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Mastering Complexity

Focus Topic Paper

Value Chain Excellence. Strategy to Results.

CAMELOT
Management Consultants

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Dr. Josef Packowski · Managing Partner
Libor Kotlik · Managing Partner

Authors

Dr. Veronica Schey · Principal
Dr. Robert Roesgen · Principal

Project team at Camelot Management Consultants AG

Michail Heinmann · Visionary Officer
Martin Boyksen · Consultant

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Preface

Facing accelerating competition in recent years, many firms across industries were required to truly embrace their customers: Firms widened their product portfolios to address new markets with even shorter life cycles, offered fully customized products to satisfy unique customer needs and reshuffled their supply chain setups to ensure timely delivery of short-notice orders. Frequently, limited cost transparency nebulized the financial benefits (or harm) of these actions. On top of that, many factors outside the firm's control like volatility, globalization or technology also affected the entire value chain. The result of all these factors has become very obvious: Complexity! Complexity can be considered now one of the worst nightmares for companies' management.

The necessity to deal with a broad and complex product portfolio makes dealing with supply chain cumbersome and drives cost up. For example, research and development cycles accelerate, new product introduction and marketing efforts rise, inventory coverage for an increased number of items is required, commissioning becomes increasingly complex, etc.

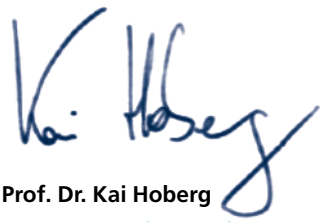
While most firms started to identify the negative impact of complexity, many firms are still struggling with a coherent approach to manage complexity along their value chain.

As most management topics, mastering complexity is characterized by management of trade-offs. While a product portfolio, which matches the majority of customer demands is supposed to lead to higher sales, the challenge is to recognize where over-fulfillment is not or barely valued. Complexity might increase unnecessarily. Companies have to identify the right level of complexity.

In many situations firms try to leverage best-practices outside their respective industry. How would Google manage the supply chain complexity if Google was operating in the process industry?

There is no solution that fits all. It is important to have clear defined interfaces and a comprehensive tool set that can be used as plug-and-play. This tool set should contain approaches for reducing complexity, but as well managing complexity since a certain degree of complexity may be valuable. Smartly broadening the portfolio offering through delayed completion, or communalization at bill of material components level differentiates leading companies from companies with mediocrely average returns.

In the end, each firm has to identify its individual approach and make a deliberate decision on the individual complexity sweet spot. However, having the appropriate tool set on hand to avoid unnecessary complexity can be considered key.



Prof. Dr. Kai Hoberg
Associate Professor of Supply Chain and Operations Strategy
Kühne Logistics University – The KLU, Hamburg

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Executive Summary

Does the flap of a butterfly's wings in Brazil set off a tornado in Texas?

In the last few decades, the exponential technological development resulted in a globalization level unseen before – today's world is more connected than ever. Companies are facing extremely volatile markets; customers are more and more demanding: feedback is available real-time through several channels and competition is fiercer than ever. Products, services, systems, and processes are all driven by technology advances and have very short life cycles. As a result, complexity at all levels of organizations has increased significantly.

Some companies are better prepared than others to cope with those complexity challenges.

As innovation leader for strategies and business model innovations in the process industries, Camelot continuously focuses on the analysis of industry trends and the development of state-of-the-art methodologies. Thereby our customers are provided with pragmatic, industry-specific approaches and competitive strategies to deal with current and future challenges. This focus topic paper provides insights into the challenges of increasing complexity within the globalizing business environment. It illustrates how mastering complexity can be leveraged comprehensively to boost business performance.

Figure 1: Complexity drivers

There are good reasons explaining why there is such a dramatic increase in complexity. While some of the complexity drivers are out of control of individual companies, others are not (figure 1). To assess the readiness of leading companies in different industries and to capture their perception about complexity, we conducted a survey among more than 150 managers of leading companies. The results confirm the relevance of the topic. Mastering complexity is increasingly on the agenda of top managers.

There are three reasons to put mastering complexity on your agenda:

- **Good complexity management means lower operating cost:** effective complexity management identifies and eliminates superfluous cost, inherent in an excess of products, services and underlying processes. Pruning of the right elements without losing sales, or a competitive advantage, is the key to success. Following our approach, and the application of comprehensive mastering complexity techniques, an EBIT improvement potential of 3-5% points on operating cost can be typically achieved. Additionally, net working capital reduction can significantly improve financial performance.
- **Good complexity management means higher transparency:** growing company size and expansion of business operations cause opacity and thus exacerbate rational decision-making. Complexity management facilitates creation of transparency of processes and responsibilities in order to identify and implement best practices for success.
- **Good complexity management means faster responsiveness and improved business agility:** accelerating dynamics can be observed in current business environments. Quickly responding to these changes and adapting to new challenges is indispensable to sustain competitive advantages.

This paper provides you with:

- An overview of the drivers of complexity and its various accompanying trade-offs
- Holistic approaches to identify and master complexity across various dimensions
- Tools and methodologies to sustainably optimize complexity levels

You should read this paper:

- If you are searching for a methodology, which distinguishes value-adding from value-destroying complexity
- If you are faced with an excessive product and customer portfolio and search for opportunities to balance differentiation vs. cost optimization
- If you already achieved a successful complexity reduction and seek more insights on how to avoid reemerging superfluous complexity

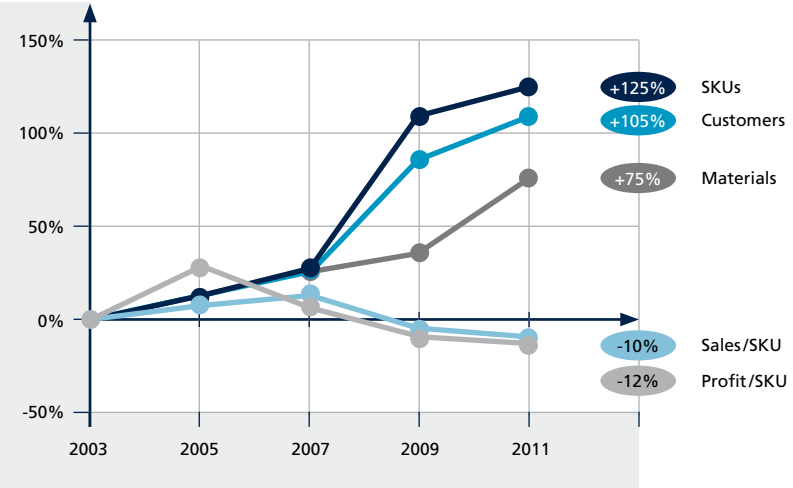
Or just simply, if you finally want to have a sustainable best-in-class approach implemented!

1 The Complexity Challenge in a Dynamic Environment

1.1 Roots of Complexity

A fundamental objective of most companies is growth and expansion in promising markets. Operations in globalizing markets entail increasing competition and specific challenges. In order to adapt to these challenges and to expand in a competitive environment, enterprises differentiate their products and services. As a consequence stock keeping units (SKUs), customers and materials have all increased strongly over the last years; for example displaying the development of complexity in a leading Chemicals industry company (figure 2). However sales and profits did not increase in proportion, leading to declining margins and decreasing average figures per SKU.

Complexity and profitability development in a Chemicals company



2003: Reference value

Figure 2: Development of portfolio complexity and its consequences

PROJECT EXAMPLE

According to our survey, 89% of the participants, state that they perceive a significant growth in complexity over the last years. 83% of the participants confirm that the current level of complexity at their respective companies is already too high and 80% say they expect complexity within their companies to increase even further (figure 3). While complexity is specially perceived in the Consumer Goods industry (96%) the highest expectations for increase are in the Chemicals industry (82%). The exceptionally high value might be explained through the expected focus on increased downstream activities.

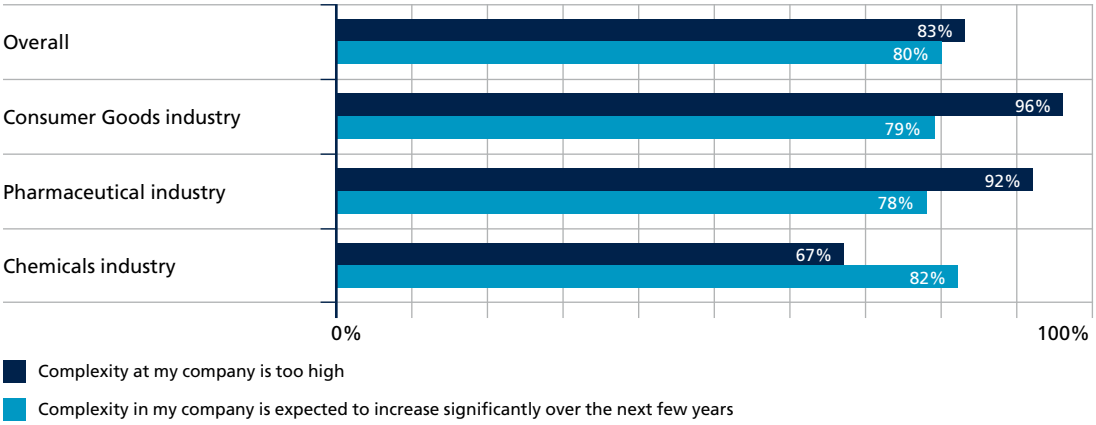
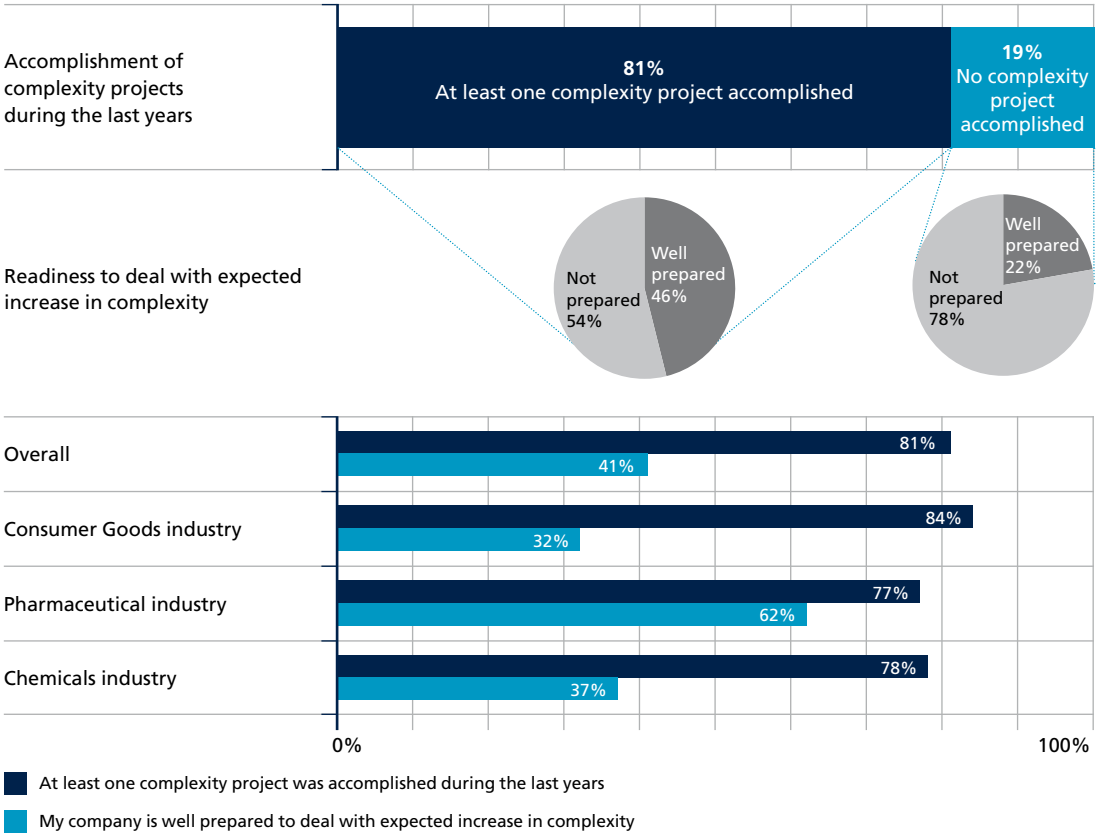


