

Activity-based costing in practice: insights from E.ON Energie Deutschland

German power and utility suppliers are facing new challenges owing to a large number of competitors, high transparency in prices due to price comparison websites and increasing willingness of customers to change their supplier. In addition to brand value and product portfolio, service quality and price positioning are distinguishing features. Therefore, controlling processes has become more significant. E.ON Energie Deutschland GmbH (E.ON) responded by considering activity-based costing as a new controlling instrument.



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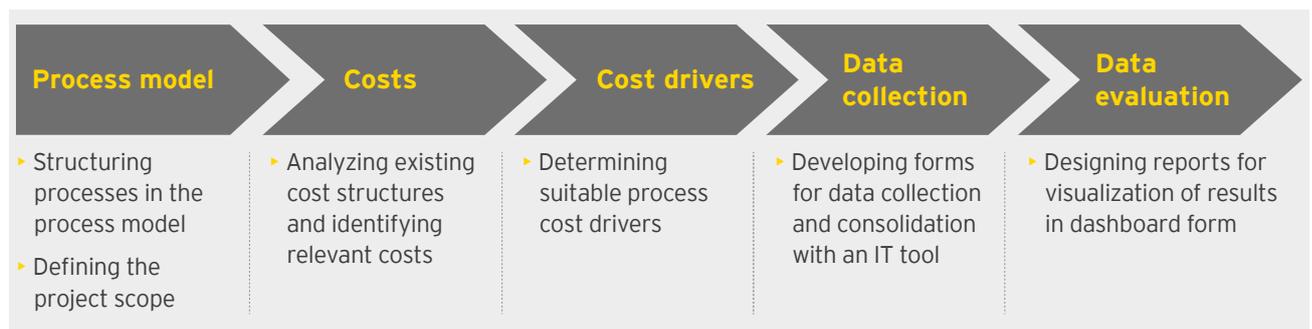
Activity-based costing can be traced back to the 90s,¹ when shifts in the cost structure toward high overheads pushed existing cost accounting systems to their limit.² The method involves cost-causative allocation of indirect costs that are not directly related to performance.³ In contrast to function-oriented cost accounting instruments at E.ON, costs are now allocated to processes. As a result, process cost rates are determined by relating the process costs to the quantities of cost drivers.⁴

Based on this theoretical approach, a concept for specific implementation was created for E.ON. The concept was validated using a prototype based on the billing process. From the knowledge and insight gained, it was decided to introduce activity-based costing and extend it to all subsidiaries. The planning and implementation were realized in close cooperation between E.ON's controlling department and EY.⁵

E.ON Energie Deutschland is one of the leading power and utility companies in Germany with around six million private, business and major customers. Around 3,000 employees ensure the supply of electricity and natural gas products. Furthermore, the company offers innovative and sustainable power services from one source. With its head office in Munich, E.ON Energie Deutschland GmbH has more than 30 offices across Germany.

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Figure 1. Key elements for implementing activity-based costing



Lessons learned during introduction, critical success factors as well as specific areas of application are described in the following. Conception and the procedure for introduction can be subdivided into five main elements for convenience (Figure 1).

Process model defines the basis for activity-based costing

A new process model, based on the existing process documentation, was planned and implemented as an initial step. The structural scope of the new E.ON process model comprises five levels (see Figure 2). The levels zero to two mainly serve the purpose of structuring the process landscape, whereas the levels three and four are intended to provide a detailed representation of the process flows. Representation of end-to-end processes was performed to achieve strict alignment of the process model with the customer. At E.ON, end-to-end processes

