



Product Life Cycle Management

Committed
to operational
reliability

Optimized performance

Experts supporting experts

We are committed to the reliability of your operations. Therefore we provide full support to maximize your operational uptime – and thereby lower your life cycle costs.

Our Product Life Cycle Management model provides you with the opportunities and support to ensure you reach this goal.



Improving operational reliability

Product Life Cycle Management supports asset management and budgeting by providing information at the right time. Implementation of a life cycle strategy improves operational reliability.



Maximizing operational uptime

Operational reliability means non-stop processes. Accordingly, the systematic application of the Product Life Cycle Management model will maximize operational uptime.



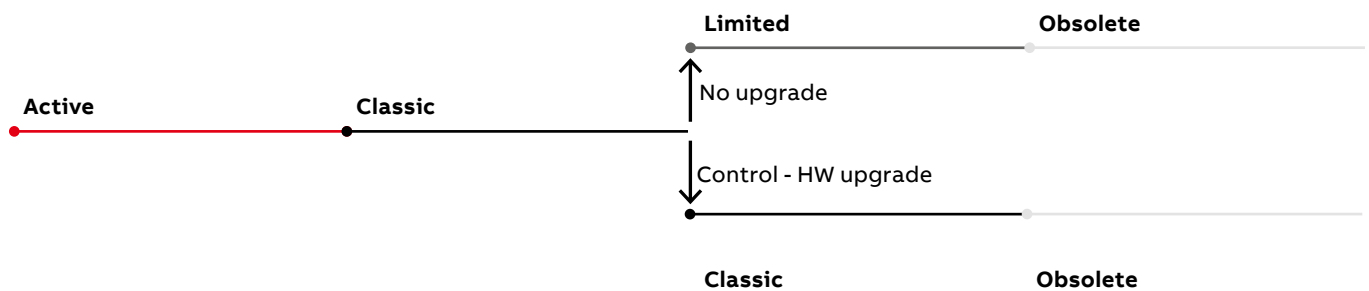
Lowering life cycle costs

Maximum operational uptime minimizes failure costs and therefore reduces overall operational expenditure. In other words, Product Life Cycle Management lowers downtime and related costs.

Product Life Cycle Management

Improving the reliability of your operations

ABB E-mobility life cycle phases



Increasing know-how and ever greater possibilities are driving rapid advances in technology. In addition, users demand high availability and smooth performance. The answer is Product Life Cycle Management, developed by ABB to improve the reliability of operations and support the serviceability of your production assets.

At the heart of ABB's services is Product Life Cycle Management, a four-phase model based on the know-how and experience acquired by ABB during many years in local and global markets. All services relating to ABB E-mobility are planned according to this model.

Product Life Cycle Management allows ABB to inform users about the life cycle status of their equipment in the form of a pro-active life cycle communication. We will issue life cycle announcements as an integral part of the Product Life Cycle Management model, with the following four phases:

Active phase

The Active phase starts when the product is launched. Here, state-of-the-art products are sold on the market and fully supported with spare parts, a range of life cycle services and product design enhancements.

Classic phase

Throughout the Classic phase, ABB customers continue to benefit from complete life cycle services. In this phase we will continue to provide new software releases including updates of communication protocols, and for interoperability with electric vehicles, cyber security, etc. During the Classic phase ABB guarantees the availability of its life cycle services, product support and spare parts. We will issue a life cycle announcement providing early information when the product will shift to the Limited or Obsolete phase with the associated life cycle services.

Limited phase

Operating systems and architectures are subject to a very fast evolution, as well as to new cyber security vulnerabilities. Best software practices and various new features are continuously added to Active and Classic products.

However, after some years in the Classic phase, products cannot be upgraded anymore with the latest software updates due to limited technical capabilities of legacy control-hardware. At this point the latest software will be 'frozen': no further updates for communication protocols, interoperability with electric vehicles, cyber security, etc. are developed for the chargers anymore. This may imply that the product's cyber security will get inadequate limiting ABB to offer remote monitoring, diagnostics, and service support.

In order to avoid the potentially severe consequences of such a frozen state, ABB will support a control-hardware upgrade for a wide range of its products. This will keep the product in the Classic phase including the regular software enhancements.

