Knowledge management in the maintenance of thermal process plants

by **Hartmut Steck-Winter, Axel Filounek**

Knowledge management in maintenance has become a critical success factor. System availability requirements, cost pressures, increasing complexity of systems and, especially, knowledge-intensive maintenance strategies are just some of the reasons why the systematic management of knowledge is becoming increasingly important. The knowledge management solutions mainly used in practice today are – like a library – focused on the archiving and retrieval of information. Meanwhile, the progressive transformation of maintenance into an engineering discipline receives rather less attention. Using the example of condition-based maintenance of thermal process plants, this article will describe how knowledge management and maintenance methods can complement each other, without neglecting practical maintenance, with knowledge managers forming the link to operational practice. Document management continues to play an important role, but even more emphasis is given to the use and creation of knowledge. After all, what good is a great library if no one reads the books?

If our company only knew how much it knew, then… Who hasn't heard this sentence[1]? For the maintenance of industrial thermal process plants (ITP), we could complete the sentence as follows: If our maintenance department only knew how much it knew, then the availability, reliability and safety of our thermal process plants would be better than the competition, then our cost-efficiency would be better, and we would make fewer mistakes and never repeat them [1].

So why don't we invest more in knowledge management? The answer, which will be demonstrated in this article, is that knowledge management in maintenance is a complex matter that imposes considerable organisational requirements, demonstrating once again the transformation of maintenance into an engineering discipline.

WHAT IS KNOWLEDGE?

In this introductory chapter we will first define a few key terms in knowledge management.

Knowledge as production factor and company asset

Fig. 1 shows how the most important resources of almost any company – labour, capital and knowledge – have changed over the years. Even in agrarian societies, people tried to acquire, keep and re-apply knowledge. Early techniques included storytelling or picture stories. With the progress of industrialisation, knowledge became increasingly important, overtaking the production factors of labour and capital. More and more specialised knowledge was needed, for example to build new machinery or provide special services.

In a knowledge society, the value of knowledge as a production factor increases further still. Knowledge became the most important resource in production and services. Today,

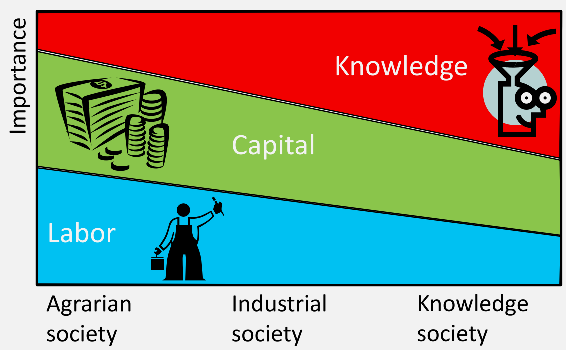

Fig. 1: Importance of the production factor knowledge

1 This saying is attributed to Siemens CEO Heinrich von Pierer. At a press conference, von Pierer lamented the fact that Siemens was always „reinventing the wheel" and wasting a lot of resources in the process. However, the saying was already in use internally much earlier than this.

knowledge management is of existential importance in many sectors of industry. Today, knowledge as an independent production factor is so important that it must be actively managed – which is why we talk about 'knowledge management'.

Data, information, knowledge – the knowledge pyramid

Data, information and knowledge form a pyramid. Knowledge is the tip of the pyramid and data forms the base. Data refers to facts about events or processes, for example vibration measurements. When data is placed in context and given meaning, it becomes information – for example the permissible vibration limit values for a specific part. P. Drucker, a pioneer of modern management theory, said, "Information is data with relevance and an intended purpose."

Knowledge, on the other hand, is goal-oriented, networked information that includes expert opinions and experience, for example how a vibration will probably develop into a problem. Knowledge is always personal and usually problem-oriented. The difference between knowledge and information is not ultimately the most important question, but rather which data, information and knowledge is useful for an organisation and which is not.