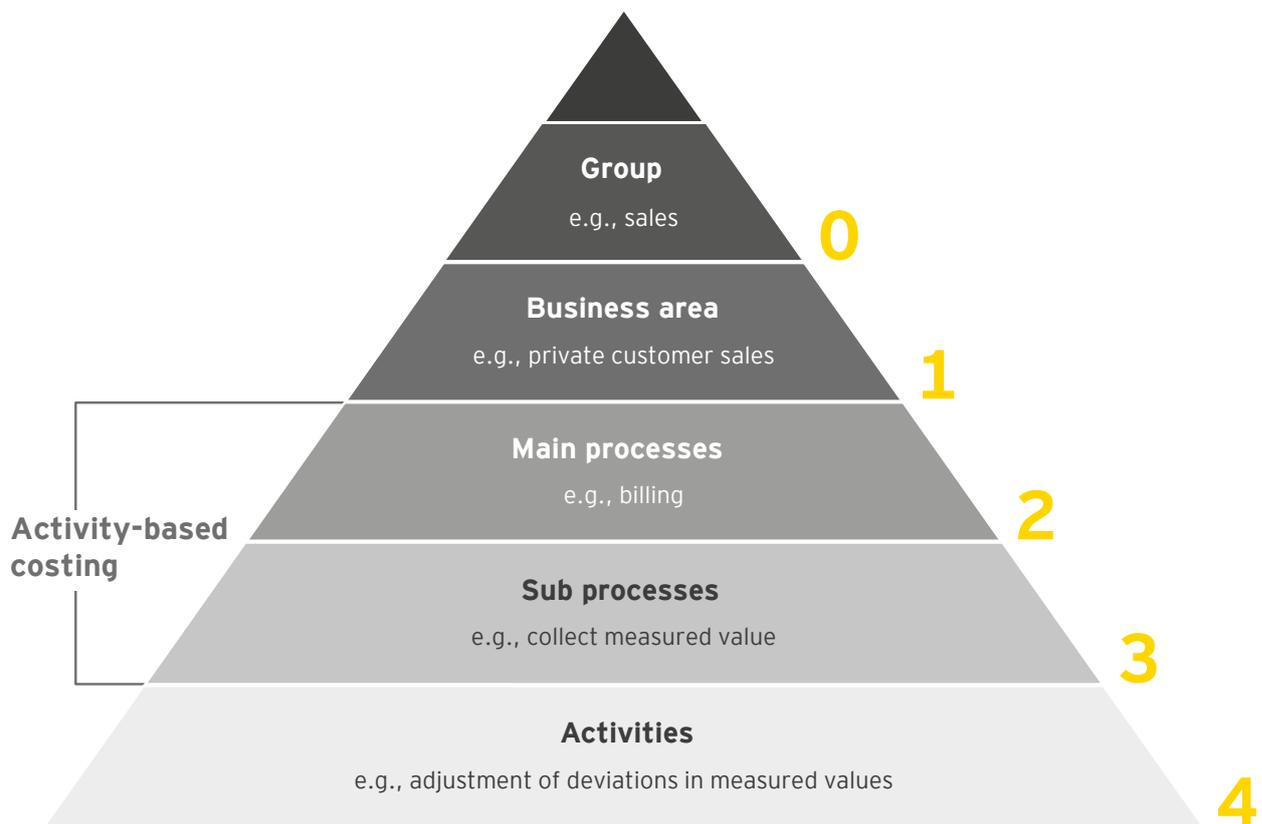
include all the steps starting from the triggering customer event to the customer-related end product. For example, the process of billing starts with meter readings of consumption quantities and ends with the dispatch of the customer invoice. Thereby, boundaries between the departments were not considered. In this regard, workshops across departments proved to be a success factor for documenting processes.

The requirements of activity-based costing were already taken into consideration during process modeling. The significance of the cost volumes of individual processes is crucial to an organization operating efficiently. It is to be noted here that high aggregation of process steps limits the informative value. On the other hand, too much detail leads to greater effort in collecting data. Accordingly, a uniform definition for identical process steps was observed. For example, printing costs in different processes were separated for comparisons in internal process steps.

1. A. G. Coenenberg, T. M. Fischer and T. Günther, *Kostenrechnung und Kostenanalyse*, Schäffer Poeschel: Stuttgart, 2016, p. 158f.
2. A. G. Coenenberg et al., 2016, p. 160-163.
3. T. N. Fischer, K. Möller and W. Schultze, *Controlling: Grundlagen, Instrumente und Entwicklungsperspektiven*, Schäffer Poeschel: Stuttgart, 2015, 2. Auflage., p. 239.
4. A. G. Coenenberg et al., 2016, p. 172.
5. The project was based on EY's Service Delivery Methodology IDDS. Accordingly, it was divided into the following phases: identify, diagnose, design, deliver and sustain.

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Figure 2. E.ON process model with billing as an example



With the new model as a basis, the project scope for activity-based costing could then be defined and decisions taken on which level process costs could be allocated. When selecting the right process level and the amount of detail, professional judgment is required in

order to weigh up the effort needed by the relevant departments to collect the data and how much is actually necessary to serve the areas of application.

