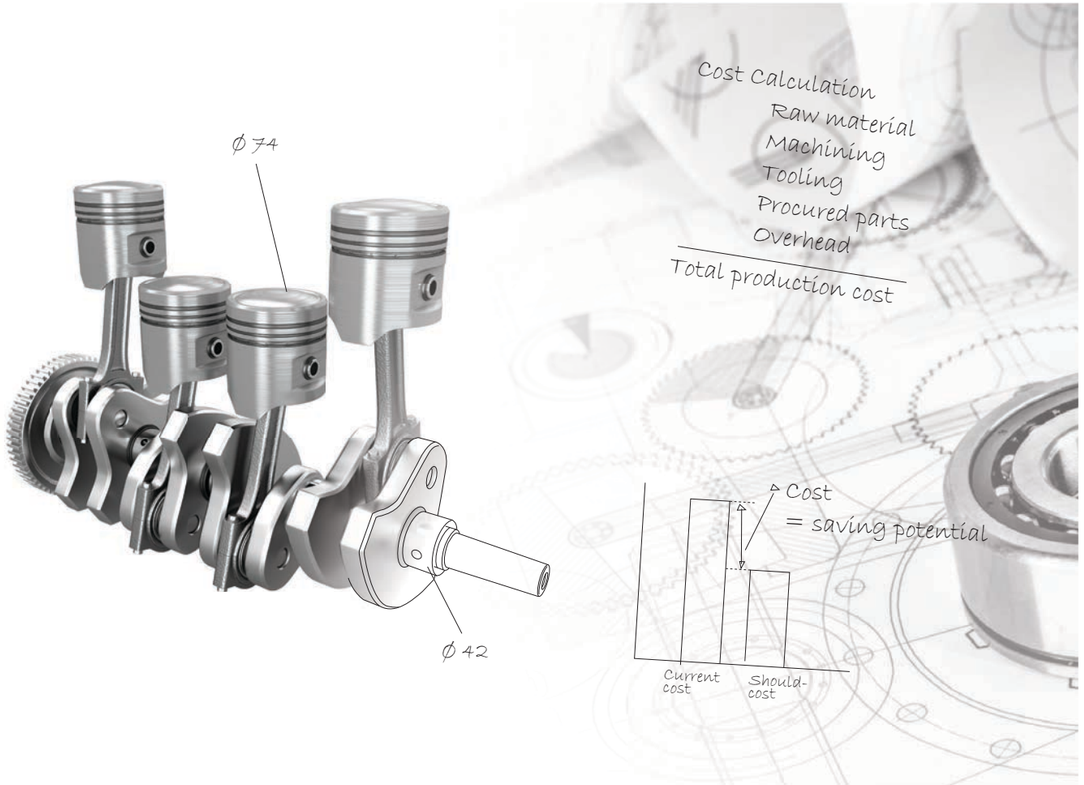
BEST PRACTICE ORGANIZATION COST & VALUE ENGINEERING

MARKET STUDY

FEV CONSULTING

The objective of Cost & Value Engineering is, to meet client requests at minimum costs and consequently to maximize product value.

CONTENT



DEAR READER,

Increasing global competition and high cost pressure from customers are forcing companies to develop cost-efficient product solutions. The goal is to meet client requests at minimum costs.

The far more ad-hoc and project-related cost-cutting measures are no longer sufficient to use quickly, cost-effectively and with high quality for complex customer requirements. This requires a holistic and interdisciplinary Cost & Value Engineering (C&VE) process to go beyond departmental and company boundaries, to develop innovative approaches for cost reduction. In addition the early involvement of C&VE in the product development process is important, because the highest effect on the cost structure is in the early phases of product design. Along the whole Product Life Cycle a continues process of cost monitoring and cost reduction needs to be implemented, so called "Product Life Cycle Cost Management". For comprehensive and sustainable implementation of cost-reduction measures, anchoring C&VE in the enterprise organization is required.