Figure 3: Survey results – Perceived present and future complexity

Most surprisingly, 81% of the respondents state that their respective companies already have deployed at least one complexity management project (figure 4). Despite this experience they still do not feel well prepared to face the expected increase in complexity. Complexity is more and more on the agenda of top management, and for good reasons.

Figure 4:
Survey results – Accomplished complexity projects vs. perception of being well prepared



It seems obvious, that companies which have gathered experience performing complexity projects feel better prepared than those who have not yet accomplished a complexity project. While almost every second company (46%) where at least one complexity management project has been completed, feels well prepared to deal with future complexity, less than a quarter of the companies which have yet to accomplish a complexity project feel well prepared (22%) (figure 4).

The development of complexity typically follows a pattern, which can be viewed as the 'complexity trap' (figure 5). Very often this process remains unnoticed by companies, until performance starts to decline.

Figure 5:
The complexity trap

Price competition and flat, or declining, revenues force companies to expand into new market segments. This **growth strategy** requires **product customization** and assimilation of additional processes in order to cope with new external requirements. The expanded product portfolio triggers shorter product life cycles, unsynchronized processes and opaque organizational design.

Overall **complexity cost** increases, destroying all benefits from the additional sales. In addition, **efficiency declines**, due to lower economies of scale and scope, flat learning curves and dispersion of organizational activities. Increasing cost might initially be offset by higher product prices, but this product differentiation results ultimately in a competitive disadvantage. Again price pressure emerges, forcing companies to conduct further expansion projects. The cycle repeats and continuously reduces competitiveness.

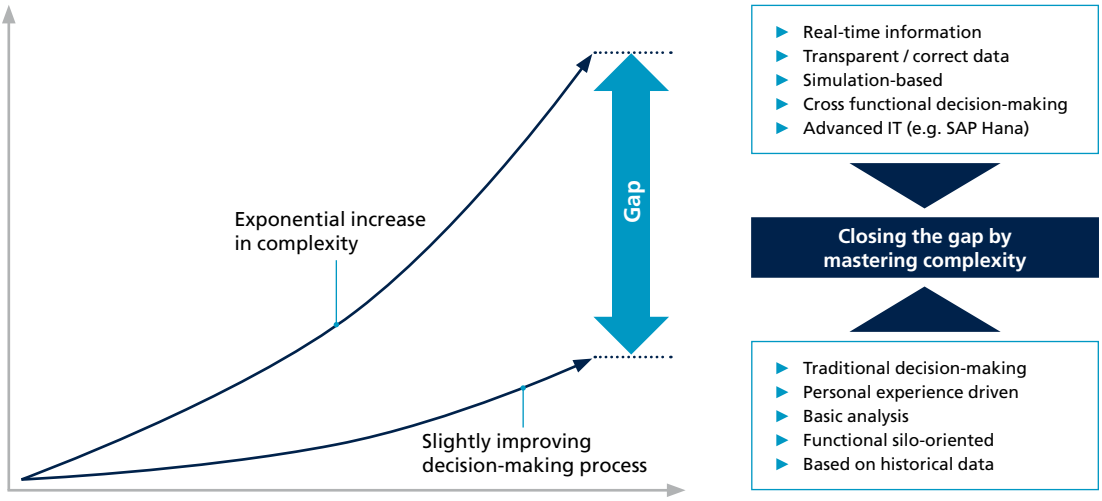
Being caught in such a complexity trap has several consequences such as:

- Unprofitable products/SKUs in portfolio
- Unprofitable customers served
- Over-customized product range
- Potential silo thinking within organizational functional units
- Necessity to adapt to multiple technological developments

To make things even more difficult, some industries such as the Pharmaceutical industry are extremely regulated and the adherence to regulations in multiple countries can also lead to additional complexity. In those cases the question is rather how to best manage the existing complexity.

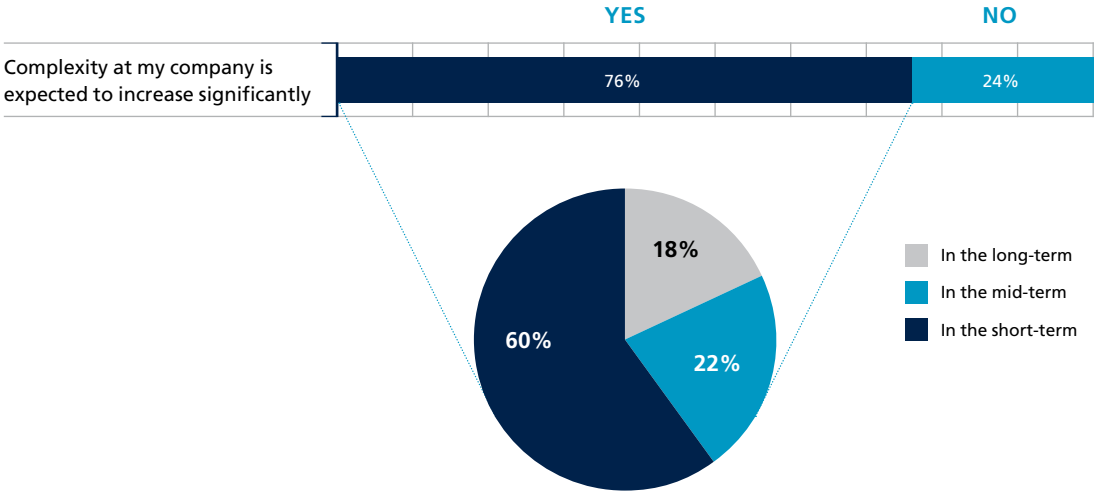
The fast-paced proliferation of complexity creates a gap between the variety of offered products and services and the required expertise to cope with corresponding challenges (figure 6). New approaches to master complexity and increasing transparency are necessary to close this gap and to enable rational decision-making.

Figure 6:
Development of complexity



Our survey confirms that this trend of increasing complexity will accelerate (figure 7). While 76% expect complexity within their company to increase, 60% of them expect the complexity to increase to a significant extent in the short-term and additional 22% in the mid-term. Complexity and its effective management can therefore be expected to become an ongoing business issue.

Figure 7:
Survey results – Expectation of increasing complexity in a changing economic environment



Systematic complexity management is considered a key success factor and competitive advantage especially in the Consumer Goods industry (79%) and in the Chemicals industry (81%) and is therefore high on the agenda of most of the top managers within those industries (figure 8).

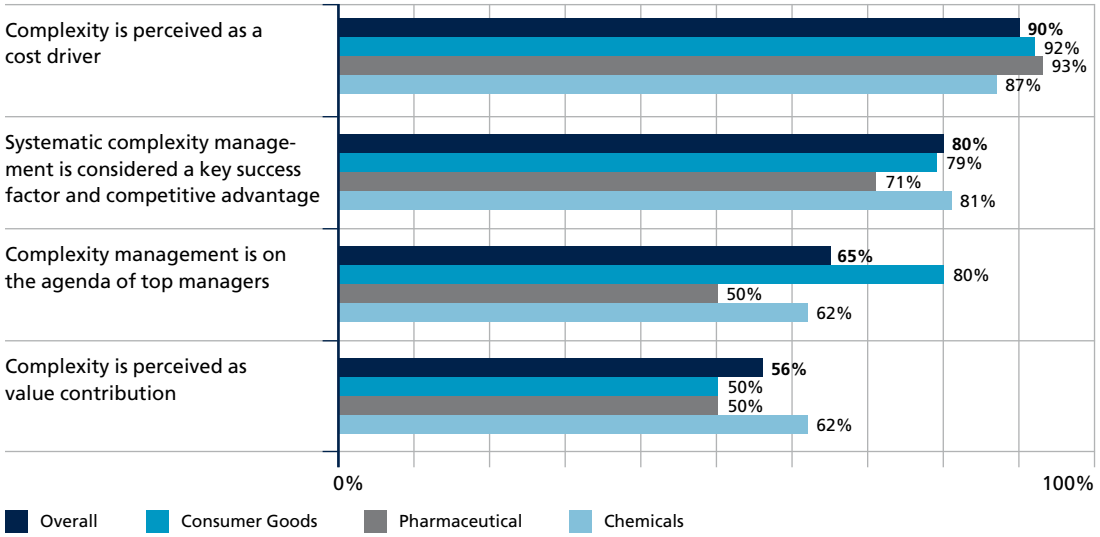


Figure 8:
Survey results – Perception of complexity

CAMELOT Complexity Diamond (CCD)

Complexity is more than proliferation of products and customers. Although a high number of products and customers are the most common sources of complexity, a huge variety of additional facets affect a company's course of action. Based on our experience working with leading companies in the Consumer Goods, Pharmaceutical and Chemicals industries, we developed a comprehensive methodology to identify and tackle complexity at all levels – the CAMELOT Complexity Diamond (CCD).