Levels two and three were considered suitable for recognition of activity-based costing at E.ON. With the help of

the prototype in the planning phase, it was ascertained that these levels could already support a significant number of application areas. The suitable processes were identified for activity-based costing following the determination of the process level. In short, considering processes with

a high number of runs leads to higher informative value of the measured process indicators. Outliers in the process flow have only limited influence on the measured key indicators here. Similarly, it is advisable to restrict the analysis to processes with high standardization, otherwise activity-based costing represents an average analysis with a high variance of key indicators. The focus on processes with a significant cost volume is advantageous due to the higher leverage in the areas of application.

In summary, therefore, the three criteria used for the selection of suitable processes were:

- ▶ High number of runs
- ▶ High standardizations
- ▶ Significant cost volume

At E.ON, based on the three criteria described, the focus was on core sales processes, such as the submission of an offer, customer contact and billing. Conversely, support and administrative processes such as preparing annual financial statements proved to be unsuitable.⁶

Uniform cost base enables comparability

The cost base at E.ON was defined on the basis of consumption, and thus only considers the costs that are directly related to the output of each process. Therefore, shared expenses for human resource functions are not in the focus of activity-based costing. To reduce the complexity in data collection, costs were aggregated and allocated to the following categories: internal employees, service

provider, IT expenses and others, derived from E.ON's cost structure. In the course of the ABC analysis, major cost factors were identified in internal employees, service and IT. Differentiation of further costs was avoided due to their secondary relevance. Mapping between the primary cost types and the four categories was implemented to create a uniform procedure. The experience shows that uniform definition and structuring of the cost base enables comparability between processes and departments, and thus contributes directly toward increasing the informative value of activity-based costing.

Definition of cost drivers is a challenge

When it came to determining cost drivers, multiple drivers were available for single processes. For example, for the billing process, either the number of billings or the number of invoices can be used. Thus, the complexity lay especially in the allocation of a suitable cost driver per process. In order to face this challenge, criteria for identification of the most informative cost driver specific to E.ON were developed as follows:

- ▶ Measurable output of a process
- ▶ Proportionality to costs
- ▶ Comparability
- ▶ Verifiability

Hereby, a cost driver is defined as the measurable output of a process. It should behave proportionally to the costs, enable comparability to similar processes and should be verifiable to third parties. Billing

For E.ON, the experience has shown that activity-based costing can offer a wide range of applications and support for controlling processes and their costs.

6. A. G. Coenenberg et al., 2016, p. 165.

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Figure 3. Form for data collection with billing as an example (illustrative and simplified representation)

Data collection									
Validation	Costs	Allocated	To be allocated	Delta (absolute)					
	Internal employees	3.800.000 €	3.800.000 €	✓	0 €				
	Service	2.120.000 €	2.120.000 €	✓	0 €				
	IT expenses	1.450.000 €	1.500.000 €	✗	50.000 €				
	Other	254.000 €	254.000 €	✓	0 €				
	Total costs	7.624.000 €	7.674.000 €	✗	50.000 €				

Process step	Cost driver	Quantity cost driver	Internal employees (not induced by output)	Service (not induced by output)	IT expenses (not induced by output)	Other (not induced by output)	Internal employees (induced by output)
Collect measured values	Meter-reading orders	40.000		500.000 €	4.650 €	254.000 €	
Create invoice	Invoice	11.000	20.500 €		200.000 €		50.000 €
Execute billing	Billings	10.500			50.000 €		
Printing	Printed invoices	10.000		20.500 €	3.400 €		
Sending	Sent invoices	8.000	40.000 €		55.800 €		35.000 €

Source: E.ON

of invoices proved to be unsuitable as a cost driver due to a lack of verifiability. In general, the cost drivers were discussed and defined in the course of joint workshops. The practical experience shows that the described criteria facilitate the identification of suitable cost drivers. However, the real informative value of a cost driver can, in most cases, only be assessed after visualization of the results and discussions with the departments.