Explicit vs. tacit knowledge

In literature, a distinction is made between explicit and tacit knowledge. The metaphor often used to explain this is that of an iceberg. The part of the iceberg above water is explicit knowledge, and the part below water is tacit knowledge.

Explicit knowledge is found in documents, books, forms, photos or drawings, for example. It can be stored, processed and transmitted using any type of media. It can be logically explained and practically applied. It would probably be more accurate to speak of 'explicit information', because it exists independently of a person.

Tacit knowledge, on the other hand, has a personal quality. It is always linked to personal experience and personal skills. Core competencies are contained within tacit knowledge. On average, 80-90 % of the knowledge in a company is tacit.

One of the main functions of knowledge management is the transformation of tacit knowledge into explicit knowledge [2]. However, this is easier said than done. Michael Polanyi, known for his work in theory of knowledge, said in 1985, "We know more than we can tell." Tacit knowledge can be internalised in such a way that it is no longer (consciously) accessible. For example, service technicians may be able to intuitively assess the condition of a gas circulation fan and the repairs required by the running noise, but be unable to explain exactly how they do it. There are many publications dealing with this problem, including methods for storing and transmitting knowledge, and especially for safeguarding knowledge using storytelling, mind mapping, competence matrices and so on.

Relevant knowledge

Obviously, knowledge is only relevant to a company if it allows the company to solve problems or create something new. It doesn't matter whether this knowledge is tacit or explicit. The question of relevance is the most important one. Only when this question has been answered we can proceed to ask what knowledge is relevant.

Probst et al. [3] define knowledge as the entirety of insights and skills that individuals use to solve problems. This definition includes both theoretical knowledge and practical everyday rules and instructions.

According to another, equally popular, definition, there is knowledge about why you do something (know why), what you do (know what) and how to do it correctly (know how). Two additional factors are often added: knowing where to find information for a specific purpose (know where) and when what information is needed (know when). So knowledge is more than what is often referred to as 'know-how'.

Maintenance knowledge

Maintenance demands specialised knowledge. It needs to be embedded in practical activity without neglecting the transformation to an engineering discipline. A good maintenance department used to be one that fixed problems quickly, but now it is measured by its ability to prevent problems (breakdowns or faults) occurring in the first place. So a modern maintenance department must have an understanding of damage mechanisms and scientific methods relating to the changes caused by wear and tear. In other words, in addition to practical knowledge, it is increasingly important to know why something is done in the way it is done.

The role of the experts

Experts are the main knowledge holders in a company. They have specialist knowledge and technical authority. They have experience and the ability to apply their knowledge to new situations. In other words, they are not just knowledge holders, but knowledge developers. This characteristic cannot necessarily be attributed to other knowledge holders, for example pure practitioners.

When experts leave a company, their tacit individual knowledge is lost to the organisation. Some of their explicit knowledge remains, for example in the form of records, but as the metaphor of the iceberg shows, this is only the smaller part.

The volatility of knowledge

Knowledge is tied to people. There is always the risk that a knowledge holder will leave the company, for example due to retirement. Demographic change therefore plays an important role in maintenance professions, where experience and knowledge are so important. We also shouldn't forget that knowledge, too, becomes obsolete. The average half-life of professional technical knowledge is approximately five years, and considerably less for automation engineers and computer scientists. As paradoxical as this may sound, it is because our knowledge is currently exploding – and therefore loses its value ever more quickly as a result of technological change. So sometimes it is important to forget what you know, get rid of ballast and be open to new ideas.

WHAT IS KNOWLEDGE MANAGEMENT?

Albert Einstein is credited with saying, "Knowledge means knowing where it's written down." He was probably thinking along similar lines to the problem outlined at the start, "If my company only knew how much it knew". For this reason, knowledge management is commonly discussed in the context of locating information or creating databases, and is often reduced to simply that. But merely building a database isn't knowledge management. Databases are tools for information processing; sometimes data graveyards. At the beginning a database is like a library without books – empty.