Currently, many different ways of organizing C&VE are installed in companies. Many companies are establishing a C&VE team in their organization. A clearly defined target picture or reference is not indicated.

FEV Consulting conducted a market study to analyze and compare existing forms of C&VE organizations in order to develop and to describe an approach for a „Best Practice Organization (BPO)". In the center of the investigation is the evaluation of the "Cost & Value Engineering Performance Index (C&VE-PI)", an intersectoral benchmarking parameter for quality, effectiveness and efficiency of C&VE organizations. Reflect your own C&VE performance with the results of our study! We would appreciate to discuss potential optimization measures to your C&VE organization with you

Alexander Nase, Managing Director

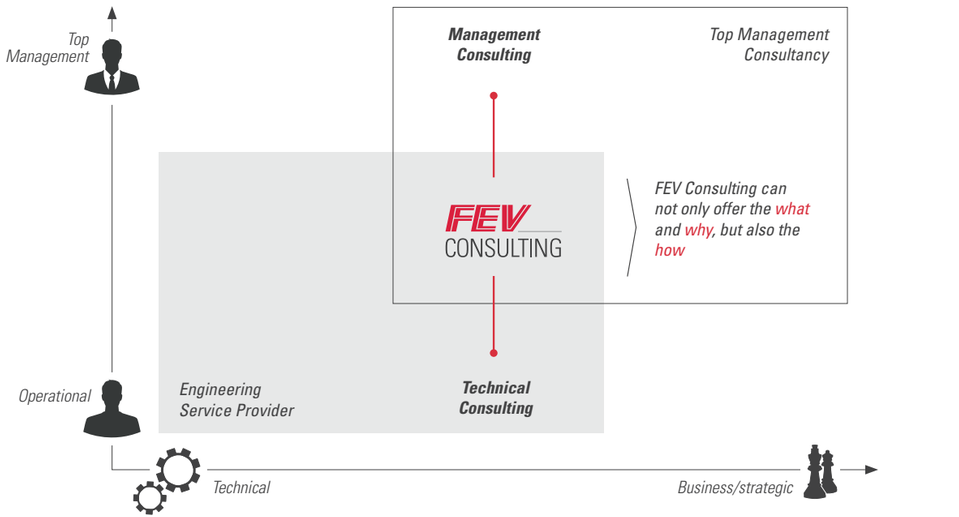
ABOUT FEV CONSULTING

FEV Consulting combines top management consulting expertise with the technical capabilities and knowhow of the FEV Group. Our deep industry knowledge enables us to create pragmatic solutions to some of the most pressing and complex issues facing today's enterprises. The impact of new product and process technology, shifting patterns of supply and demand, an ever increasing customer, investor and legislative requirements create new, intense pressures on businesses worldwide.

FEV Consulting works with clients to address their most challenging business issues. We employ an analytical approach, proven capabilities and – most importantly – real industry knowledge to resolve clients' problems. The current business environment is more complex than ever. Management at both large and small companies faces numerous critical challenges:

- Setting and effectively deploying successful business strategies
- Developing the right products for the right markets, and at the right price point
- Optimizing value chains and acquiring skills for new product and process technologies, and new markets
- Increasing sales and margins with increased product complexity and shorter product life cycles
- Maximizing returns on assets in the expanding global network

FEV Consulting features experienced consultants with real industry knowledge and the backing of FEV's extensive technical expertise to provide solutions that are both practical and sustainable.



ABOUT VKA RWTH AACHEN UNIVERSITY

The Institute for combustion engines (VKA) covers classical engine topics like innovative engine constructions and research and development (R&D) of new more efficient and clean combustion processes. Further on topics with more and more rising importance like the virtual engine development, research at the complete powertrain of hybrid powertrain and engine electronics are considered.