Data collection is performed in a standardized manner

The relevant departments are responsible for the allocation of costs to processes. A standard spreadsheet-based form for data collection assists with an automated process. The core of the form is a matrix that represents the process steps in the rows and the allocations to cost categories of human resources, service provider, IT and others in columns (see Figure 3). Further differentiation into costs induced by output and costs not induced by output enables an analysis of cost flexibility.⁷ To avoid iteration loops during data collection, the form cross-checks the costs against the defined cost

base. In addition, quantities of cost drivers are also collected. In the departments, a process expert and a finance expert jointly perform the allocation of costs. Continuous supervision in the course of initial data collection proved to be advantageous as it helped to quickly address detailed questions and provide a consistent procedure. As far as possible, distinguishing costs using allocation keys should be avoided to achieve a higher cost-causative allocation. In the future, E.ON will replace the spreadsheet-based form with a web-based tool. In addition to providing advanced options for validation, status monitoring and central maintenance of master data, the user friendliness will be enhanced by allowing comparison with previous periods.

Data visualization software simplifies reporting

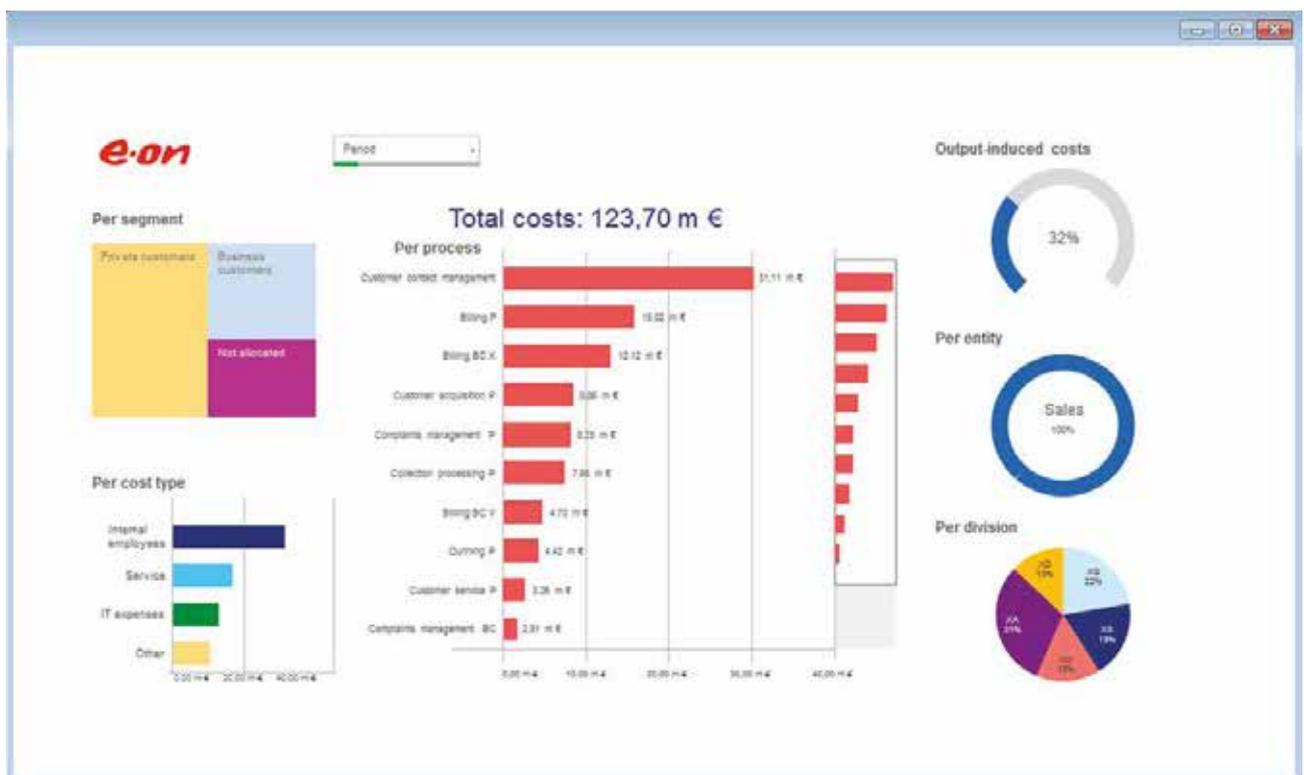
The multidimensional analytical options lead to a high degree of detail and complexity in reporting. Initially, for the prototype, this was produced in a spreadsheet format. In the implementation phase, however, due to a lack of dynamic analysis options, high manual effort and

Continuous supervision in the course of initial data collection proved to be advantageous as it helped to quickly address detailed questions and provide a consistent procedure.