The most familiar example of an external database is the Internet. To someone looking for knowledge, the Internet is like a vast unsorted library without librarians to impose any kind of order. Information stored on the web can be found with the help of search engines. A search turns up a huge amount of irrelevant and unverified information, to name just the two biggest problems, and the user must decide for themselves what is relevant and what is not, which information can be trusted and which cannot. There is no librarian to help.

By contrast, document management systems represent an attempt to reproduce a more or less structured company memory. One of the main purposes of a document management system is to store text documents (such as installation instructions, troubleshooting guides or criteria lists), drawings, pictures and so on in a central place and make them accessible to employees. Information is generally made available on a company intranet. However, the documents must first be classified in order for the knowledge they contain to be located quickly and in context. This sometimes involves a lot of work and is only worth it if the 'keyworded' knowledge is of permanent relevance. This is rarely the case.

Elements of knowledge management

We have seen so far that knowledge management is much more than just knowing where it's written down. Probst et al. [3] go considerably further by defining knowledge management as a systematic process of organisational knowledge use and creation within a company. In the authors' view, the process proposed by Probst et al., shown in **Fig. 2**, is a good theoretical basis for knowledge management in maintenance. The individual elements are briefly explained below.

Knowledge goals

Corporate knowledge management begins with the definition of knowledge goals as part of the company strategy.

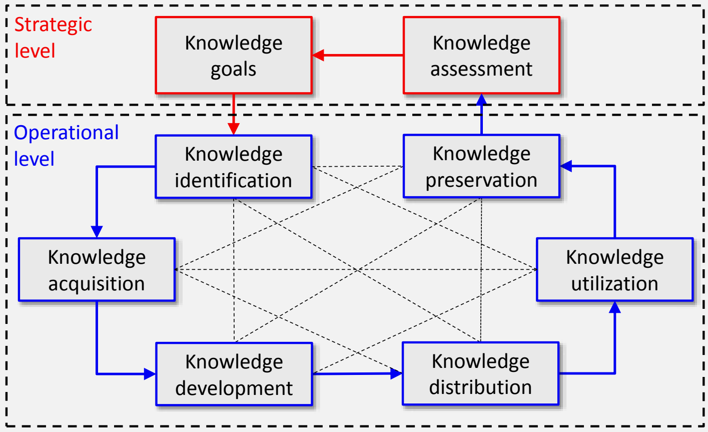

Fig. 2: Building blocks of knowledge management

These goals can be used both for planning and as a basis for implementation and performance monitoring. This includes, for example, the direction in which the company wants to develop its knowledge and the fields in which it wants to achieve superior knowledge over competitors.

Knowledge identification

Knowledge identification creates transparency as to internally and externally available knowledge. This includes an analysis of the state of knowledge in the accessible environment (customers, suppliers, industry associations, etc.). A deficient analysis may result in inefficiency, inadequately justified decisions and duplications. Knowledge identification also entails the systematic evaluation of customer complaints, error analyses and customer surveys and the identification of employees with specific competencies. Not all knowledge needs to be within the company itself, as long as it is accessible in some way.

Knowledge acquisition

Much of the knowledge a company needs is imported from external sources. External training courses and seminars are the traditional sources, as well as internal training and development programmes. There is also considerable and often untapped potential for knowledge acquisition in links with customers, suppliers, competitors and cooperation partners.

Knowledge development

Knowledge development is complementary to knowledge acquisition. It revolves around developing new skills, products, new and better ideas and more effective processes. Much internal knowledge is tacit (remember the iceberg) and consists of experience and special skills not accessible to other employees. The essential aim is to pass this knowledge on to colleagues.

Knowledge distribution

Knowledge must be shared and distributed within a company so that the entire organisation can use it. The distribution of existing knowledge within the company must be put into practice and upheld. Sharing information with colleagues and supervisors, as well as people outside the company at meetings, conferences and forums such as the Aichelin Maintenance Forum, is very important. Even a very good technical infrastructure cannot by itself satisfy the requirements of knowledge sharing and distribution. This is an opportunity for knowledge managers to play a key role.