CAMELOT's complexity diamond differentiates three dimensions of complexity (figure 9) covering complexity in an holistic way:

External	Which exogenous requirements significantly influence scope of actions? • An organization has to analyze these requirements carefully and incorporate the implications into its corporate strategy and operational decision-making.
Go-to-market	Which requirements need to be fulfilled to satisfy market demands? • Market demands need to be fulfilled to generate revenues, but corresponding cost must be analyzed with scrutiny.
Internal	Which organizational structures and processes are required to generate highest value? • The internal configuration determines the foundation for value creation.

Each dimension of the CCD can be further divided into facets, which ultimately determine complexity. Sources of complexity are therefore manifold. Likewise management has to respond to a multitude of challenges imposed by complexity and needs to incorporate its interrelations into rational decision-making. The three dimensions and their related effects typically have consequences along the entire value chain (figure 9).

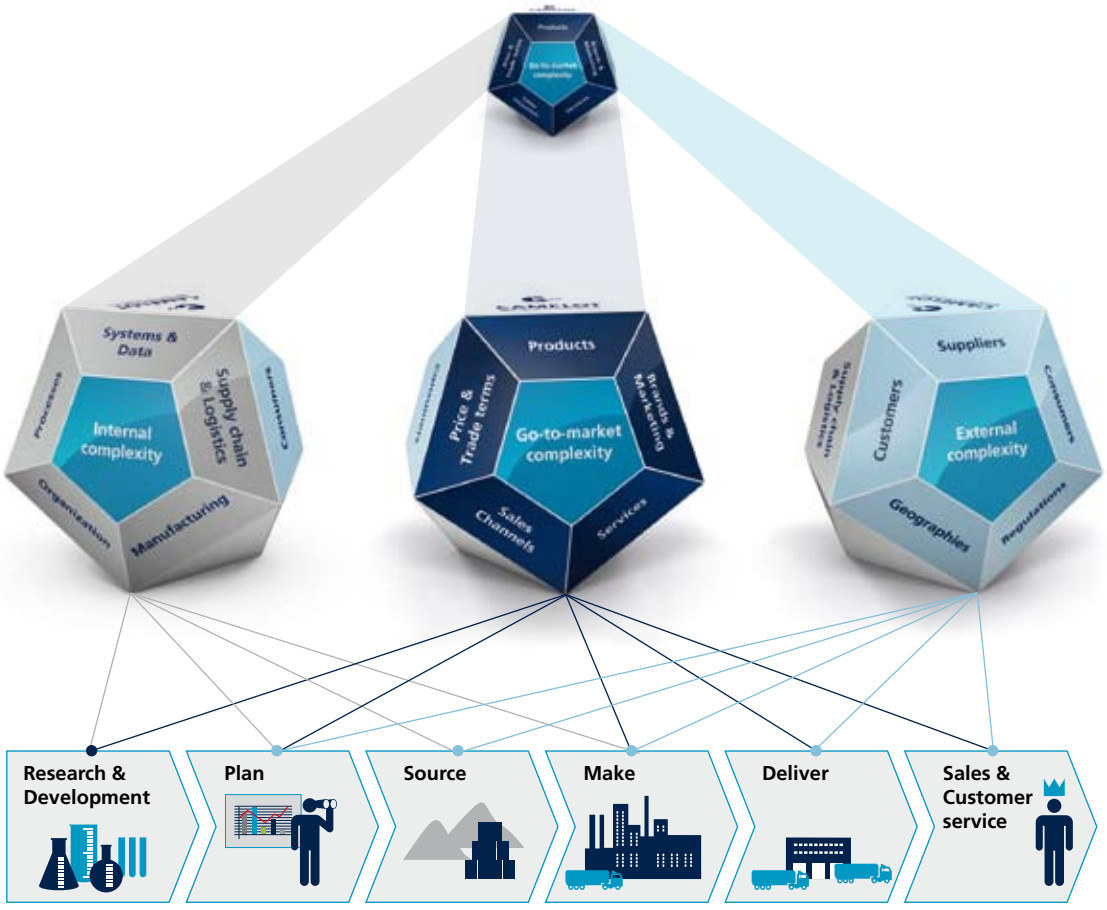


Figure 9:
CAMELOT Complexity Diamond (CCD) – How single facets affect the whole value chain

Based on the CCD, we are able to assess complexity in a standardized way across all relevant facets. As a result, each of the CCD facets is rated in terms of level of excellence in a 'stages of value' model (figure 10). Companies receive direct feedback and get first insights on improvement areas and are finally rated with a one to four carats system and presented with action plans on how to reach the next level in the stages of value model.

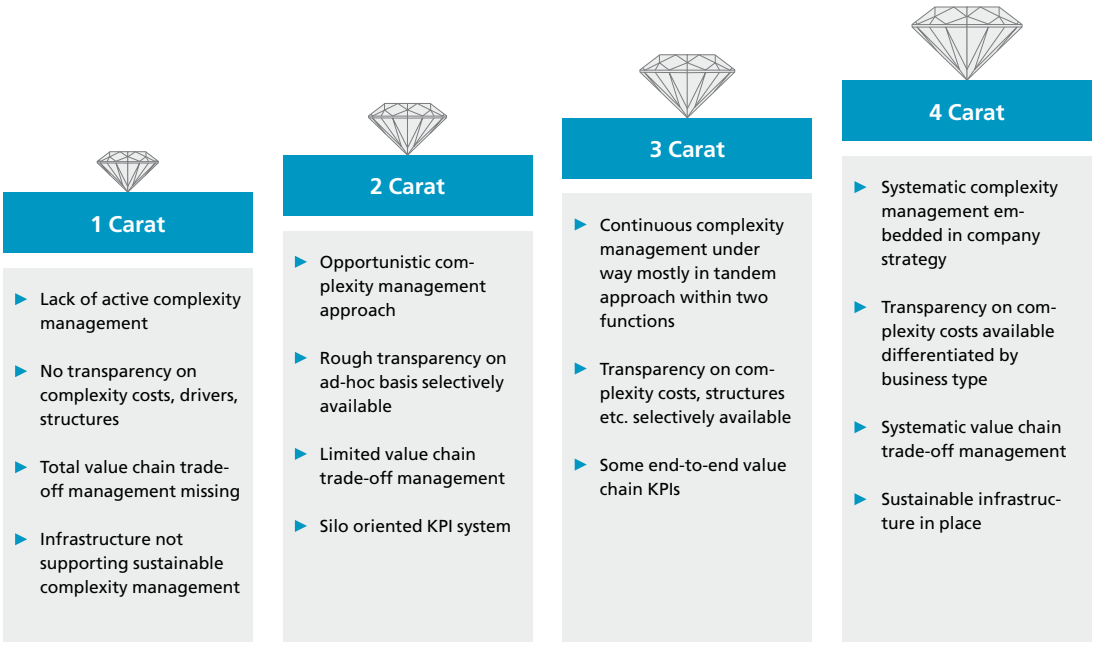


Figure 10: Stages of excellence: One to four carats stages of value model

In our survey of over than 150 managers from leading companies, the respondents were asked to assess their company's complexity along the complexity diamond facets. In terms of complexity dimensions, the external dimension is rated as the most complex (63%) shortly followed by the internal dimension (60%). Almost all facets from the external dimension are considered as significant complexity drivers (figure 11).

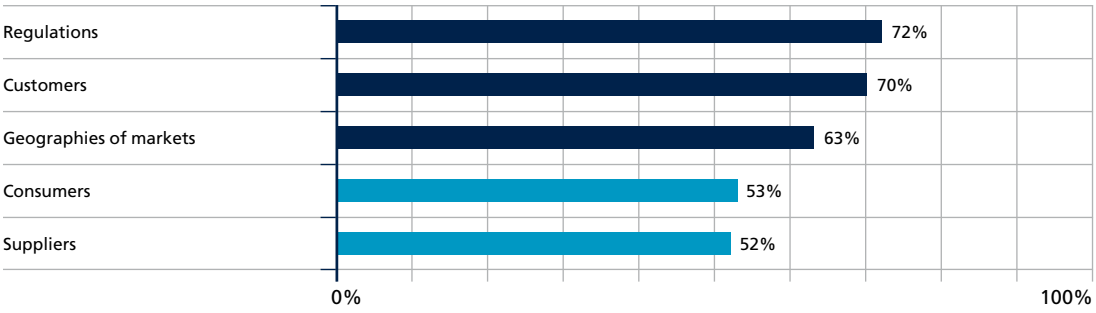
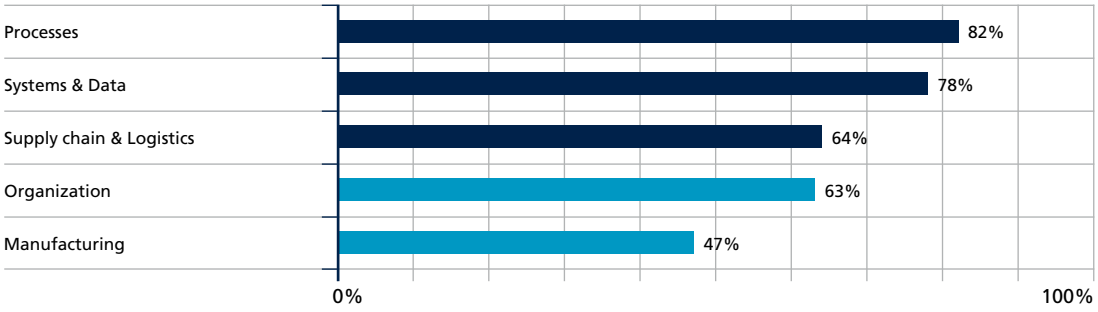


Figure 11: Survey results – Assessment of external complexity facets

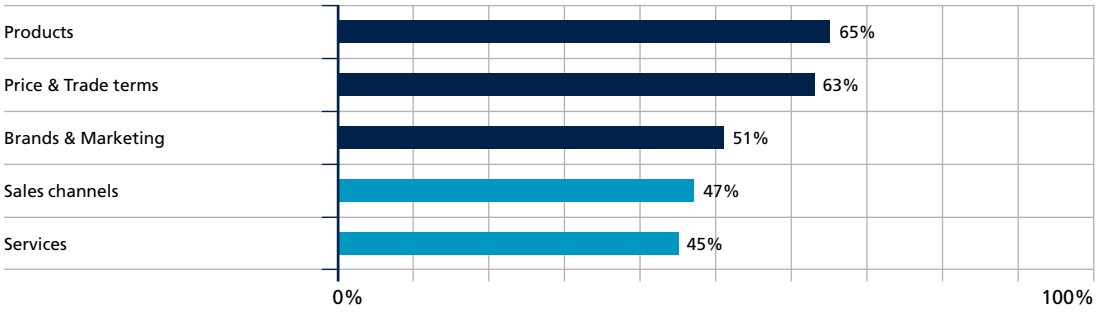
The most complex internal dimension facets, according to the survey respondents are the facets 'Processes' and 'Systems & Data' followed by 'Supply chain & Logistics' (figure 12).

