



UPTIME

FUTURE
MAINTENANCE,
NOW

Newsletter issue no.3, May 2019

UPTIME COMPONENT | INTERVIEW WITH MAILLIS | PARTNERSHIP PROGRAMME | EVENTS

WELCOME TO THE UPTIME NEWSLETTER!

Dear reader,

A key milestone of UPTIME has been reached with the release of the first prototype of the UPTIME Platform, which has been configured and integrated within the infrastructure of the three business cases. This achievement was recently presented at the project's mid-term review, which took place at the end of March at FFT in Bremen. This newsletter edition will highlight the implementation of the UPTIME Platform in the MAILLIS business case, which deals with cold rolling for the production of steel strapping. Moreover, the main functions of the proactive decision-making component, UPTIME_DECIDE, developed by ICCS, will be described with an example how it has been implemented in the MAILLIS case so far.

UPTIME partners have been active also in dissemination and community management activities. The UPTIME Platform and three demonstrators have been recently shown at the "Global Industrie" event in Lyon from 5 to 8 March 2019. Please take a look at our interesting findings and impressions from "Global Industrie" as well as some of our upcoming events in the last section of this newsletter.

Please enjoy our newsletter!



*Karl Hribernik
UPTIME Project Coordinator
BIBA - Bremer Institut für Produktion und Logistik GmbH*

UPTIME COMPONENT



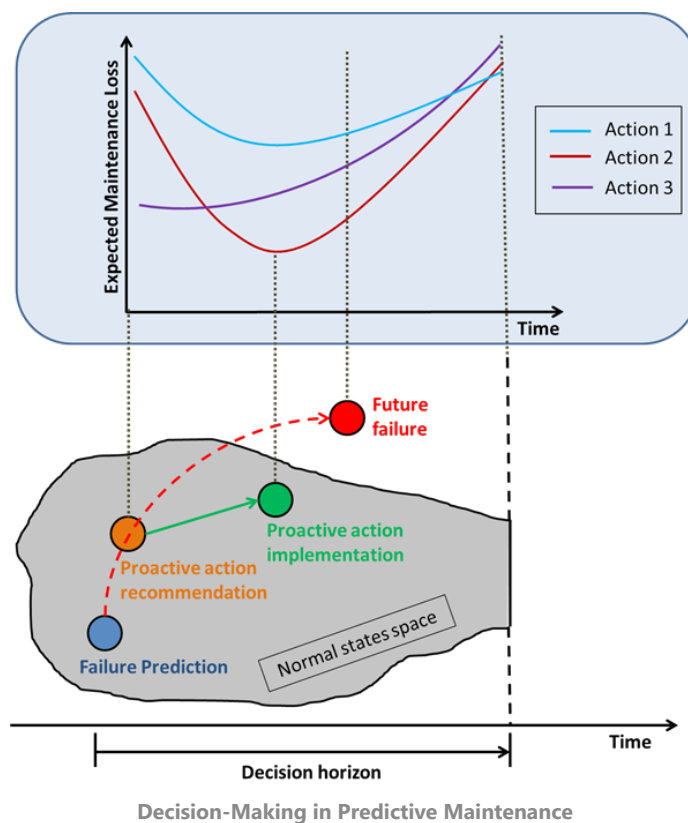
Proactive Decision Making Component

Industry 4.0 has led to an extensive use of sensors for condition monitoring, which facilitates decision-making under time constraints. Decision-making in predictive maintenance indicates the phase which is triggered by sensor-driven, (near) real-time predictions (e.g. about a future failure mode) in order to generate proactive recommendations about maintenance actions and plans that eliminate or mitigate the impact of the predicted equipment failures.

The UPTIME Platform consists of six main components, addressing various phases of the unified predictive maintenance approach, as introduced in our [previous newsletter released in January 2019](#). In this newsletter's edition, we will introduce the UPTIME_DECIDE component for maintenance decision-making and action planning.

UPTIME_DECIDE

The DECIDE component shifts decision-making in predictive maintenance from early warnings into business performance optimization by eliminating or mitigating the impact of a future failure.