Knowledge utilisation

The ultimate aim of knowledge management is to make productive use of knowledge for the benefit of the company. However, the successful identification and sharing/distribution of knowledge will not by themselves ensure that knowledge is used effectively in everyday operations. The utilisation of available knowledge must be accompanied and ensured by organisational measures, such as service plans.

Knowledge preservation

Once it has been acquired and developed, perhaps with great effort, knowledge must be retained and kept up to date. Both the technical infrastructure (databases or document management systems) and the retention of experts within the company play the most important roles in this respect. There are plenty of ways in which available knowledge can be quickly lost again, for example when employees leave the company.

Knowledge assessment

Finally, the measures taken must be assessed. Have the investments in knowledge management paid off? Are they moving in the right direction? Have the defined objectives been achieved? This evaluation is not at all easy because there are no standard measurements for knowledge.

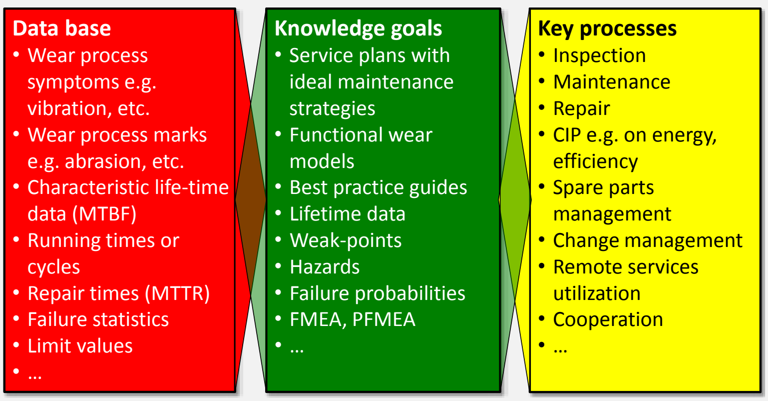

Fig. 3: Knowledge management in maintenance – Strategic level

Continuous improvement process

The connecting lines between the various elements in Fig. 2 show the interdependencies at work. It is not sufficient to focus on one particular element to the exclusion of the rest. Knowledge management is a process without an explicit start and end, a process of continuous improvement. However, this wider definition of knowledge management is not yet evident in many organisations. Existing knowledge is not utilised, for example because internal knowledge is not valued enough and knowledge is acquired externally at high cost. Employees are sent on pointless training courses, the content of which they cannot apply in their jobs. Expensive document management systems are often useless because the system does not contain any relevant information. So there are many reasons to continually re-implement the elements of knowledge management and take appropriate corrective action.

KNOWLEDGE MANAGEMENT IN MAINTENANCE

Knowledge management in maintenance is associated with very specific requirements and problems. When it comes to the maintenance of complex machines and plants, maintenance knowledge has always been shared between a number of different professions. Designers, operators, maintenance departments and external service teams need to pool their specific experience to come up with solutions to problems.

Maintenance demands multidisciplinary knowledge – a combination of mechanics, automation and process engineering. The breadth and depth of knowledge required today can no longer be held by a single individual. A modern maintenance department will carry out key processes cooperatively, i.e. in close collaboration with relevant specialists [4].

The maintenance of complex thermal process plants can only be achieved through a close interlinking of theoretical knowledge, experience and practical activity. The extent to which maintenance has already developed into an engineering discipline will be described using the example of knowledge management at Aichelin Service GmbH.

Knowledge objectives in maintenance

As a general rule, every maintenance key process requires several knowledge objectives. As shown in **Fig. 3**, knowledge objectives must be defined and the data basis or knowledge status must be assessed at a strategic level on the basis of the key processes.