Figure 12:
Survey results – Assessment of internal complexity facets



The go-to-market dimension is rated as the least complex dimension (54%). It is the dimension where managers feel most comfortable, presumably as they feel they have most control over it and recent projects focused on that area (figure 13).

Figure 13:
Survey results – Assessment of go-to-market complexity facets



Overall, according to our survey, the managers perceive the facets 'Processes' followed by 'Systems & Data' and then by 'Customers' and 'Products' to be the most affected by complexity. The facets 'Services' and 'Sales channels' are perceived as the least complex.

To illustrate it better, some examples of the complexity across the value chain include…

Research & Development	Resources and effort disperse over too many development projects without clear focus, limiting efficiency and time-to-market for a new product.
Plan & Overhead	Intransparent coordination across divisions and functions and unclear lines of accountability exacerbate a responsive execution of orders.
Source	Proliferation of materials and suppliers decrease economies of purchasing scale and constitute higher transaction and administrative cost.
Make	More manufacturing assets are required, while operating efficiency declines, caused by shorter lead times, frequent change-overs, lower utilization rates and higher levels of scrap and rework.
Deliver	Logistics, warehousing and administrative cost increase, whereas flexibility and customer responsiveness are hampered.
Sales & Marketing	Overly complex, historically grown pricing and trade terms with limited link to performance, might result into unnecessary risks if a smaller customer with better conditions is acquired by a larger one.

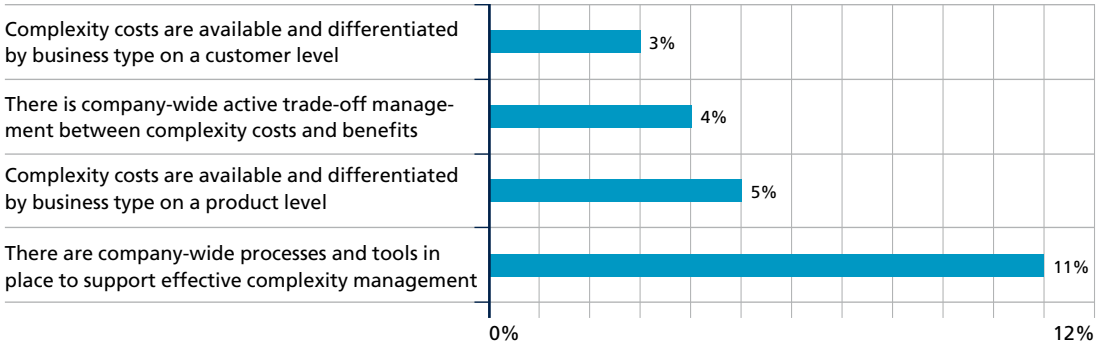
It becomes apparent, that complexity must be approached along the entire value chain. The potential to cope with complexity is tackled, once typical reductions of end-product variety are complemented with adequate strategies for each complexity facet. Even conjoint complexity mitigation initiatives with business partners can bear a tremendous improvement potential.

> *"Complexity issues cannot be solved through single functions. It is a business topic and as such requires top management attention!"*
>
> *Global Supply Chain Manager - Chemicals*

1.2 Complexity is Characterized by Trade-offs

According to our survey, most companies are often not well prepared to deal with complexity in its different facets. As an example, only 11% state that they have processes and tools available to support complexity management. In terms of visibility, only 6% of the survey participants report that complexity costs are available and differentiated by business type or product level. Even more striking is the fact that only 3% of respondents state that complexity cost are available and differentiated by business type on customer level (figure 14).

Figure 14:
Survey results – Mastering complexity maturity levels



Internal vs. external complexity

Internal complexity is inherent within the configuration of an organization. External complexity facets comprise of all entities outside the organizations, but have a significant effect on its growth and performance. Thus external complexity influences the scope of action and performance along different divisions and internal factors of companies. An organization has little or no control over this environment, but constantly needs to monitor and adapt to these external factors with a proactive or reactive response. Therefore the proliferation of internal complexity results from managerial decisions and the tendency of organizational systems to generate intricacy, due to the necessity to cope with external factors. Go-to-market complexity constitutes a middle path between the two other dimensions. Market demands are translated into internal products, processes and configurations in order to cope with these requirements. Potential gaps between offer and demand can only be closed once interactions of all three dimensions purposefully relate to each other.

In order to cope with this abundance of external requirements, several levers must be applied, where each of the levers should contribute to the fulfillment of requirements in a partial but distinctive way.

A major issue for complexity management is to achieve the optimal state, where internal arrangements match external complexity (figure 15). This overlap enables to skim highest consumer added-value whereas deviation from this match mitigates value creation and should be avoided. For example, a product portfolio, which matches the majority of customer demands leads to high sales, whereas overfulfillment is not or barely valued. In this case, complexity increases unnecessarily but could be avoided with complexity management techniques. In an optimal state external and internal complexity match each other.

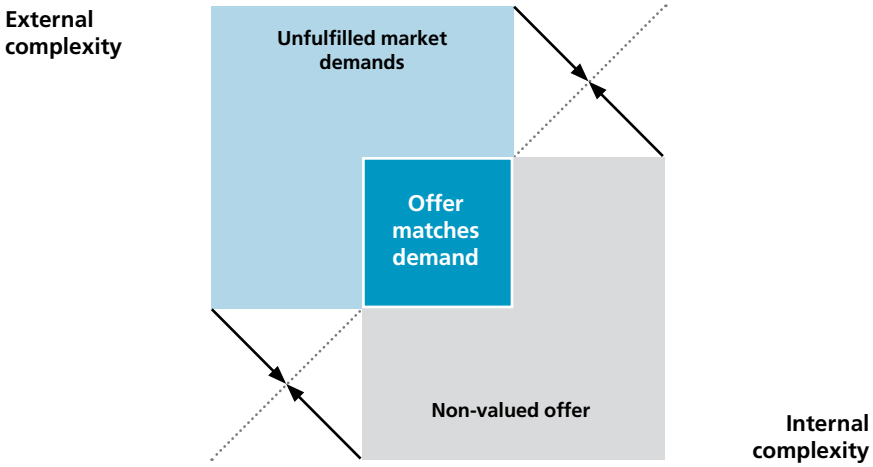


Figure 15: Illustrative external and internal complexity match

Good vs. bad complexity

Frequently complexity is deemed to be inherently negative. Indeed if complexity is not managed it can harm business performance in a multiplicity of functions within a company. Nevertheless complexity can be a value-adding factor as well. It is necessary to distinguish between 'good' and 'bad' complexity.

Good complexity…

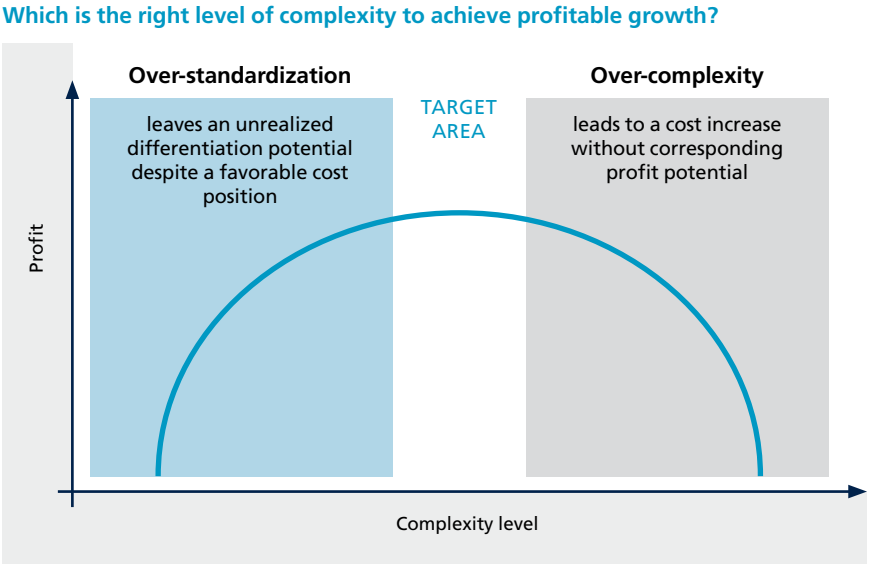
… generates revenues
… suits individual customer requirements
… enables differentiation from competition
… opens new markets

The increasing differentiation attracts customers, resulting in higher revenues, though at a diminishing rate. Once the positive impact of additional cumulative revenues is overcompensated by complexity cost, cumulative profit of the product portfolio declines. Conceptually, the optimal degree of complexity can be derived at the point, where marginal revenues due to added complexity equal its marginal cost. 'Bad' or over-complexity, which exceeds the target area (figure 16) should be avoided, whereas over-standardization misses potential revenues, which can be captured by adjusting the level of good complexity.

Bad complexity…

… deteriorates margins
… requires additional resources and specialists
… impacts flexibility and responsiveness
… reduces economies of scale and scope

Figure 16:
Illustration of target complexity level



As a conclusion complexity should be analyzed from the perspective of a 'net-benefit', comparing cost and benefit of complexity. For this purpose, benefits and costs of complexity need to be made transparent and quantified. The optimal degree of complexity, not a minimum level of complexity should be chased. In this case the increasing variety will be sufficiently rewarded by the market in the form of higher prices and ample revenues, which offset the additional cost. This balance between standardization and differentiation has to be reviewed with scrutiny and constantly adapted to dynamic changes in the organization and its environment to ensure sustainable results.

Visible vs. hidden complexity

Some sources of complexity are easy to identify. For example a differentiated product portfolio, exceptional service or marketing campaigns can be directly perceived by customers. This complexity is typically valued and paid for and can be determined as **visible complexity**. Contrary the corpus of complexity is created within structures of a company, and is not explicitly perceived by customers and the environment and potentially even difficult to identify by a company itself. The latter can be described as **hidden complexity**.

Frequently only the visible 'tip of the iceberg' is tackled by standard complexity management approaches (figure 17). However the basis of complexity is hidden, but must be identified and managed, particularly as it can be considered one of the biggest levers.