On the basis of (near) real-time predictions about **future failures** that lay outside the “normal states space”, DECIDE is enacted online in order to generate **proactive action recommendations**, i.e. recommendations about optimal (perfect or imperfect) maintenance actions and the optimal times of **proactive action implementation**. To do this, it estimates when the Expected Maintenance Loss will be minimized.



*Dr. Alexandros Bousdekis
Senior Researcher
ICCS - Institute of Communication
and Computer Systems*

Please take a look at our demo video showing an example of the implementation of the UPTIME_DECIDE in the MAILLIS business case on the [UPTIME Website](#).

INTERVIEW

Predictive Maintenance in Cold Rolling for Steel Strapping Production



MAILLIS Cold Rolling

The UPTIME Platform is deployed and validated against three industrial use cases: (1) [production and logistics systems in the aviation sector](#), (2) [white goods production line](#) and (3) cold rolling for steel straps.

For this newsletter's edition, we interviewed UPTIME project partner Vasilis Boursinos, General Manager of M.J.Maillis S.A. Industrial Packaging Systems and Technologies, who is based in Athens. He shared his views with us on the benefits of predictive maintenance for MAILLIS' cold rolling, which produces steel strapping.

MAILLIS's offer combines high-quality packaging materials and state-of-the-art technology, ensuring that metal producers enjoy reliable, durable, proven and high-speed strapping and wrapping technology at the optimal cost. MAILLIS uses cold rolling mills to produce rolling products with the smallest possible thickness tolerances and an excellent surface finish. Given an entry steel coil of 4 tons weight, 233 mm width and 2 mm thickness, MAILLIS produces steel straps over the whole thickness spectrum down to 0.4 mm.

How has MAILLIS performed maintenance activities so far?

Cold rolling is actually a process through which the steel band's cross sectional area becomes thin, by imposing hydraulic pressure through 2 sets of counter-rotating steel rolls. Each passage results in a reduction of thickness by approximately 25%.

Roller mill maintenance is performed in 4 areas, namely rollers, bearings, drives and auxiliaries. The demand for changing over the milling rollers comes from either their regular wear or from an unexpected damage, which can occur due to either a defective raw material or an equipment malfunction.

When this occurs, rolls are removed from the stand for grinding. This usually happens every eight hours for the work rolls and every week for the backup rolls. The worn rollers go to the workshop for grinding their surface and give back their initial shape. Each time the rolls are removed for grinding some roll diameter is lost.

After several regrinding, the diameter of the roll becomes so small that the rolls are no longer useful. Bearing maintenance would include frequent addition of small quantities of grease during operation. Periodical checks and measurements will be performed also to drives and auxiliaries.

How will UPTIME improve your maintenance service performance?

The MAILLIS business case provides a tool for UPTIME to address different aspects of a significant innovation problem, describing users' needs, operational problems and underlying challenges. Illustrating innovation implications on a common use case, sharing the same datasets, and utilizing outputs from other teams are all benefits of having an integrated picture of the general problem. It mainly deals with real time monitoring of generated sensor data and some operational variables, recommendations to the personnel, e.g. to proceed with replacement of a mill roller as well as analysis of production of data, which enables tracking of performance of specified KPIs.

At the end of the project, it is expected that MAILLIS will have a machine that reports its current health status along with the appropriate data analytics and metrics. Moreover, UPTIME will allow predictions about equipment's future health as well as recommendations for future actions and enable machines performing self-assessment, on which decision-making can be followed to advance equipment maintenance and facilitate the machine components and products life cycle.

UPTIME will be able to facilitate the development of a predictive maintenance strategy which permits increased productivity through transparency, traceability, lower maintenance and repair costs, higher machine availability and enables cost efficiencies and better quality of products.



Vasilis Boursinos
General Manager
M.J. Maillis S.A



UPTIME Showcases at Global Industrie

Our participation at the Global Industrie fair on 5-8 March 2019, in Lyon, France was a unique opportunity to boost the UPTIME Partner Programme, and to launch the second wave of innovation of UPTIME, which aims to extend the community of industrial users. As a partner you can influence the roadmap of the UPTIME Platform!