The most important knowledge objectives in maintenance include a plant-specific service plan and an optimum maintenance strategy[2] for critical parts (for example a condition-based maintenance strategy). This requires the procurement of a lot of knowledge about the parts used, for

2 Ultimately, the maintenance strategy defines what kind of measure is carried out on defined maintenance objects and how often. [DIN EN 13306: Maintenance terms]

example characteristic lifetime data. Other important knowledge objectives include best practice procedures, the identification of weak points, failure mode and effects analyses and guides.

Key maintenance processes

Though, before the definition of knowledge objectives comes the question of relevance: we are talking primarily about maintenance key processes. This refers to the four basic measures named in DIN 31051 [5]: maintenance, inspection, repair and improvement. However, an optimum maintenance plan is not limited to these activities but includes further key processes such as efficiency enhancement, cost-optimised parts procurement and change management.

Data basis and knowledge evaluation

In order to achieve the strategic knowledge objectives, the data basis and the attained knowledge status must be regularly evaluated. A potential sticking point is feedback from maintenance employees, for example after a condition assessment. Maintenance technicians are not writers, and if information is conveyed at all, it tends to be verbal. If data and information are not documented, they are not available for evaluation purposes etc. – either now or in the future. Not documented is like not been done!

Knowledge managers are a critical success factor

In the authors' experience, a knowledge manager must be someone who holds the reins for a particular knowledge area, an expert who proactively manages their own knowledge area. Knowledge managers ensure through effective personal communication that colleagues share their knowledge with one another. They motivate people to cooperate and make clear that it is the knowledge inside their heads that keeps the company competitive. They create organisationally embedded (explicit) action routines and rules, for example service plans or condition assessment checklists.

Knowledge managers also form a link between those who possess knowledge and those who are trying to find it. To return to the library metaphor, they are the librarians. They make sure that knowledge reaches the maintenance technician's workplace and therefore produces a benefit. Hence, knowledge managers are much more than just administrators of knowledge. They must have knowledge of their own and act as role models. Their success is also dependent on their personal credibility and honesty, especially in the handling of other people's intellectual property.