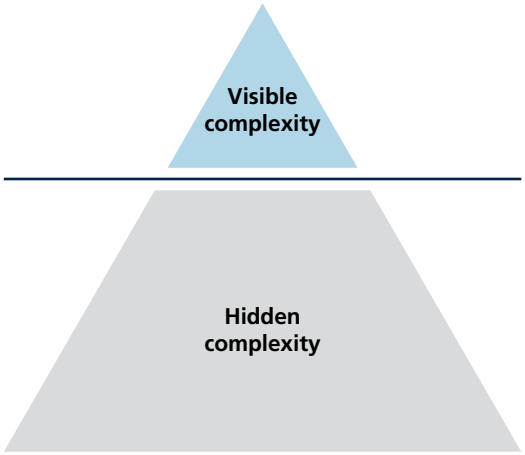


Figure 17:
Illustrative ratio of visible and hidden complexity

Comprehensive management addresses both types of complexity. Most visible and hidden complexity drivers are interrelated. For example certain hidden processes are indispensable to generate a visible product. Advanced approaches do not manage a single complexity driver separately, but rather identify interrelations and improve overall complexity levels (figure 18).

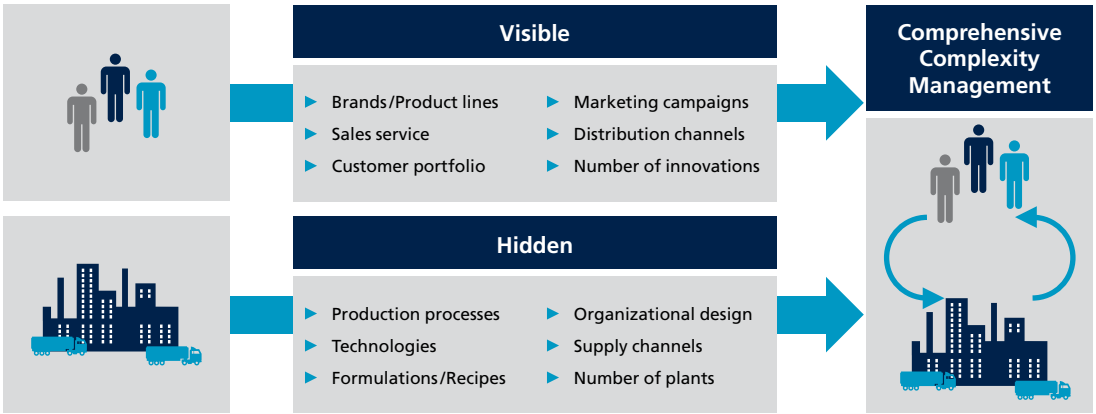


Figure 18:
Interrelations of visible and hidden complexity

2 Mastering Complexity

Complexity facets and related effects are manifold. Likewise a multiplicity of approaches can be suitable to cope with the respective challenges. Incorporation of all factors enables to **master complexity** which goes beyond the classic isolated approach. Pro-forma deleting again and again SKUs (which are anyway often 'inactive') does not add value – an holistic approach is required.

The key to success is to…

… create transparency,
… identify, where and how complexity can be approached most effectively,
… and sustainably implement best-practice solutions.

To deal with the challenges, imposed by superfluous complexity, four steps build the foundation to master complexity effectively (figure 19).

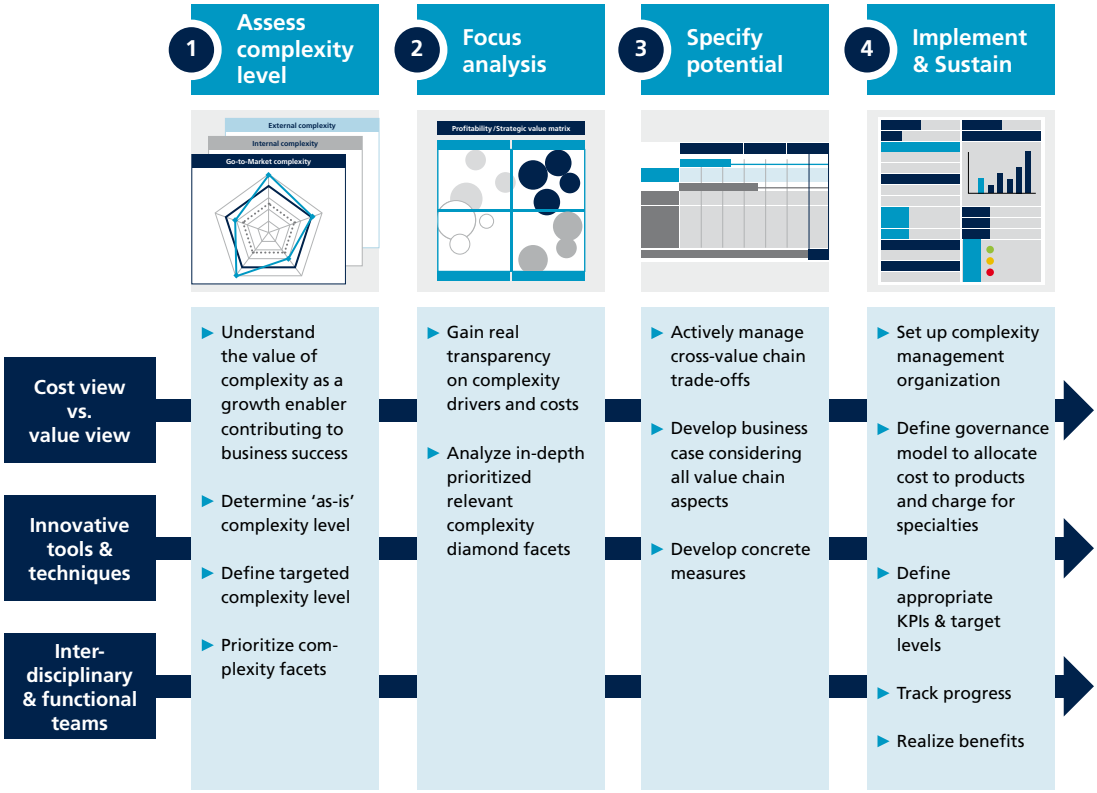


Figure 19:
Four steps to master complexity

The overall target is to determine optimal strategies for each complexity facet. Depending on the type of complexity (good or bad complexity) and on the time of occurrence (current or future complexity), suitable strategies can be derived. The most commonly applied one-time complexity reduction projects are complemented with strategies to exploit and even increase value-adding complexity and to avoid reoccurrence of superfluous future complexity (figure 20).

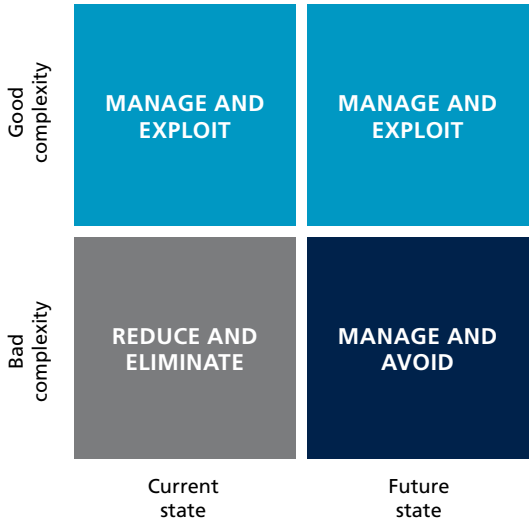


Figure 20:
Optimal strategy to cope with complexity

"adidas plans to slash the number of products it offers by a quarter to improve its profitability – we just have too many products."

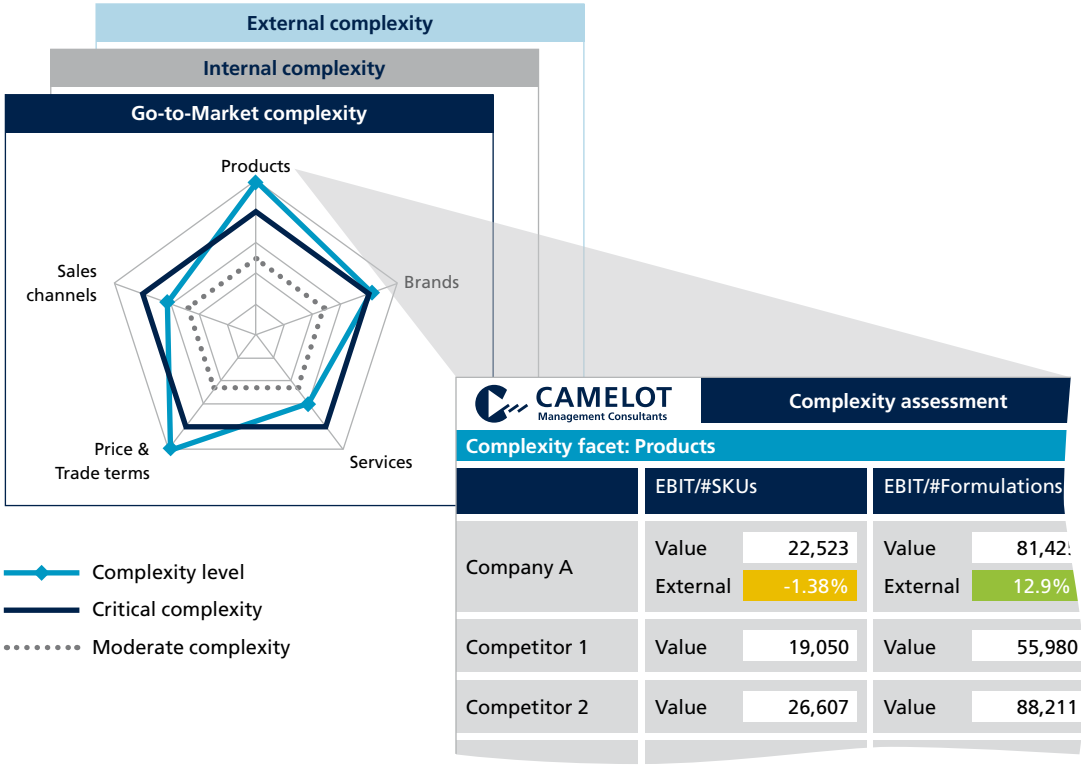
adidas CEO Herbert Hainer to FAZ (2012)

2.1 Assess Complexity Level

Understanding the complexity facets and their effects is the prerequisite to develop effective strategies to cope with complexity and to more successfully enforce corporate goals. The assessment identifies, measures, and analyzes complexity in order to investigate how a system is affected and to estimate, where a significant complexity reduction potential is expected to occur. Thus it serves as a foundation for applying mitigation strategies with a clear focus, based on rational decision-making. Blindly reducing complexity without comprehensive transparency increases the risk of eliminating competitive advantages or that the effort might exceed the benefits of the initiative. The structured assessment enables to tailor a comprehensive complexity strategy, which regards both, value-adding and value-destroying complexity, ultimately leveraging overall outcome.

