMD 2020**

Dear colleagues,

We are pleased to invite you to the Fifth Conference on Maintenance, Condition Monitoring and Diagnostics, MCMD 2020, which will take place on **15–17 December 2020 in Oulu, Finland**. This conference series rises from the 20 years of the MCMD conferences and 10 years of the International Society for Condition Monitoring, ISCM. The conference is organized by the University of Oulu and Expomark Oy in cooperation with ISCM and the Finnish Maintenance Society, Promaint. A Conference Center in the middle of the city serves as the venue.

Condition monitoring and risk management professionals from industry and academics can strengthen their multidisciplinary networks within the latest developments in maintenance and monitoring. Central themes include condition monitoring and diagnostics as drivers for improved productivity, quality and operational reliability of industrial processes with increased profitability and lower environmental load.

The program includes invited talks, parallel, special and poster sessions, exhibition and technical tours. The keynote speakers are well-known specialists of the field. All scientific papers will be reviewed for the Lecture Notes in Mechanical Engineering (LNME) by Springer. Industrial, discussion and student papers and all extended abstracts will be published by Promaint.

We invite you to submit your contribution to the high standard international condition monitoring and maintenance conference.

[Read more >>](#)

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## News

### **Online seminars: Reduce maintenance costs now [in the short term], but correctly**

**Trainer: Andreas Dankl, Karl Schindler, Ludwig Grubauer  
(dankl+partner | MCP Deutsch-land GmbH)**

Unexpected downtimes can turn out to be an expensive boomerang. Which areas and procedures should be critically examined right now in order to implement short-term cost reductions?

We have put cost reduction measures to the test for you: How can short-term savings be achieved? Which changes have a long-term effect? And which cost reductions are only effective in the long term and may even result in additional expenses in the short term?

Get yourself in the online seminars: Reduce maintenance costs now [in the short term], but correctly. Get your own personal checklist for effective measures and comprehensive working documents to start right away!

#2: Thu, 18.6.20, 14.00

Contents:

- Adjustment of purchased external services
- Prioritize maintenance tasks correctly
- Risk analyses for the availability of production facilities (RCM-Speed)

#3: Thu, 25.6.20, 14.00

Contents:

- Adjustment of the internal organisation and services
- Adjustment of investments and changes in plant and equipment
- Transfer of maintenance tasks to production employees (TPM, autonomous maintenance)

- Spare parts concept in stocktaking & master data maintenance in EDV

#4: Thu, 2.7.20, 14.00

Contents:

- Bad actor and weak point analysis
- Implementation of the amended BetrSichV-Ex
- Optimization of recurring plant revisions

In every seminar (90 min presentation + 15 min for questions), cost reduction measures that are effective in the short, medium and long term will be presented on the basis of current documents. It will be shown how the implementation can work in your organization.

[Read more >>](#)

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## **FDBR, WVIS and SET become VAIS**

- Association of plant engineers and industrial service providers starts with a new name
- Five new departments map core topics

As part of the realignment of the German associations FDBR, WVIS and SET, the members have chosen a new name for the resulting federation, which last operated under the name of SET. This new association is now operating as the VAIS Verband Anlagentechnik und IndustrieService e.V.

The VAIS is a business association for the promotion and representation of the professional and economic interests of its members. With more than 700,000 employees and a business volume of 65 billion Euros, the association represents an important economic sector in Germany.

The association stands for the training, qualification and integration of specialists for Germany, the development and implementation of the latest technologies in industry for the transition to a climate-neutral and increasingly digital society as well as for the optimization of industrial value chains by integrating products and services.

The members also established new departments for their internal and external work. Main focus is on "Plant Engineering & Components", "Industrial Services & Maintenance", "Digitalisation & Artificial Intelligence", "New Technologies & Environment" and "Economic Policy & Image". These new departments map the core topics of the industry.

The top of the board consists of Jörg Klasen, Standardkessel Baumgarte Holding GmbH, as chairman, Dr. Lothar Meier, Infraser GmbH & Co. Höchst, vice chairman and Niklas Wiegand, Bilfinger SE, as treasurer. The representative for "Industrial Services & Maintenance" and member of the board is Stefan G. Elsner, Weber Unternehmensgruppe GmbH & Co. KG.

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## **BEMAS launches free LMRA app to estimate risks of corona infection**

### **Free tool for risk analysis of corona infection during maintenance activities**



With the BEMAS Corona LMRA app you can check before starting maintenance work whether sufficient precautions have been taken to limit the risk of Corona infection. The app also allows you to assess the risk of infection and suggests some recommended precautions. Finally, the app contains some concrete advice and tips to prevent Corona infections and gives the possibility to report incidents to BEMAS.