For development of new cutting edge technologies in the power train under the given framework conditions and increasing customer requirements is to consider the cost efficiency of great significance. Cost & Value Engineering (C&VE) also is an important element of the product development at VKA.

- Analysis of flow and fuel-mixture generation with experimental and numerical methods. The experimental parts contain special optical measurements
- Optimization of the combustion process, connected with simulations
- Fundamental research for exhaust after treatment systems for gasoline and diesel engines in VKA's chemistry and catalyst laboratory and on the engine test bench
- Optimization of combustion processes with regard to alternative fuels, research on optimal synergy effects of fuels and new combustion processes
- Engine construction for series production and implementation of innovative solutions, especially for an increasing of the variabilities as variable valve trains or variable compression ratios
- Examination and optimization of the acoustical engine and vehicle behavior in experiments and by numerical tools
- Fundamental research and development on fuel cells and hybrid powertrain systems
- Control systems for vehicle powertrains and vehicle calibration

OBJECTIVES AND STRUCTURE OF THE STUDY

OBJECTIVES OF THE STUDY

With the help of this study, the following key questions should be answered in C&VE Organization:

- How is C&VE currently anchored in technically oriented enterprises in the organization and what level of maturity has C&VE achieved?
- What strategic objectives are achieved with C&VE and what benefits does C&VE provide?
- What are key success factors for an effective C&VE?
- What are the requirements of the C&VE team?
- What are the methods, tools and software solutions used?
- What is a "Best Practice Organization" for C&VE and which key fields of action are in place to achieve "Best Practice"?

STRUCTURE OF THE STUDY

The study is divided into four key areas and provides a comprehensive overview of the Cost & Value Engineering organization

STRATEGY & OBJECTIVES

- Strategic Direction and Goals
- Implementation Degree in Business
- Global Challenge
- Success Factors
- Next Steps for the Further Development

PROCESSES

- Integration of C&VE in the Product Development Process and the whole Product Lifecycle
- Main Tasks and Activities
- Interfaces & Communications

ORGANIZATION

- Organization Forms
- Penetration of the Global Organization
- Teambuilding, Skills & Competencies
- Interdisciplinarity & Integration of external Stakeholder
- Challenges in the organization

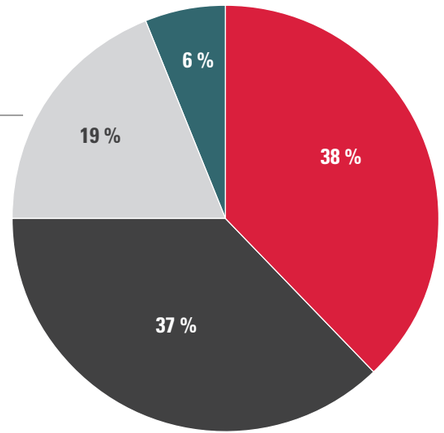
METHODS, TOOLS & SOFTWARE

- Applied Methods & Tools
- Implemented Software Tools
- Data Quality and Availability
- Benefits of Software Tools

STUDY POPULATION

The focus of the study lies in the Automotive & Automotive Supply Industry as well in Machinery & Equipment fields

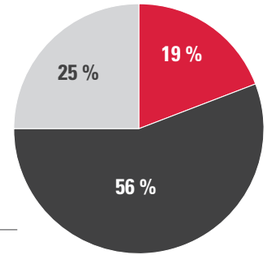
INDUSTRY

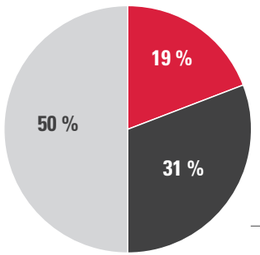


- Automotive & Automotive supplier industry
- Machinery & Equipment
- Commercial Engines
- Other technical areas

- ≤ 1.000
- 1.000 bis 10.000
- ≥ 10.000

SALES VOLUME IN MIO. €





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NUMBERS OF EMPLOYEES