

## Preface

**“Improved performance while  
lowering environmental impact”**

*Thomas Bittner  
is Head of Service and Fullservice  
at ABB Automation GmbH, Germany*



*Up till recently, improved performance in the process industry has always been characterised by the optimisation of the process control implemented. This involved higher costs to continuously adapt systems in order to keep pace with market change drivers. However, volatile customer requirements call for machines with increasingly shorter cycle times and smaller lot sizes. As a result, (short-term orientated) process optimisation alone is no longer a guarantee for success in today's world. In order to achieve sustained competitive advantages in the future, companies will have to be capable of exploiting in the long-term the as-yet untapped productivity potentials of the assets they implement over their entire life cycle.*

*In the context of future-proof life cycle management, there is a need to accompany the customer's production system with intelligent evolution strategies throughout its life cycle and to optimise it in alignment with technical/technological advancements according to the situation and requirements prevailing. Thus, the management of the different life cycles of components within a system is especially important. Here, the design of sustainable product life cycles means especially the pro-active, long-term protection and safeguarding of the knowledge of the process sequence control which has been implemented by the customer in the system over the years. This process can only become successful through continuous system management over the entire life cycle of the customer's plant/machine.*

*Consequently, we are developing resource- and environmentally-friendly solutions to enable our customers to use electrical power efficiently, increase their industrial productivity and lower environmental impact in a lasting way. This not only allows plant manufacturers to use their investments in a more sustained and efficient way, it also creates the chance to form and consolidate enduring customer relationships with the aid of tailor-made, life cycle-orientated service strategies which will be reflected in long-term and commercially successful partnerships.*

A handwritten signature in dark ink, reading "Thomas Bittner". The signature is written in a cursive, flowing style.

*Thomas Bittner*

## Preface

### **“Systematic approach to life cycle management”**

*Dr. Frank Bunting  
is life cycle costing expert  
at the VDMA*



*Every company talks about forming long-term, intensive relationships with its customers. The link connecting the customer to the manufacturer is the product which the customer doesn't only buy but also uses for a planned length of time. As a result, the behaviour of the product during this period of time plays a significant role in the success of a long-term relationship.*

*Therefore, manufacturers are well-advised to systematically take the life cycle of their products into consideration. This because characteristics such as mean time between failure (MTBF), meantime to repair (MTTR), availability and product lifetime are no longer empty words but rather figures which are being included more and more frequently in contract negotiations. After all, for many customers, it isn't just the purchase price which counts any more. Today, a whole range of cost considerations are made with the result that parameters such as energy consumption, material consumption and the cost of replacement parts are becoming increasingly important when making investment decisions. For example, Daimler only places orders for investment goods if an agreement about life cycle costs has been made.*

*One of the problems associated with predicting life cycle costs is the comparison of information. An important contribution towards standardising LCC approaches and thus making them suitable for practical use has been made by the VDMA Specification 34160: "Forecasting Model for Lifecycle Costs of Machines and Plants". The specification defines a calculation model which can be individually adapted to the needs of the customer and the supplier without losing the ability to compare. Many companies now implement this model for forecasting purposes or as a tendering requirement.*

A handwritten signature in black ink that reads "Frank Bunting". The signature is written in a cursive, flowing style.

*Dr. Frank Bunting*

## Preface

### “Thinking in product life cycles”

Prof. Dr.-Ing. Prof. E.h. Dr.-Ing. E.h. Dr. h.c. mult.  
Engelbert Westkämper  
is managing director of the Fraunhofer Institute for Manufacturing  
Engineering and Automation (IPA) and director of the Institute of Industrial  
Manufacturing and Management (IFF) University of Stuttgart, Germany



*Product life cycle management is a subject which is increasingly gaining importance in management circles and considers the complete life cycle of products from the phases of development, manufacture, sales and service right up to recycling. In the process, the sustainable design of product life cycles guarantees targeted customer orientation and enduring customer loyalty throughout all the stages of a product's life.*

*A significant demand which will be placed on mechanical engineering in the future will be to extract the maximum benefit from all industrially manufactured products over their entire life cycle. Taking the fact of limited natural resources such as energy and materials into account which will pose considerable problems for the coming generation, the aim must be to achieve maximum product efficiency using a minimum of consumed, non-renewable resources.*

*With the latest approaches, goods remain in the manufacturer's network for their total lifetime with the result that the manufacturer also becomes responsible for the life cycle management of his products. Here, a central function is the continuous preparation and processing of life-cycle related product data “from the cradle to the grave” to ensure permanent exploitation of the resources utilised and maximisation of benefits.*

*Following this new paradigm, we have started to place the life cycle of technical products at the core of our developments.*

*In order to achieve this, we are relying on the central competencies of our engineers to develop technically and economically viable solutions as well as accompanying life cycle information technology possessing new perspectives in this regard.*

A handwritten signature in black ink, appearing to read 'E. Westkämper'.

E. Westkämper

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