Based on structured questionnaires and data extracts, a complexity profile (figure 21) can be generated. It visualizes in which specific facets of each dimension, high complexity exists. Complexity facets with critical complexity should be investigated in-depth, as to how this complexity can be effectively reduced. If sufficient resources are available, selected drivers within facets with moderate complexity can be further analyzed as well, whereas effort is focused on the most affected facets. Success rates of complexity initiatives can thus be increased.

Figure 21:
Complexity profile



2.2 Focus Analysis

In the focus analysis, transparency of complexity drivers and its true profitability is enforced. Redundant elements, such as non-value-adding or substitutable SKUs, customers, modules and systems, under leveraged suppliers, inefficient processes and/or obsolete systems are identified with the aid of selected tools. Thereby effective reduction levers are segregated from strategic elements in order to derive the right strategies.

As a first step, the real cost of complexity needs to be assessed and made transparent. Furthermore the adaptation of activity-based costing enables visibility of complexity-induced cost and to allocate it accurately to functions. Often required data is not easily available. In those cases, a pragmatic allocation based on pre-defined criteria is required. As an example, change-over cost might be allocated to products depending on the volumes produced. To accurately distribute the complexity cost, it might be more wise to shift the complete change-over cost to the 'lower volume' product causing the change-over or to make a 50-50 allocation. Through implementation of consistent rules, real cost become visible and awareness and accountability for complexity cost becomes possible. The resulting pocket margin reflects complexity-adjusted profitability (figure 22). With increased transparency true profitability of products can be determined. With slight adaptations, the same methodology can be applied on elements such as whole product lines or brands, production processes, markets or customer (-segments).

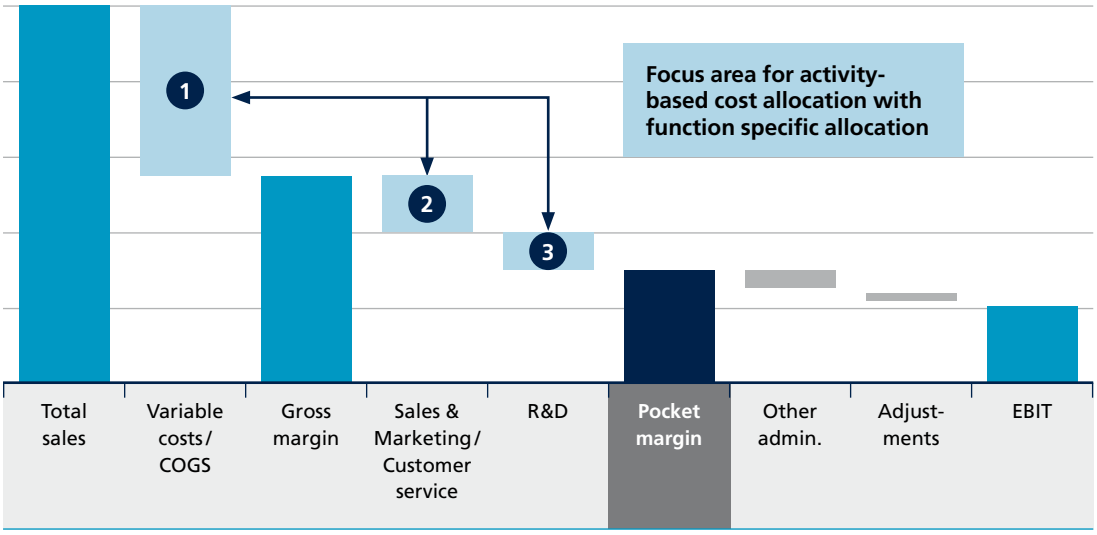


Figure 22: Activity-based costing adequately allocates complexity cost

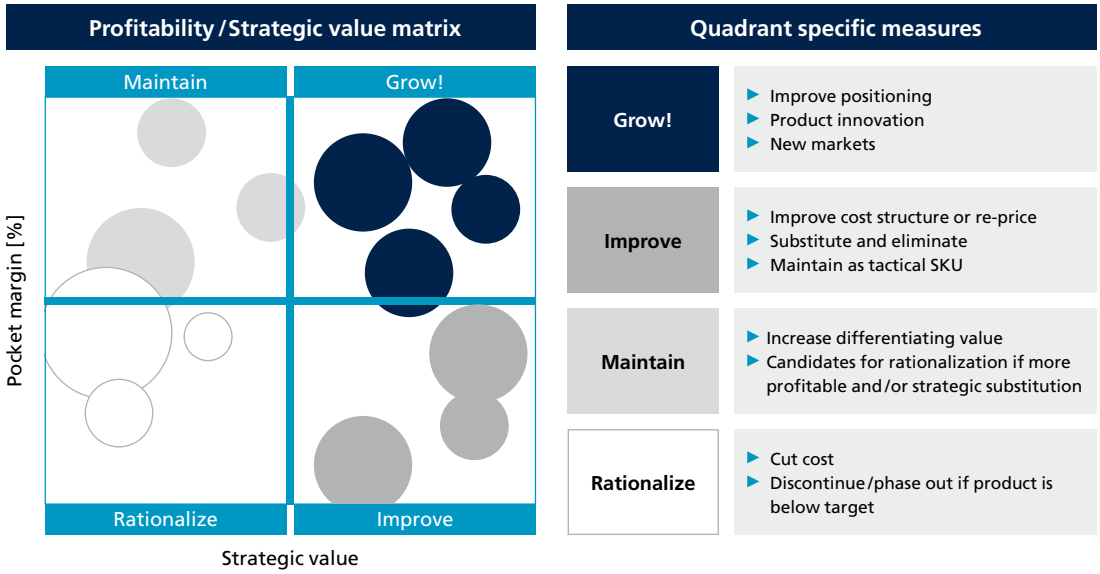
A strategic value assessment complements the profitability analysis, in order to identify the competitive advantage of SKUs. Qualitative and quantitative methods, weighted according to their individual significance enable to generate a clear view on the current and future value of analyzed SKUs within a company.

Factors, which are assessed in order to determine the strategic value include:

Customer loyalty:	Does the SKU contribute to improve customer loyalty?
Market growth:	Can a significant market growth be expected?
Sales/market share:	Does the SKU contribute to significant share of current and future sales?
Complementary effects:	Does the SKU affect the overall value of the product portfolio?
Substitutability:	Can the SKU easily be substituted by another one?

Understanding the combination of true profitability and the strategic value, enables a company to derive optimal strategies for each product (figure 23). Products with high profitability and a high strategic value are core elements of a company, to be developed and exploited. On the contrary, SKUs, which are low in both dimensions, can be rationalized without losing a competitive advantage. Elements in the remaining quadrants can be manipulated via selected counter-measures, to improve their positioning and to generate the highest value.

Figure 23:
Profitability and strategic value matrix



2.3 Specify Potential

In the next step the impact of concrete counter-measures is specified. Examples show that due to the application of comprehensive complexity management techniques, typically EBIT improvement potential of **3-5% points** on operating cost can be achieved (figure 24). Additionally, there is the added one-time bonus of a reduction in net working capital.

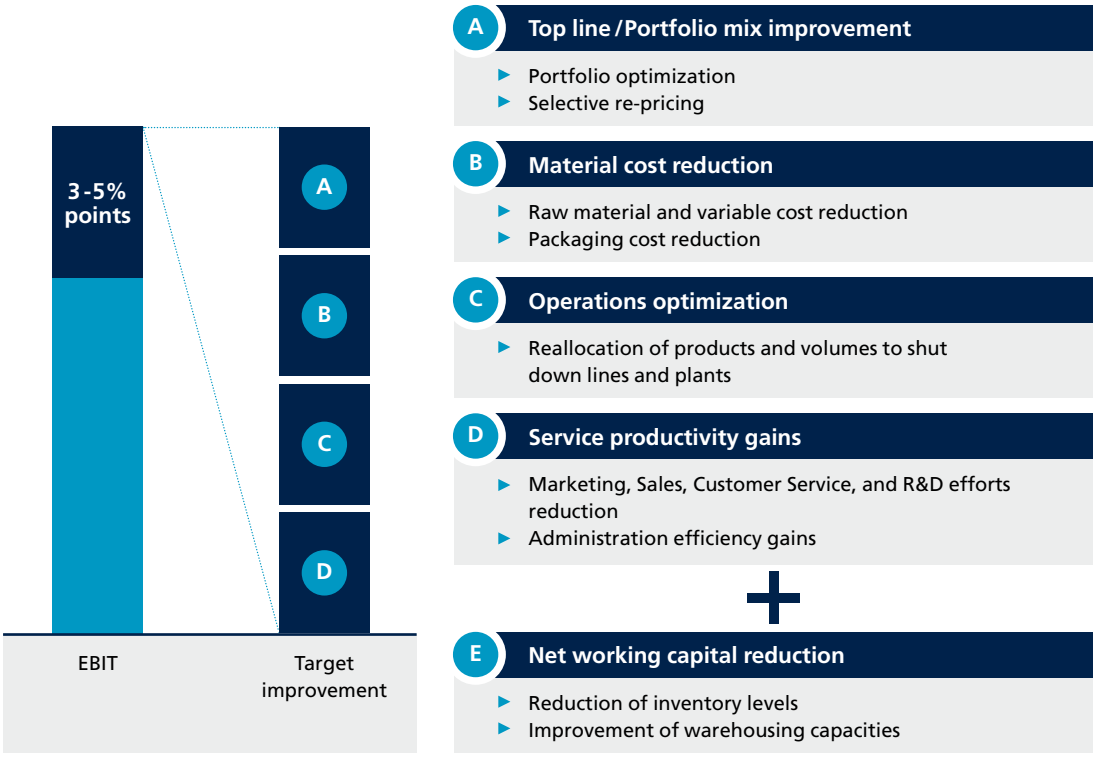
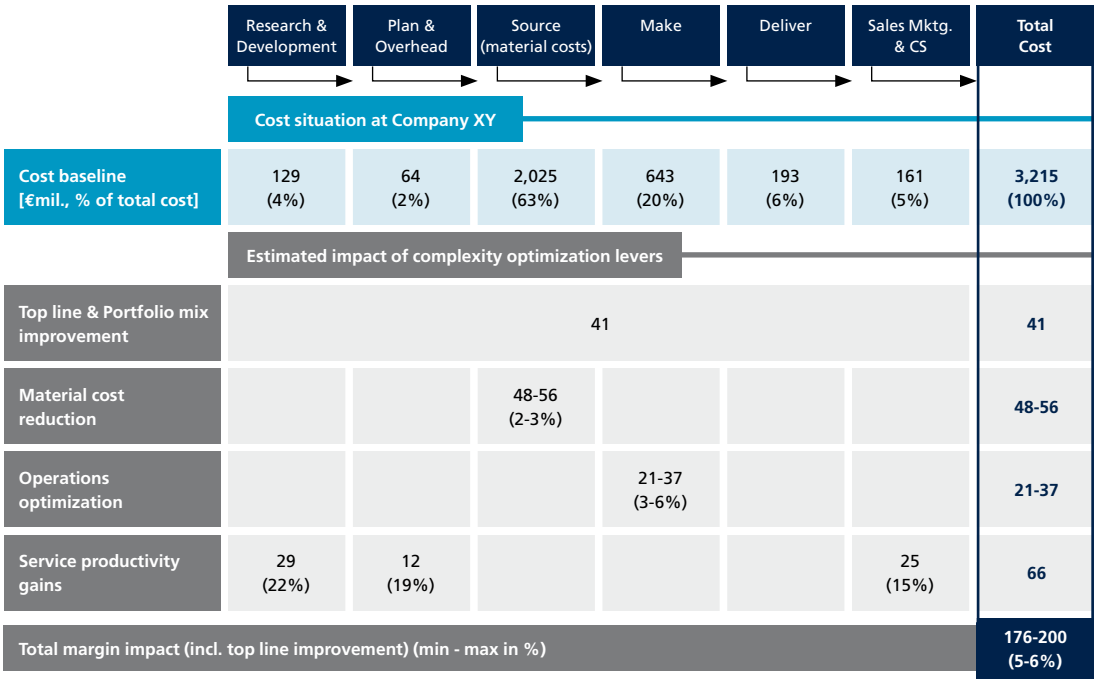