The upgrade can be a one-time purchase or alternatively an integrated element of an ABB Service Level Agreement (SLA)

Before the start of the Limited phase, ABB will inform you about the option to upgrade the control-hardware and return to the Classic phase including extended product life cycle services. We will also share with you the consequences of the reduced service capabilities for your product entering the Limited phase in case you decide against a control-hardware upgrade.

Obsolete phase

The ABB product is transferred to the Obsolete phase when the provision of services is no longer possible at a reasonable cost, or when ABB can no longer support the product technically, or when the old technology is no longer available.

Life cycle communication

Providing updates

ABB E-mobility communication

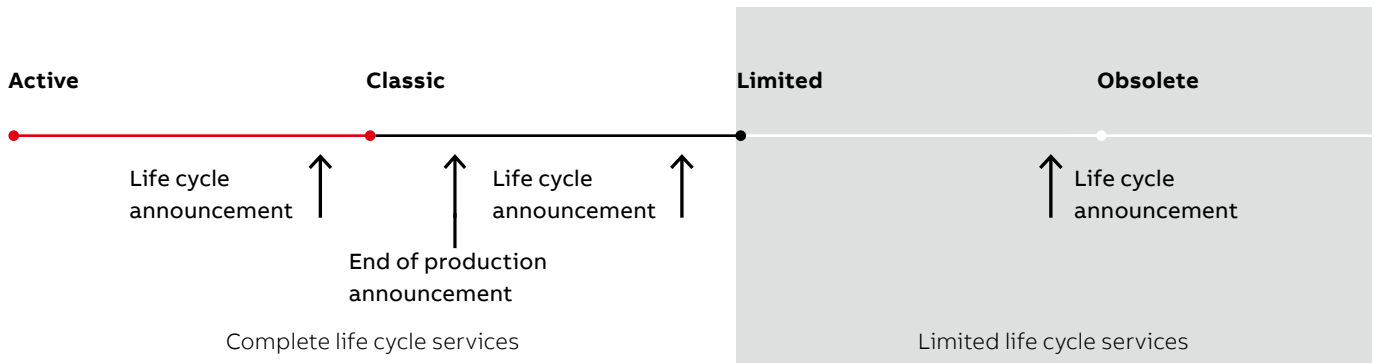


ABB maintenance is straightforward. As a rule, downtime can be minimized by following ABB's maintenance schedules, which are available for all products and based on ABB's Product Life Cycle Management model.

The internal life cycle review takes into account factors like the availability of necessary resources and the state of know-how relating to technical support. As a result, it is possible to forecast the phase change within the life cycle of a product. ABB will then recommend upgrades and retrofits in order to improve performance and extend equipment lifetimes.

Life cycle announcement

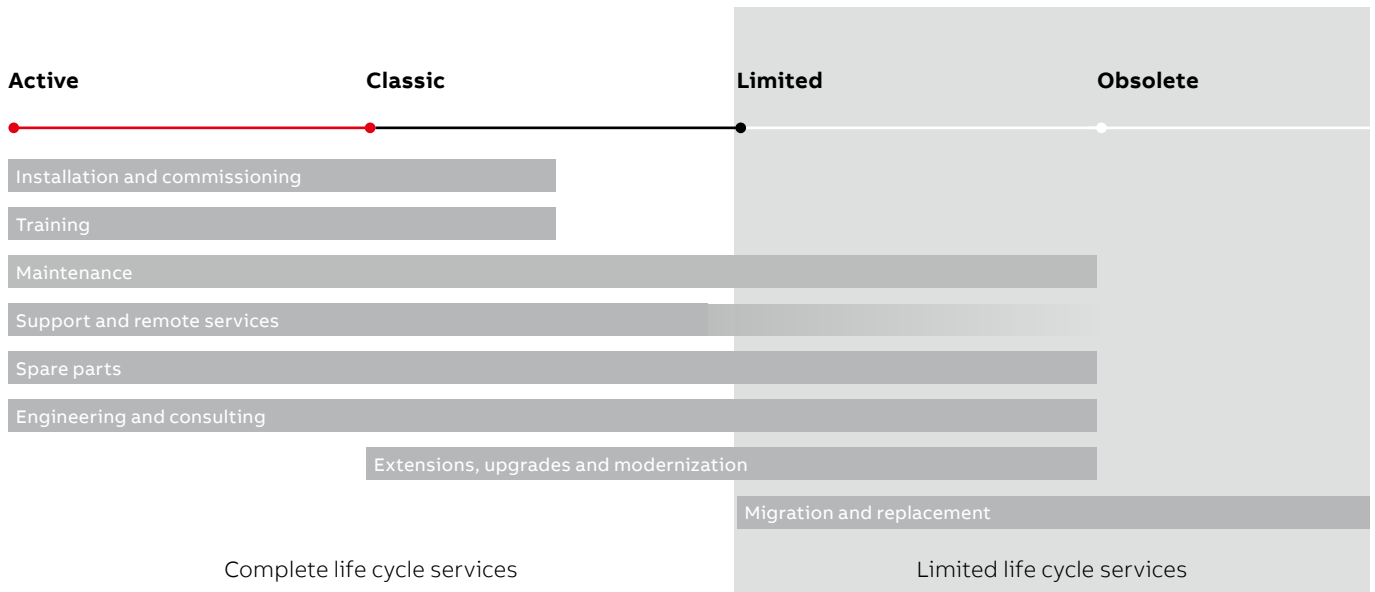
Per product type, ABB will announce upcoming changes in life cycle. In that way, customers are updated about the life cycle status of the equipment according to the four-phase model.