The LMRA app has been developed by SBC Safety Behaviour Change.

(BEPORI sprl). This free version for Risk analysis on Corona infection during maintenance works is made available in collaboration with BEMAS – Belgian Maintenance Association vzw.

The risk analysis assumes that the persons involved do not belong to a risk group and that all persons involved may be unknowingly infected with the Coronavirus SARS-CoV-2. The information provided is a generic recommendation. The information provided is a generic recommendation. For professional use, the specific business context must always be considered and this may lead to different results and recommendations. A paid version of the app can be used for all types of risks (including non-Corona related) and activities. In addition, the app is adaptable to the specific business context.

More information about this on [www.lmra.be](http://www.lmra.be) and on [www.bemas.org](http://www.bemas.org).

#### **What can you do with the app?**

##### **Work preparation**

With the BEMAS Corona Last Minute Risk Analysis app you can check before starting maintenance work whether sufficient precautions have been taken to reduce the risk of Corona infection.

##### **Corona analysis**

This app also allows an assessment of the risk of infection and suggests some recommended precautions.



## Report Incident

Finally, the app contains some concrete advice and tips to prevent Corona infections and gives the possibility to report incidents to BEMAS.

Contact:

*Wim Vancauwenberghe*

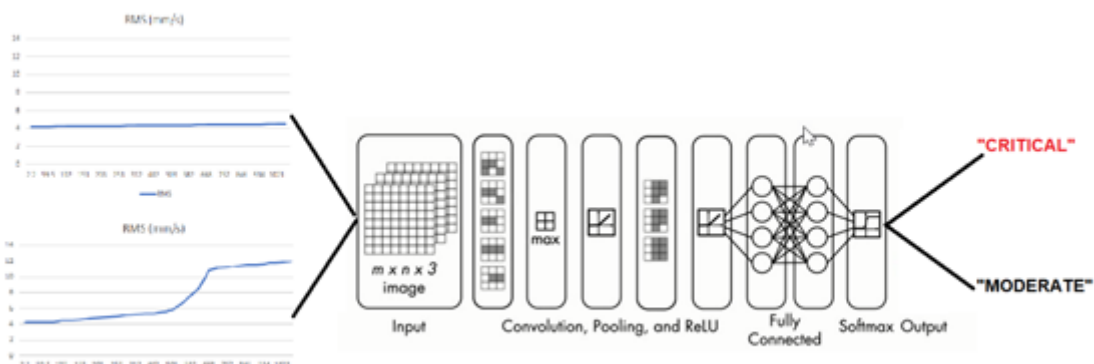
[info@bemas.org](mailto:info@bemas.org)

## AI Deep Learning Methodology: The Convolutional Neural Network applied for Remaining Useful Life Image Classification

The advent of Industry 4.0 introduced new methods for maintenance that enable faster and reliable use of data for classification. The so-called "Convolutional Neural network" can be applied for classification and regression. Concerning classification, the use of images can be applied to train and test a model to classify similar images such as equipment failure during production, wrong assembly, equipment failure or degradation during operation or even detect critical degradation pattern based on Remaining Useful Life (RUL) and/or State of Health (SoH) graphs. In order to apply the CNN methodology, it is necessary to collect a set of pictures that aims to classify in the future application based on CNN structures.

The "Convolutional Neural Network (CNN)" is like neural network in principle but differs in concept. Since the CNN aims to classify images, the structure of the CNN is quite complex with different types of layer as shows the figure below. The elements of CNN are the following:

- Input Image
- Convolution Layer
- Pooling Layer
- ReLu
- Fully Connected
- Softmax
- Output Classification



*Figure: Convolutional Neural Network Structure (RUL Classification).*

To check how to detect high level of new equipment degradation based on RUL graph picture pre-defined by previous degradation check the paper in the link below.

[Read more >>](#)

Dr. *Eduardo Calixto*  
RAMS Engineer and Asset Management Expert

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**We wish you all warm and relaxing summer days!**

(Photo: Heikki Jokinen)

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## Legal notice

### **Dear Reader of our EFNMS Newsletters!**

We hope you've been enjoying the EFNMS Newsletter and other email communications that we've been sending you containing our latest news and updates.

As part of EFNMS efforts to comply with the new General Data Protection Regulation ("GDPR"), which came into effect on 25 May 2018, we would like to inform you that your email and other personal contact information you provided us when you subscribed, currently reside in the EFNMS internal database. We encourage you to take the time to review our revised [Privacy Policy](#).

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Best regards,  
EFNMS Newsletter Team

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With Maintenance Greetings

***Cosmas Vamvalis    David Merbecks***

EFNMS – European Federation of National Maintenance Societies

Editor

***Heikki Jokinen***

Finnish Maintenance Society, Promaint



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