Figure 24: Financial improvements on the top and bottom line

Overall cost savings can be broken down to the estimated cost reduction potential within each function along the value chain. Partial but distinctive target improvements can be assigned to the various functions, typically leading to overall margin improvements of 3-5% points, or even higher in selected cases as illustrated on a specific project example (figure 25). In this case the team identified a total margin impact of 5-6% points. The need for senior management to address complexity is obvious.

Figure 25:
Benefits along the entire value chain

PROJECT EXAMPLE



	Research & Development	Plan & Overhead	Source (material costs)	Make	Deliver	Sales Mktg. & CS	Total Cost
Cost situation at Company XY							
Cost baseline [€mil., % of total cost]	129 (4%)	64 (2%)	2,025 (63%)	643 (20%)	193 (6%)	161 (5%)	**3,215 (100%)**
Estimated impact of complexity optimization levers							
Top line & Portfolio mix improvement	41						**41**
Material cost reduction			48-56 (2-3%)				**48-56**
Operations optimization				21-37 (3-6%)			**21-37**
Service productivity gains	29 (22%)	12 (19%)				25 (15%)	**66**
Total margin impact (incl. top line improvement) (min - max in %)							**176-200 (5-6%)**

Camelot developed a complexity counter-measure toolbox that consolidates a multitude of tools and strategies that can be implemented to mitigate complexity across all dimensions and its facets. The optimal strategy, tailored to the right complexity driver, determines success rates of complexity initiatives beyond a 'one size fits all' application.

The number of counter-measures is manifold and can be clustered according to their impact on the respective complexity facet (figure 26). Nevertheless, one and the same counter-measure may have an impact on more than one complexity facet.

Counter-measures	Complexity facets				
	Customers	Products	Processes	Suppliers	SC & Logistics
Product / Customer C-tail pruning	XX	XX	X		X
Component standardization		XX		XX	
Minimum order quantities			XX		XX
Lean planning (e.g. Rhythm Wheel)			XX		X
Suppliers consolidation			X	XX	
Price & Trade terms simplification	XX		X		
Re-pricing		XX			

X some impact **XX** significant impact

Figure 26:
Overview of selected counter-measures

The toolbox consists of counter-measures that are obvious and directly associated with complexity management. There are, counter-measures that are not primarily linked to complexity, that have a significant impact on either the complexity level or on mastering complexity, e.g. lean planning approaches such as the Rhythm Wheel, were developed to stabilize and ease the planning and manufacturing processes. Additionally, the counter-measures include mechanisms / decision processes that support organizations to deal with the remaining complexity in selected focus areas, or selected complexity facets.

Depending on the identified levels of complexity at each facet they are prioritized and mapped.
To each of the prioritized complexity facet the Camelot toolbox proposes an appropriate selection of suitable counter-measures. Linked to the complexity metrics, the toolbox also provides the overall expected impact for combinations of counter-measures that have certain interdependencies depending on the selection.

2.4 Implement and Sustain

Nothing is more important when mastering complexity than ensuring sustainability of results. Best-in-class companies have realized the need for having company-wide complexity (governance) organization in place responsible to address complexity as a business issue. When a suitable structure does not exist, often organizational changes are required, such as creation of gate-keeping processes or cross-functional teams with the special task of being responsible for product life cycle management.

Being able to set targets and to monitor progress through a specific KPI set linked to the expected potential is a key element for success (figure 27). The KPI set to be chosen depends very much on the prioritized complexity facets that need to be tackled. Therefore not only the target values but also the chosen KPIs may change over time. Those complexity indicators can be implemented into scorecards to continuously track and trace complexity. Unnoticed re-emergence of superfluous complexity can thus be avoided.

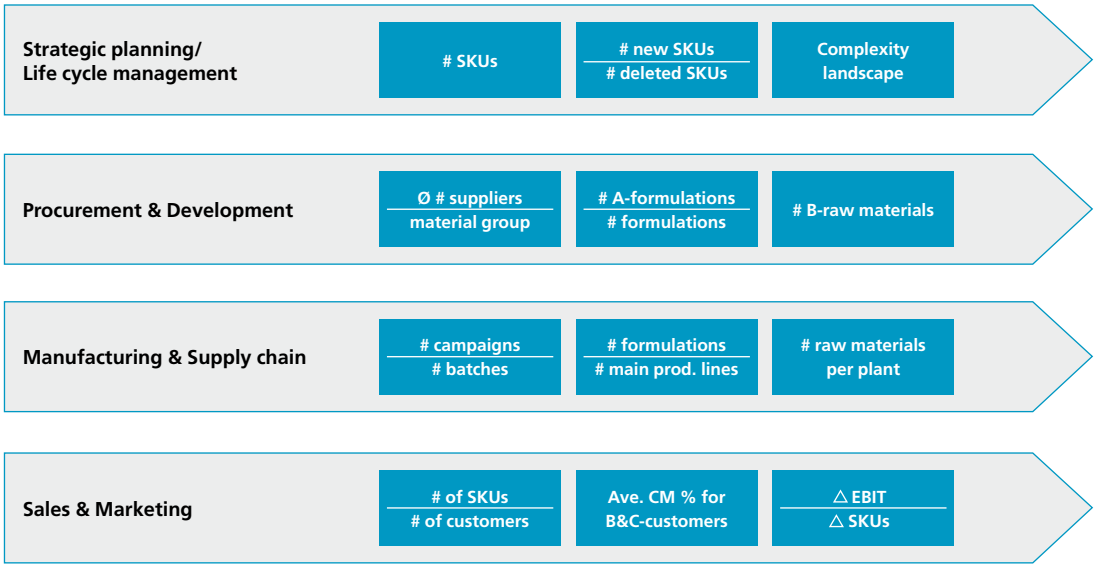


Figure 27: Selection of complexity metrics

A continuous surveillance of these metrics enables to…

… understand complexity and its root causes
… enforce complexity-related corporate goals, based on complexity scorecards, which introduce target figures and personal accountability
… unveil developments over time and to prevent reemergence of complexity

A comprehensive master plan with all the defined actions needs to be created and tracked ideally following its implementation status according to the 'hardness grade' logic (Figure 28).

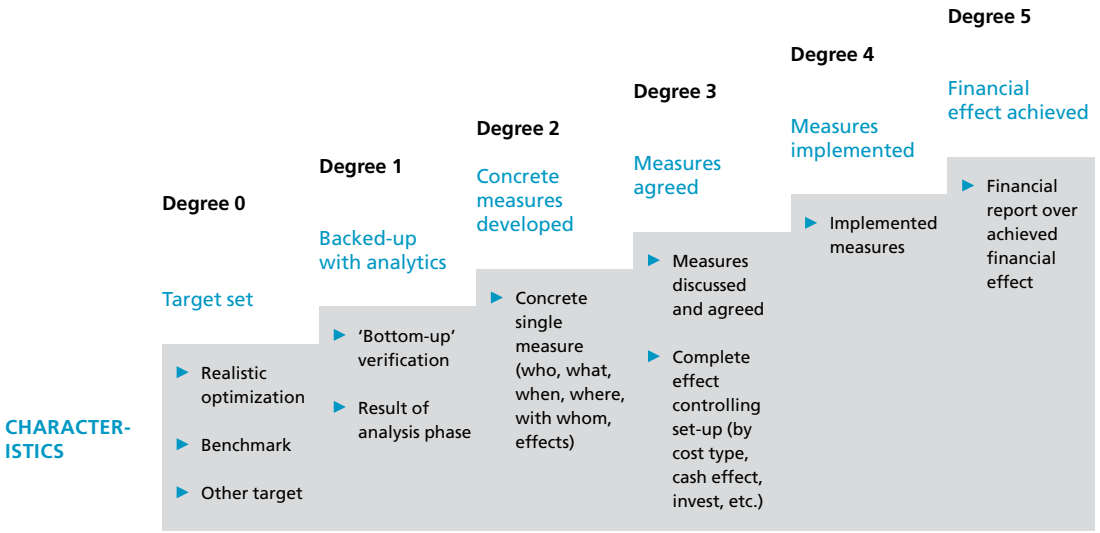


Figure 28: Description of implementation degrees, following the hardness grade logic

To ensure transparency and realization of the identified improvement potential, we recommend using simple reporting mechanisms following a traffic-light methodology to monitor status and ensure timely results and regular communication of risks and actions.