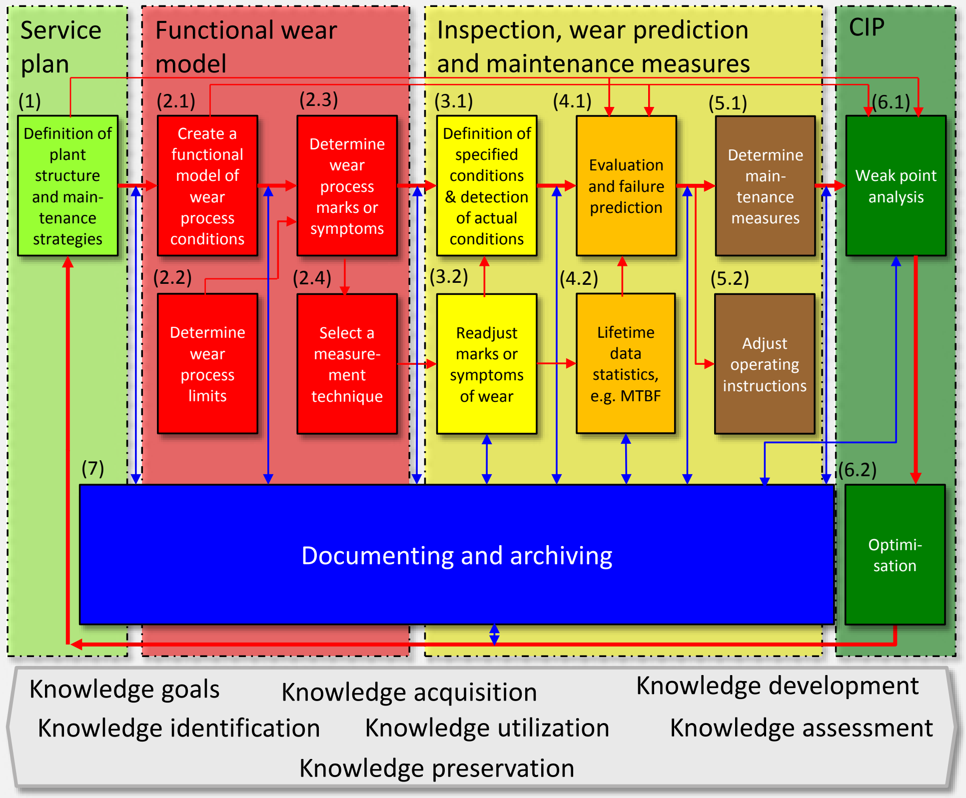

Fig. 4: Knowledge management in condition-based maintenance – Operational level

Practical example at operational level: knowledge management in condition-based maintenance

Few maintenance strategies are so frequently misinterpreted, or not fully interpreted, as condition-based maintenance. Condition-based maintenance depends on recognisable wear of a unit detected during an inspection[3]. The wear must be measurable and closely linked with the failure of the unit. For many components this is not the case, or cannot be formulated in a practically relevant way. Strictly speaking, condition-based maintenance is not possible in this case.

The basic idea of condition-based maintenance is to predict the remaining lifetime of a part by comparing a theoretical wear model and an inspection, as described in VDI guideline 2888 [6]. For reasons of economy, worn parts should continue to be used for as long as possible before the part is replaced. Both, knowledge management and practical maintenance activities within this key process are based on the process shown in **Fig. 4**, which in turn is based on VDI guideline 2888.

3 According to DIN 31051, a unit is "any part, element, device, subsystem, functional unit, piece of equipment or system that can be considered on its own".

Fig. 5: Example of a multi-purpose chamber furnace

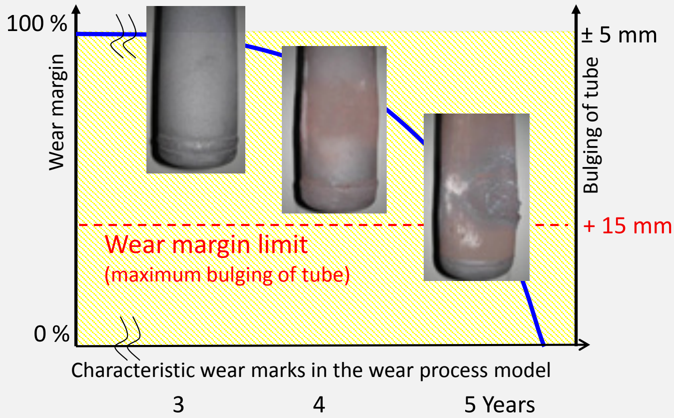

Fig. 6: Wear characteristic mark: Bulging of a radiant tube

Maintenance tasks and knowledge management elements cannot be simply matched up because they usually overlap. Instead, the technical processes of maintenance and the organisational processes of knowledge management are interlinked in a matrix. For clarity, in Fig. 4 the numbers in round brackets are referenced in the description below.

Service plan

To start with, for every plant there is an individual service plan (1), agreed with the customer, for example a service plan for a multi-purpose chamber furnace (**Fig. 5**). All elements of knowledge management are incorporated in the service plan. For example, the knowledge objectives and knowledge identification are defined by the maintenance strategies. A well-designed service plan includes a list of system parts or sections requiring maintenance and the associated maintenance activities. The allocation of maintenance activities includes the chosen maintenance strategy for the section or part (event-oriented, time-oriented or condition-oriented), inspection findings, and if necessary possible improvements.

A service plan also includes the maintenance cycle and planned duration of activities. The intervals for maintenance jobs are continually reviewed and must be empirically adjusted to avoid too little or too much maintenance. Providing scheduled times for maintenance activities allows the required capacity to be predicted for both, staff planning and maintenance duration.

All measures carried out are documented in the service plan. The proper documentation of maintenance is not only a legal requirement but also an important element of knowledge management, both for the maintenance department and even more for the operator.