7. For a detailed definition, please see A. G. Coenenberg et al., 2016, p. 173.

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Figure 4. Dashboard report – general view (illustrative numbers)



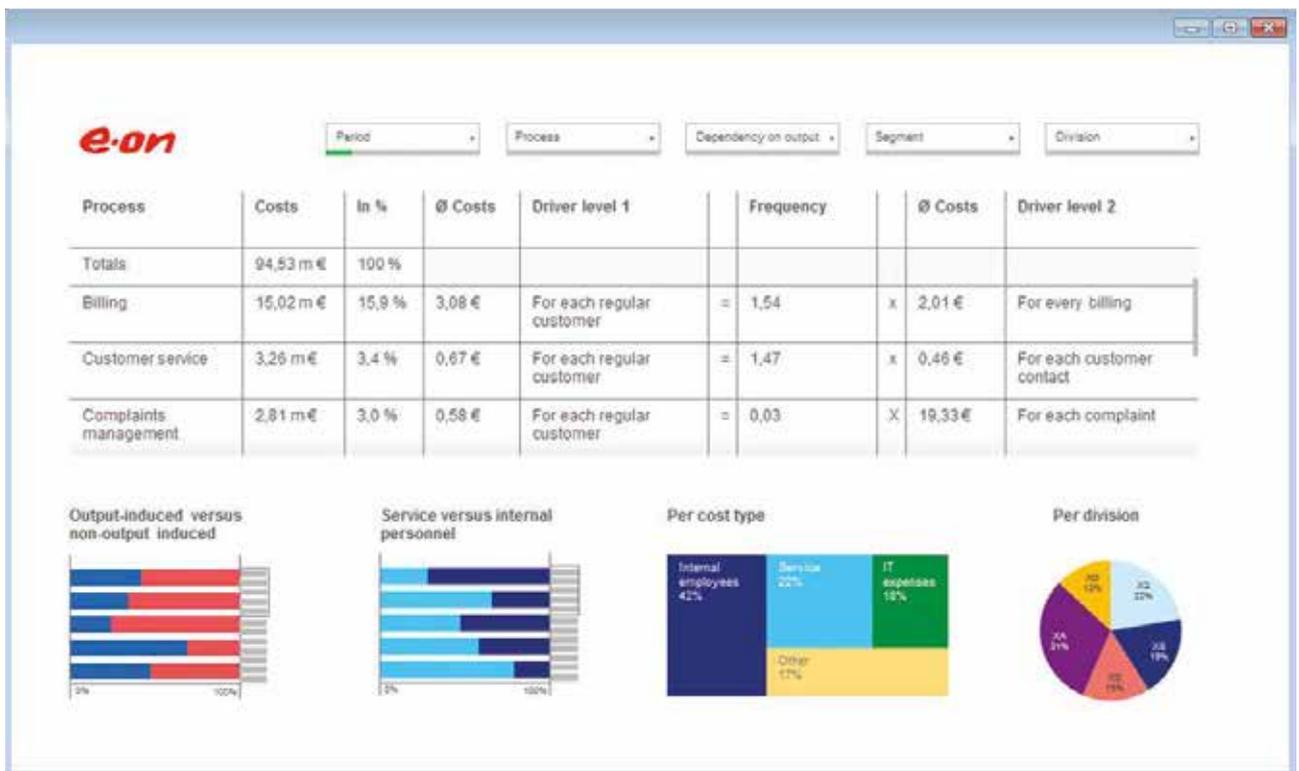
Source: E.ON

susceptibility to errors, E.ON decided to introduce new data visualization software. The main focus during implementation was the development of target group-oriented and dynamic reports as well as the automated processing of data delivered by the departments. Standard reports in

dashboard form with drill-down options generate multidimensional perspectives on individual process levels. The user can adjust the reports according to personal requirements, save them locally and export them in various formats.

Practical experience shows that processing results in a user-friendly way greatly influences their application and acceptability. The general view (see Figure 4) offers a quick overview of costs in the following dimensions: segment, process, cost type, entity and division.

