

Call for contributions to the EFNMS project on the Maintenance Body of Knowledge

EFNMS has undertaken to develop a **Maintenance Body of Knowledge (BoK)** to clearly define the maintenance landscape and its content, and to identify the knowledge required to perform the maintenance processes.

The BoK has been built from maintenance subjects that are regularly presented at conferences or seminars, or published in books or magazines, or lectured at universities. These subjects contain methods, techniques and practices that are used by the various maintenance processes described in the European standard EN17007.

More than 75 subjects have been listed and shortly defined (see [Table of BoK-subjects](#)). They are linked to about 100 key activities described in the standard (an example is given on the Table 1 below). These subjects must be better explained, and it is the reason why EFNMS calls for contributions to experts having a good knowledge of one or more of the listed subjects.

Maintenance Subjects	EN17007's Maintenance Processes	EN17007's Key Activities														
<p>Criticality analysis (RCM, ...) RCM is a "systematic method for determining the respective maintenance tasks and associated frequencies, based on the probability and consequences of failure" [IEV 50(191)]. The method consists in identification of failure modes and their causes which are critical against objectives (availability, safety, costs, etc.), then to determine the efficient and cost effective maintenance tasks to prevent the occurrence of these failures. The data used may be derived from experience feedback analysis and used in FMECA. RCM may also initiate modifications of design or procedures to carry out improvements.</p>	<p>PRV - Prevent undesirable events by avoiding failures and faults</p>	<p>PRV.1 - Characterize the undesirable events Criticality analyses, especially FMECA, are used to characterize failures and faults</p>														
	<p>IMP - Improve the items</p>	<p>IMP.8 & MRQ.9 - Establish the initial maintenance plan Criticality analyses, especially RCM, are used to establish the initial maintenance plans</p>														
	<p>MRQ - Deliver maintenance requirements during items design and modification</p>		<p>...</p>	<p>...</p>	<p>...</p>	<p>Life cycle extension Maintenance is particularly concerned with the decision to extend the lifetime of assets. Indeed, the durability of assets and their renovation costs can be decisive factors in the choices made by assets managers.</p>	<p>MAN : Manage Maintenance</p>	<p>MAN.1 – Establish the maintenance policy, strategy and development actions Life cycle extension results from maintenance policy and strategy decided by the management</p>	<p>BUD : Budget maintenance of items</p>	<p>BUD.3 – Create a budget estimate for infrequent or exceptional maintenance tasks Decision of life cycle extension involves a budget for exceptional maintenance tasks</p>	<p>...</p>	<p>...</p>	<p>...</p>	<p>Obsolescence management Obsolescence is "the inability of an item to be maintained due to the unavailability on the market of the necessary resources at acceptable technical and/or economic conditions" [EN13306]. This situation must be managed by maintenance personnel in charge of logistic support and selection of maintenance tasks by detecting, prioritizing and mitigating obsolescent items.</p>	<p>SPP : Deliver spare parts</p>	<p>SPP.4 - Order spare items from suppliers Obsolescence can be detected when spare items are ordered</p>
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	<p>DTA : Manage data</p>	<p>DTA.6 – Evaluate and analyse cases of known or predictable obsolescence Priorization of obsolescent items is based on several criteria (consequences, obsolescence probability, item reliability, time to find a solution, spare parts in stock, ...)</p>														

Table 1: Examples of maintenance subjects (knowledge) in relation to the key activities

The contributions consist in writing concise and didactic articles of approximately 1000 words in length (2 - 3 pages). More explanations and recommendations on writing these articles are given below.

An EFNMS reading committee has been set up to accept, review and validate the contributions. The committee approves (or not) the proposed contribution, depending on the qualifications of the author and the available budget of the EFNMS. A compensation of 250 euros is paid by EFNMS to the authors for each article validated by the Reading Committee.

Experts interested in writing an article are invited to fulfill the application form indicating their name and the title of the subject they have chosen from the list of free subjects below (Link: [Table of reserved and validated subjects](#)).