Defining a wear model

When it comes to producing a theoretical wear model, the biggest knowledge management problem is probably knowledge acquisition, because for furnace parts there are typically only a few examples to provide orientation. To produce the wear model we can avail ourselves of the wear margin defined in DIN 31051 [5]. In this model a part has a limited wear margin, which is reduced continually through normal use and abruptly by extreme stress until it reaches the end of its useful life. Wear behaviour is described by the wear curve (2.1). The difficulty arises firstly from the determination of the wear curve and secondly from the definition of the wear limit or optimum time at which the piece of equipment is preventatively replaced (2.2), which should be just before the time of failure. The closer the optimum date is to the time of failure, the greater the potential savings compared with periodic, non-condition-based maintenance.

As a further difficulty, wear is usually a combination of very different chemical and/or physical processes caused by various types of stress, such as friction, corrosion, fatigue, ageing, cavitation, fracture and temperature. Maintenance therefore tends to concentrate on the symptoms of wear, for example vibration. The symptoms of wear are different from wear per se. The best way to explain the difference is by using an analogy. A viral infection is caused by a virus, but because viruses themselves are very difficult to detect, we focus on the symptoms, such as fever, which are more easily measurable.

As can be seen in **Fig. 6**, it is by no means straightforward to define measurable condition-based features or symptoms (2.3) for furnace parts, such as a radiant tube. However, without them it is impossible to define measurement variables and a measurement method for inspection purposes (2.4). Usually, a solution can be found. For example, the bulging of a radiant tube may appear to be 'only' a qualitative wear characteristic, but it can be made measurable with relatively little effort – in this example using hole templates of different diameters. The measurable characteristic wear marks can then be assigned a limit (the wear margin limit). Most parts will have more than one wear characteristic, each with its own wear limit.

Inspection

In accordance with DIN 31051 [5], the inspection includes all measures designed to establish and evaluate the current condition, including the identification of causes of wear and the definition of necessary consequences for future use. With condition-based maintenance the inspected condition must be correlated with the theoretical wear curve and wear characteristics defined in the wear model (3.1). This is the key characteristic of condition-based maintenance. Because wear (friction, corrosion, fatigue, ageing etc.) is often very difficult to measure directly if at all, maintenance and inspection criteria are primarily concerned with the symptoms of wear, such as unbalance, increased temperature or noise, which are more easily measurable.

Sometimes more suitable wear characteristics or symptoms only become apparent through experience. In this case the defined target and actual characteristics may have to be adjusted (3.2). Only a very few furnace parts can be constantly monitored with a condition monitoring system (CMS), for example to measure the unbalance of a gas circulation fan. All other parts, particularly inside the furnace, require inspection by a suitably qualified person. The possibilities of CMS in thermal process plants are often seriously overestimated. During the inspection it is essential to utilise and develop existing knowledge. In other words, the condition assessment should always be carried out with reference to a checklist of criteria – otherwise the results of an inspection are just the personal opinion of the inspector.

Forecast

If we assume that the unit is still intact at the present time, then the forecast concerns the remaining time until probable failure. Based on a comparison of the theoretical wear model and the practical inspection, the task is to predict whether a part can continue to be used until the next maintenance, needs to be repaired, or needs to be replaced immediately (4.1).

If the wear is approximately proportional to the service life in the relevant time period of the wear model, the forecast is very straightforward. The probable time of failure can then be mentally extrapolated using the rule of proportion. Although in many cases the wear margin cannot be assumed to be linear, it is usually possible, on the basis of experience, to estimate the failure risk of a part before the next maintenance. Failure rates and the characteristic lifetime of a unit of this kind are also taken into account (4.2).

Reliability forecasts based on failure rates

If condition-based maintenance is not possible because no measurements or qualitative wear characteristics can be noted, we can revert to (time-based) predictive maintenance with MTBF values, or the technical failure rate. For this purpose it is assumed that identical parts always wear in the same way every time. The failure rate (often shown as a bathtub curve) can be mathematically calculated very easily using a Weibull distribution[4]. To calculate a reliability forecast using the Weibull distribution, we simply need to know the characteristic lifetime and the form factor that characterises the failure behaviour [7, 8]. However, this alternative will not be discussed further here; the quoted sources should be consulted for more information.