During this event, UPTIME was presented by Pierluigi Petrali from Whirlpool at the panel discussion, entitled “Nouvelles maintenances” (New Maintenance) and at the 29th French Maintenance Forum organised by AFIM. We also had the opportunity to interact with more than 50 interested professionals, potential candidates for the UPTIME Partner Programme, especially at the UPTIME booth, where both technical and business case partners demonstrated the UPTIME Platform and its implementation in the three business cases.

The valuable feedback we received during the discussions has helped us *to sharpen our vision of the market needs for an innovation driven platform in predictive maintenance.*



Moreover, we had particularly interesting discussions with maintenance experts on the benefit of the UPTIME Platform to progressively and efficiently improve maintenance services to industry.

We received two main feedbacks, including:

- The need to combine models and artificial intelligence for optimal solutions. This can be achieved through deep collaboration between maintenance operators, designers, modelers and data scientists.
This is an exciting challenge!
- The UPTIME Platform is perceived to offer a relatively simple, but versatile solution which is able to compute complex data, to progressively plan the digital transition.

These feedbacks are promising and will encourage us to drill deeper into our business and economic models to highlight the benefit the UPTIME Platform can provide.

A video taken during the panel discussion “Nouvelles Maintenances” (New Maintenance) is available [here](#). For further information about the Global Industrie event, please visit their [website](#).

*On behalf of the consortium, we would like to warmly thank our visitors for all of the inspiring interactions with you during the demonstrations of our industrial use cases. We would like to take this opportunity to invite you to join the **UPTIME Partnership Programme**, share your requirements with us and influence the UPTIME roadmap!*



Yves Keraron
President
ISADEUS

LATEST NEWS

FoF Community Days

UPTIME will be represented at the Factories of the Future Community Days, which will be held from 22 to 23 May 2019 in Brussels. This event is organised by European Factories of the Future Research Association (EFFRA) every year and includes parallel sessions focussing on the project results, demonstrators and their impact, covering a broad spectrum of technologies and applications. The [ForeSee cluster](#), in which UPTIME is involved with five other FoF predictive maintenance projects, will have a dedicated session to introduce the key findings of each project and the cluster approach to develop a roadmap for predictive maintenance. UPTIME partners Karl Hribernik (BIBA) and Gregoris Mentzas (ICCS) will present UPTIME achievements as well as its view on the position of predictive maintenance in RAMI4.0. The agenda and further information is available [here](#).

KET4DF 2019

The 1st International Workshop on Key Enabling Technologies for Digital Factories (KET4DF) will be held on 4th June 2019 in Rome, Italy, in conjunction with the 31st International Conference on Advanced Information Systems Engineering (CAiSE) 2019. The workshop is jointly organised by four EU Factories of the Future (FoF) projects: UPTIME, FIRST, Z-BRE4K, and COMPOSITION. Innovative research papers focusing on technologies for Industry 4.0, with specific reference to digital factories and smart manufacturing will be presented and discussed during the workshop. We would like to take this opportunity to invite you to attend this workshop. The workshop programme and further information is available [here](#).

[more news](#)

**Come
meet us
here!**

22-23 May 2019
Brussels,
Belgium

EFFRA Factories of the Future
(FoF) Community Days

03-07 Jun 2019
Rome,
Italy

Key Enabling Technologies for
Digital Factories Workshop at
CAiSE Conference

17-19 Jun 2019
Sophia Antipolis,
France

International Conference on
Engineering, Technology and
Innovation (ICE/IEEE ITMC) 2019

Let's keep in touch!
To receive our newsletter by e-mail

[SUBSCRIBE HERE](#)



uptimeH2020



LinkedIn



ResearchGate



YouTube



E-Mail

UPTIME - Unified Predictive Maintenance System - is an EU Horizon 2020 funded project aiming at developing a predictive maintenance system for the manufacturing industry.



www.uptime-h2020.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 768634.

Copyright © 2017 - 2020 UPTIME Consortium. All rights reserved.

Icons made by [Swifticons](#), [Freepick](#) and [Pongsakornred](#) from www.flaticon.com