Customers will receive an announcement well in advance of the life cycle changes of their equipment and will be informed about the status of their equipment and the associated life cycle services.

Life cycle services

Maximizing service and product support

ABB E-mobility life cycle support



Installation and commissioning

ABB and its service partners offer professional installation and commissioning services.

Training

Training services ensure that ABB's expertise in complex equipment operation is passed on to customer maintenance crews, helping them achieve maximum performance. We offer a full range of courses for classroom and on-site training as well as web-based training (e-learning).

Maintenance

Regular on-site preventive maintenance, carried out in good time by certified field service engineers, maximizes equipment reliability. Maintenance schedules help customers plan their maintenance budgets and control operational costs.

Support and remote services

On-site technical assistance together with advanced product and application support via telephone, e-mail, or video with augmented reality tools (AR) offer fast failure analysis and rectification. Remote equipment monitoring enables ABB to provide experts on-line access for improved accuracy when carrying out condition assessment, wear trend prediction and long-term data analysis tasks.

Spare parts

ABB's spare part services aim to provide customers with the right spare part at the right place at the right time. ABB

provides genuine spare parts and spare part kits, accompanied by the relevant documentation. In addition to new spare parts, ABB offers exchange units and reconditioned parts.

Engineering and consulting

Site-specific assessments to establish equipment condition and performance plus high-level technical analyses serve as a basis for decisions on the tactical implementation of improvements and the development of strategies for extending equipment operating life.

Extensions, upgrades and modernization

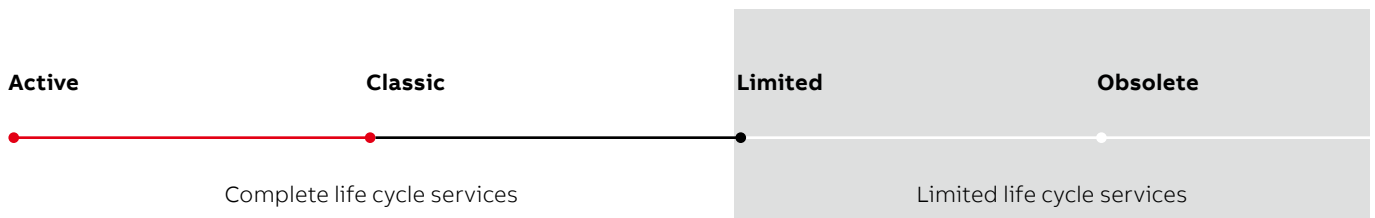
ABB's upgrade and modernization services are time and cost effective solutions that improve the reliability of operations and extend the life cycle of operational equipment at minimal cost. The service includes advice on viable options while taking into account technological developments and the life cycle of existing equipment. New technologies can improve and extend the functionality of existing equipment at a favorable cost. In many cases, a step-by-step upgrade will enhance the reliability, availability, maintainability and safety of operations.

Migration and replacement

At the end of a product's life, replacement or migration to the next product generation is necessary. ABB can advise on the best active products and system components and also make recommendations on the proper disposal of the legacy product.