Measures (maintenance and repairs)

The necessary maintenance or repairs are then carried out in accordance with the forecast (5.1). These measures typically include cleaning, lubrication and the replacement or repair of parts. The operating instructions may also be updated if necessary (5.2).

Continuous improvement

The aim of continuous improvement in condition-based maintenance is to continually improve the quality of maintenance processes through small incremental changes. Continuous improvement is a central process in both knowledge management and condition-based maintenance, requiring errors and weak points to be continually re-analysed (6.1) and optimised (6.2).

Documentation

Documentation is a central process within knowledge management (7). Protecting acquired knowledge is vital to the success of a company. Useful improvement cannot be achieved without documentation. Only once a relevant volume of data has been evaluated weak points can be clearly identified and probability statements be made as to the failure behaviour of particular parts.

In day-to-day operations, however, maintenance documentation is often given secondary importance or neglected altogether. As a result, the results of inspections and measures carried out often go unrecorded, and no record remains of the quantitative or qualitative measurements of the actual condition or the forecasts and measures based on them. If something is not documented, it is like not been done. Quite apart from the requirements of knowledge management, it should be borne in mind that the testing, maintenance and upkeep of safety equipment is required by law, and records must be kept for this reason alone. The

4 The supplementary use of mathematical methods is characteristic of predictive maintenance.

crucial importance of documentation cannot therefore be over-emphasised.

CONCLUSION

A few years ago knowledge management in maintenance was still the exception, but it has now become an essential component of forward-looking strategies in professional maintenance organisations. Good knowledge management enables these organisations to exploit the full potential of maintenance. Condition-based maintenance is an organisationally and technically complex task. In few areas of maintenance theory and practice are so closely linked. Condition-based maintenance is not possible without knowledge management, because the prediction of service life always requires a comparison of the inspection (practice) with the previously defined wear characteristics (theory). Knowledge managers play a central role in this process, particularly as they represent the link between theory and practice.

Knowledge management is an ongoing process that depends on the team performance of the organisation as a whole. When it comes to knowledge development and application in the key process of condition-based maintenance, manufacturers' service teams can contribute their additional knowledge (e.g. design knowledge, process engineering, possession of the technical documentation or information during the warranty period). This has enormous benefits for the customer, too.

LITERATURE

[1] Filounek, A.: Knowledge Management in the Maintenance of Thermal Process Plants. Presentation at Aichelin Maintenance Forum 2013. Korntal-Münchingen, 2013

[2] Nonaka, I.; Takeuchi, H.: Die Organisation des Wissens: Wie japanische Unternehmen eine brachliegende Ressource nutzbar machen. Frankfurt am Main, 1997

[3] Probst, G.; Raub, S.; Romhardt, K.: Wissen managen: wie Unternehmen ihre wertvollste Ressource optimal nutzen. Gabler, Wiesbaden, 2006

[4] Hiller, M.; Steck-Winter, H.: Kooperative Instandhaltung von Thermoprozessanlagen. gwi – gaswärme international 3-2013, Vulkan-Verlag, Essen, 2013

[5] DIN 31051:2012-09. Grundlagen der Instandhaltung. Beuth Verlag Berlin, 2012

[6] VDI: Richtlinie 2888, Zustandsorientierte Instandhaltung. Beuth Verlag, Berlin, 1999

[7] Steck-Winter, H.: Instandhaltungskennzahlen. Gaswärme International Nr. 3/2012, Vulkan Verlag Essen, 2012

[8] Steck-Winter, H.: Vorausschauende Instandhaltung von Thermoprozessanlagen. Gaswärme International Nr. 3/2011, Vulkan Verlag Essen, 2011

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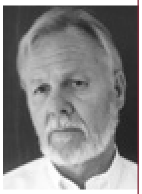

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