By continuously monitoring the defined complexity metrics a closed loop is created that tracks the impact of the selected counter-measures and enables a flexible adjustment if required.

> *"Streamline assortment with judgment"*
>
> *Kneipp to LMZ (2012)*

3 Application of Complexity Management Techniques – A Case Study

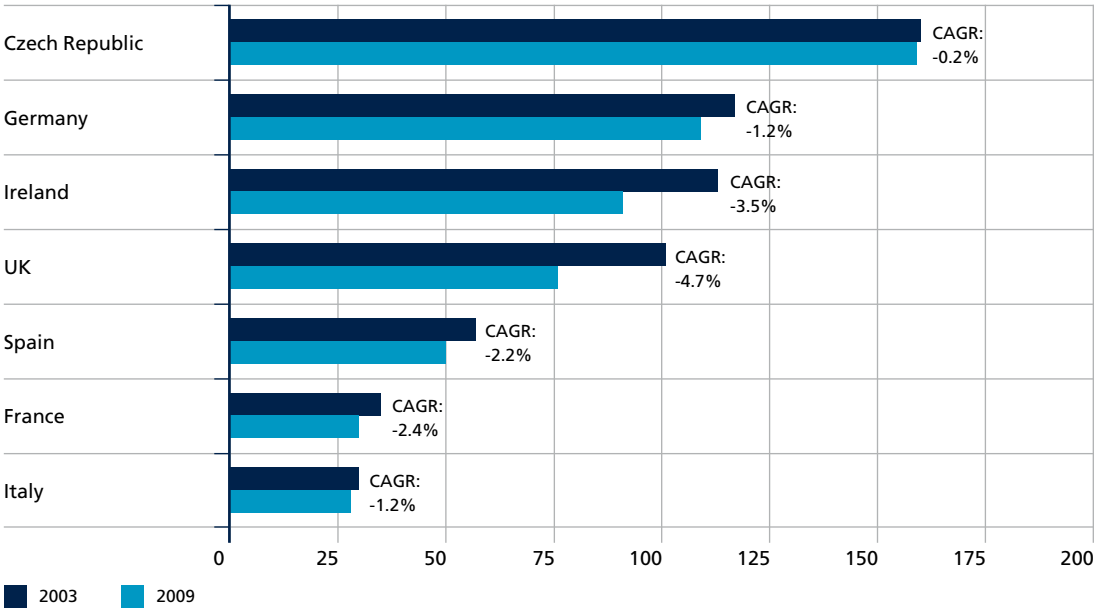
3.1 Challenge

A major global player in the beer industry faced several challenges and set-up a project covering several work streams targeting significant and sustainable cost reduction in order to achieve its aggressive profitability and efficiency targets.

The company as a whole was confronted with increased complexity after acquiring several smaller players.

The beer industry was facing – as it continues to face – increasingly price pressure as well as declining sales volumes in the large developed markets. This was due not only from declining per capita consumption (figure 29) but also from the fact that those developed markets are additionally suffering from stagnant to declining population growth and are more and more price sensitive.

Figure 29:
Per capita beer consumption for selected countries, in liters per annum



Source:
Camelot analysis based on 'Brewers of Europe 2010 Beer Statistics'

At the same time, the company and most competitors responded with an exponential in its portfolio complexity to compensate volumes through increased shelf presence. The company ended up being over proportionally complex. It captured the benefits in the market, but suffered the operational consequences. The customer experienced a dramatic increase in terms of SKUs as well as significant complexity of point of sales material and was well prepared to deal with the situation in terms of systems and existing processes. The IT landscape was very fragmented and legacy driven.

3.2 Approach

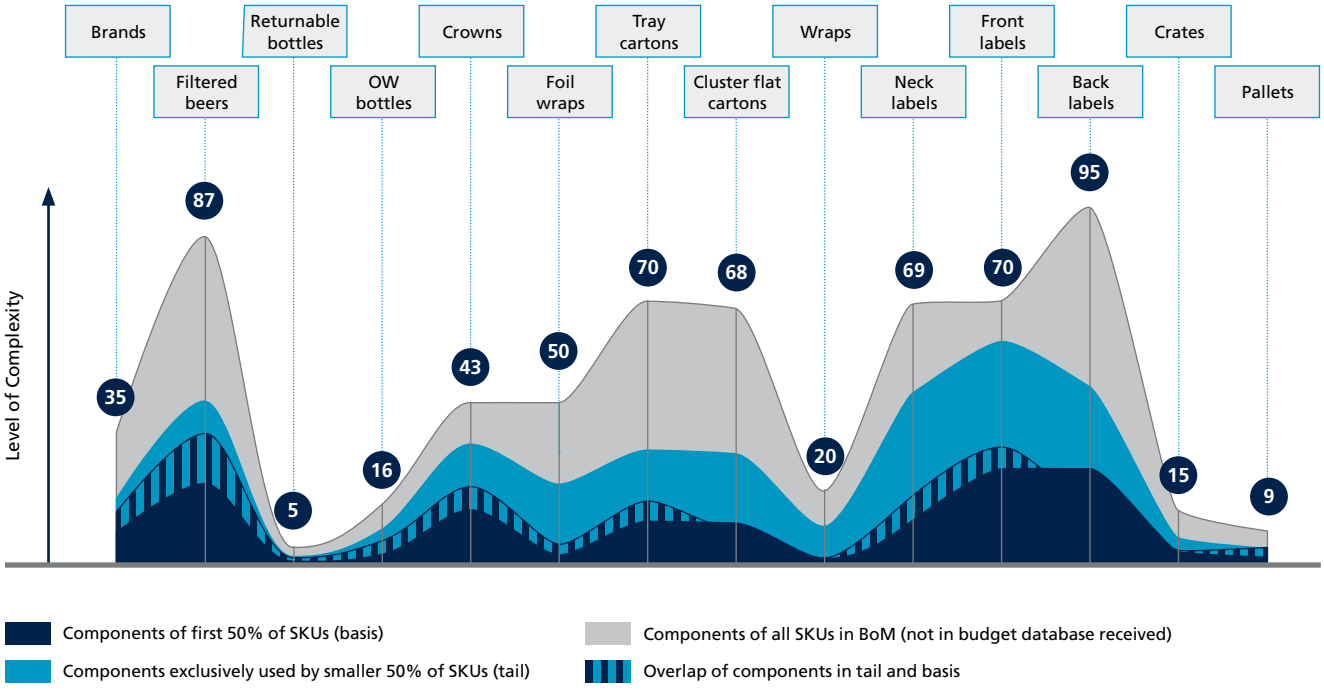
After successful assessment of the individual complexity facets, the teams worked in parallel covering the following prioritized facets:

Go-to-market complexity

- Products: identification of complexity cost and strategic value by product. For those products with high strategic value drive the harmonization of packaging materials, labels specifications, crowns, clusters of languages to support international deployment, assessing the product complexity at the bill of material level (BoM) (figure 30) to identify commonalities, as well as opportunities for bundling or simplification.

Figure 30:
Project example – CAMELOT's Complexity Landscape (CCL)

CAMELOT's Complexity Landscape visualizes the overlap between the components used at BoM level



External complexity

- Suppliers: Redesign the whole procurement process ensuring early involvement of multifunctional representatives when designing specifications. Bundle volumes at the BoM level and capture benefits through a quick pragmatic strategic sourcing approach for selected categories and consolidation of the supplier base.

Internal complexity

- Systems & Data: design a consistent IT landscape prepared to deal with the increased complexity and enable transparency and consistency across regions and business units. Ensure consistency and quality of all master data following a zero tolerance holistic master data management approach.
- Supply chain and logistics: reduce the supply chain complexity through redesign of the complete sales and operations planning process incl. definition of tools, processes roles and responsibilities.
- Manufacturing: redesign the production footprint considering answers to marketing specific questions such as: "Can Belgian beer be produced outside Belgium?" Decide on different types of breweries clusters – differentiating between complexity specific breweries and lean breweries to deal with the different market requirements such as very special promotional items with high seasonal impact and run-through standard products with huge volumes.

3.3 Results

There was a paradigm shift at the company as a whole: it was identified that mastering complexity has both, a financial and a strategic impact and that complexity is not only a cost driver.

Comparison among breweries highlighted that reducing complexity has a significant financial impact at plant level, mainly for bottling.

Reducing the number of bottled SKUs by 25% led to savings of ~9% of the addressable spend (raw material excl. empty one-way bottles) or around 4% of the total operational variable production cost. Those values are all net – which means taking into consideration a decrease in revenues through lost sales.

Simplification of major complexity drivers and de-proliferation of SKUs frees-up capacity which can be equated to the output of two smaller plants.

The mastering complexity team identified within 12 weeks, three major sources of value, worth ~€30 million over five years. Three initiatives were required to manage complexity in the short and long term within the complex internal environment, targeting mostly the operational variable production cost.

The first initiative was the introduction of a parallel running Gate Keeping Model to ensure that no additional complexity is introduced. A new complexity management model was developed. Instead of evaluating the portfolio on a SKU basis, the 'best-in-class' approach will identify the components to be rationalized thus leading to an holistic complexity management. With BoM analysis for each plant and consolidation of results mapping all components, each component was assessed in regards to its profit-ability and strategic value.

The second initiative was to install a corrective, cross regional and cross functional task force team to significantly reduce complexity in all regions using existing data, systems and resources. A Complexity Champion at BU level needed to be appointed and a CDC (Complexity Decision Committee) installed with participation of BU level members, European Procurement, Global Marketing and P&L leaders (on an 'as-required basis').

The third initiative, to ensure sustainability of results, was to institutionalize the ongoing management of complexity in a long-term Portfolio Life Cycle Management organization. Main drivers of complexity at the company were absence of a governance model and poor organizational alignment. Additionally, there was limited information available at European level to make fact based decisions in a structured way. Thus the most aching prerequisites for the Portfolio Life Cycle Management organization in regards to data type/quality, processing and infrastructure was having transparency and a common language.

RESULTS HIGHLIGHTS

- **Direct spend reduction of 9%**
- **~ € 30 million realized cost savings over five years**
- **Sustainable roadmap for long-term mastering of complexity**

Figures

Page

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www.camelot-mc.com/complexity-management

Your contact for further information:

Camelot Management Consultants AG
Libor Kotlik · Managing Partner
libor.kotlik@camelot-mc.com

Camelot
Management Consultants AG
Theodor-Heuss-Anlage 12
68165 Mannheim
Germany
Phone +49 621 86298-0
www.camelot-mc.com

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