EFNMS will contact the authors to accept their proposal and define a date for delivery of the article. A copyright agreement will be established between the author and EFNMS.

Complementary explanations and recommendations about the writing of the articles

To the Authors,

The subjects that have been listed in the BoK are:

- industrial issues (e.g., “Life cycle management”, “Maintenance & sustainability”, “Education & training in maintenance”, “Occupational risk assessment in maintenance”, etc.),
- sets of methods or techniques (e.g., “Total Productive Maintenance”, “FRACAS”, “Fault diagnosis”, “Root Cause Analysis”, “Remaining useful life assessment”, “Benchmarking”, etc.),
- fields of knowledge and practices (e.g., “Negotiation techniques and industrial relations”, “Fundamentals of projects and control management”, “Work preparation & scheduling”, “Budgetary control”, “Good practices in Health and Safety”, etc.).

The manual skills, essential to the performance of active maintenance tasks, and which belongs to each trade involved in these tasks, are not specifically described in this BoK. Redundancies can exist between the subjects when they concern the same area in different contexts or issues. However, all these subjects together allow to understand the maintenance perimeter and what it contains.

These subjects are large and could be the titles of conference sessions, university lectures, books chapters, or book titles. That means that long texts, even entire books, could be written on them and that is not the objective of the BoK booklet. This document should constitute a general and introductory knowledge description for maintenance. This is why we have proposed to limit the size of the texts to around 1000 words (2-3 pages) but also to propose for each subject a bibliography (not included in the 1000 words) containing reference standards, books and articles for readers who want to know more.

These short descriptions of the BoK subjects look a bit like oral pitches (presentations in a few minutes to say the essentials and communicate a message, as in TEDx conferences for example). The texts must therefore present the subjects in a clear, didactic, and attractive way to readers without knowledge of the field. Therefore, they should not be too abstract so as not to appear vague and confusing. They should not use too specific concepts unless they are defined. They should also show

the relationships with the maintenance processes described in the EN17007 standard. Indeed, these subjects are only of interest if they are linked to the activities that use them. This helps to make them more concrete for the reader and to show their practical applications for organizations.

The contents of these texts is not fixed and must be adapted to the subject treated, but the following can serve as an example:

- Title + Author(s) information
- Introduction/Context/Situation
- Needs and problems to be solved in relation with the maintenance sub-processes (EN17007)
- Short description/main principles of the approach/method/technique/practice/field of knowledge
- Short presentation of applications (if relevant) and conclusion
- Bibliography (not included in the 1000 words of the text)

A successful pitch is more difficult to make than a long speech, and similarly, a short, clear, interesting and didactic text is probably more difficult to write than a long conference paper. So, it's work!

An EFNMS Reading Committee has been constituted to accept, read, comment, and validate the articles. So, the authors should expect requests for changes or improvements to their texts. The reading committee is judging more particularly the following points:

- Does the reader (not expert) have a clear idea of the subject after reading the text?
- Is the presentation of the subject complete enough?
- Are the maintenance activities for which a good knowledge of the subject is useful, clearly identified?
- Is the presentation structure (plan) appropriate?
- Is the writing of good quality?
- Is the bibliography sufficient and well chosen?

The articles written for the BoK will be published in a booklet in paper and digital form, so the texts must be harmonized in their style, size, format, etc.

All text can be improved and updated, and new subjects will be found to complement the existing list. The BoK must therefore be a living product and the ambition of EFNMS is to make it a collaborative document which can be modified in the future to take account of comments or proposals from readers, under the control of the Reading Committee and original authors of the articles.

Thank you very much for your willingness to participate in the writing of the EFNMS Body of Knowledge booklet. Contributing to a booklet describing the necessary or/and useful knowledge to perform maintenance and presenting the scope, content and landscape of maintenance based on a generic and standardized description of the activities the is a very ambitious and motivating work!