Figure 5. Dashboard report – process analysis (illustrative numbers)



Source: E.ON

Additionally, indicators relating to output-induced costs are depicted. The process analysis report (Figure 5) contains detailed information on individual processes. This also contains, in addition to the tabular representation of the costs per cost driver and corresponding frequency, graphic representation of the shares of output-

induced costs and the costs not induced by output as well as the ratio of internal and external employees. The results were evaluated jointly by both the responsible and the controlling department after approval by the process owners.

Activity-based costing forms the core of cost controlling

For E.ON, the experience has shown that activity-based costing can offer a wide range of applications and support for controlling processes and their costs. Figure 6 shows the five areas of application that were identified.

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Activity-based costing provides the cost foundation from which measures to optimize processes can be designed. A comprehensive process analysis can be carried out in combination with quality indicators. For E.ON, initial results had already been achieved through independent analysis by the responsible departments. Among others, the heavily manual activities and deviations from standard processes due to errors were identified as significant reasons for high process costs. As a further possibility in the future, the process cost rates can be compared over periods, thus allowing the savings arising from optimization measures to be evaluated once they are completed.

Cost-causative calculation of prices is possible by allocating overheads to products or product groups. Activity-based costing enables more diversified cost information about individual indirect cost components. This also helps in the configuration of new products. Single components, for example, online billing and hard copy billing, can be evaluated with reference to their costs and considered for product configuration accordingly. This could prove advantageous in the market positioning of the product.

Furthermore, activity-based costing proved to be a suitable input parameter for existing profitability calculations at E.ON. The results can contribute especially to the calculation of customer profitability and duration of amortization, as now, in addition to the direct costs, blocks of indirect costs can be considered in detail.

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E.ON participates in external benchmark studies to identify optimization potential. These comparative analyses illustrate essential corporate processes. Due to this background, the results of activity-based costing represent a significant help in the process of data collection. The effort for benchmark studies will, therefore, be substantially reduced.

In the future, activity-based costing will become the central instrument for sales cost controlling at E.ON. Simulation models as well as driver-based planning should be created on the basis of the determined process cost rates. In this way, cost drivers can serve as variables for calculating economic development in different market scenarios, for example, the development of the number of clients. Integration in the existing contribution margin accounting is already planned in the next stage of expansion.

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Figure 6. Areas of application at E.ON

<p>Product configuration and price calculation</p> <ul style="list-style-type: none"> ▸ Cost-causative calculation of prices ▸ Product configuration based on process cost rates 		<p>Calculation of profitability</p> <ul style="list-style-type: none"> ▸ Calculation of customer profitability and duration of amortization through distribution of indirect costs
<p>Process optimization</p> <ul style="list-style-type: none"> ▸ Identification of possible starting points for optimization 	<p>Cost management</p> <ul style="list-style-type: none"> ▸ Process-oriented cost controlling ▸ Driver-based planning ▸ Integration in contribution margin accounting 	
<p>Benchmarking</p> <ul style="list-style-type: none"> ▸ Results from activity-based costing as a basis for data collection ▸ Help in taking make-or-buy decisions 		

Lessons learned

Based on E.ON's experiences, we identified the following key success factors for introducing activity-based costing:

- 1. Focus on core processes:** Support and administrative processes are unsuitable due to their lack of standardization and low-cost volumes.
 - 2. Creation of cost categories:** Complexity of data collection can be reduced by aggregating costs in categories. The categories can be determined by analyzing the cost focus.
 - 3. Criteria for cost drivers:** The informative value of process cost rates is influenced heavily by cost drivers. Defined criteria help in determining suitable cost drivers.
 - 4. Structured form for data collection:** Data is collected in a standard form with predefined categories. Integrated validation reduces time and effort for reconciliation.
 - 5. Flexibility in analysis:** The representation of the reports in data visualization software increases the analytical possibilities. Data can be evaluated in many different ways.
- Overall, the introduction of activity-based costing has contributed toward significant enhancement of transparency. By generating process cost rates, alternative insights into costs were gained. As expected, this provided new ideas to steer processes. Awareness for costs was raised further outside the area of controlling enabling quality-oriented and cost-oriented process steering by other departments. ■



In the future, activity-based costing will become the central instrument for sales cost controlling at E.ON.

We would like to thank the following for their contributions to this article:

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