Product Life Cycle Management

Ensuring full service support

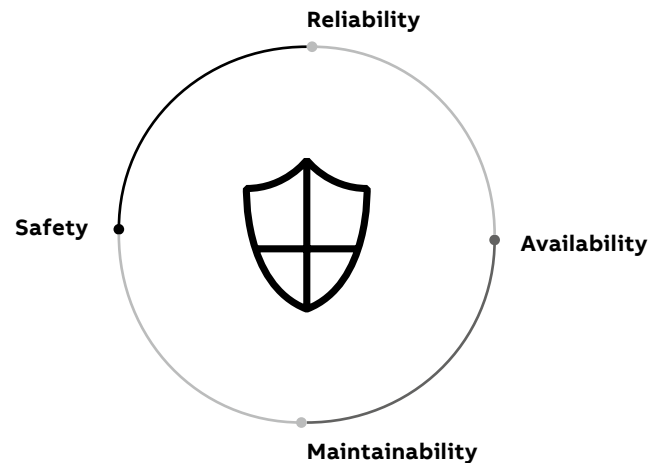


Systematic product maintenance for enhanced reliability and performance

Preventive maintenance and reconditioning schedules are designed to ensure product reliability and optimum performance, as represented by the horizontal red line in below figure.

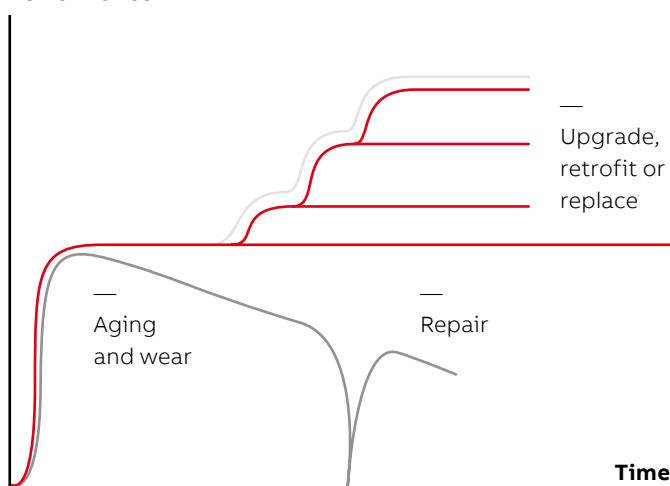
If preventive maintenance and reconditioning are neglected, the product's performance and reliability deteriorate mainly through component aging and wear (the downward grey line).

However, at a suitable point in its life cycle, as shown by the stepwise climbing grey line, a product's reliability and performance can be enhanced by upgrades, retrofits or replacements, thus ensuring that the product remains in good condition with high uptime.



- Optimum performance curve
- Maintenance
- No maintenance

Performance



Reliability of operations

ABB's life cycle services reduce the probability of interrupted operation and maintain performance at the intended levels. Product Life Cycle Management thus improves the reliability of operations and provides the basis for maximized uptime and business success.

Availability of product support

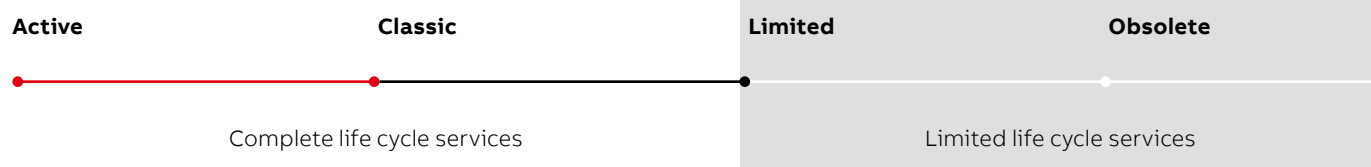
With Product Life Cycle Management, ABB provides an overview of components' and parts' status and the resources required. The resultant improvement in the availability of support services allows a rapid response to any issue. Life cycle services create opportunities to keep products and systems within a phase where product support is guaranteed and therefore prevent extended lead times when assistance is required.

Maintainability of products and systems

During the Active and Classic phases, ABB guarantees the availability of full life cycle services. Active application of life cycle management safeguards full maintainability and serviceability. As a result, product lifetime is prolonged and the return on investment (ROI) is increased.

One partner

Anytime, anywhere



With offices in over 90 countries, ABB is well placed to offer the best technical advice and local support around the clock. ABB's worldwide presence is built on strong local companies.

By combining the experience and know-how acquired in local and global markets, we ensure that our customers in all industries get the most out of our products. For further details about all our services, please contact your nearest ABB office or go to: e-mobility.abb.com.





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